ECOLOGICAL IMPACT ASSESSMENT ("ECIA")

Gortnalug 110kv Substation and Grid Connection

25/02/2026

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Neo Environmental Ltd	
Head Office - Glasgow: Wright Business Centre, 1 Lonmay Road, Glasgow G33 4EL **T** 0141 773 6262 **E:** info@neo-environmental.co.uk	**Bristol Office** Spaces 8th Floor The Programme Building Bristol BS1 2NB **T:** 01174 571 610 **E:** info@neo-environmental.ie
Warrington Office: Lakeview 600, Lakeside Drive Centre Park Square Warrington WA1 1RW **T:** 01925 661 716 **E:** info@neo-environmental.co.uk	**Rugby Office:** Valiant Suites, Lumonics House, Valley Drive, Swift Valley, Rugby Warwickshire CV21 1TQ **T:** 01788 297012 **E:** info@neo-environmental.co.uk
Ireland Office: C/O Origin Enterprises PLC, 4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCW0 **T**: 00 353 (1) 5634900 **E:** info@neo-environmental.ie	**Northern Ireland Office:** 83-85 Bridge Street Ballymena, Co. Antrim BT43 5EN **T:** 0282 565 04 13 **E:** info@neo-environmental.co.uk

Prepared For:

Ballydonagh Solar Limited

Prepared By:

Rhona Coghlan BSc (Hons)

	Name	Date
Edited By:	Rhona Coghlan	25/02/2026
Checked By:	Eiméar Rose Cunningham	25/02/2026
	Name	**Signature**
Approved By:	Paul Neary	

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EXECUTIVE SUMMARY

1.1. Neo Environmental Ltd has been appointed by Renewable Energy Systems on behalf of Ballydonagh Solar Limited (the "Applicant") to undertake Ecological Impact Assessment for a new 110kV Air insulated substation (AIS) and grid connection with associated infrastructure to facilitate the connection of Ballydonagh (PA Ref: 23/61049 as amended under PA Ref: 2561903) and Ballydonagh Extension (PA Ref: 24/61749 as amended under 26/60009) solar farms to national grid (the "Proposed Development") on lands at Ballydonagh, Kiltormer, Co. Galway, Ireland (the "Application Site").

1.2. The purpose of this document is to set out an assessment of the potential impacts to biodiversity receptors arising from the Proposed Development. Baseline information within the EcIA includes the findings of an initial desk-based assessment, an extended Fossitt habitat survey and specific protected species surveys, as relevant, which have been outlined within the relevant sections of this report.

1.3. The Application Site covers an area of approximately 34.80 ha and is largely comprised of areas of improved agricultural grassland, with small areas of mixed broadleaved woodland and scrub. Linear habitats present within the Application Site include hedgerows, treelines and drainage ditches. Within a 50m Ecological Survey Area (ESA) of the Application site, building and artificial surfaces, improved grassland, amenity grassland, tilled land, and conifer woodland habitats were present.

1.4. A desk-based assessment was conducted which identified four Special Areas of Conservation and three Special Protection Areas within 15km of the Application Site. Within 5km of the Application Site two Natural Heritage Areas were identified. Within 2km of the Application Site, three areas of ecological importance were identified, comprising of wetland and peatland habitats.

1.5. Upon further assessment, it was found that two of the above sites have the potential to be negatively impacted by the Proposed Development in the absence of mitigation; River Suck Callows SPA and Moaty Kilcloonineen Bog.

1.6. River Suck Callows SPA is designated for several wetland and waterbird species, which includes the Lapwing (*Vanellus Vanellus*). The Application Site supports suitable habitats for this species and may be within its core foraging range as no specific guidance was found which gave an exact estimate for this. As a result, the potential for adverse ex-situ effects on this species as a result of the Proposed Development could not be ruled out.

1.7. The Moaty Kilcloonineen Bog has also been identified as having limited indirect hydrological connectivity with the Application Site through a drainage ditch which is adjacent to the Application Site and joins the East Loughturk River. As a result, there

is a pathway for contaminants to enter the waterway and, eventually, the wetland habitat. The potential for negative impact to arise from the Proposed Development site could not be ruled out as a result of this potential connectivity.

1.8. Mitigation measures are proposed to prevent and mitigate the occurrence of the above adverse impacts and effects. These mitigation measures include the appointment of an ECoW, the implementation of exclusion zones along sensitive ecological receptors and ecologically important structures, pro-commencement surveys for various protected and notable species, pollution prevention practices and more. It is considered that with the proper implementation of these mitigation and best practice measures, negative impacts will not occur on the above SPA and wetland area, which will prevent adverse effects on their qualifying interests and conservation objectives. Wildlife shelters will also be implemented throughout the Application Site, which will have positive effect on the surrounding landscape, increasing the area's ability to support local wildlife.

1.9. The conclusion of the Natura Impact Statement (NIS) and this document is that the Proposed Development will not lead to any significant adverse effects upon any European sites.

1.10. A total of 10 habitat types were noted during the Fossitt habitat and extended species scoping survey of the ESA comprising the site and a 50 m buffer undertaken in October and November 2025. During the site visits the habitats were assessed for their potential to support protected and notable species present within the local area. The main impacts during the construction phase include the direct loss of habitat under the Proposed Development footprint and indirect degradation of habitat due to disturbance and pollution. Given the low ecological value of habitats within the Application Site, in addition to the nature of the Proposed Development which will largely retain features of relatively higher ecological interest, it is considered that the Proposed Development will not give rise to any significant residual effects upon habitats within the Application Site.

1.11. The Proposed Development is considered unlikely to have any significant effects on local populations of protected species. However, several measures have been outlined within this report to further reduce any potential impacts for local ecology as a precautionary measure to ensure that no negative effects occur.

INTRODUCTION

BACKGROUND

1.12. Neo Environmental Ltd has been appointed by Renewable Energy Systems on behalf of Ballydonagh Solar Limited (the "Applicant") to undertake an Ecological Impact Assessment ("EcIA") for a new 110k V Air insulated substation (AIS) and grid connection with associated infrastructure(the "Development") on lands at Ballydonagh, Kiltormer, Co. Galway, Ireland (the "Application Site").

1.13. The method of connection to the national grid will be a new 110 kV AIS Loop-in station (Gortnalug) with a 'Loop-in/Loop out' connection into the existing Ennis -Agannygal-Shannonbridge 110kV circuit. Ballydonagh Solar Limited accepted the Eirgrid Connection Offer (P602-CA-OL) in December 2025.

1.14. The Proposed Development comprises a 110kV AIS and associated grid connection infrastructure to facilitate the connection of the permitted Ballydonagh Solar Farm under Ref 2361049, as amended under Ref 25/61903 and Ballydonagh Solar Farm Extension under Ref 2461749, as amended under 26/60009, to the national grid. The applicant is seeking a ten-year permission from the date of consent of the 110kV Substation.

1.15. Please see **Figure 300101338-DR-100 Overall Site Layout, Volume 2** for the layout of the proposed Development.

DEVELOPMENT DESCRIPTION

1.16. The Proposed Development comprises a 110kV Air Insulated Substation and associated grid connection infrastructure to facilitate the connection of the permitted Ballydonagh Solar Farm under Ref 2361049, as amended under Ref 25/61903 and Ballydonagh Extension Solar Farm under Ref 2461749 , as amended under 26/60009, to the national grid, which revised the approved solar layout to accommodate the Gortnalug substation and grid connection infrastructure. The Proposed Development comprises a 110kV Air Insulated loop in/ loop out electricity substation (11,300m2) consisting of EirGrid control building (25m x 18m), customer control building (23.1m x 10.8m),110kV bay arrangement, busbar infrastructure foundations, transformer, lightening masts, telecoms pole, CCTV, lighting columns, capacitor bank, reactor bank, harmonic filter, rural supply kiosk, house transformer, neutral earth resistor, resistor, stand by generator, compound roads, drainage, parking and hardstanding, palisade fence and gates.

1.17. The grid connection will consist of the removal of c.248m of the existing overhead line and poles from Ennis- Agannygal-Shannonbridge 110kV circuit and the erection of two new towers (16m height) and c.975m of double 110kV underground circuit and tracks into the proposed substation.

1.18. Remaining associated infrastructure consists of entrance; perimeter fencing, access tracks (1907m) (upgraded and localised widening) with water crossings, deposition areas (4,300m^2), temporary construction compound; and all associated and ancillary site development, excavation, construction, landscaping and reinstatement works and the provision of site drainage.

SITE DESCRIPTION

1.19. The area of the proposed Development (the "Application Site") lies at an elevation of approximately 76.51 – 96.56m AOD and covers a total area of c. 34.8 hectares. It is centred at approximate Irish National Grid Reference (NGR) E 183907 N 220547 and is located in lands north of the L4301.

1.20. Comprising of a 13 field parcels of agricultural land, the site is currently being used for pastural farming. The Application Site is bound by a mixture of trees, hedgerows and post-and-wire fencing. Access will be gained from the south gate entrance from a private lane to an unnamed local road off the L4301 to the southeast of the site.

1.21. The surrounding context is predominately agriculture with pockets of forestry and peatland and punctuated by individual properties, farmsteads and ribbon development associated with the minor and regional road network. Fields are typically small to medium in scale and similar in character to the Application Site lands.

SCOPE OF THE ASSESSMENT

1.22. The EcIA set out within this document is intended to inform the submission of a planning application to An Coimisiún Pleanála for a proposed 110kV substation and grid connection , as described above.

1.23. As set out within the CIEEM EcIA Guidelines[1], "EcIA is a process of identifying, quantifying and evaluating potential effects of development related or other proposed actions on habitats, species and ecosystems".

1.24. The aims of this assessment are therefore to:

[1] CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. v1.3. Available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf

- Ascertain the potential Zone of Influence (ZoI) of the Proposed Development to give rise to effects to designated sites of nature conservation interest in the surrounding area.
- Determine the main habitat types within and immediately adjacent to the Application Site in relation to the Proposed Development footprint;
- Identify any actual or potential habitat or species constraints pertinent to the development of the Application Site and to identify how the Proposed Development can avoid, mitigate and, if necessary, compensate for impacts on these actual or potential constraints;
- Assess the potential impacts of the Proposed Development during the construction operation and decommissioning phases;
- Provide best practise, design measures and mitigation to reduce the impacts of the activities undertaken during the various phases of the Proposed Development;
- Identify potential opportunities for the Proposed Development to enhance and add to the biodiversity resource within the site.

1.25. This approach allows for the identification of potential ecological impacts and the recommendation of appropriate mitigation measures where applicable.

STATEMENT OF AUTHORITY

1.26. The assessment has been conducted by experienced ecologists. All work has been carried out in line with the relevant professional guidance; Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment[Error! Bookmark not defined.] and the Environment, Heritage and Local G overnment's Guidance on Appropriate Assessment[2].

1.27. Rhona Coghlan, who authored this report, is an Assistant Ecologist with over 1 year experience in the ecology and conservation industry. Rhona has been awarded a 1:1 BSc in Environmental Science from the National University of Galway and is a Qualifying Member of the Chartered Institute for Ecology and Environmental Management. Rhona has conducted Fossitt Habitat surveys, Breeding and Wintering Bird surveys, Bat surveys, Otter surveys, and aquatic invertebrate surveys. Rhona has

[2] Environment, Heritage and Local Government, 2009. Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities. Available at www.npws.ie

authored Natura Impact Statements, Ecological Impact Assessment, Biodiversity Management Plans, Q-value reports, Wintering Bird reports and more. Rhona is appointed ECoW for two wind farm development and has experience with client-facing consultations and survey reports. Rhona has taken part in several training events organised by CIEEM, The British Trust for Ornithology and Birdwatch Ireland.

1.28. Eiméar Rose Cunningham, who reviewed this report, is a Senior Ecologist at Neo Environmental and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over 5 years' experience in the environmental/planning sector. She has experience of conducting habitat surveys as well as protected species surveys, including bats, birds and otter. In previous roles Eiméar Rose has experience of GIS map interpretation for large scale infrastructure projects. Furthermore, Eiméar Rose has experience in the completion of ecological report writing having authored and co-authored a number of reports including Ecological Appraisals, Natura Impact Statements, Biodiversity Management Plans and Net Gain Reports, in addition to contributing to Biodiversity Chapters for EIA Developments. Furthermore, Eiméar Rose is a qualified tree climber and aerial rescuer, certified by LANTRA and utilises this qualification for bat survey work.

LEGISLATION AND PLANNING POLICY CONTEXT

EUROPEAN LEGISLATION

1.29. European legislation relevant to the Proposed Development is outlined within Table 1-1 below.

Table 1- 1: Relevant European Legislation

Directive	Main Provisions
EU Habitats Directive 92/43/EEC	The EU Habitats Directive sets out the framework for the designation and protection of sites for nature conservation for species and habitats listed in Annex II, IV and V. The Directive was adopted in 1992 as a response to the Bern Convention. "*The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance*" The protection of species outlined in the Habitats Directive is transposed into national legislation principally by 'EC (Natural Habitats) Regulations 1997 (amended)'[3].
The Birds Directive 2009/147/EC	European Union members meet their obligations for bird species under the Bern Convention and Bonn Convention, and more generally by the means of the EU Birds Directive. The Birds Directive sets out the criteria for Special Protection Areas including; a list of species requiring protection in Annex 1 of the Directive and mechanisms for protecting wild birds naturally occurring in Europe. This Directive is transposed into national legislation principally by the 'EC (Birds and Natural Habitats) Regulations 2011'[4]. The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State.

[3] Office of the Attorney General (1997), European Communities (Natural Habitats) Regulations 1997 (amended 1998, 2005), available at www.irishstatutebook.ie

[4] Office of the Attorney General (2011), European Communities (Birds and Natural Habitats) Regulations 2011, available at www.irishstatutebook.ie

Directive	Main Provisions
Environmental Liability Directive 2004/35/EC	The Environmental Liability Directive aims to make those causing damage to the environment (water, land and nature) legally and financially responsible for that damage. The Directive covers environmental damage caused by or resulting from occupational activities to: Species and natural habitats protected under the 1992 Habitats Directive and the 1979 Wild Birds Directive. Damage to protected species and natural habitats is "*any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species*". In Ireland, this directive was transposed into national law through the European Communities (Environmental Liability) Regulations 2008 (S.I. No. 547 of 2008), which came into force on April 1, 2009.
Bern Convention	The Bern Convention came into force in 1982, with the principal aims to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III.
Bonn Convention	The Bonn Convention came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix II), and by undertaking cooperative research activities.

EU Regulation 1143/2014 on Invasive Alien Species (IAS)

1.30. This Regulation centres on a list of invasive species of Union concern. The list currently includes both Himalayan Balsam and Japanese Knotweed[5]. The IAS Regulation provides for:

"A set of measures to be taken across the EU in relation to invasive alien species included on the Union list. Three distinct types of measures are envisaged, which follow an internationally agreed hierarchical approach to combatting IAS:

[5] Available at: https://ec.europa.eu/environment/nature/invasivealien/list/index_en.htm

- "Prevention: a number of robust measures aimed at preventing the intentional or unintentional introduction of IAS of Union concern into the EU.
- "Early detection and rapid eradication: Member States must put in place a surveillance system to detect the presence of IAS of Union concern as early as possible and take rapid eradication measures to prevent them from establishing.
- "Management: some IAS of Union concern are already established in certain Member States. Concerted management action is needed to prevent them from spreading any further and to minimize the harm they cause."

EU Regulation 2024/1991 Nature Restoration Regulation[6]

1.31. The Nature Restoration Regulation sets out a range of rules which contribute to:

- The long-term and sustained recovery of biodiverse and resilient ecosystems across the Member States' land and sea areas through the restoration of degraded ecosystems;
- achieving the Union's overarching objectives concerning climate change mitigation, climate change adaptation and land degradation neutrality;
- enhancing food security;
- meeting the Union's international commitments.

1.32. To this end the Regulation sets out a range of articles which focus on particular areas of ecosystem restoration and environmental protection and restoration in addition to additional related areas including renewable energy developments and national defence.

1.33. The Regulation requires member states to put in place restoration measures for areas of Annex I habitat (92/43/EEC) which are known to be in poor condition across ecosystems. These measures are to be set out within a National Restoration Plan, produced by member states, in addition to associated research, monitoring and reporting to the commission.

1.34. Pursuant to this Regulation, Ireland is currently in the process of producing a National Restoration Plan, however this is yet to be published[7].

[6] Regulation - EU - 2024/1991 - EN - EUR-Lex
[7] Information | Restore Nature in Ireland

1.35. Of relevance to the Proposed Development, article 6 of the Regulation, relating to renewable energy developments, states that, "the planning, construction and operation of plants for the production of energy from renewable sources, their connection to the grid and the related grid itself, and storage assets shall be presumed to be in the overriding public interest". This is subject to such projects being subject to strategic environmental assessment or environmental impact assessment with several additional caveats as set out within the national energy and climate action plans.

1.36. As this piece of legislation is a regulation as opposed to a directive, no transposing national legislation is required, and the regulation instead applies directly to all EU member states.

NATIONAL LEGISLATION

1.37. The principal national legislation governing the protection of wildlife and natural resources in Ireland is:

- The Wildlife Act 1976 (amended 2000)[8] - this is the principal legislation for the protection of wildlife in Ireland and outlines strict protection for species that have significant conservation value. The Act also provides a mechanism to give statutory protection to Natural Heritage Areas ("NHAs"). The amendment in 2000 broadens the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act.
- European Communities (Birds and Natural Habitats) Regulations 2011 (amended 2015)[9] - transposes the EU directives into law. It protects species and priority habitats considered to be of European interest.
- Flora Protection Order 2015[10] - this Order makes it illegal to cut, uproot or damage a listed species in any way. It is illegal to alter, damage or interfere in any way with their habitats. This protection applies wherever the plants are found.

[8] Office of the Attorney General (1976) Wildlife Act 1976 (amended 2000), available at www.irishstatutebook.ie

[9] Office of the Attorney General (2011) European Communities (Birds and Natural Habitats Regulations 2011 (amended 2015), available at www.irishstatutebook.ie

[10] Office of the Attorney General (2015) Flora Protection Order 2015, available at www.irishstatutebook.ie

- The Flora (Protection) Order, 2022 (S.I. No. 235 of 2022)[11] gives legal protection to 65 species of bryophytes in the Republic of Ireland (25 liverworts and 40 mosses).
- The European Communities (Water Policy) Regulations 2003[12] – transposes the Water Framework Directive into national law.

1.38. The regulations contained within the above referenced legislation have all been complied with during the production of this biodiversity chapter.

Planning and Development Act, 2024

1.39. The Planning and Development Act 2024 was signed into law on 17 October 2024. It repeals and replaces the Planning and Development Act 2000 as amended (PDA).[13]

1.40. The Act will require further amendments, and detailed regulations will be required to implement it in stages before it can be fully commenced. The Government intends to publish a plan for the commencement of the new Act on a phased basis, possibly over a period of up to two years.

1.41. The 2nd day of December 2024 is appointed as the day on which the following provisions of the Planning and Development Act 2024 (No. 34 of 2024) shall come into operation:

- (a) sections 1 to 5
- (b) Part 26

1.42. These provisions relate entirely to planning procedures and definition with little relevance to the assessment of ecology and nature conservation.

1.43. Additional provisions related to assessment of ecology and nature conservation are yet to be implemented.

1.44. Please refer to the Planning and Development Act, 2000 (as amended) for relevant or currently adopted provisions related to assessment of ecology and nature conservation.

[11] The Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) – Available at: https://www.irishstatutebook.ie/eli/2022/si/235/

[12] Office of the Attorney General (2003) European Communities (Water Policy) Regulations 2003, available at www.irishstatute book.ie

[13] The Planning and Development Act 2024 - available at https://www.mhc.ie/hubs/legislation/the-planning-and-development-bill-2023

Planning and Development Act, 2000 (as amended)[14]

1.45. Relevant sections regarding ecology within the Planning and Development Act, 2000 (amended 2006) are as follows:

First Schedule, Part IV Environment and Amenities

"5. (a) Preserving and protecting flora, fauna and ecological diversity.

