

East Limerick Substation Development

Ecological Impact Assessment

08/09/2026

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Harmony Solar East Limerick Ltd.



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Contract

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Contents

Executive Summary	xi
1 Introduction	12
1.1 Aims	12
1.2 Site Location	12
1.3 Project Description	15
1.4 Excavation Depths	20
1.5 Construction Duration	20
1.6 Drainage	20
2 Methodology	21
2.1 The EclA Team	21
2.2 Policy and Legislation	21
2.3 Methods	21
2.4 Guidance	24
2.5 Screening of Ecological Features	24
2.6 Assessment of the Effects on Features	24
2.7 Valuation of Ecological Features	25
2.8 Descriptive Terminology	26
2.9 Cumulative Impacts	29
2.10 Limitations and Assumptions	30
2.11 Zone of Influence	30
3 Desktop Study	31
3.1 Designated Sites	31
3.2 Surface Water	36
3.3 Groundwater Bodies	37
3.4 Records of Protected/Threatened Species	38
4 Existing Environment	42
4.1 Habitats	42
4.2 Protected Species	48
4.3 Invasive Non-native Species	55

4.4	Ecological Features Considered for Further Assessment	56
5	Other Relevant Plans and Projects	58
5.1	Cumulative Effects	58
5.2	Plans	58
5.3	Proposed Solar Farm	60
5.4	Strategic Infrastructure Development (SID)	61
5.5	Summary	62
6	Impact Assessment	69
6.1	Introduction	69
6.2	Do Nothing Scenario	69
6.3	Impacts on Ecological Features	69
6.4	Protected Species	71
6.5	Operational Impacts	73
6.6	Cumulative Impacts