(b) Preserving and protecting trees, shrubs, plants and flowers.

6. Protecting and preserving (either in situ or by record) places, caves, sites, features and other objects of archaeological, geological, historical, scientific or ecological interest."

Fifth Schedule

"19. Any condition relating to the protection of features of the landscape which are of major importance for wild fauna and flora.

20. Any condition relating to the preservation and protection of trees, shrubs, plants and flowers.

21. Any condition relating to the preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest.

22. Any condition relating to the conservation and preservation of —

(a) one or more specific —

(i) (I) natural habitat types in Annex I of the Habitats Directive, or
(II) species in Annex II of the Habitats Directive which the site hosts, contained in a European site selected by the Minister for Arts, Heritage, Gaeltacht and the Islands in accordance with Annex III (Stage 1) of that Directive.

(ii) species of bird or their habitat or other habitat contained in a European site specified in Article 4 of the Birds Directive, which formed the basis of the classification of that site.

or

(b) any other area prescribed for the purpose of section 10(2)(c)."

[14] Office of the Attorney General (2000) Planning and Development Act 2000, available at www.irishstatutebook.ie

Part XIV

"212. – (1) A planning authority may develop or secure or facilitate the development of land and, in particular and without prejudice to the generality of the foregoing, may do one or more of the following:

(f) secure the preservation of any view or prospect, any protected structure or other structure, any architectural conservation area or natural physical feature, any trees or woodlands or any site of archaeological, geological, historical;

(g) secure the creation, management, restoration or preservation of any site of scientific or ecological interest, including any Nature Conservation Site."

Planning Policy Statement 2015[15]

1.46. The aim of Planning Policy Statement 2015 is as follows:

"Planning legislation in Ireland seeks to ensure, in the interests of the common good, the proper planning and sustainable development of urban and rural areas."

1.47. The Government outlined 10 key principles as a strategic guide in implementing the aim above. Relevant ecological principals outlined within this document include:

"4. Planning must support the transition to a low carbon future and adapt to a changing climate taking full account of flood risk and facilitating, as appropriate, the use of renewable resources, particularly the development of alternative indigenous energy resources.

8. Planning will conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance, from statutorily designated sites to sites of local importance, and including the conservation and management of landscape quality to the maximum extent possible, so that these intrinsic qualities of our country can be enjoyed for their collective contribution to the quality of life of this and future generations.

9. Planning will support the protection and enhancement of environmental quality in a manner consistent with the requirements of relevant national and European standards by guiding development towards optimal locations from the perspective of ensuring high standards of water and air quality, biodiversity and the minimisation of pollution risk."

[15] Environment, Community and Local Government (2015), Planning Policy Statement 2015, available at www.environ.ie

National Planning Framework[16]

1.48. The Department of Housing Planning and Local Government, on behalf of the Government, has prepared a draft National Planning Framework called Ireland 2040 Our Plan., the overarching policy and planning framework for the social, economic and cultural development of Ireland.

1.49. The current overarching planning policy is guided by the National Planning Framework.

1.50. The NPF with the National Development Plan will also set the context for each of Ireland's three regional assemblies to develop their Regional Spatial and Economic Strategies taking account of and co-ordinating local authority County and City Development Plans in a manner that will ensure national, regional and local plans align.

1.51. The vision set out under this Framework is based on a set of values that will ensure Ireland's long term economic, environmental and social progress for all parts of our country. In framing a new way forward, the National Planning Framework draws upon lessons learned from the National Spatial Strategy and highlights a vision of success based on better choices compared to a 'business as usual' approach.

1.52. A further significant area of policy development relates to planning for climate change in the context of an accelerating climate crisis. Accordingly, the revised NPF has included new policies in relation to renewable energy development, including the identification of regional renewable electricity capacity allocations in order to facilitate the accelerated roll-out and delivery of renewable electricity infrastructure for on-shore wind and solar generation development and to support the achievement of the 2030 national targets set out in the Climate Action Plan.

European Communities (Birds and Natural Habitats) Regulations 2011

1.53. Himalayan Balsam and Japanese Knotweed are both subject to restrictions under the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477)[17]. They are listed in the Third Schedule (Part 1) of this legislation. Relevant provisions of Regulation 49 include the following:

"(2) Save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to such plant in the third column of Part 1 of the Third Schedule, any plant which is included in Part 1 of the Third Schedule, shall be guilty of an offence.

[16] National Planning Framework - Ireland 2040 Our Plan – available at: https://cdn.npf.ie/wp-content/uploads/Ireland-2040-Our-Plan-Draft-NPF.pdf

[17] Available at: https://www.irishstatutebook.ie/eli/2011/si/477/made/en/print.

"(3) Subject to paragraph (4), it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence."

1.54. Regulation 50 concerns the prohibition of dealing in and keeping certain invasive species. This regulation is also subject to the appropriate Irish Minister giving public notice of a date from which it comes into force.

Noxious Weeds Act 1936 (As Amended)

1.55. The applicant and their appointed contractors should also be familiar with their responsibilities under the Noxious Weeds Act 1936[18]. This concerns the control, rather than eradication, of wild oat (*Avena fatua*), male plants of wild hop (*Humulus lupus*), and common barberry (*Berberis vulgaris*), thistles, docks and ragwort (*Senecio jacobaea*). The Act states that it is an offence for the owner/occupier of lands not to prevent their growth and spread.

The Wildlife (Amendment) Act (2000)

1.56. Under the Wildlife (Amendment) Act 2000[19], any person who intentionally spread or grows an exotic species of flora or fauna outside of a controlled area and without a license will be guilty of an offence.

1.57. It is also an offence under this Act to intentionally spread or grow a known non-native invasive species (INNS) outside of a controlled area and without the appropriate licence.

All Ireland Pollinator Plan 2021-2025

1.58. The First All-Ireland Pollinator Plan was created in 2015, as a response to global decline in pollinator populations. An updated All Ireland Pollinator Plan was released in March 2021. This Plan has six objectives and has identified 186 actions in order to achieve its objectives. The six objectives are as follows:

- Objective 1 - Making farmland pollinator friendly. Working together with the farming community, increase awareness of pollinators and the resources they need in order to survive on farmland.

[18] Available at: https://www.irishstatutebook.ie/eli/1936/act/38/enacted/en/html.

[19] Available at: https://www.irishstatutebook.ie/eli/2000/act/38/section/58/enacted/en/html#sec58.

- **Objective 2 - Making public land pollinator friendly**. Working with Councils, Transport Authorities, Local Communities and others, to strengthen links between this plan and other initiatives and to increase shelter and food resources for pollinators.
- **Objective 3 - Making private plan pollinator friendly**. Work together with the public and community groups to create networks of biodiversity-friendly habitat across the landscape.
- **Objective 4 - All-Ireland honeybee strategy**. Working with beekeepers, achieve healthy, sustainable populations, and for honeybees to be part of a cohesive pollinator message that balances managed and wild pollinator populations.
- **Objective 5 - Conserving rare pollinators**. Improving our knowledge on rare pollinators, and raising awareness through dedicated initiatives, achieve a Plan that protects as much wild pollinator diversity as possible.
- **Objective 6 - Strategic coordination of the Plan**. Continually raising awareness; addressing gaps in knowledge through research, tracking where pollinators occur and how populations are changing, work from an evidence base that enables us to coordinate a dynamic plan that is targeted and effective.

Regional Spatial & Economic Strategy (RSES) – Northern and Western Region[20]

1.59. The Regional Spatial & Economic Strategy 2020 - 2032 (RSES) is a strategic plan that provides a high-level development framework for the implementation of the National Planning Framework, alongside other plans and policies.

1.60. The RSES outlines a 12-year phased strategy which will deliver changes throughout the western and northern regions, which are necessary to achieve the aims and objectives put forth by the Assembly. The RSES sets out objectives for various sectors, such the economy, environment, and countywide improvements in housing and education and other sectors. Regarding the environment, the RSES sets out the following objectives:

- Any development consents with the possibility of enacting significant environmental impacts must be accompanied by the following:
    - An Ecological Impact Assessment ("EcIA")

[20] Regional Spatial and Environmental Strategy for Northern and Western Region 2020-2032. Available at: https://www.nwra.ie/pdfs/NWRA-RSES-2020-2032.pdf

- Environmental Report ("ER")
- Environmental Impact Assessment Report ("EIAR") if deemed necessary by statutory legislation
- Natura Impact Statement ("NIS") if deemed necessary under relevant legislation

- Support the implementation of the All-Ireland Pollinator Plan 2015-2020 and support measures to prevent the spread of invasive non-native species ("INNS").
- Implement the core objectives of the EU Flood Directives and statutory plans, including guidance on national flood risk management.
- Utilise environmental sensitivity mapping to highlight optimum and integrated land use management and possible cumulative impacts.
- Integrate biodiversity considerations into precautionary but proactive fashion which will promote protections for the environment and conservation efforts.

Galway County Development Plan 2022-2028[21]

1.61. The main aim of this development plan is to provide a framework with which to guide further development sustainably and in the most environmentally sensitive manner.

1.62. Chapter 10 of the plan refers directly to natural heritage, biodiversity and green/blue infrastructure, with section 10.2 outlining strategic aims that will increase awareness and enjoyment of natural heritage and biodiversity in Galway, as well as promoting participation in its conservation, management and protection. These aims are as follows:

- *"Conserve, manage, protect and enhance the special character of the County as defined by its natural heritage, biodiversity and green infrastructure;*
- *To ensure compliance with the requirements of relevant International, European Directives and National Legislation in relation to Natural Heritage, Biodiversity, Green/Blue Infrastructure and Climate Change;*
- *Ensure climate change considerations are taken into account in the Natural Heritage, Biodiversity and Green/Blue Infrastructure;*

[21] Galway County Council (2021) Galway County Development Plan 2022-2028. Available at: https://consult.galway.ie/en/consultation/adopted-galway-county-development-plan-2022-2028/chapter/chapter-1-introduction.

- *Continue to implement actions of the National Heritage Plan and the National Biodiversity Plan and the current Galway County Heritage and Biodiversity Plan 2017-2022 in partnership with all relevant stakeholders and any successor to these documents;*
- *To promote the creation of an integrated and coherent green infrastructure network throughout County Galway in order to enhance connectivity, social inclusion, sense of place and the creation of wildlife corridors."*

EU Biodiversity Strategy for 2030[22]

1.63. The EU Biodiversity Strategy for 2030, published in May 2020, comprises a plan to protect natural heritage and biodiversity and reverse the degradation of ecosystems occurring across the member states. The overall aim of the strategy is to achieve recovery of biodiversity by 2030.

1.64. Key commitments for nature protection set out within the Strategy include:

- To legally protect a minimum of 30% of the EU's land area and 30% of the EU's sea area and integrate ecological corridors, as part of a true Trans-European Nature Network.
- To strictly protect at least a third of the EU's protected areas, including all remaining EU primary and old-growth forests. and
- To effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately.

1.65. Targets for nature protection are inclusive of proposals for the designation of additional protected and strictly protected areas. Such areas are to be either included within the Natura 2000 network (SACs or SPAs) or protected under national legislation and should be afforded defined conservation objectives and measures. In addition to areas of intrinsic ecological value the Strategy also sets out that designation of ecological corridors, linking such sites, will be required by member states.

1.66. The Strategy also sets out an EU Nature Restoration Plan which includes for the following commitments to be achieved by 2030:

- Legally binding EU nature restoration targets to be proposed in 2021, subject to an impact assessment. By 2030, significant areas of degraded and carbon-rich ecosystems are restored; habitats and species show no deterioration in conservation trends and status; and at least 30% reach favourable conservation status or at least show a positive trend.

[22] Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en.

- The decline in pollinators is reversed.
- The risk and use of chemical pesticides is reduced by 50% and the use of more hazardous pesticides is reduced by 50%.
- At least 10% of agricultural area is under high-diversity landscape features.
- At least 25% of agricultural land is under organic farming management, and the uptake of agro-ecological practices is significantly increased.
- Three billion new trees are planted in the EU, in full respect of ecological principles.
- Significant progress has been made in the remediation of contaminated soil sites.
- At least 25,000 km of free-flowing rivers are restored.
- There is a 50% reduction in the number of Red List species threatened by invasive alien species.
- The losses of nutrients from fertilisers are reduced by 50%, resulting in the reduction of the use of fertilisers by at least 20%.
- Cities with at least 20,000 inhabitants have an ambitious Urban Greening Plan.
- No chemical pesticides are used in sensitive areas such as EU urban green areas.
- The negative impacts on sensitive species and habitats, including on the seabed through fishing and extraction activities, are substantially reduced to achieve good environmental status.
- The by-catch of species is eliminated or reduced to a level that allows species recovery and conservation.

1.67. In addition to the protection and restoration plans, as discussed above, the Strategy sets out commitments in respect of the creation of a new European biodiversity governance framework to assist in the implementation of the Strategy and associated legislation, increased enforcement of legislation, increased enforcement of environmental legislation, an integrated and a whole-society approach to biodiversity.

1.68. Further aspirations of the Strategy are to achieve global influence through setting an example of how biodiversity is to be protected and restored in addition to trade policies for the protection of biodiversity within the EU and across the globe.

1.69. Legislation arising from the Strategy includes the Nature Restoration Regulation (EU Regulation 2024/1991), as discussed above, with additional guidelines published in respect of primary and old growth forests and future forestry practices.

Ireland's 4th National Biodiversity Action Plan 2020-2030

1.70. The National Biodiversity Action Plan[23] aims to protect and conserve Ireland's national biodiversity and has 5 main objectives which are as follows:

- Objective 1: Adopt a Whole-of-Government, Whole-of-Society Approach to Biodiversity.
- Objective 2: Meet Urgent Conservation and Restoration Needs.
- Objective 3: Secure Nature's Contribution to People.
- Objective 4: Enhance the Evidence Base for Action on Biodiversity.
- Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.

1.71. The establishment of a National Biodiversity Action Plan in Ireland occurred after the United Nations Convention on Biological Diversity (CBD) where Ireland promised to provide a robust legal framework which would form the basis for nature conservation throughout the country. The Convention focused on 3 aspects; the conservation of unique biological diversity, sustainable harvest and usage of natural resources and the fair distribution of these resources and their benefits.

1.72. This National Biodiversity Action Plan aims to address all major issues concerning Ireland's biodiversity, with one of these being the control and/or eradication of Invasives Alien Species (IAS). This plan specifies the obligations of various state bodies to safeguarding Ireland's natural landscape and biodiversity from the threat of IAS, such as the National Parks and Wildlife Service and the Department for Agriculture, Farming and the Marine. This includes developing legislation to effectively prevent the spread of IAS, ensuring this legislation is enforced, assisting and supporting local authorities in invasive species management statewide and much more.

Galway County Heritage and Biodiversity Plan 2024-2030[24]

1.73. Galway County Heritage and Biodiversity Plan 2024-2030 presents a framework for developments within the county with the aim of *"furthering the awareness,*

[23] Available here: https://www.npws.ie/sites/default/files/files/4th_National_Biodiversity_Action_Plan.pdf.

[24] Available at: https://www.heritagecouncil.ie/content/files/Galway-County_Plan-2025.pdf.

protection, conservation, promotion, and management of Galway's heritage and biodiversity over the next six years and beyond".

1.74. This plan has three overarching aims which are as follows:

- Preserve, protect and enhance Galway's biodiversity, archaeology and natural heritage;
- Promote awareness and engagement;
- And support and collaborate with a wide range of partners and communities.

METHODOLOGY

RELEVANT GUIDANCE

CIEEM Guidelines

1.75. The Chartered Institute of Ecology and Environmental Management (CIEEM) have produced guidance on EcIA and Ecological Report Writing[25].

1.76. EcIA is a process of identifying, quantifying, and evaluating potential effects from activities such as those related to development on habitats, species and ecosystems. The format and tasks of this report are set out in Table 1-2 below:

Table 1-2: EcIA Process

Task	Description
Scoping	Determining the matters to be addressed in the EcIA, including consultation to ensure the most effective input to defining the scope. Scoping is an ongoing process – the scope of the EcIA may be modified following further ecological survey/research and during impact assessment.
Establishing the baseline	Collecting information and describing the ecological conditions in the absence of the proposed project, to inform the assessment of impacts.
Important ecological features	Identifying important ecological features (habitats, species and ecosystems, including ecosystem function and processes) that may be affected, with reference to a geographical context in which they are considered important.
Impact assessment	An assessment of whether important ecological features will be subject to impacts and characterisation of these impacts and their effects. Assessment of the significance of the residual ecological effects of the project (those remaining after mitigation), including cumulative effects.
Avoidance, mitigation, compensation and enhancement	Incorporating measures to avoid, reduce and compensate negative ecological impacts and their effects, and the provision of ecological enhancements. Monitoring impacts and their effects. Evaluation of the success of proposed mitigation, compensation and enhancement measures.

1.77. The aims of their EcIA guidelines are to:

[25] CIEEM (2017) Guidelines for Ecological Report Writing

- promote good practice;
- promote a scientifically rigorous and transparent approach to Ecological Impact Assessment (EcIA);
- provide a common framework to EcIA in order to promote better communication and closer cooperation between ecologists involved in EcIA; and
- provide decision-makers with relevant information about the likely ecological effects of a project.

NatureScot

1.78. NatureScot have published standing advice for various protected species and habitats in Scotland that has been adopted by other states as best practice guidance. Whilst this isn't specific guidance for Ireland, the advice is still considered relevant in terms of accepted and recommended survey effort and methodology, avoidance, mitigation, and compensation standards for development affecting these ecological features. In this regard, the relevant guidance documents have informed the assessment of the Proposed Development.

Further Relevant Guidance

- Environmental Impact Assessment Screening – OPR Practice Note PN02[26]
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009) [27];
- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011) [28];
- Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. (Marnell et. al, 2022) [29];
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). (BCT/Collins, 2023) [30];

[26]https://publications.opr.ie/planning-practice-view-file/PONYB1EKER
[27]https://tii.ie/media/kzldoawo/guidelines-for-assessment-of-ecological-impacts-of-national-road-schemes.pdf
[28]https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf
[29]https://www.npws.ie/sites/default/files/publications/pdf/IWM134.pdf
[30]Bat Survey Guidelines 23

- Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species (NatureScot, 2022)[31];
- Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. (Department of the Environment, Community and Local Government, 2018)[32];
- Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (Environmental Protection Agency, 2003)[33];

ZONE OF INFLUENCE

1.79. "The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source Pathway-Receptor framework and not by arbitrary distances (such as 15 km) "[34].

1.80. Due to the scale and nature of the proposal, it is considered that the following ZoI, outlined in **Table 1-3** below, from the Proposed Development was appropriate for the gathering of information for the desk study. The determination of the chosen ZoI was based upon the source-pathway-target model as described within Guidelines for Planning Authorities and An Coimisiún Pleanálaon carrying out EcIA (August 2018).

[31]https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance

[32]https://www.gov.ie/pdf/?file=https://assets.gov.ie/44535/34aa9919f24243b79454994bc06476e1.pdf#page=null

[33]https://www.epa.ie/publications/monitoring--assessment/assessment/EPA_Advice_Notes-on_Current-Practice-on-prep-EIS_2003.pdf

[34]Appropriate Assessment Screening for Development Management – PN01 – Available at: https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

Table 1-3: Zone of Influence for ecological features

Ecological Feature	Zone of Influence (ZoI)	Rationale
International/European statutory designations	Determined through the Source-Pathway-Receptor model.	Use of the Source-Pathway-Receptor model considering the nature and scale of the Proposed Development, in addition to the following potential pathways for potential effects: • Hydrological connectivity; • Hydrogeological connectivity; • Ecological connectivity (use by QI species outside of their respective sites).
National statutory designations	Determined through the Source-Pathway-Receptor model.	Use of the Source-Pathway-Receptor model considering the nature and scale of the Proposed Development, in addition to the following potential pathways for potential effects: • Hydrological connectivity; • Hydrogeological connectivity; • Ecological connectivity (use by QI species outside of their respective sites).
Non-statutory designations and Protected and Priority Species	2km	A 2km desk study area for protected and priority species is considered to be appropriate, on a precautionary basis to identify locally present species with potential to utilise the Application Site.
Extended Phase 1 Habitat Survey	50m	Habitat loss and associated disturbance will only occur with the boundary of the Application Site. Some limited disturbance effects, arising through dust deposition may occur for additional areas of habitat within 50m of the Application Site.
Protected Species	Up to 150m	While habitat loss will be limited to within the site boundary, there is potential for disturbance of protected species outside of the site, including breeding otter, badger and bats. 150m represents the guideline distance for noise disturbance to breeding

Ecological Feature	Zone of Influence (ZoI)	Rationale
		otter or badger which encompasses all other relevant protected species[35].

PRECAUTIONARY PRINCIPLE

1.81. The precautionary principle has been given full consideration within this EcIA.

1.82. The precautionary principle means that where the most reliable information available leaves obvious doubt as to the absence of significant effects, the project cannot be screened out, and an appropriate assessment must be carried out.

DESK STUDY

1.83. A desk-based assessment was undertaken to collate available ecological information for the Application Site. This included a search of statutory and non-statutory designated sites within a 5km radius of the Application Site including Nature Reserves (NRs), Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). All Ramsar sites and Special Areas of Conservation (SACs) within the ZoI of the Application Site. The descriptions of each of these sites was obtained utilising the National Parks and Wildlife Service (NPWS) website[36].

1.84. Potential connectivity was assessed for using the Source-Pathway-Receptor (SPR) approach. Desk-based assessment also included consideration of the presence of non-statutory designated sites such as NHAs and pNHAs within or within 2km of the Application Site.

1.85. A data search was conducted through the National Biodiversity Data Centre ("NBDC") to obtain information regarding protected/notable species within 2km of the Application Site boundary and grid route.

1.86. Additional information on the suitability of habitat in the surrounding area for bats was also obtained from the NBDC in the form of a habitat suitability map. The map provided enhanced information on the recorded distribution of bats and broad-scale

[35] NRA (2006) Guidelines for the Treatment of Otters prior to the Construction of National Roads Schemes. National Roads Authority, Dublin.

[36] NPWS website available at - http://www.npws.ie/protected-sites.

geographic patterns of occurrence and local roosting habitat requirements for Irish bat species.

FIELD SURVEY

Background Context

1.87. The ecological baseline for the Ballydonagh lands has been established through a series of habitat surveys undertaken between 2023 and 2025 in support of the original solar farm permission, the subsequent extension and amendment applications, and the subject application for the proposed SID.

1.88. An initial site wide Fossitt habitat survey of the consented solar farm site was undertaken in March 2023. This survey established that the site comprises predominantly improved agricultural grassland, interspersed with and bounded by hedgerows, treelines, drainage ditches and limited areas of woodland and scrub. Linear landscape features and watercourses were mapped and assessed in accordance with ecological guidelines which informed the incorporation of ecological buffers and design measures into the permitted layout for the wider solar farm.

1.89. Following the grant of permission for the extension under Planning Reference 24/61749, updated Fossitt habitat surveys were undertaken in November 2024 and October and November 2025 as part of the extension amendment application. These surveys confirmed that the overall habitat composition of the lands remains materially unchanged comprising largely improved agricultural grassland, with ecological value primarily associated with hedgerows, treelines, drainage ditches and watercourses. A total of 15 habitat types were recorded within the wider survey area, with no significant change in ecological character identified between survey years.

Collectively, the survey programme undertaken between 2023 and 2025 provides a robust and up to date ecological baseline for the site. The ecological character of the lands has remained consistent over the assessment period and the SID proposal is therefore informed by an established and recently verified habitat baseline.

Fossitt Habitat Survey

1.90. A Fossitt Habitat survey of the Application Site was undertaken on the 21st of October 2025, by Rhona Coghlan. The Extended Survey Area ("ESA") covered all land within the Application Site, , and a 50m buffer around the Application Site, where access allowed.

1.91. Habitat survey work was carried out in accordance with Fossitt (2000)[37]. Habitats were mapped electronically using an ArcGIS online map to accurately reflect the baseline conditions on site. Where necessary and relevant, EU guidance on the assessment of Annex I habitats[38] was utilised.

Species Scoping Survey

1.92. A Habitat survey of the site was extended to include a species scoping survey which was carried out to identify the presence of protected species, or the potential of the Application Site to support protected or invasive species. The aim of the survey was to determine the use or potential use of the site by protected species and whether any additional species-specific survey work was required and was inclusive of the entirety of the ESA.

1.93. **Table 1-4** below outlines the relevant habitat and field signs that indicate the potential presence of protected or notable species within the ESA.

Table 1-4: Indicative Habitats and Field Signs of Protected Species

Taxon	Indicative Habitat(s)	Field Signs (In Addition to Sightings)
Bats	Roosts – trees, buildings, bridges, caves, etc. Foraging areas – e.g. parkland, water bodies, streams, wetlands, woodland edges and hedgerow. Commuting routes – linear features (e.g.) hedgerows, water courses, tree lines).	In or on potential roost sites: droppings stuck to walls, urine spotting in roof spaces, oil from fur staining round roost entrances, feeding remains (e.g. moth wings under a feeding perch).
Badger (*Meles meles)*	Found in most rural and many urban habitats.	Excavations and tracks: sett entrances, latrines, hairs, well-worn paths, prints, scratch marks on trees.
Otter (*Lutra lutra)*	Watercourses (foraging and migrating), scrub and woodland (natal dens).	Holts (or dens), prints, spraints (droppings), slide marks into watercourses, feeding signs (e.g. fish bones).
Birds	Trees, scrub, hedgerow, field margins, grassland, buildings.	Nests, droppings below nest sites (especially in

[37] Fossitt (2000) A Guide to Habitats in Ireland. The Heritage Council. A Guide to Habitats in Ireland - Fossitt.pdf

[38] EC (2013) Interpretation Manual of EU Habitats. EUR 28. Nature ENV B.3. EUR27

Taxon	Indicative Habitat(s)	Field Signs (In Addition to Sightings)
		buildings of trees), tree holes.
Amphibians	Standing or very slow flowing waterbodies and associated terrestrial habitats.	Presence of spawn during the relevant period.
Common lizard (*Zootoca vivipara*)	Rough grassland, log and rubble piles.	Shed skin.
Red squirrel (*Sciurus vulgaris*)	Woodland	Dreys, eaten pinecones
Pine marten (*Martes martes*)	Woodland	Droppings. Field signs rarely observed.
Marsh Fritillary (*Euphydryas aurinia*)	Marshy grasslands, presence of Devil's-bit scabious (*Sucissa pratensis*).	Larval webs.
Other protected or notable Invertebrates	Large range of suitable habitats depending upon the species. Habitats of interest are generally species-rich or uncommon habitats with notable flora or structure.	Larval webs (butterflies and moths), presence of particular food plants, larval presence.

Weather Conditions

1.94. Table 1-5 describes the weather conditions at the time of surveys giving temperature (°C), Wind speed (Beaufort Scale), Cloud-cover (%) and precipitation.

Table 1-5: Weather conditions at time of surveys

Survey date	Temperature (°C)	Wind Speed	Cloud-cover	Precipitation
21/10/2025	11-12°C	3-6m/s	7/8	None

ASSESSMENT METHODOLOGY

Evaluation Criteria

1.95. The evaluation of ecological receptors is based upon the CIEEM guidelines[1] (2024) which suggests that the value or potential value of an ecological resource or feature (for example a habitat type, species or ecosystems) should be determined within a geographical context (e.g. rare at a local level). Attributing a value to a receptor, which is also a designated site, is generally precise, as the designations themselves provide an indication of value.

Adopted Design Principles

1.96. The evaluation of the ecological baseline has enabled the inclusion of integral design measures which will ensure impacts from the Proposed Development on ecological receptors can be reduced or avoided through the development design. These include exclusion zones which will be implemented along all features of ecological interest. The dimensions of these exclusion zones are as follows:

- Trees (1m from the crown)
- Hedgerows (5m)
- Dry ditches (2m)
- Wet ditches (5m)

Impact Assessment Methods

1.97. The impact assessment process involves:

- Identifying the relative ecological importance of the receptor;
- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

1.98. The terms 'impact' and 'effect' are used commonly throughout ecological reports. Impact is defined as a change experienced by an ecological feature, while effect is defined as the outcome to an ecological feature from an impact. Impacts and effects can be positive, negative or neutral.

1.99. Assessment of potential impacts and effects needs to consider on-site, adjacent and more distant ecological features, including habitats, species, statutory and non-statutory designated sites.

1.100. This Ecological Assessment has been conducted by an experienced ecologist following the CIEEM guidance cited above.

Determining Ecological Importance

1.101. The importance of an ecological feature, in line with CIEEM guidance for EcIA, should be defined within a geographical context. The relative importance of the ecological feature in a geographical context is important in informing the scale over which potential adverse impacts may occur.

1.102. Criteria for the assignment of ecological importance to each receptor considered within the EcIA is set out with Table 1-6, below.

Table 1-6: Criteria for Ecological Importance

Ecological Value	Criteria

International	• Internationally designated sites (also called 'European' or UK National Sites) including Special Areas of Conservation (SACs), Special Protection Areas (SPAs).
	• Sites which, though not currently designated, satisfy criteria for notification, as per Annex III of the Habitats Directive.
	• Non-designated features which are considered essential to structure and function of the Natura 2000 Network.
	• Sites supporting 'best examples' of habitats listed in Annex I of the Habitats Directive.
	• Sites supporting internationally significant populations of:
	  ○ Bird species included in Annex I or referred to in Article 4(2) of the Birds Directive; and/or
	  ○ Non-avian Animal or plant species listed in Annex II and/or IV of the Habitats Directive.
	• Ramsar Sites (designated under the Convention of Wetlands of International Importance Especially Waterfowl Habitat 1971)
	• Sites supporting significant populations of species under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals 1979).

Ecological Value	Criteria
	• Sites supporting significant populations of species under the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
National	• Natural Heritage Areas (NHA) or proposed Natural Heritage Areas (pNHAs). • National nature Reserves (NNRs). • Marine Nature Reserves (MNRs) or Marine Protected Areas (MPAs). • Refuges for species protected under the Wildlife Acts (1976-2018). • Non-designated areas fulfilling criteria for designation as an ASSI, NNR or MNR. • Sites supporting nationally significant populations or areas of: o Species protected under the Wildlife Acts; and/or o Species included in the Red Data list. o Species or habitats included within the National Biodiversity Action Plan (BAP); • Sites containing habitats which are representative of those listed in Annex I of the Habitats Directive.
County	• Sites listed within the County Development Plan (CDP) as being of importance or comprising a part of an Ecological Network. • Sites supporting regionally significant populations or areas of the following: o Bird species included in Annex I or referred to in Article 4(2) of the Birds Directive; and/or o Non-avian Animal or plant species listed in Annex II and/or IV of the Habitats Directive. o Species protected under the Wildlife Acts (1976-2018). o Species included in the Red Data List. o Species or habitats included within the National Biodiversity Action Plan (BAP) or Local BAP.

Ecological Value	Criteria
	• Sites containing habitats which are poor examples of those listed in Annex I of the Habitats Directive. • Sites supporting habitats of high biodiversity in a regional context and/or populations of species which are considered to be rare in a regional context.
Local (Higher)	• Sites supporting locally significant populations or areas of the following: o Bird species included in Annex I or referred to in Article 4(2) of the Birds Directive; and/or o Non-avian Animal or plant species listed in Annex II and/or IV of the Habitats Directive. o Species protected under the Wildlife Acts (1976-2018). o Species included in the Red Data List. o Species or habitats included within the National Biodiversity Action Plan (BAP) or Local BAP. • Sites supporting habitats of high biodiversity in a local context and/or populations of species which are considered to be rare in a local context. • Sites supporting habitats and species populations of lower-level biodiversity which are nonetheless of note in a local context. • Sites or features containing common or lower value habitats, which are essential in maintaining links and ecological corridors between features of higher ecological value.
Local (Lower)	• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; • Sites or features containing non-native species that are of some importance in maintaining habitat links.

Assessing the Magnitude of Change and Significance of Effects

1.103. Determining the magnitude of any likely effects requires an understanding of how the ecological features are likely to respond to the Proposed Development. This change can occur during construction operation or decommissioning/removal/restoration associated with the Proposed Development.

1.104. Effect magnitude refers to changes in the extent and integrity of an ecological receptor. A definition of ecological 'integrity' that is relevant across the UK is found within Scottish Executive circular 6/1995 (as updated, 2000)[39]. This states that:

"The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified".

1.105. Although this definition is used specifically regarding international-level designated sites (SACs, SPAs and Ramsar sites), it is also considered suitable for wider countryside habitats and species for the purposes of this assessment.

1.106. Effects can be adverse, neutral or positive. Effects are judged in terms of magnitude in space and time. There are five levels of spatial effects and five levels of temporal effects as described in Table 1-7 and Table 1-8 respectively.

Table 1-7: Spatial Effect Magnitude

Spatial Magnitude	Description
Very High	Would cause the loss of the majority of a feature (>80%) or would be sufficient to damage a feature sufficient to immediately affect its viability.
High	Would have a major effect on the feature or its viability. For example, more than 20% habitat loss or damage.
Moderate	Would have a moderate effect on the feature or its viability. For example, between 10 - 20% habitat loss or damage.
Low	Would have a minor effect upon the feature or its viability. For example, less than 10% habitat loss or damage.
Negligible	Minimal change on a very small scale; effects not dissimilar to those expected within a 'do nothing' scenario.

Table 1-8: Temporal Effect Magnitude

[39] Natura Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Available at: https://www.nature.scot/natura-casework-guidance-how-consider-plans-and-projects-affecting-special-areas-conservation-sacs

Temporal Magnitude	Description
Permanent	Effects continuing indefinitely beyond the span of one human generation (taken here as 30+ years), except where there is likely to be substantial improvement after this period in which case the category Long-term may be more appropriate.
Long-term	From 15 years up to (and including) 30 years; for short-lived species such as invertebrates, multiple generations.
Medium-term	From 5 years up to (but not including) 15 years; for short-lived species, a single generation.
Short-term	Up to (but not including) 5 years; for short-lived species, a single season or part of a season.
Negligible	No effect.

1.107. As outlined above, the magnitude of ecological impacts is assessed on both a spatial and temporal level (**Table 1-7** and **Table 1-8**) and relative to their ecological importance (determined in a geographical context (**Table 1-6**) when discussing any potential impacts on ecological receptors as a result of the Proposed Development.

1.108. In light of the above information example criteria for the assessment of significant effects associated with the Proposed Development are set out within **Table 1-9**, below. These example criteria are set out to establish the framework used for the assessment of impact significance.

Table 1-9: Temporal Effect Magnitude

Impact Significance		Example Criteria
Significant Negative Effect	Major Adverse	• Permanent, long-term or medium-term loss, damage or other adverse impact on receptors of international importance, above a negligible spatial magnitude. • Loss of favourable conservation status (FCS) of a legally protected species. • Permanent, long-term or medium-term damage to habitats or species populations of national significance above a low spatial magnitude.

Impact Significance		Example Criteria
		• Permanent or long-term loss of or damage to a receptor of regional importance, above a low spatial magnitude.
	Moderate Adverse	• Short-term loss, damage or other adverse impact on receptors of international importance, above a negligible spatial magnitude. • Short-term damage to habitats or species populations of national significance above a negligible spatial magnitude. • Permanent or long-term loss of or damage to a receptor of regional importance, at a low spatial magnitude. • Permanent or long-term loss of habitat or species populations of local importance, above a moderate spatial magnitude. • Mortality or other reduction in the numbers of supported protected species which does not give rise to a loss of favourable conservation status. • Reduction of the amount of habitat or the quantity of a species population which are notable at a regional or local level.
	Minor Adverse	• Short-term disturbance to a site of regional importance at a low to moderate spatial magnitude. • Permanent or long-term loss of or damage to a receptor of local importance at a moderate spatial magnitude. • Short-term disturbance to or displacement of a protected species with no habitat loss above a low spatial magnitude. • Permanent or long-term loss of or damage to a receptor of site level importance.
No Significant Effect	Negligible	• No impacts to sites of international, national or regional importance.

Impact Significance		Example Criteria
		• Short-term disturbance or damage to a receptor of local importance at a low spatial magnitude. • Permanent loss of habitat of site-level importance, below a high spatial magnitude. • No impacts to legally protected species, rare or scarce species. • Where adverse and beneficial effects are balanced and as such no overall impact to a receptor occurs.
Significant Positive Effect	Minor Beneficial	• A gain in the general biodiversity of a receptor, such as the provision of small areas of habitat creation beyond mitigation or compensation requirements.
	Moderate Beneficial	• A substantial gain in general biodiversity of a receptor with associated measurable effects for a range of protected species.
	Major Beneficial	• Large-scale provision of biodiverse habitats, beyond mitigation or compensation requirements, with measurable effects for a range of protected species including those of national or international importance.

LIMITATIONS

1.109. Results of the assessment undertaken by Neo Environmental are representative of the time that surveying was undertaken.

1.110. The absence of specific species records returned during the data search does not necessarily indicate absence of a species or habitat from an area, but rather that these have not been recorded or are perhaps under-recorded within the search area.

1.111. This survey does not aim to produce a full botanical or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the site to:

- Broadly identify the nature conservation value of a site and preliminary assess the significance of any potential impacts on habitat/species recorded; and/or
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site.

1.112. At the time of the initial survey, access was only permitted within the landownership boundary. The areas of land which formed the ESA which were not within the landownership boundary were viewed from field boundaries and publicly accessible lands (e.g. local roads or public paths), with the use of binoculars, where needed. It is considered that the limited access to areas of land directly adjacent to the Proposed Development boundary has not impacted upon the findings of the habitat or species scoping surveys.

BASELINE CONDITIONS

STATUTORY DESIGNATED SITES

1.113. Within the 15km ZoI of the Application Site boundary there are four Special Area of Conservation (SACs) and three Special Protection Areas (SPAs). Within the 5km of ZoI of the Application Site, there are two Natural Heritage Areas (NHAs). Within 2km of the Application Site, there are three wetland areas. Each of these sites are outlined in **Table 1-10** below and detailed within **Appendix A - Figure 2-1 – Environmental Designations Map**.

1.114. The site descriptions are derived from the original site citations available from NPWS[40] and from Wetland Surveys Ireland[41].

Table 1-10: Statutory Designated Sites

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
SAC				
000216	River Shannon Callows SAC	*Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]* *Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]* *Alkaline fens [7230]*	11.03km southeast	Limited ecological connectivity

[40] Available at: http://www.npws.ie/protected-sites

[41] Available at: https://www.arcgis.com/apps/View/index.html?appid=e13b75c3bcab4932b992aa0169aa4a32&extent=-8.2467,53.7516,-7.7533,53.9208

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
		Limestone pavements [8240] *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]* *Lutra lutra (Otter) [1355]*		
002353	Redwood Bog SAC	*Active raised bogs [7110]* *Degraded raised bogs still capable of natural regeneration [7120]* *Depressions on peat substrates of the Rhynchosporion [7150]*	12.48km southeast	No connectivity
002356	Ardgraigue Bog SAC	*Active raised bogs [7110]* *Degraded raised bogs still capable of natural regeneration [7120]*	5.43km south	No connectivity

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
		Depressions on peat substrates of the Rhynchosporion [7150]		
002213	Glenloughaun Esker SAC	*Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]*	6.07km south	No connectivity
SPA				
004097	River Suck Callows SPA	*Whooper Swan (Cygnus cygnus) [A038]* *Golden Plover (Pluvialis apricaria) [A140]* *Lapwing (Vanellus vanellus) [A142]* *Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]* *Wigeon (Mareca penelope) [A855]*	6.49km northeast	Potential ornithological connectivity

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
		Wetland and Waterbirds [A999]		
004096	Middle Shannon Callows SPA	*Whooper Swan (Cygnus cygnus) [A038]* *Corncrake (Crex crex) [A122]* *Golden Plover (Pluvialis apricaria) [A140]* *Lapwing (Vanellus vanellus) [A142]* *Black-tailed Godwit (Limosa limosa) [A156]* *Black-headed Gull (Chroicocephalus ridibundus) [A179]* *Wigeon (Mareca penelope) [A855]* *Wetland and Waterbirds [A999]*	11.02km southeast	Potential limited ornithological connectivity
004806	River Little Brosna Callows SPA	Whooper Swan *(Cygnus cygnus) [A038]*	13.08km southeast	Potential ornithological connectivity

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
		Teal *(Anas crecca) [A052]* Pintail *(Anas acuta) [A054]* Golden Plover *(Pluvialis apricaria) [A140]* Lapwing *(Vanellus vanellus) [A142]* Black-tailed Godwit *(Limosa limosa) [A156]* Black-headed Gull *(Chroicocephalus ridibundus) [A179]* Greenland White-fronted Goose *(Anser albifrons flavirostris) [A395]* Wigeon *(Mareca penelope) [A855]* Shoveler *(Spatula clypeata) [A857]*		

Site Code	Site Name	Qualifying Feature/Interest	Distance & Direction from Application Site	Potential Connectivity with Proposed Development/ Application Site
		Wetland and Waterbirds *[A999]*		
Nationally Designated Sites within 5km of the Application Site				
NHA				
001303	Moorfield Bog NHA	Peatlands *[4]*	3.35km south-southeast	No connectivity
000249	Cloonoolish Bog NHA	Peatlands [4]	4.11km south-southwest	No connectivity
Wetland Areas within 2km of the Application Site				
10232	Kiltormer Gortnamona Bog	Locally Important Wetland Area	0.41km north	No connectivity
10448	Moaty Kill Cloonineen Bog	Locally Important Wetland Area	0.88km south-west	Limited indirect hydrological connectivity
10447	Belview Craughwell Bog	Locally Important Wetland Area	1.52km south-east	No connectivity

1.115. No hydrological connectivity was identified between the Application Site and the above SACs, SPAs and NHAs. Indirect hydrological connectivity was identified between the Application Site and the Moaty Kilcloonineen Bog as a drainage ditch running within the Application Site connects to the West Kiltormer river, afirst order river. This river runs through the wetland area, creating a pathway for possible impacts.

1.116. Potential ecological connectivity was identified between the River Shannon Callows SAC and the Application Site primarily due to the qualifying interest ("QI") Otter, which as a large foraging range and uses drainage ditches as migratory corridors.

Potential ornithological connectivity was identified between the River Suck Callows SPA, Middle Shannon Callows SPA and the Little River Brosna Callows SPA. The River Suck Callows SPA was identified due the QI Lapwing as the possibility for interaction cannot be entirely ruled out due to the distance between the Application Site and the lack of a definitive core foraging range. The Application Site supports suitable habitat for this species and as a core foraging range has not been recorded for this species, potential connectivity could not be ruled out. The Middle Shannon Callows SPA was identified due to the QI Black-headed Gull, as it is within the core foraging range for this qualifying species. This species utilises agricultural landscapes when foraging and the Application Site lies within this species' core foraging range. Due to this, further assessment was required. River Little Brosna Callows SPA was identified due the QI Lapwing as the possibility for interaction cannot be entirely ruled out due to the distance between the Application Site and the lack of a definitive core foraging range.

BIOLOGICAL RECORDS

1.117. The potential presence of protected species within the study area was assessed through a data search conducted via the NBDC database. This identified records of invasive, rare, scarce and protected species within 2km of the Application Site. All records greater than ten years old are considered to be no longer relevant and were thus discounted. Previous ecological surveys undertaken in 2023 included the identification and recording of protected and notable species within and adjoining the Application Site, findings of which have helped to inform the assessment of the subject application..

1.118. Additional information on the suitability of habitat in the surrounding area for bats was also obtained from NBDC in the form of a bat suitability map. This map provides enhanced information on the recorded distribution of bats and broad-scale geographic patterns of occurrence and local roosting habitat requirements of the relevant species.

1.119. A summary of the key species records from within 2 km of the Application Site is set out below at **Table 1-11**.

Table 1-11: Summary of Protected and Notable Species Records.

Species Group	Species Name	Number of Recordings	Date of Most Recent Sighting
Bird	Swallow (*Hirundo rustica*)	11	09/08/2019

Terrestrial mammal	Brown Long-eared Bat (*Plecotus auritus*)	4	09/08/2019
Terrestrial mammal	Common Pipistrelle (*Pipistrellus pipistrellus*)	3	24/07/2019
Terrestrial mammal	Hedgehog (*Erinaceus europaeus*)	1	10/04/2021
Terrestrial mammal	Leisler's Bat (*Nyctalus leisleri*)	3	09/08/2019
Terrestrial mammal	Natterer's Bat (*Myotis nattereri*)	2	09/08/2019
Terrestrial mammal	Soprano Pipistrelle (*Pipistrellus pygmaeus*)	2	09/08/2019

* Indicates an invasive species

1.120. Additional information on the suitability of habitat in the surrounding area for bats was also obtained from the NBDC in the form of a habitat suitability map. The map provided enhanced information on the recorded distribution of bats and broad-scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species.

1.121. **Table 1-12** below details the results of the NBDC Bat Suitability Index search undertaken for the Proposed Development. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The site was split between two suitability indexes, as a precautionary method, information is provided for the highest suitability area, with an overall bat suitability index of 27.

Table 1-12: Bat Suitability Index

Species	Index Score
Soprano pipistrelle (*Pipistrellus pygmaeus*)	41
Brown long-eared bat (*Plecotus auritus*)	34
Common pipistrelle (*Pipistrellus pipistrellus*)	41
Lesser horseshoe bat (*Rhinolophus hipposideros*)	2
Leisler's bat (*Nyctalus leisleri*)	39
Whiskered bat (*Myotis mystacinus*)	21
Daubenton's bat (*Myotis daubentonii*)	28
Nathusius' pipistrelle (*Pipistrellus nathusii*)	1
Natterer's bat (*Myotis nattereri*)	36

HABITATS

1.122. An Extended Fossitt habitat survey of the Application Site and wider ESA was undertaken on 21st,of October 2025, which identified 10 habitat types within the Application Site and extended survey area ("ESA"). Previous Fossitt Habitat and Species Scoping surveys were also carried out in May of 2023 which found similar habitat composition, with the majority of the site supporting improved agricultural grasslands. Each of these are described in Table 1-13, below with the ecological value for each habitat also set out, based on the criteria set out within Table 1-6, above.

1.123. The distribution of the identified habitats within the Application Site and wider ESA is illustrated in the accompanying habitat map, included at Appendix 2A – Figure 2.2.

Table 1-13: Habitats recorded within the Application Site

Habitat	Description	Other Observations /Potential for Species	Total Area/Length of Habitat	Ecological Value
Improved Agricultural Grassland (GA1)	Species poor and subject to historical improvement and enrichment. Species include Perennial rye grass (*Loliuam perenne),* creeping buttercup (*Ranunculus repens)*, common nettle *(Urtica dioica),* cock's-foot(*Dactylis glomerata*), vetch (*Vicia* sp.), thistle (Cirsium sp), broad-leaved dock (*Rumex obtusifolius*)	Potential for foraging badger, hedgehog, fox and birds	450,525m^2	Local (lower)
Hedgerows (WL1)	Large number of hedgerows present, dividing agricultural fields. Species present include Ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), hawthorn (*Crataegus*	Potential for foraging and commuting bats, badger, hedgehog, fox and birds. Potential for nesting birds.	2,533m	Local (higher)

Habitat	Description	Other Observations /Potential for Species	Total Area/Length of Habitat	Ecological Value
	monogyna), blackthorn (*Prunus Spinosa*), ivy (*Hedera helix*), and bramble (*Rubus fruticosus agg.*)			
Treelines (WL2)	Numerous treelines are present, separating agricultural fields. Species present include Ash (*Fraxinusexcelsior*), sycamore(*Acer pseudoplatanus*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), willow (Salix Spp), blackthorn (*Prunus spinosa*), ivy (*Hedera helix*), and bramble (*Rubus fruticosus*agg)	Potential for foraging and commuting bats, badger, pine marten, fox and birds. Potential for roosting bats. Potential for nesting birds.	3,090m	Local (higher)
Drainage Ditches (FW4)	Wetland plant species	Potential for herptiles and invertebrates. Potential for commuting bats otter. Potential for foraging bats and otter.	2,953m	Local (lower)
(Mixed) Broadleaved Woodland (WD1)	Ash (*Fraxinus excelsior*), Oak (*Quercus robur*), Alder (*Alnus glutinosa*) and Douglas Fir (*Pseudotsuga menziesii*)	Potential for foraging and commuting bats, badger, pine marten, fox and birds.	1,573m^2	Local (higher)

Habitat	Description	Other Observations /Potential for Species	Total Area/Length of Habitat	Ecological Value
		Potential for roosting bats. Potential for nesting birds.		
Scrub (WS1)	Gorse (*Ulex europaeus*), bramble (*Rubus fruticosus agg.*), hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*)	Potential for foraging and commuting bats, badger, pine marten, fox and birds. Potential for roosting bats. Potential for nesting birds.	7,170m^2	Local (higher)
Buildings and Artificial Surfaces (BL3)	N/A	Man-made structures (residential dwellings, farmyards etc.)	16,823m^2	Local (lower)
Amenity Grassland (GA2)	Outside of Development Boundary	Potential for invertebrates.	3,977m^2	Local (lower)
Mixed Broadleaved/Conifer Woodland (WD2)	Scots pine (*Pinus sylvestris*), Alder (*Alnus glutinosa*)	Potential for foraging and commuting bats, badger, pine marten, fox and birds. Potential for roosting bats. Potential for nesting birds.	1,959m^2	Local (higher)
Tilled Land (BC3)	N/A	Potential for invertebrates.	10,578m^2	Local (lower)

1.124. Habitats within the Application Site are generally of low ecological value, largely comprising areas of improved grasslandarmland. Habitats of relatively greater ecological value include hedgerows, treelines and limited areas of scrub and woodland present within the site.

1.125. Photographs of the habitats and features of note within and surrounding the Application Site are provided at the end of this report in **Appendix B – Site Photographs**.

Target Notes

1.126. Target notes recorded during survey are detailed below in **Table 1-14.**

Table 1-14: Target Notes

Target Note	Description
1	Tree with LBRP
2	Mammal Push through
3	Snuffling
4	Tree with MBRP
5	Potential Badger Sett
6	Tree with LBRP
7	Tree with LBRP
8	Tree with LBRP

PROTECTED AND NOTABLE SPECIES

Bats

1.127. The Bat Suitability Index results are presented in Table 1-12. The NBDC search identified suitability scores for 9 bat species within the Proposed Development area, namely soprano pipistrelle (Pipistrellus pygmaeus), brown long-eared bat (Plecotus auritus), common pipistrelle (Pipistrellus pipistrellus), lesser horseshoe bat (Rhinolophus hipposideros), Leisler's bat (Nyctalus leisleri), whiskered bat (Myotis mystacinus), Daubenton's bat (Myotis daubentonii), Nathusius' pipistrelle (Pipistrellus nathusii) and Natterer's bat (Myotis nattereri). These results indicate varying levels of habitat suitability across species within the site.The Application Site consists of improved agricultural grassland with hedgerow and treeline along the borders. Improved grassland is largely considered unimportant for bats as it does not offer consistent foraging or breeding habitat; however, some species like common pipistrelle, have been observed foraging in these areas, particularly in fields which being grazed by cattle. Riparian zones, hedgerows and treelines are considered good

for bats as a foraging, breeding and commuting habitat. Drainage ditches, when wet, can also offer foraging habitat as standing water often attracts invertebrates, providing prey items for various species. There is also a small area of mixed broadleaved woodland and scrub, which depending on maturity of trees, may be useful as a roosting or foraging habitat.

1.128. It is considered that the Application Site is likely to be of local (higher) ecological importance for bat populations.

Badger

1.129. No records of badger (*Meles meles*) were identified within 2km of the site during the desk study.

1.130. One potential badger sett was discovered within the Application Site. The Application Site also supports valuable habitat for badger, such as agricultural grasslands which are often used as a foraging ground, supporting ground invertebrates like earthworms, a staple component of the badger's diet. Mammal push throughs and snuffling were also observed within the Application Site, which further suggests the presence of badger. Hedgerows and treelines are also considered valuable for badger, which often use them to forage and excavate setts for breeding.

1.131. It is considered that the Application Site is likely to be of Local (higher) level importance for badgers.

Birds

1.132. Incidental observations of bird species, during the extended habitat survey, were recorded. The Application Site provides suitable foraging and nesting habitat (such as grasslands, hedgerows, treelines and scrub) that could support an array of bird species, (see **Table 1-11**).

1.133. **Table 1-15**, below, lists the bird species observed during the site visit. Species listed as amber or red within The Birds of Conservation Concern in Ireland 4: 2020-2026 list are considered to be of particular importance.

Table 1-15: Bird Species Observed During the Fossitt Habitat Survey

Scientific Name	Common Name	BoCCI Listed Species
Terdus merula	Blackbird	Green
Turdus viscivorus	Blue Tit	Green
Fringilla Coelebs	Chaffinch	Green

Prunella modularis	Dunnock	Green
Parus major	Great Tit	Green
Corvus frugilegus	Rook	Green
Pyrrhula pyrrhula	Bullfinch	Green
Periparus ater	Coal Tit	Green
Erithacus rubecula	Robin	Green
Palumba columbus	Wood pigeon	Green
Motacilla alba varrellii	Pied Wagtail	Green
Troglodytes troglodytes	Wren	Green
Corvus cornix	Hooded crow	Green
Passer domesticus	House sparrow	Amber
Regulus regulus	Goldcrest	Amber
Gallinago gallinago	Snipe	Red
Turdus iliacus	Redwing	Red
Anthus pratensis	Meadow Pipit	Red

1.134. Habitats within the Application Site are predominantly comprised of improved agricultural grassland, reflecting the site's ongoing use for pastoral farming. These habitats often support an assemblage of common farmland species, which can be seen in **Table 1-15** above, that use this habitat for foraging. Hedgerows and treelines, which border the Application Site, are considered vital for birds as they provide crucial nesting and foraging habitat for birds, particularly smaller passerine species.

1.135. Majority of species recorded within the Development Boundary were included within the green list for Birds of Conservation Concern Ireland ("BoCCI"). Some species included within the amber list of the BoCCI were recorded within the Application Site; Goldcrest (*Regulus regulus*),Skylark (*Alauda arvensis*), House Sparrow (*Passer domesticus*), and Teal (*Anas crecca*). These species are often recorded within agricultural landscapes, with Skylark using agricultural grasslands as a breeding ground during bird breeding season (March to August inclusive). Two species included within the Red List for BOCCI were recorded within the Application Site during dedicated Wintering Bird Surveys; Snipe and Redwing. Snipe are also included in Annex II of the Birds Directive.[42]

[42] The Birds Directive (Directive 2009/147/EC). Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en.

1.136. Wintering Bird surveys were carried out in January February and March of 2023. Updated Wintering Bird Surveys are currently underway, with survey periods completed in January, February, and March 2026. Both surveys found similar assemblage of common farmland species, with the majority of these species green-listed. Snipe were recorded throughout the Application Site, concentrated around areas of waterlogged soil. Three species of raptor, including Buzzard, Sparrowhawk, and Peregrine Falcon, an Annex 1 species, were observed flying over the Application Site but were not seen interacting directly with the Application Site. Teal were also spotted within the Application Site in a drainage ditch. Several Lapwing were recorded during 2023 surveys but was not seen interacting with the Application Site and was located the development boundary. Lapwing were not recorded in January, February or March of the 2026 surveys.

1.137. Overall, it is considered that the Application Site is likely to be of local (higher) importance in regard to its supported population of bird species.

Otter

1.138. No records of Otter (*Lutra lutra*) were identified within 2km of the site during the desk study.

1.139. Most habitats within the Application Site are considered to have little potential to support otter, as these are predominantly large fields of agricultural grassland. There are drainage ditches within the Application Site, which are seasonally wet. These can be used as migration channels for Otter and in some cases, for breeding, although this is rare and is dependant on the size of the ditch and water quality. No watercourses are adjacent to or within the Application Site, with the closest watercourse being East Loughturk located 0.41km away.

1.140. It should be noted that although no records of Otter were collected during the 2km data search and signs of Otter were not found during the species scoping survey, it is possible that Otter may still interact with the Application Site in the future. The large ranges often travelled by Otter, 32km for males and 20km for females, means that populations outside of the 2km date search area may migrate and interact with the Application Site.

1.141. It is considered that the Application Site is likely to be of local (lower) level importance for otter.

Amphibians and Reptiles (Herptiles)

1.142. No records of amphibians or reptiles were identified within 2km of the site during the desk study.

1.143. No reptiles or amphibians were observed during the site surveys. No waterbodies and watercourses were recorded within the Application Site. A drainage ditch is present at the border of the Application Site which during the wet winter months may have the potential to support amphibians, however, this is unlikely to be the case year-round.

1.144. The Application Site is considered to be of local (lower) value for amphibians and herptiles.

Invertebrates

1.145. No records of protected invertebrate species were identified within 2km of the site during the desk study.

1.146. Whilst no notable or protected invertebrates were identified on site at the time of survey, the site provides some suitable habitat for these species including hedgerow, grassland, scrub and drainage ditches. These habitats are fairly common within the wider landscape and habitats such as improved grassland offer poor opportunities for invertebrate populations.

1.147. It is considered, on the basis of the habitats present within the Application Site, that it is likely to be of local (lower) importance for invertebrates.

Pine Marten

1.148. The Pine Marten (*Martes martes*) is an omnivorous species that is present in various habitats, including coniferous woodland, scrub and crags. When breeding, the pine marten prefers to use crevices in mature trees as dens. Their diet is omnivorous, comprising of 3-70% meat, with the remainder being fruits, nuts, invertebrates etc.

1.149. The Application Site supports a small area of mixed broadleaved woodland and scrub. The woodland is largely made up of immature willow trees, however, which is not suitable for Pine Marten. The area of scrub is also sparse with many open spaces which does not provide cover. Treelines are also present within the Application Site, which do support some mature trees; however, none of these trees were noted as having crevice's large enough to support breeding Pine Marten.

1.150. The Application Site is thought to be of Local (higher) importance to the Pine Marten.

Other Mammals

1.151. Records of hedgehog (*Erinaceus europaeus*) were identified within 2km of the site during the desk study.

1.152. Habitats present within the Application Site provided suitable opportunities for foraging and commuting hedgehog including various grassland habitats, hedgerow

and small areas of woodland bordering the Application Site. Other than mammal push throughs, which are considered likely to be attributable to badger, there were no field signs suggesting the presence of hedgehog during survey.

1.153. The Application Site is considered to be of local (higher) importance to the local hedgehog population.

Fish

1.154. The Application Site supports drainage ditches which are seasonally wet. When ditches are wet, they have potential to support some fish due to aquatic vegetation which exists within these habitats; however, as these drainage ditches depend on weather conditions to remain wet, these drainage ditches are not thought to be viable habitats to most fish species.

1.155. Due to the above, the Application Site is considered to be of local (lower) importance to fish.

Non-Native Invasive Flora and Fauna

1.156. No records of invasive species were found during the 2km desktop search.

1.157. While no invasive species recorded, it is very possible that invasive species are present but have yet to be recorded. Due to incredibly successful mechanisms of spread, it is also highly possible that invasive will begin to appear within the area in future years.

1.158. No further invasive non-native species were recorded within the Application Site.

FUTURE BASELINE

1.159. Assuming a lag between the baseline studies and the commencement of construction phase of the Proposed Development, it is considered necessary to consider possible changes to baseline conditions which may occur in the interim.

1.160. No substantial habitat modifications or changes that could influence ecological interest in the ecology study area are foreseen. The main ecological changes which may occur within the Application Site in the absence of mitigation being the continued improvement of agricultural lands through nutrient enrichment to the detriment of the surrounding habitats and downstream aquatic environment. Furthermore, hedgerows or treelines in addition to areas of scrub could feasibly be removed to improve the efficiency of agricultural works on site.

IMPACT ASSESSMENT

DO NOTHING SCENARIO

1.161. In the absence of the Proposed Development (the 'do nothing scenario'), the current agricultural farming practices will continue within the Application Site. It is considered likely therefore that in the do-nothing scenario the lands within the site are likely to largely retain their present ecological value however, some continuation of agricultural improvement which has previously been undertaken on site in the past is likely to occur into the future with potential for minor adverse effects upon the biodiversity of the Application Site and surrounding habitats.

CONSTRUCTION PHASE

Designated Sites

International Designations

1.162. As discussed above, four SACs and three SPAs were identified within 15km of the Application Site. These Designated Sites were as follows; River Shannon Callows SAC, Redwood Bog SAC, Ardgraigue Bog SAC, Glenloughaun Esker SAC, River Suck Callows SPA, River Shannon Callows SPA, and River Little Brosna Callows SPA.

River Shannon Callows SAC

1.163. The River Shannon Callows SAC is designated for a variety of terrestrial habitats and the Otter (*Lutra lutra*). The conservation objectives for this SAC are to maintain the favourable condition of the qualifying species and habitats of interest and any habitats or sensitive receptors necessary for maintenance.[43] The site synopsis also notes the importance of this SAC for over 20,000 wintering waterfowl and include rare and endangered species like the Corncrake (*Crex crex*).[44]

[43] NPWS (2022). Conservation Objectives: River Shannon Callows SAC 000216. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000216.pdf.
[44] NPWS (2022). Site Synopsis: River Shannon Callows SAC 000216. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000216.pdf.

1.164. The ecology of the following QIs were assessed separately: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510], Alkaline fens [7230], Limestone pavements [8240], and Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0].

1.165. *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] are found on wet, nutrient-poor soils. These habitats are largely dominated by Purple moor-grass (*Molinia)* and accompanied by rushes and sedges which are common in wet habitats.[45],[46] These habitats are nutrient-poor and so, any form of nutrient enrichment would significantly and negatively affect the integrity of this habitat, causing alteration of the pH and/or eutrophication. Eutrophication occurs when the nutrient load within a waterbody or watercourse increases to extreme levels, which promotes overgrowth of algae and other plant life. This depletes the oxygen levels within the waterbody, which leads a mass die-off of fish and other aquatic life.[47] As no hydrological connectivity exists between these two sites, there is no pathway for contaminants or sedimentation.

1.166. Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510] are species-rich meadows with slightly fertilised soil. Species like Red Fescue (*Festuca rubra*), Crested Dog's-tail (*Cynosurus cristatus*) are common in these habitats, with some rarer plant species, like Snake's Head Fritillary (*Fritillaria meleagris*), also present within these habitats.[48],[49] This habitat is considered to be slightly nutrient-rich and so, is less intolerant of an increased nutrient load. It is important, however, that the nutrient level does not surpass a certain threshold as this will facilitate the domination vigorous, tussock-like grasses which can greatly alter species-richness, sward height and density. If a contamination event were to occur which increased the nutrient level above this threshold, the potential effects would incredibly adverse. As there is not hydrological connectivity between this European Designated Site and the Application Site, however, this is unlikely to arise.

1.167. Alkaline fens [7230] are wetland consisting of peat -producing sedges and extensive moss communities that have developed on and maintain a consistently waterlogged soil with a very high-water table. These habitats are alkaline or basic in pH and are characterised largely by their moss community which hold water and allow the habitat to remain waterlogged year-round.[50],[51] This habitat requires a basic pH is order to support it's vegetative profile and moss community. In the event that contaminants enter this habitat and later the pH, it would have an incredibly negative

[45] Available at: https://eunis.eea.europa.eu/habitats/10131.
[46] Available at: https://sac.jncc.gov.uk/habitat/H6410/.
[47] Available at: https://www.ecos.ie/water-pollution-in-ireland-eutrophication/.
[48] Available at: https://eunis.eea.europa.eu/habitats/10137.
[49] Available at: https://sac.jncc.gov.uk/habitat/H6510/.
[50] Available at: https://eunis.eea.europa.eu/habitats/10151.
[51] Available at: https://sac.jncc.gov.uk/habitat/H7230/.

impact, adverse affecting the habitat itself and it vegetative community. As hydrological connectivity does not exist between this European Designated Site and the Application Site, this is unlikely to occur.

1.168. Limestone pavements [8240] are a rock formation formed from sedimentary rock that was created through the collection and compression of animal remain over a long period of geological time. This habitat is made up primarily of clints and grikes, with clints being the 'pavement-'like formations and grikes the spaces between each clint. This habitat has little to no overlying soil, creating a bare expanse of rocky pavements. Despite its bare appearance, these habitats support a specialised vegetative community of vascular plants, calcareous woodland, heath scrub and more. These habitats are incredibly important for various rare orchid species like the Bee Orchid (*Ophrys apifera*).[52],[53],[54] This habitat, and the species that depend on it, have adapted to the specific ecological conditions created by this rock formation. If contaminants enter this habitat as a result of a contamination event, it could potentially and greatly alter the pH and nutrient load of the habitat, promoting the growth of certain species which outcompete native species of orchid and wildflower. This is considered unlikely to occur as a result of the Proposed Development due to a lack hydrological connectivity and therefore, a pathway for impacts.

1.169. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] are riparian forests centred around large watercourses dominated by willow and alder. This habitat is largely found on basic, eutrophic soils which are periodically waterlogged and host various scrub, wetland and wildflower species, including common nettle (*Urtica dioica*), meadowsweet (*Filipendula ulmaria*), and common reed (*Phragmites australis*).[55],[56] As said above, this habitat requires a basic pH which, if altered, will negatively impact the habitat. Inorganic pollutants arising from construction developments can acidify pH and so, must be considered. No hydrological connectivity exists between this European Designated Site and the Application Site, there is not pathway for impacts and so, negative effects are unlikely to arise.

1.170. No hydrological connectivity was identified between the Application Site and this European Designated Site, with the closest waterbody being the East Loughturk river, located 0.2km away. Otters have a large foraging range, with females travelling up to 22km and males travelling up to 32km.[57] When foraging and breeding, Otters will utilise large rivers and streams which support a significant fish population. They will sometimes use drainage ditches and small streams when migrating between areas, however, these would need to be connected in some way to appropriate foraging and

[52] Available at: https://eunis.eea.europa.eu/habitats/10168.
[53] Available at: https://sac.jncc.gov.uk/habitat/H8240/.
[54] Available at: https://www.irishorchidsociety.org/ireland/.
[55] Available at: https://eunis.eea.europa.eu/habitats/10198.
[56] Available at: https://sac.jncc.gov.uk/habitat/H91E0/.
[57] Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter.

breeding habitat. While the Application Site does support a seasonally wet drainage ditch along the southern border, it Is not connected to a watercourse or waterbody and so, is unlikely to be utilised by Otter.

1.171. The Application Site is located 12.31km for this SAC which is within the foraging range for Otter. Considering the lack of connectivity and the abundance of alternative habitats between the Application Site and this SAC, however, it is considered unlikely that Otter originating from the River Shannon Callows SAC will interact with the Application Site. Due to this, potential effects which may arise are predicted to be **low spatial, short-term temporal, minor adverse and significant in the absence of mitigation.**

Redwood Bog SAC

1.172. The Application Site is located 12.48km from the Redwood Bog SAC. This SAC support various protected peatland habitats. The conservation objectives for this SAC are to restore and maintain the favourable condition of the active raised bog and other habitats.[58],[59] This SAC is also noted as supporting populations of Greenland White-fronted Goose (*Anser albifrons*), a species which is listed In Annex 1 of the EU Birds Directive (70/409/EEC).

1.173. All qualifying interests for this SAC are immobile and so, would only be significantly affected by direct or indirect contamination of adjoining waterbodies and watercourses as a result of the Proposed Development.

1.174. The Application Site is not hydrologically connected to the Redwood Bog SAC, as no waterbodies or watercourses are present within or adjacent to the Application Site, with the closest watercourse being the East Loughturk river located 0.2km away. It is therefore considered extremely unlikely that a contamination event would occur as a result of the Proposed Development which would have the ability to alter the integrity of this SAC. In the event that impacts do occur, potential effects are predicted to be **negligible in spatial and temporal magnitude** which would therefore have a **negligible, not significant impact.**

Ardgraigue Bog SAC

1.175. The Application Site is located 5.43km from the Ardgraigue Bog SAC. This SAC is also designated as a proposed Natural Heritage Area (pNHA). The SAC supports various protected peatland habitats, including cutover bog and active raised bog, and the

[58] NPWS (2015). Conservation Objectives: Redwood Bog SAC 002353. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002353.pdf.

[59] NPWS (2025). Site Specific Conservation Objectives (SSCO) Ecological Attributes: Redwood Bog SAC 002353. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation-measures/CM002353.pdf.

conservation objectives for these habitats are to restore and maintain their favourable condition.[60],[61]

1.176. All qualifying interests for this SAC are immobile and so, would only be significantly affected by direct or indirect contamination of adjoining waterbodies and watercourses as a result of the Proposed Development.

1.177. The Application Site is not hydrologically connected to the Redwood Bog SAC, as no waterbodies or watercourses are present within or adjacent to the Application Site, with the closest watercourse being the East Loughturk river located 0.2km away. It is therefore considered extremely unlikely that a contamination event would occur as a result of the Proposed Development which would have the ability to alter the integrity of this SAC. In the event that impacts do occur, potential effects are predicted to be **negligible in spatial and temporal magnitude** which would therefore have a **negligible, not significant impact.**

Glenloughaun Esker SAC

1.178. The Application Site is located 6.07km from the Glenloughaun Esker SAC, which is designated for semi-natural dry grasslands and scrubland, and is important for orchids.[62] The conservation objective for this SAC is to restore favourable condition to these semi- natural grasslands and scrubland.[63]

1.179. All qualifying interests for this SAC are immobile, therefore; direct or indirect hydrological connectivity is required to provide a pathway for likely significant effects. No hydrological connectivity was identified between the Application Site and this SAC due to a lack of sensitive ecological receptors within or adjacent to the Application Site. The closest watercourse is the East Loughturk river, which is located 0.2km from the Application Site.

1.180. It is considered unlikely that a contamination event will occur as a result of the Proposed Development. In the event that impacts do occur, potential ex-situ effects are predicted to be **negligible in spatial and temporal magnitude** which would therefore have a **negligible, not significant impact.**

[60] NPWS (2015). Conservation Objectives: Ardgraigue Bog SAC 002356. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002356.pdf.
[61] NPWS (2025). Site Specific Conservation Objectives (SSCO) Ecological Attributes: Ardgraigue Bog SAC 002356. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation-measures/CM002356.pdf.
[62] NPWS (2014). Site Synopsis: Glenloughaun Esker SAC 002213. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002213.pdf.
[63] NPWS (2018). Conservation Objectives: Glenloughaun Esker SAC 002213. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002213.pdf.

River Suck Callows SPA

1.181. The Application Site is located 6.49km from the River Suck Callows SPA. This SPA is important for wetland and waterbirds due to wetland habitats which make up part of this European Designated Site.[64] The conservation objectives for this SPA are to restore the favourable conservation conditions for qualifying species of interest, as well as to restore and maintain the favourable condition of important wetland habitat.[65]

1.182. This SPA is designated for the following species; Whooper Swan (*Cygnus cygnus*), Golden Plover (*Pluvialis apricara*), Lapwing (*Vanellus vanellus*), Greenland White-fronted Goose (*Anser albifrons flavirostris*), Wigeon (*Mereca penelope*) and other wetland species.

1.183. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes.[66] While the Application Site does support agricultural grasslands, these areas are managed for grazing of cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km.[71] It is therefore unlikely that, in the absence of mitigation, significant effects will occur which negatively effect this qualifying interest.

1.184. The Golden Plover is a wintering species that is common on agricultural grasslands, feeding on invertebrates and plant material, and breeding in cutover bogs.[67],[68] The Application Site does support agricultural grassland, which is suitable foraging habitat for this species, however; there is an abundance of alternative habitat surrounding the Application Site so it is unlikely this species will be negatively affected. The Application Site is also outside the core foraging range of this species, which is 3km. In the absence of mitigation, it is unlikely that adverse effects on this qualifying interest and its conservation objectives will occur.

1.185. Lapwings are also a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land.[69],[69] The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When also considering the availability of alternative

[64] NPWS (2014). Site Synopsis: River Suck Callows SPA 004097. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004097.pdf.
[65] NPWS (2022). Conservation Objectives: River Suck Callows SPA 004097. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004097.pdf.
[66] Available at: https://birdwatchireland.ie/birds/whooper-swan/.
[67] Available at: https://birdwatchireland.ie/birds/golden-plover/.
[68] Gillings, S. & Fuller, R.J. (1999). Winter Ecology of Golden Plovers and Lapwings: A Review and Consideration of Extensive Survey Methods. Available at: https://www.bto.org/sites/default/files/shared_documents/publications/research-reports/1999/rr224.pdf.
[69] Available at: https://birdwatchireland.ie/birds/lapwing/.

habitat in the surrounding area, in the absence of mitigation, it is considered unlikely that adverse effects will occur but cannot be completely ruled out.

1.186. Greenland White-fronted Goose is a wintering species that breeds near lakes and rivers and forages on plant material, like roots, tubers, shoots and leaves. This species has been recorded foraging on various habitats, like peat bogs, dune grasslands, salt marshes and in more recent years, agricultural grasslands.[70] The core foraging range for this species during wintering season is 5-8km[71]. The Application Site, located 6.02km from this SPA, is therefore within this species' foraging range. There is, however, a plentiful supply of alternative habitat surrounding the Application Site which suggests that this qualifying interest and its conservation objectives will not be significantly and adversely affected by the Proposed Development. In the absence of mitigation, however, the possibility cannot be ruled out.

1.187. Wigeon is a wader species that breeds and winters on large bodies of water, feeding on aquatic vegetation.[72] The Application Site does not support suitable habitat for this species and so, in the absence of mitigation, significant effects are unlikely to occur on this qualifying interest or its conservation objectives.

1.188. This SPA is also designated for other wetland and waterbird species; however, the Application does not support appropriate habitat for these species. In the absence of mitigation, it is unlikely that this qualifying interest or its conservation objectives will be adversely affected and would be **minor adverse** in the unlikely event that significant effects occurred.

1.189. Overall, due to the habitat present within the Application Site and core foraging ranges the above qualifying interests, potential effects on the above qualifying interests and their conservation objectives would be **low spatial and short-term temporal** which would cause a **minor adverse, significant impact** in the absence of mitigation.

Middle Shannon Callows SPA

1.190. The Middle Shannon Callows SPA is located 11.02km from the Application Site. The conservation objective for this SPA is to maintain favourable conditions for the qualifying species of interest and the habitat on which they depend.

1.191. The Middle Shannon Callows SPA is designated for the following species; Whooper Swan (*Cygnus cygnus*), Corncrake (*Crex crex*), Golden Plover (*Pluvialis apricaria*), Lapwing (*Vanellus vanellus*), Black-tailed Godwit (*Limosa limosa*), Black-headed Gull

[70] Available at: https://birdwatchireland.ie/birds/greenland-white-fronted-goose/.
[71] SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs). Available at: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf.
[72] Available at: https://birdwatchireland.ie/birds/wigeon/.

(*Chroicocephalus ridibundus*), Wigeon (*Mareca penelope*) and other wetland and waterbirds.

1.192. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes.[66] While the Application Site does support agricultural grasslands, these areas are managed for grazing of cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km.[71] It is therefore unlikely that, in the absence of mitigation, significant effects will occur on this qualifying interest.

1.193. The Corncrake is a migratory species, arriving in the summer months and leaving before winter. The species was once widely distributed within agricultural grasslands throughout the country. With the modernisation of modern agriculture, which produced low species diversity, low sward fields, this species has suffered major declines in more recent years.[73] This species is heavily associated with low-intensity agricultural grassland with a relatively high and dense sward. They feed largely on invertebrates alongside plant material in the autumn and winter months.[74] This species does not have a large core foraging range, preferring to remain within their territory. The Application Site is very species-poor and is managed intensively for pastural farming. The sward height is therefore incredibly short, which makes it unsuitable for Corncrake. The Application Site is also outside this species' core foraging range. It is therefore considered that significant adverse effects on this qualifying interest and its conservation objectives are unlikely.

1.194. The Golden Plover is a wintering species that is common on agricultural grasslands, feeding on invertebrates and plant material, and breeding in peatland habitats, particularly heather-dominated areas.[67],[68] The Application Site does support agricultural grassland, which is suitable foraging habitat for this species, however; there is an abundance of alternative habitat surrounding the Application Site so it is unlikely this species will be negatively affected. The Application Site is also outside the core foraging range of this species, which is 3km.[71] In the absence of mitigation, it is unlikely that adverse effects on this qualifying interest and its conservation objectives will occur.

1.195. Lapwings are a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land.[69] The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When also considering the supply of alternative habitat between the Application Site and the SPA, in the absence of mitigation, it is considered unlikely that adverse effects will occur.

[73] NPWS (2018). The Corncrake Conservation Project: Annual Report 2018. Available at: https://www.npws.ie/sites/default/files/general/corncrake-report-2018.pdf.
[74] Available at: https://birdwatchireland.ie/birds/corncrake/.

1.196. Black-tailed Godwit is a coastal species that feeds on invertebrates, such as bivalves, polychaete worms and crabs.[75] They will also forage on coastal and wet grasslands with a short sward height in close proximity to the shore.[76] The Application Site supports intensively managed agricultural grassland with a low sward height, which is not a suitable habitat for this species. This species is therefore highly unlikely to utilise the Application Site. In the absence of mitigation, it is unlikely that adverse effects will occur.

1.197. The Black-headed Gull is a resident species that is commonly found foraging on agricultural landscapes. They feed largely on insects but will exploit man-made sources, like domestic and fisheries waste.[77] The Application Site supports agricultural grassland which is suitable habitat for this species. The Black-headed Gull has a core foraging range of maximum 12km.[78] The Application is within this species' core foraging range; however, it is unlikely that Black-headed Gulls from this SPA will travel this distance when alternative habitats are available closer to this SPA. In the absence of mitigation, adverse effects on this qualifying interest and its conservation objective as a result of the Proposed Development are unlikely but they cannot be entirely ruled out.

1.198. Wigeon is a wader species that breeds and winters on large bodies of water, feeding on aquatic vegetation.[72] The Application Site does not support suitable habitat for this species and so, in the absence of mitigation, negative effects are unlikely to occur on this qualifying interest or its conservation objectives.

1.199. This SPA is also important for various other wetland species. The Application Site does not support wetlands or large bodies of water needed for these species. It can therefore be determined that the Proposed Development will not have an adverse effect on these species or their conservation objectives.

1.200. Overall, the Proposed Development is unlikely to have any significant, long-term, adverse effects on the qualifying interests of this SPA and their conservation objectives. In the event that potential effects do occur, they are predicted to be **low spatial and short-term temporal**, which is predicted to cause a **minor adverse, significant impact.**

[75] Available at: https://birdwatchireland.ie/birds/black-tailed-godwit/.

[76] Batey, C., Burgess, M., Donaldson, L., Lee, R. &Smart, J. (2023). Ecology and conservation of breeding Black-tailed Godwits in the UK. Available at: https://projectgodwit.org.uk/wp-content/uploads/2023/12/BWM34_4-01-Article-Godwits.pdf.

[77] Available at: https://birdwatchireland.ie/birds/black-headed-gull/.

[78] Jakubas, D., Indykiewicz, P., Kowalski, J., Iciek, T. & Minias, P. (2020). Intercolony variation in foragfing flight characteristics of black-headed gulls *Chroicocephalus ridibundus* during the incubation period. Available at: https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.6291.

River Little Brosna Callows SPA

1.201. The River Little Brosna Callows SPA is located 13.08km from the Application Site and is an important international site for over 20,000 wintering waterfowl.[79] The qualifying interests for this SPA are as follows: Whooper Swan (*Cygnus cygnys*), Teal (*Anas crecca*), Pintail (*Anas acuta*), Golden Plover (*Pluvialis apricaria*),Lapwing (*Vanellus vanellus*), Black-tailed Godwit (*Limosa limosa*), Black-headed Gull (*Chroicocephalus ridibundus*), Greenland White-fronted Goose (*Anser albifrons flavirostris*), Wigeon (*Mareca penelope*), Shoveler (*Spatula clypeata*) and other wetland and waterbird species.

1.202. The conservation objective for this SPA is to restore and maintain the favourable conservation condition of the above qualifying species of interests and the habitats which they depend on.

1.203. The following species and their ecology have been assessed: Teal, Pintail, Wigeon and Shoveler. These species are largely coastal, breeding and wintering in coastal lagoons and bays. They will also utilise large inland waterbodies, like rivers, lakes and turloughs and may also forage on arable crops if it is in close proximity to a large waterbody. Their diet consists of coastal invertebrates and aquatic vegetation.[80],[81],[82],[83] As the Application Site does not support suitable habitat for these species, it is unlikely that these species will interact with the Application Site. It is therefore determined that these qualifying species and their conservation objectives will not be adversely affected by the Proposed Development.

1.204. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes.[66] While the Application Site does support agricultural grasslands, these areas are intensively managed for grazing cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km.[71] It is therefore unlikely that, in the absence of mitigation, significant effects will occur on this qualifying interest.

1.205. Golden Plover is a wintering species that is common on agricultural grasslands, feeding on invertebrates and plant material, and breeding in peatland, particularly heather-dominated areas.[67],[68] The Application Site does support agricultural grassland, which is suitable foraging habitat for this species, however; there is an abundance of alternative habitat surrounding the Application Site so it is unlikely this species will be negatively affected. The Application Site is also outside the core

[79] NPWS (2014). Site Synopsis: River Little Brosna Callows SPA 004086. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004086.pdf.
[80] Available at: https://birdwatchireland.ie/birds/pintail/.
[81] Available at: https://birdwatchireland.ie/birds/teal/.
[82] Available at: https://birdwatchireland.ie/birds/wigeon/.
[83] Available at: https://birdwatchireland.ie/birds/shoveler/.

foraging range of this species, which is 3km.[71] In the absence of mitigation, it is unlikely that adverse effects on this qualifying interest and its conservation objectives will occur.

1.206. Lapwings are a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land.[68],[69] The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When also considering the supply of alternative habitat between the Application Site and the SPA, in the absence of mitigation, it is considered unlikely that adverse effects will occur but cannot be entirely ruled out..

1.207. Black-tailed Godwit is a coastal species that feeds on invertebrates, such as bivalves, polychaete worms and crabs. They will also forage on coastal and wet grasslands with a short sward height in close proximity to the shore.[75],[76] The Application Site supports intensively managed agricultural grassland with a low sward height, which is not a suitable habitat for this species. This species is therefore highly unlikely to utilise the Application Site. In the absence of mitigation, it is unlikely that adverse effects will occur.

1.208. The Black-headed Gull is a resident species that is commonly found foraging on agricultural landscapes. They feed largely on insects but will exploit man-made sources, like domestic and fisheries waste.[77] The Application Site supports agricultural grassland which is suitable habitat for this species. The Black-headed Gull has a core foraging range of maximum 12km.[78] The Application is slightly outside this species' core foraging range; however, it is not uncommon for individuals to travel outside their core foraging range in the event that foraging and breeding resources with their usual range have been depleted. It is unlikely that Black-headed Gulls from this SPA will travel this distance due to the plentiful supply of alternative habitats available closer to the SPA. In the absence of mitigation, adverse effects on this qualifying interest and its conservation objective as a result of the Proposed Development are unlikely but they cannot be entirely ruled out.

1.209. Greenland White-fronted Goose is a wintering species that breeds near lakes and rivers and forages on plant material, like roots, tubers, shoots and leaves. This species has been recorded foraging on various habitats, like peat bogs, dune grasslands, salt marshes and in more recent years, agricultural grasslands.[70] The core foraging range for this species during wintering season is 5-8km.[71] The Application Site is therefore outside of this species' core foraging range, which suggests that this qualifying interest and its conservation objectives will not be significantly or adversely affected by the Proposed Development.

1.210. This SPA is also important for various other wetland and waterbirds. When the distance between this SPA and the Application Site is taken into account, alongside the lack of wetland and aquatic habitats often required for these species within the

Application Site, it can be determined that these species will not be adversely affected by the Proposed Development.

1.211. Overall, it is considered thatsignificant adverse effects are unlikely to occur on the qualifying interests of this SPA, and their conservation objectives as a result of the Proposed Development. In the event that impacts do occur, potential effects are estimated to be **negligible in spatial and temporal magnitude** leading to a **negligible, not significant impact.**

National

1.212. There are two Natural Heritage Areas ("NHAs") within 5km of the Application Site; Cloonoolish Bog NHA and Moorfield Bog NHA. There are also three wetland areas within 2km of the Application Site.

Cloonoolish Bog NHA

1.213. Cloonoolish Bog NHA is located 4.11km from the Application Site and is designated for peatland habitats. This NHA supports a raised bog, along with areas of cutover bog that contains species typical of peatland habitats, including ling heather (*Calluna vulgaris*) and various species of bog mosses.[84]

1.214. No direct or indirect hydrological connectivity was identified between the Application Site and this NHA.[85] As the sole qualifying interest for this NHA is immobile, hydrological connectivity is required to establish a pathway for impacts. As no connectivity exists, it can be determined that the likelihood for significant negative effects in extremely low. In the event that impacts do occur, the potential effects are predicted to be **negligible in spatial and temporal magnitude**, suggesting a **negligible and not significant impact.**

Moorfield Bog NHA

1.215. Moorfield Bog NHA is located 3.35km from the Application Site and is designated for peatland habitats. This NHA supports raised bog habitat, with area of cutover bog and active bog around the edges. The NHA supports various flora species associated with peatlands, dominated by ling heather and hare's tail cottongrass (*Eriophorum vaginatum*). The possible presence of a rare bog moss, *Sphagnum pulcrum*, adds to the scientific and ecological importance of the NHA.[86]

[84] NPWS (2002) Site Synopsis: Cloonoolish Bog NHA 000249. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000249.pdf.
[85] EPA Maps. Available at: https://gis.epa.ie/EPAMaps/.
[86] NPWS (2015). Site Synopsis: Moorfield Bog NHA 001303. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY001303.pdf.

1.216. As the qualifying interest for this NHA is immobile, direct or indirect hydrological connectivity would be required to establish a pathway for impacts. As no direct or indirect hydrological connectivity exists between the Application Site and this NHA, no such pathway exists. Because of this, it is considered unlikely that adverse effects will occur as a result of the Proposed Development. In the event that impacts do occur, the potential effects are predicted to be **negligible in spatial and temporal magnitude,** suggesting a **negligible, not significant impact.**

Wetland Sites

1.217. There are three wetland sites within 2km of the Application Site; Moaty Killcloonineen Bog, Belview Craughwell Bog and Kiltormer Gortnamona Bog.

1.218. Of these wetland habitats, only one has limited hydrological connectivity and that is Moaty Kilcloonineen Bog. No watercourses bisect or run adjacent to the Application Site; however, a drainage ditch running along the southern boundary of the upper cluster of fields connects to the East Loughturk river, which runs through the border of the Moaty Kilcloonineen Bog NHA. In the absence of mitigation, it is possible that contaminants which enter this drainage ditch during the construction phase may flow toward the river and travel down toward Moaty Kilcloonineen. The potential ex-situ effects are predicted to be **moderate spatial and medium-term temporal** leading to a **minor to moderate adverse and significant impact** without mitigation.

Habitats

1.219. The construction of the Proposed Development will involve construction on land which is largely comprised of improved agricultural grassland These habitats are of low ecological value and currently offer limited potential to support a range of common and widespread species.

1.220. Overall, the proposed footprint constitutes a relatively small percentage of the total area of the Application Site (34.8ha) and will give rise to relatively limited permanent habitat loss. The total ground disturbance area resulting from the Proposed Development is 29,079.6m^2, therefore c.8.36% of the Application Site area.

1.221. While the development boundary encompasses the entire area where work may occur during the construction phase, habitat loss will only be required where access tracks, the cable route, the substation, grid connection and other ancillary works are needed which will not take up the entire area of land within the development boundary.

1.222. In addition to habitat loss effects arising at construction, it is considered that the Proposed Development has the potential to give rise to adverse water quality and habitat deterioration impacts which may negatively effect freshwater habitats within 2km of the Application Site. The East Loughturk river does not run within or adjacent

to the Application Site; however, a drainage ditch present along the southern boundary of the upper land cluster is indirectly connected to the East Loughturk river. In the absence of mitigation, it is possible that a contamination event may occur within this drainage ditch, which would have moderate adverse effects on the integrity of the East Loughturk River.

1.223. Additional areas of habitat, namely areas of habitat of low ecological value including improved grassland, will be subject to some limited disturbance through the movement of vehicles to facilitate construction. It is considered that such effects would be **Low Spatial, Short-term Temporal leading to minor adverse and Significant impact without mitigation.**

Protected or Notable Species

1.224. The sections below detail the potential impacts and effects in the absence of any suitable mitigation for protected or notable species during the construction phase (short-term) of the Proposed Development.

1.225. In accordance with CIEEM guidelines, the duration of disturbance during construction is considered to be short-term for the species groups below (except invertebrates). However, it is noted that short-term impacts can lead to long-term effects e.g., they cause breeding failure in a given year. Invertebrates have been assessed in-line with their specific (short) lifecycle characteristics.

Bats

1.226. The Application Site is comprised of agricultural grassland, bordered by hedgerows and treelines, as well as drainage ditches. No watercourses or waterbodies are within the Application Site or directly adjacent. Hedgerows and treelines are incredibly important ecological features for bats, used for roosting, foraging and commuting between habitats. Many species of bats in Ireland generally commute and forage along linear features, such as streams/rivers, hedgerow or woodland edges (this is true for Pipistrelle and Myotis species). However, on occasion they will cross open features, particularly species with strong echolocation such as Leisler's bat (*Nyctalus leisleri*). Drainage ditches are also important, often hosting abundant invertebrate populations which provide ample prey items for bats. Drainage ditches will be subject to an exclusion one throughout construction and decommissioning, with a 2m exclusion zone implemented when dry and a 5m exclusion zone implemented when wet. Agricultural grasslands are considered to be of low ecological value for bats due to the open nature and lack of prey items.

1.227. The majority of the Application Site is comprised of fields of agricultural grassland. These habitats offer sub-optimal foraging habitat for bat species due to the limited number of prey species supported. The loss of these habitats under the Proposed

Development footprint will not lead to a significant reduction in foraging habitat for local bats.

1.228. As a diurnal/nocturnal species, bats are sensitive to light. There will be no significant increase in artificial lighting during the construction as works will largely occur during daylight hours. In some circumstances, works may be required to occur outside regular working hours; however, this is unlikely to be a regular occurrence on site. Light spillage from the construction to adjacent habitats will therefore not have a significant adverse effect.[87]

1.229. There are several trees with low and moderate bat roost potential ("BRP"). 481.3m^2 of hedgerow will be removed, as well as 14 trees. 230m of hedgerow will also be trimmed to facilitate vision lines. 23m of hedgerow will be removed to facilitate swept path alongside 3 trees. None of these structures have been identified as having the potential to support a bat roost, therefore, disturbance of bats is unlikely. There will some reduction in valuable habitat for bats; however, this will not be significant regarding the surrounding ecological landscape.

1.230. In the absence of mitigation, it is possible that habitats which may support bats will be adversely affected by the construction phase of the Proposed Development. If impacts do occur, potential effects are predicted to be **low to moderate spatial, medium-term temporal,** leading to **minor to moderate adverse and significant impact.**

Badger

1.231. A potential badger sett was identified at Target Note 5 detailed in **Table 1-14** above and illustrated in **Appendix 2A – Figure 2.2**. No other potential badger setts or signs of badger activity (latrines, footprints, paths etc.). The presence of a potential badger sett, alongside the favourable habitats throughout the Application Site, suggests that badger could utilise the Application Site before construction commences on site. Previous surveys also identified two other potential badger setts. While these were not noted during the updated Fossitt and Species Scoping survey, it is still very possible that these setts are still present but were blocked by vegetation or debris and not visible during the survey. As a precautionary measure, these setts have been considered as part of the proposed design approach.

1.232. An exclusion zone of 50m has been included within the design which will account for badger breeding season (between February and June). This will prevent disturbance of badger clans through vibrations, noise, or light pollution during the construction

[87] Bat Conservation Trust (2023). Bats and Artificial Lighting. Available at: file:///C:/Users/Rhona.Coghlan/Downloads/GN08-Bats-and-Artificial-Lighting.pdf.

phase. It is important to note that badgers are incredibly mobile, with territories are up 150ha, so it is possible that more setts will appear prior to construction.[88]

1.233. In addition to the auditory, visual and light disturbance, excavation works for trenches and underground cables may cause disturbance and entrapment of badgers, which may lead to mortality of individuals.

1.234. It should be noted also that mammal push throughs and snuffling were observed within the Application Site. During the construction phase, some of these foraging habitats may become unavailable to badgers due to fragmentation of the landscape due to excavated trenches and other excavation works.

1.235. Overall, it is considered that, in the absence of mitigation, negative impacts may occur on the local badger population. These potential effects are estimated to be **low spatial, short-term temporal,** leading a **minor adverse and significant effect**.

Birds

1.236. The Proposed Development will be constructed on lands of low ecological value that is currently under an intensive management regime as a result of modern agricultural practices. During survey, incidental bird sightings were noted, and these are illustrated in **Table 1-15** above. The Application Site supports an assemblage of common farmland birds, majority of which are listed within the Green List for Birds of Conservation Concern in Ireland ("BoCCI").Three raptor species were also noted within the Application Site, all of which are green listed; Buzzard. Two amber-listed were identified within the Application Site; House Sparrow (*Passer domesticus*) and Goldcrest (*Regulus regulus*). A red-listed bird species, Snipe, was also sighted within the Application Site, during Wintering bird Surveys.

1.237. Goldcrests are a small resident bird in Ireland that nests in a variety of habitats, including hedgerows. There will be no reduction in hedgerows or treelines during construction and habitat loss will only occur where works are required for access tracks, cable routes etc. Despite this, noise and vibrations can negatively affect nesting birds, especially during bird breeding season (March to August inclusive). In the absence of mitigation, disturbance may occur which may negatively affect the Goldcrest.

1.238. House Sparrow, a resident bird to Ireland, was recorded during Wintering Bird surveys. This species is common around farmyards and farm buildings nesting in crevice, gaps in eaves and shoots and other small spaces.[89] As they are not commonly found nesting in vegetation (hedgerows, treelines etc.), it is unlikely that species will

[88] Available at: https://www.badgerwatch.ie/about-badgers.html#:~:text=Badgers%20are%20highly%20territorial%20and,to%20scent%20paths%20and%20latrines .

[89] Available at: https://birdwatchireland.ie/birds/house-sparrow/.

be impacted by the Proposed Development as it will not negatively impact any structures suitable for breeding House Sparrow.

1.239. Snipe, which were recorded within the Application Site during the Wintering Bird Surveys, is commonly seen waterlogged areas, foraging on plant matter, including seeds, and some invertebrates. They prefer areas with tussocky grasses and thick vegetation which act as cover. They are also ground-nesting birds and are concentrated in wet or boggy terrain.[90] As this species was seen within the Application Site, it is possible that, in the absence of mitigation, these species may be negatively impacted.

1.240. Redwing, another red-listed species, was also recorded within the Application Site. This species is seen in Ireland from October to March and is commonly seen in open field, feeding on plant matter and invertebrates.[91] As this species was seen within the Application Site and vegetation removal is required, it is possible that this species may be negatively impacted should works extend into the winter months.

1.241. Meadow pipits are a common passerine bird in Ireland, seen to use rough pastures, bogs, uplands, scrub and pasture for breeding. Meadow pipit were observed flying over the site during the January and February surveys. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines, with only small amounts of removal scheduled which will be compensated by infilling of existing hedgerows. No significant impacts to goldcrest are predicted to arise as a result of the Proposed Development subject to mitigation.

1.242. Agricultural grasslands can be useful for some farmland species, especially those who feed on invertebrates which can be plentiful within these habitats. Any species who may be reliant on this habitat may be negatively affected by construction works without mitigation implemented. This is unlikely, however, due to the presence of alternative habitat directly adjacent to the Application Site which will also provide foraging opportunities for various species.

1.243. Wintering Bird Surveys were conducted within the Application Site in January, February and March of 2023 in conjunction with the consented solar farm development. These surveys found that the Application Site supported an assemblage of common farmland birds, with most being green-listed species.

1.244. Wintering Bird surveys were also carried out in January, February and Mrach of 2026. Surveys from January, February and March of 2026 garnered similar results to those seen in 2023, recording typical farmland species, with a majority of these species being green-listed. Two red-listed species, Snipe and Redwing, were recorded during 2026 surveys throughout the Application Site. Three amber-listed species, Skylark,

[90] Available at: https://birdwatchireland.ie/birds/snipe/.
[91] Available at: https://birdwatchireland.ie/birds/redwing/.

Goldcrest and Teal, were also recorded within the Application Site during the 2026 surveys.

1.245. Three Lapwing were recorded during the 2023 survey period but were not observed within the Application Site and were instead within the 50m ESA. Lapwing were not recorded during the 2026 survey period.

1.246. In the absence of mitigation, potential effects are predicted to be **low spatial, short-term temporal,** leading a **minor adverse and significant effect**.

Otter

1.247. The majority of the Application is made up of agricultural grassland which is considered to be unsuitable for Otter. The Application Site does not support any large rivers or waterbodies with the potential to provide for breeding or foraging Otter. There are drainage ditches within the Application Site, however, which do have the potential to act as migratory corridors. In the event that these drainage ditches become contaminated, adverse effects may occur.

1.248. Excavation works will be occurring within the Application Site for access track, cable routes, trenches etc. These pose a risk to Otter, as individuals may become trapped within these excavations and are unable to escape lading to mortality. Without mitigation, this may negatively affect this species.

1.249. It is also possible that sedimentation and pollution of surface waterbodies may negatively impact both migrating Otters utilising drainage ditches as corridors and downstream Otter breeding sites. This is especially important as one drainage ditch is connected to the East Loughturk river, which as the potential to support Otter as a 1st order river.

1.250. As assessed above, due to the habitats present and hydrological connectivity with the East Loughturk river, it is possible that, in the event that a contamination event does occur, potential ex-situ effects likely to be **low spatial, short-term temporal,** leading a **minor adverse and significant effect**.

Amphibians and Reptiles (Herptiles)

1.251. Drainage ditches within the Application Site offer some limited potential habitat for herptile species; however, terrestrial habitats which are to be subject to development offer extremely limited opportunities for this species, or other protected herptiles. An exclusion zone of 2m and 5m respectively will be implemented along all drainage ditches dependent on whether they are wet or dry. It is considered that, in the event that impacts occur, they will be **negligible in temporal and spatial magnitude** leading to a **negligible and not significant effect**.

Invertebrates

1.252. Given the lack of habitats within the Application Site with potential to support populations of invertebrates of conservation concern, it is not considered that the Proposed Development would have any potential to give rise to any significant effects upon protected or notable invertebrates Any impact which do occur will have **negligible spatial and temporal magnitude**, which will lead to **negligible and not significant effects.**

Fish

1.253. All drainage ditches will be subject to exclusion zones which will decrease the likelihood of a contamination event. Additionally, the seasonal changes experienced by drainage ditches within the Application Site would make them unsuitable as habitat for fish that require consistent levels of water. When also considering the lack of other suitable habitats, it is not envisioned that the Proposed Development will give rise to significant adverse effects on the local fish population and would be negligible.

Pine Marten

1.254. The Application Site supports habitats which are suitable are suitable for Pine Marten. While no signs of Pine Marten were seen within the Application Site, it is possible that Pine Marten will interact and utilise the Application Site between the time of surveys and the commencement of construction. It is therefore possible that, without mitigation, potential effect on the local Pine Marten population will be short-term in temporal, low in spatial, leading to a **minor adverse and significant effect.**

Other Mammals

1.255. There will be a negligible loss or fragmentation of the hedgerow and treeline that could support hedgehog and other protected or common mammals, with 481.3m^2 of hedgerow to be removed and 230m to be trimmed. 14 trees will also be removed. 23m of hedgerow is schedule for removal to facilitate sept paths, alongside 3 trees. When considering the Application Site as a whole and its surrounding landscape, this is an insignificant loss. It should also be noted that infilling of hedgerow is also proposed, which will compensate for the loss of these habitats. Whilst areas of improved grassland habitat will be lost these habitats are of negligible importance for these species and will be largely retained within the Proposed Development. Impacts on hedgehog, and other mammal species that could utilise the site are therefore likely to be limited largely to noise, and vibration disturbance during the construction phase of the Proposed Development, in addition to the potential for entrapment within deep excavations.

1.256. It is considered that potential effects upon hedgehog or other protected mammal species will be **negligible in spatial and temporal magnitude**, leading to a **negligible and not significant effect.**

OPERATIONAL PHASE

Designated Sites

International Designations

1.257. As discussed above, four SACs and three SPAs were identified within 15km of the Application Site. These Designated Sites were as follows; River Shannon Callows SAC, Redwood Bog SAC, Ardgraigue Bog SAC, Glenloughaun Esker SAC, River Suck Callows SPA, River Shannon Callows SPA, and River Little Brosna Callows SPA.

1.258. The nature of the Proposed Development which will, at the operational phase, which will have limited requirement for routine maintenance, will not have any potential to give rise to any potential adverse effects upon any internationally important designated sites.

1.259. Effects are considered to be negligible in spatial and temporal magnitude, leading to a negligible and not significant effect.

National Designations

1.260. As discussed above, there are two Natural Heritage Areas ("NHAs") within 5km of the Application Site; Cloonoolish Bog NHA and Moorfield Bog NHA. There are also three wetland areas within 2km of the Application Site.

1.261. As said above, the nature of the Proposed Development will only require minor routine maintenance. This is not predicted to give rise to significant adverse effect upon these Nationally Designated Sites.

1.262. Effects are considered to be negligible in spatial and temporal magnitude, leading to a negligible and not significant effect.

Habitats

1.263. The operational phase of the Proposed Development will not give rise to the loss of habitats within the site, with all such effects occurring at construction phase.

1.264. As the operational phase of the Proposed Development will involve the ongoing functioning of the substation, with minor maintenance requirements, it is considered that no sources of water quality or habitat disturbance effects will occur. Potential

sources of water quality effects are limited to the movement of maintenance vehicles with associated effects considered to be **negligible in spatial and temporal magnitude**, leading to a **negligible and not significant effect.**

1.265. No further pathways for potential adverse impacts to arise to habitats at operational phase have been identified.

Protected Species

Bats

1.266. The operational phase of the Proposed Development will not give rise to any potential significant adverse effects upon foraging, commuting or roosting bats.

Badger

1.267. The operational phase of the Proposed Development would have extremely limited potential to give rise to adverse effects upon badgers. This includes the ongoing fragmentation of foraging habitats resulting from the installation of security fencing, which would arise at construction. It is considered that such effects would be **low spatial, short-term temporal**, leading to a **minor adverse** in the absence of mitigation.

Birds

1.268. It is not envisaged that the operational phase of the Proposed Development will give rise to any potential significant adverse effects upon common and widespread bird populations recorded within the site.

1.269. The only identified pathway for significant effects to bird populations is considered to be operational phase habitat changes within the Application Site, leading to a reduction in agricultural grassland areas. Any changes which occur are unlikely to have a significant negative effect on the local bird population, given the alternative habitat surrounding the Application Site. It is considered that such effects would be **low spatial, short-term temporal**, leading to a **minor adverse** in the absence of mitigation.

Otter

1.270. The operational phase of the Proposed Development would have extremely limited potential to give rise to adverse effects upon otters This includes the ongoing fragmentation of foraging habitats resulting from the installation of security fencing and contamination of drainage ditches, which would arise at construction. It is considered that such effects would be It is considered that such effects would be **low spatial, short-term temporal**, leading to a **minor adverse** in the absence of mitigation.in the absence of mitigation.

Other Protected Species

1.271. It is not considered that the operational phase of the Proposed Development, which will involve no further habitat disturbance and will be limited to the ongoing use of the site as an operational substation would give rise to any potential adverse effects upon any further protected species.

DECOMMISSIONING PHASE

1.272. While no decommissioning phase has been envisaged for this development, a possible decommissioning phase would involve the use of construction machinery and the removal of infrastructure on site in a similar manner to that which occurs at construction phase.

1.273. It is considered that the potential impacts arising to ecological receptors will be the same as those arising as a result of the construction phase of the Proposed Development, as detailed above.

MITIGATION MEASURES

Designated Sites

1.274. As discussed above, potential impacts to wetland areas are limited to effects associated with water quality arising through potential sedimentation and pollution of surface water bodies within and downstream of the Application Site.

1.275. The Proposed Development will be undertaken in line with a range of relevant guidance for the protection of surface waters throughout the constructionand decommissioning phase. These will include:

- Plant and equipment will be stored on dedicated hardstanding's within the construction compound. This will minimise the risk of pollution caused by leakages occurring out of hours. Drip trays will be used where appropriate.
- All plant and equipment will utilise biodegradable hydraulic oil.
- Spill kits will be readily available to all personnel. The spill kits will be of an appropriate size and type for the materials held on site.
- Diesel fuel will be stored in a bunded diesel bowser which will be located within a fenced off area in the construction compound.

- Refuelling and maintenance of vehicles and plant will take place in designated areas of hardstanding.
- All other chemicals will be stored within a storage contained with an accompanying COSHH Datasheet.
- Wastewater from the temporary staff toilets and washing facilities will be discharged to sealed containment systems and disposed via licensed contractors.
- Early seeding of embankments near watercourses would be undertaken to reduce the potential for sediment run-off.

1.276. Other mitigation measures will be utilised in areas where there is a high risk of pollution, which will include:

- Silt fences
- Silt traps
- Check Dams

1.277. The above mitigation measures will be checked at regular intervals by a competent and qualified ecologist or environmental manager, and regular maintenance will be enforced. These will be implemented following Inland Fisheries Ireland ("IFI") Guidelines.[92]

Clean Water Diversion

1.278. Where feasible, clean water (e.g. water that has yet to come into contact with any disturbed construction or working areas), will be kept separate from the watershed or intercepted by the Proposed Development's construction drainage.

1.279. Up-gradient cut-off ditches and water diversion measures will be installed in order to intercept and divert clean water around construction compound area. These measures will be installed ahead of the main construction works. This will reduce or prevent the amount of potential silt-laden or polluted water that might require treatment.

1.280. Clean runoff that has been diverted around an area of working should be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques.

[92] Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. Available at: https://www.fisheriesireland.ie/sites/default/files/migrated/docman/2016/Guidelines%20Report%202016.pdf.

1.281. Sediment control measures, such as silt traps, gravel, sand bags, anchored straw bales or silt fencing might be required at the discharge point to prevent erosion at the outlet and aid dispersion of the diverted water.

Silt Control

1.282. Silt-laden runoff should be expected from any areas of recently exposed soil or rock. There is also potential for pollution to occur from machinery used in the Proposed Development's construction.

1.283. Any introduced or artificial materials required (e.g. silt fencing, straw bales, sand bags etc.) that might need to be deployed onsite, will be removed on completion of the works.

1.284. Discharge from the silt control measures will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into the existing drainage network within the Application Site.

Noise and Vibration

1.285. Operating plant noise will be kept within the standards and time periods dictated for the site. Any noncomplying plant will be stopped and stood down until it can be rectified or removed from the site.

- The British Standard which gives guidance on noise from construction and mineral working sites is BS 5228. This document does not specify absolute noise limits relating to construction activities; however, it does provide detailed guidance on the steps that can be taken to minimise potential noise & vibration effects. Reasonable mitigating measures are as follows: vehicles and machinery will be switched off when not in use.
- Operation of plant, including fitting and proper maintenance of silencers and/or enclosures, avoiding excessive and unnecessary revving of engines and parking of equipment in locations which avoid possible effects on residential properties.
- Traffic movement limited to:
  - 07.00 to 18.00 Monday to Friday.
  - 08.00 to 16.00 Saturdays.
  - Public holidays will be observed unless otherwise agreed with the local planning authority.

– When loading and unloading material, attempts shall be made not to drop material from a height.

1.286. Any noise complaints shall immediately be directed to the site agent. Depending on the nature of the complaint, the initial response could be to immediately cease the activity until suitable mitigation measures have been put in place and agreed with the affected individual.

Dust

1.287. In order to control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following measures will be implemented:

- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site. Wheel washing will likely be a water bowser and power spray. It will not have any cleaning additives and will drain into the temporary drainage feature at the site compound.
- During windy conditions, any dust generating activities will be avoided or minimised, where practical.
- Any soil stockpiles will be covered when left for extended periods of time.
- Driving practices which minimise dust generation will be adopted.
- Loads into and out of the site will be covered where required.

Waste Management

1.288. There will be limited waste generated during the construction phase of the Proposed Development.

- The contractor on site during each phase will ensure that all waste will be disposed of responsibly from the site. Potential waste generated during the construction phase is likely to include:
- Wooden crates or cardboard boxes in which the materials will be packaged. These will be removed from the site and recycled appropriately at regular intervals.
- Packaging materials from various components including cabling, etc. These will also be removed regularly and recycled.

- Aggregate and substrate from groundworks – soil will be excavated for the construction of the access tracks, construction slabs, etc. most of which is expected to be reused on site with some waste being removed.
- Site office waste will be collected separately in order to maximise the potential for recycling.
- Any kitchen waste will be taken off site in refuse containers and disposed of off-site.
- Oils/fuels, paints, solvents or other chemicals will be stored at the temporary site compound and disposed of appropriately.
- Burning of waste on site will be prohibited.

Storage of Fuels and Chemicals

1.289. As per Best Practice Guidance (BPGCS005),[93] all fuels, oils and chemicals on site will have a secondary containment system of 110% capacity and be located more than 20m from any watercourse (i.e. outside of the water course buffer).

1.290. A bunded diesel bowser will be located inside a fenced off area within the temporary construction compound. Any other chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health ("COSHH") Datasheet in accordance with health and safety regulations. If generators are used on site, these shall be bunded (the bund shall be capable of containing 110% of the fuel tank's capacity). The bund shall be kept empty of water.

1.291. Where chemicals are required on site, they must be placed in an appropriate bund to prevent ground contamination. All chemicals must be stored in a correctly marked container clearly identifying the contents. Where labels are worn off, they must have a new label placed on them or the contents transferred to a correctly marked container. All safety data sheets for all chemicals should be filed on site as part of the CEMP.

1.292. Spill kits will be on site and, for ease of access, located in the site office. Contingency plans will be in place for dealing with a spillage should a spillage occur.

1.293. The Proposed Development includes a storage area for fuel, which includes transmission oil, petrochemicals etc. This storage area will include a manhole, foul water holding tank, road gulley, channel drain, rainwater downpipe, standard rainwater harvesting tank, and retention separator. The transformer will hold of total

[93] Best Practice Guide BPGCS005 - Oil Storage Guidelines. Available at: http://www.envirocentre.ie/includes/documents/OilStorageBPG.pdf;

volume of 177^{m3}. The mitigation measures detailed above will mitigate for any spillages or incidents which may occur during any re-fuelling or other activities. The above infrastructure will also assist in controlling and preventing any spillages from occurring.

Concrete

1.294. Concrete will not be allowed to enter watercourses under any circumstances, and drainage from excavations in which concrete is being poured will not be discharged directly into existing watercourses without appropriate treatment and consent from the relevant authority. Delivery trucks, tools and equipment will be cleaned at the wheel wash facility located at the temporary site compound.

1.295. Buffers from the site drainage ditches of 2m and 5m have been incorporated into the design of the Proposed Development and therefore there will be no concrete being used within the immediate vicinity of a watercourse.

Environmental Monitoring

1.296. Operations and activities that have the potential to impact on the water environment will be regularly monitored throughout the construction of the Proposed Development. This is to ensure compliance with planning conditions and environmental regulations.

1.297. The Site Manager is responsible for ensuring that all monitoring is carried out according to the Environmental Monitoring Programme, summarised in **Table 1-16** below.

Table 1-16: Environmental Monitoring

Environmental Aspect	Monitoring Location	Monitoring Frequency	Monitoring Arrangements
Site housekeeping	Entire site	Daily	Visual inspection
Surface watercourses	All watercourses	After periods of rain Weekly, if no rain	Visual inspection
Fuels and chemicals – appropriate storage	Entire site	Daily	Visual inspection

1.298. These records and results will be maintained by the Site Manager and will be stored on site during the construction phase.

Habitats

1.299. The Proposed Development will involve the relatively limited loss of areas of habitat of variable conservation significance. In addition, the Construction Phase of the Proposed Development will give rise to potential minor adverse effects upon watercourses and drainage ditches and minor watercourses through potential sedimentation and pollution. It is considered that the mitigation measures set out above, for protection of surface waterbodies inclusive of a range of measures implemented to protect downstream designated sites, will effectively mitigate any potential analogous impacts to aquatic habitats within the site and beyond.

1.300. 721.1m^2 of hedgerow is set to be removed, alongside 204.7m^2 of hedgerow which is proposed for trimming to facilitate vision lines. 23m of hedgerow will also be removed to account for swept path, alongside 3 trees. 18 trees will also be required for removal during construction. It is considered that the mitigation measures are required to ensure that removal of these habitats does not directly or indirectly harm any protected or notable species within the Application Site.

1.301. It is considered that the mitigation measures set out above, for protection of surface waterbodies inclusive of a range of measures implemented to protect downstream designated sites, will effectively mitigate any potential analogous impacts to aquatic habitats within the site and beyond.

1.302. Mitigation measures have been proposed to prevent disturbance of protected species. These measures include:

- The use of an Ecological Clerk of Works (ECoW) throughout construction to ensure that appropriate levels of supervision are implemented;
- Management of existing habitats to create additional foraging habitat;
- Exclusion zones implemented along all important linear features throughout the Application Site (hedgerows, treelines, drainage ditches);
- Creation of habitat interest features for protected species (e.g., herptile hibernacula, invertebrate hotels, etc.).
- Drainage management measures to ensure protection of surface waters including the use of temporary and permanent treatment ponds, swales or drains, use of silt traps, restrictions to refuelling and appropriate storage of fuel, monitoring of drainage and sediment management, as required.
- Pre-construction surveys to ensure that any changes in respect of protected species are appropriately identified and addressed (birds, bats, badgers etc.);

1.303. The Proposed Development will incorporate hedgerow buffer along the existing hedgerows throughout the site. This will protect these important linear features from disturbance during the construction and decommissioning phase.

Protected Species

Badger

1.304. As said above, badgers are an incredibly mobile species, with territories of up to 150ha.[88] Because of this, it is possible that badgers may interact with the site prior to construction during the lag period following initial survey period. It is therefore proposed that pre-construction badger surveys are undertaken before works are to occur near any hedgerows or treelines as these are important for badgers.

1.305. Any known locations of badger setts within the Application Site will be subject to a 50m exclusion zone during the badger breeding season. This exclusion zone will remain in effect for the duration of the construction period, and no works is to occur within this exclusion zone without the express permission from a qualified and competent ecologist. The badger sett located at Target Notes 5, as well as two potential badger setts identified in previous surveys, will be subject to this exclusion zone.

1.306. If possible, Daily checks will be carried out on trenches and excavations within the construction area, and ramps will be installed in all excavations and trenches to allow any entrapped badger and other mammals to escape.. Any entrapped badgers still trapped will be removed by competent personnel using safety procedures to protect both parties.

1.307. Security fencing will be incorporated in areas of the Application Site. This will prevent badgers from entering the substation or other areas and becoming trapped within the construction site.

Birds

1.308. The Proposed Development will not carry out vegetation clearance of any kind during bird breeding season. Despite this, the Proposed Development still has the potential to negatively affect linear features of high importance for birds within the Application Site through noise, dust and pollution. In the event that disturbance occurs during bird breeding season (March to August inclusive), breeding pairs may be disturbed and made flee from their nesting sites, which can lead to the mortality of chicks. For this reason, it is proposed that pre-commencement breeding bird checks are conducted where any works are to occur near a hedgerow or treelines..

1.309. 481.3m^2 of hedgerow and scheduled for removal, as well as 14 trees. 230m of hedgerow is also proposed for trimming to facilitate the creation of vision lines. 23m of hedgerow will also be removed to facilitate swept path, alongside 3 trees. This is a

small amount when you consider the remaining habitats throughout the Application Site. No vegetation clearance will occur within bird breeding season; however, should works be rescheduled or are required to occur within this period, pre-commencement surveys will be undertaken to ensure absence of breeding pairs and active nests within the relevant areas. . 145m of infilling is proposed which will also compensate for the loss of hedgerow.

1.310. In the event that an active nest is found within a hedgerow or treeline, a disturbance buffer will be implemented immediately, and a competent and qualified ecologist will be contacted.[94] Works will not commence within this disturbance buffer; however, works will continue outside of this exclusion zone. The ecologist will monitor the nesting site periodically until all chicks have fledged, and adults have vacated the nest. Once the ecologist has determined that nest to be inactive, works may commence within the designated exclusion zone.

1.311. Due to the presence of ground-nesting birds within the Application Site, it is proposed that pre-commencement breeding bird checks are conducted in areas where agricultural grassland vegetation is to be removed. This will also mitigate for Annex 1 bird species which may utilise the Application Site, such as the Lapwing and Annex II species, such as Snipe. Pre-commencement checks must take place at most 48 hours before removal and must be done by a competent ecologist. In the event that a nesting bird is found, a disturbance buffer will be implemented until chicks have fledged and adults have vacated the breeding area.

1.312. Due to the presence of water birds within the Application Site, when working in or near a drainage ditch, guidance provided by Inland Fisheries Ireland ("IFI") (2016) will be implemented. This will include the installation of silt fences, silt traps and check dams to control sediment run-off into surface waters and pollution. In the event that drainage ditches need to be crossed by machinery, box culverts will be installed in line with IFI guidance. These measures will protect water quality within these drainage ditches and by extension, any species, including teal, which may interact with them. Prior to commencement of these works, the relevant drainage ditches will be checked of any signs of activity suggesting presence of Teal or other protected species. This will prevent disturbance of any species and protect water quality within these drainage ditches.

1.313. The management of existing habitats will retain foraging habitat, and any important linear features will be retained as much as possible.

[94] Scottish Natural Heritage (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. Available at: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance.

Bats

1.314. Where hedgerow or treeline removal is proposed, a pre-commencement Preliminary Roost Assessment (PRA) will be undertaken across all vegetation to be cleared. Any tree or feature identified as having bat roost potential (BRP) will be subject to an appropriate exclusion zone and agreed mitigation measures, to be implemented by a suitably qualified ecologist in consultation with the developer and appointed contractors prior to works commencing.If it is determined that a tree or feature with BRP must be removed, procedures will follow the necessary NRA Guidelines (2005).[95],[96]

1.315. The structure or tree of interest will be surveyed by a competent ecologist who will conduct a PRA to determine whether the tree or structure has negligible, low, moderate or high BRP. In the event that a tree or structure has low, moderate or high BRP, emergence surveys must then be carried out. The timing and frequency of surveys will occur as illustrated in Table 1-17.

Table 1-17: Timing and Frequency of Emergence Surveys required following a PRA.[97]

		Low Bat Roost Potential	Moderate Bat Roost Potential	High Bat Roost Potential
Time of Survey		May - August	May - September with at one visit in May -August	May - September with at least one visit in May - August
Number of Emergence Surveys Required	Structures	1	2	3
	Trees	No further survey required	2	3

1.316. In the event that emergence surveys confirm the presence of a roost, the type of roost must then be determined. There are different types of roosts; Day, Night, Feeding, Transitional, Maternity, Hibernating, Hibernation and Satellite. In the event

[95] National Roads Authority (2005). *Guidelines for the Treatment of Bats during the construction of National Road Schemes.* Available at: https://www.tii.ie/media/1u0oryik/guidelines-for-the-treatment-of-bats-during-the-construction-of-national-road-schemes.pdf.

[96] National Roads Authority (2008). *Environmental Impact Assessment of National Road Schemes – A Practical Guide.* Available at: https://www.tii.ie/media/joodyduf/environmental-impact-assessment-of-national-road-schemes-practical-guide.pdf.

[97] Bat Conservation Trust (2024). Bat Surveys for Professional Ecologists: Good Practice Guidelines. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-4th-edition-AMENDED-27.03.24.pdf?v=1711530492&_gl=1*xdmg2p*_ga*MTMxNzgwMjc0NC4xNzQ2MTgwMzQy*_ga_G28378TB9V*MTc0NjE4MDM0MS4xLjAuMTc0NjE4MDM0MS4wLjAuMA.

that a maternity or mating roost is found during the bat mating season April to October, no removal is to take place until all bats have vacated the tree or structure. This will be determined through emergence surveys and, if required, endoscope surveys. A derogation licence will be obtained from the NPWS prior to any surveys taking place which may cause disturbance. Once all bats have vacated the roost site naturally, exclusion measures will be implemented along all access points from the beginning of April to Mid-May to avoid further disturbance and bat deaths. Removal will then occur, which will be supervised by a competent and qualified ECoW.

1.317. This will involve the tree being cut into large sections, starting with the outer branches and followed by the main trunk. All sections will then be laid on the ground with all exit holes facing upward to allow any remaining bats to vacate. These sections will not be removed for at least 24 hours.[95],[96]

1.318. The above mitigation will prevent any disturbance of bats or bat roosts and will be achieved through collaboration of the ecologist, contractor and developer.

Otter

1.319. As discussed above, Otters have a large core foraging range and often use drainage ditches as migratory corridors between habitats. The Application supports multiple drainage ditches, one of which connects to the West Kiltormer river, a 1st order river. It is therefore possible that Otter will interact with the Application Site as a migratory tool.

1.320. Contamination of drainage ditches can have negative impacts on Otter due to their utilisation as a migratory corridor. To prevent this, pollution prevention measures will be implemented in areas works are to occur near drainage ditches. These pollution measures include correct storage of possible contaminants, appropriate use of machinery and materials etc. In the event that an area is considered to be of high risk of contamination, mitigation measures include silt fences, silt traps, check dams etc. will be implemented to prevent a contamination event. This will preserve these migratory corridors and avoid disturbance of migrating Otter.

1.321. Areas of excavation and any trenches within the construction will be covered over during site closures to prevent entrapment of Otter. In the event that excavations and trenches cannot be covered over, these will be checked regularly after each closure period, and any trapped Otter will be removed by a competent and qualified professional. Mammal gates included in the security fencing for the construction site will prevent Otter from becoming trapped within the construction site and decrease fragmentation of habitats.

1.322. With the implementation of these mitigation measures, it is considered unlikely that the local Otter population will be negatively effects by the Proposed Development.

Other Protected Species

1.323. Proposed mitigation measures for the protection of badgers, including the covering of excavations and/or the provision of a means of escape will also deliver safeguards for other protected mammals or other species with potential to become trapped within excavations and allow for continued use of the site for foraging and migration.

1.324. The proposed landscaping measures, as set out within the accompanying Landscape and Environmental Management Plan, involve the management of existing habitats within the Application Site. 481.3m^2 of hedgerow and 14 trees are proposed for removal, which an insignificant amount when you consider the remaining areas of hedgerow. 230m of hedgerow is also proposed for trimming to facilitate vision lines. 23m of hedgerow will also be removed to facilitate swept paths, alongside 3 trees. 350.2m of infilling is also proposed which will compensate for the loss of hedgerow. All areas of vegetation will be checked prior to removal, particularly during bird breeding season. Wildlife shelters are also proposed within the Application Site which will further encourage and improve the Application Site's ability to support local wildlife. The locations of these wildlife shelters are illustrated within **Appendix 2A – Figure 2.2.** These include the following:

- 4 Bird Boxes;
- 5 Bat Boxes;
- 1 Herptile Hibernacula;
- and 1 Invertebrate Hotels.

RESIDUAL EFFECTS

Designated Sites

1.325. It is considered that subject to the implementation of a range of mitigation measures outlined above all potential adverse impacts upon designated sites would be fully mitigated.

1.326. Residual impacts predicted to arise to designated sites of natural heritage importance including statutory and non-statutory designations, are predicted to be **negligible in spatial and temporal magnitude** leading to a **negligible and not significant effect.**

Habitats

1.327. With the implementation of mitigation measures discussed above, any predicted residual effects of the Proposed Development on the surrounding habitats during the construction and , operational and decommissioning phase are estimated to be **negligible in spatial and temporal magnitude** leading to a **negligible and not significant effect.**

Protected Species

1.328. With the implementation of mitigation measures, it is predicted that any residual effects on protected species within the Application Site during the construction and, operational and decommissioning phase will be low to moderate spatial, negligible to short-term temporal, which will cause a **negligible to minor adverse effect**.

CUMULATIVE EFFECTS

1.329. As well as unique impact effects potentially possible from this Proposed Development, cumulative impact effects also need to be considered. Cumulative impacts can be an issue when the Proposed Development has a small impact on international sites or other sensitive ecological receptors. If other proposals also have a small impact, the combined result can have a significant impact on these features.

1.330. A search was conducted of relevant planning applications within the vicinity of the Application Site, relevant to Galway County Council. These are listed in **Table 1-18.** Applications over fifteen years old (approximately) were not considered to be relevant.

Table 1-18– Local Developments with Potential for Cumulative Impacts

Planning Reference	Project Type	Planning Status	Distance and Direction
2360827	to include development of a 240MWh battery energy storage systems facility within a total site area of up to 3.02 hectares, the site will include 1no. 38KV substation compound including 1no. single storey electrical substation building with an area of 69m2 & associated	Granted - Conditional	3.120km north

	switchgear, 12no. electrical inverters & 6no. electrical transformer, 31no. containerised battery storage modules on concrete plinths, access tracks & new site entrance, associated electrical cabling & ducting, security gates, perimeter security fencing, CCTV security monitoring & lighting system, landscaping works & all associated ancillary infrastructure		
2361049	for the development that will consist of a planning permission for a period of 10 years to construct & complete a Solar PV Energy development with a total site area of circa 81.9 hectares, to include, solar PV panels ground mounted on support structures, electrical transformer & inverter station modules, a substation, temporary construction compounds, internal access tracks, watercourse crossing infrastructure, security fencing, electrical cabling & ducting, interconnection cabling, CCTV & other ancillary infrastructure, drainage, additional landscaping & habitat enhancement as required & associated site development works. The solar farm would be operational for 35 years. A Natura Impact Statement will be submitted with this application	Granted - Conditional	Within Application Site
2561903	for several minor amendments to the previously consented development under Planning	Granted- Conditional	Within Application Site

	Reference 2361049. The amendments comprise the following; re alignment of the main entrance and access gate; re alignment and widening of internal access tracks; alteration of the boundary fence; removal of the consented 38kV substation in Field 22; combined central inverters and MV transformers are replaced by separate string inverters and central MV transformers; reduction in the size of related hardstanding areas; updated table layout including a reduction in PV table numbers from 3209 to 3120; reduction of the of new overhead line separation areas arising from the removal of a section of the 110 kV overhead line; inclusion of an additional badger sett buffer and amendment of condition 3a to extend the operational lifetime of the solar farm from 35 years to 40 years. An updated Natura Impact Statement has been submitted with this application. A separate application to obtain permission for a 110kV grid connection and 110kV substation to facilitate the export of power from the solar farm, will be submitted to An Coimisiún Pleanála. This development is covered by the provisions of the Renewable Energy Directive III (Directive (EU) 2023/2413) and it is important to note that the planning application may be subject to section 34D of the		

	Planning and Development Act 2000, as amended. When a notice issues in accordance with section 34D(b), the provisions of article 26A of the Planning and Development Regulations 2001 to 2025 shall apply		
2461749	to construct and complete a Solar PV Energy development with a total site area of circa 56.2 hectares across four sections of land to include, solar PV panels ground mounted on metal support structures, electrical transformer and inverter substation modules, temporary construction compounds, internal access tracks (existing, upgrading and new), site accesses, watercourse crossing infrastructure, security fencing, electrical cabling and ducting, interconnection cabling, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works. The solar farm would be operational for 35 years. A Natura Impact Statement will be submitted with this application	Granted – Conditional	Within Application Site
266009	for several minor amendments to the previously consented development under Planning Reference 2461749 (by Galway County Council). The amendments comprise the following; Combined central inverters and MV transformers are replaced by separate string	Granted-Conditional	Within the Application Site

	inverters and central MV transformers which results in a reduction in the extent of associated hardstanding areas; alteration to Condition 3(a) to extend the operational lifetime of the solar farm from 35 years to 40 years; addition of tables in the former central inverter locations. An updated Natura Impact Statement has been submitted with this application. This development is covered by the provisions of the Renewable Energy Directive III (Directive (EU) 2023/2413) and it is important to note that the planning application may be subject to section 34D of the Planning and Development Act 2000, as amended. When a notice issues in accordance with section 34D(b), the provisions of article 26A of the Planning and Development Regulations 2001 to 2025 shall apply		
74030	to build a 38kvline from existing Somerset 110kv Station to a point on the existing 38 kv line at Glenloughaun passing through or in the vicinity of the following townlands: somerset, Barnpark, Lakefield, Chapelpark, Glenaun, Gortnahorna (Clanricarde)	Granted - Conditional	3.250km north
151571	for a ten-year permission to construct a wind farm. The proposed underground cable connection to the national grid will run under the existing road network through the townlands of Coolcarta West, Caltragh,	Granted - Conditional	1.220km north

	Fynagh, Moneenaheeltia, Killevny, Ballyhoose,		
932	for ESB Somerset 110KV station which consists of alterations to the existing 110 KV station comprising of one no. sealing end structure, 4.59m high and associated site works	Granted - Conditional	3.240km north

1.331. The above listed projects are discussed individually below.

1.332. Planning Application 2360827 consists of a BESS site and ancillary works. An Environmental Impact Assessment ("EIA") Screening Report was produced for this development which concluded that an EIA was not required due to a lack predicted significant adverse effects. An Ecological Impact Assessment ("EcIA") was produced for the Proposed Development which found that no adverse impacts are predicted to occur with the implementation of mitigation measures. A cumulative assessment was undertaken within this EcIA which concluded that Proposed Development, alone or in combination with other projects, would not contribute to an adverse cumulative effect. It can therefore be concluded that **the Proposed Development, alone or in combination with this development, will not contribute to a negative cumulative effect.**

1.333. Planning Application 2361049 consists of a solar development and ancillary works, which will be powered by the substation included within the Proposed Development. Planning Application 2561903 consists of amendments to this planning applications. As these applications concern the same development, both were assessed in conjunction with each other. An EcIA was produced for this development which found that the development, with mitigation implemented, would not have significant adverse effects on the surrounding environment. An EcIA was also produced for the Proposed Development would not have a negative effect on the surrounding environment with mitigation measures implemented. A cumulative assessment was undertaken for the Proposed Development, and it was concluded that the Proposed Development, alone or in combination with other projects, would not contribute to a negative cumulative effect. It can therefore be determined that the **Proposed Development, alone or in combination with this development, will not contribute to a negative cumulative effect.**

1.334. Planning Application 2461749 relates to a solar energy development and associated ancillary works, which are intended to connect to the substation located within the proposed development site. Planning Application 266009 comprises proposed amendments to that development. As both applications relate to interconnected infrastructure within the same geographic area, they have been assessed

cumulatively and in conjunction with one another.An EcIA was produced for the consented solar farm and associated amendment applications which found that the development, with mitigation implemented, would not have significant adverse effects on the surrounding environment. An EcIA has also been produced for the SID application and considers that the Proposed Development would not have a negative effect on the surrounding environment with mitigation measures implemented. A cumulative assessment was undertaken for the Proposed Development, and it was concluded that the Proposed Development, alone or in combination with other projects, would not contribute to a negative cumulative effect. It can therefore be determined that the **Proposed Development, alone or in combination with this development, will not contribute to a negative cumulative effect.**

1.335. Planning Application 151571 consists of a wind farm development and ancillary works. An Environmental Impact Statement ("EIS") was produced for the development which concluded that with mitigation implemented, the development would not have a negative impact on the surrounding environment. An EcIA was also produced for the Proposed Development would not have a negative effect on the surrounding environment with mitigation measures implemented. A cumulative assessment was undertaken for the Proposed Development, and it was concluded that the Proposed Development, alone or in combination with other projects, would not contribute to a negative cumulative effect. It can therefore be determined that the **Proposed Development, alone or in combination with this development, will not contribute to a negative cumulative effect.**

1.336. Planning Application 0932 consists of a substation and ancillary works. The development was assessed for likelihood of significant impacts on European and Nationally Designated Sites, and it was found that the development would not have a negative effect on any surrounding Designated Sites. An EcIA was produced for the Proposed Development which concluded that, with implementation of mitigation measures, no adverse effects would occur on any Designated Sites as a result of the Proposed Development. A cumulative assessment was also conducted which determined that the Proposed Development, alone or in combination with other development, would not contribute to a negative cumulative effect. In conclusion, it can be determined that **the Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect.**

1.337. Planning Application 074030 consists of a substation and ancillary works. The development was assessed for likelihood of significant impacts on European and Nationally Designated Sites, and it was found that the development would not have a negative effect on any surrounding Designated Sites. An EcIA was produced for the Proposed Development which concluded that, with implementation of mitigation measures, no adverse effects would occur on any Designated Sites as a result of the Proposed Development. A cumulative assessment was also conducted which determined that the Proposed Development, alone or in combination with other development, would not contribute to a negative cumulative effect. In conclusion, it

can be determined that **the Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect.**

CONCLUSION

1.338. The Proposed Development comprises a 110 kV loop in loop out substation and grid route to facilitate the grid connection of the permitted Ballydonagh Solar Farm Planning Reference 2361049 within Ballydonagh Kiltormer Co Galway.

1.339. Within 15km of the Application Site, there are four SACs and three SPAs; River Shannon Callows SAC, Redwood Bog SAC, Ardgraigue Bog SAC, Glenloughan Esker SAC, River Suck Callows SPA, Middle Shannon Callows SPA, and River Little Brosna Callows SPA. Within 5km of the Application Site, there are two NHAs; Moorfield Bog NHA and Cloonoolish Bog NHA. Within 2km of the Application Site, there are three wetland sites; Moaty Killcloonineen Bog, Belview Craughwell Bog and Kiltormer Gortnamona Bog.

1.340. All Internationally and Nationally Designated Sites, as well as sites of ecological importance, named above were assessed for connectivity with the Application Site. The River Shannon Callows SAC was found to have potential limited ecological connectivity. Potential ornithological connectivity was identified between the Application and the River Suck Callows SPA, as well as the Middle Shannon Callos SPA. Indirect hydrological connectivity was identified between the Application Site and the Moaty Killcloonineen Bog. It was determined that in the absence of mitigation, the qualifying interests of these European Designated Sites could be adversely affected by the Proposed Development.

1.341. The potential in-situ and ex-situ effects on protected species and habitats within the Application Site were also assessed in the context that no mitigation is implemented within the Application site. It was determined that, in the absence of mitigation, some species may be negatively affected by disturbance, habitat loss, and fragmentation of habitats, among others.

1.342. Mitigation measures were proposed to mitigate any negative effects which may occur on protected species and habitats, as well as designated sites and sites of ecological importance, such as wetlands. These mitigation measures included the appointment of an ECoW, pre-commencement surveys for badgers, bats, and birds, supervised removal of vegetation during ecologically sensitive times of yearand covering of trenches and excavated areas during sites closures. All drainage ditches will be protected to prevent indirect contamination of connected watercourses through the use of targeted mitigation, which will be implemented prior to commencement of work and will be regularly maintained throughout the construction period until risk of contamination has decreased. These mitigation measures will protect local populations of wildlife, protected and notable species, as well as Designated Sites and ecologically important areas.

1.343. Wildlife shelters will be implemented throughout the Application Site which will support local wildlife and increase the Application Site's ability to support various species. This will have a beneficial impact and positive effect on both the Application Site and the surrounding landscape, leading to positive effects on local protected and notable species.

1.344. A cumulative assessment was carried out which assessed the potential cumulative impact which may occur through a combined negative effect stemming from a collective of local lans and projects. This assessment included all development within a 5km ZoI of the Application. Any application which was refused or invalid were not assessed, as well as any applications that were older than 15 years. Planning applications which were very small scale, such as residential renovations, were also not included. It was overall concluded that that Proposed Development, alone or in combination with the assessed development, will not contribute to a significant cumulative negative effect.

1.345. Overall, it was concluded that the Proposed Development would not give rise to any adverse effects on any Designated Sites, protected/notable species, or ecologically important areas with the implementation of mitigation measures. In the unlikely event that an impact does occur, the potential effects are predicted to **negligible to minor adverse**.

APPENDICES

Appendix A -Figures

- Figure 2.1 – Environmental Designations Map
- Figure 2.2 – Fossitt Habitat Map

Appendix B – Site Photographs

Appendix C – Wintering Bird Report

Appendix D – Biodiversity Management Plan

An **Origin Enterprises** Company

GLASGOW - HEAD OFFICE

Wright Business Centre, 1 Lonmay Road,
Glasgow, G33 4EL
T: 0141 773 6262

NORTHERN IRELAND OFFICE

83-85 Bridge Street, Ballymena, Co. Antrim,
Northern Ireland, BT43 5EN
T: 0282 565 04 13

BRISTOL OFFICE

Spaces 8th Floor
The Programme Building
The Pithay
Bristol, BS1 2NB
T: 0282 565 04 13

DUBLIN OFFICE

C/O Origin Enterprises PLC
4-6 Riverwalk,
Citywest Business Campus
Dublin 24, D24 DCW0
T: 00 353 (1) 5634900

RUGBY OFFICE

Valiant Office Suites
Lumonics House, Valley Drive,
Swift Valley, Rugby,
Warwickshire, CV21 1TQ
T: 01788 297012

WARRINGTON OFFICE

Lakeview 600, Lakeside Drive
Centre Park Square
Warrington
WA1 1RW
T: 01925 984 682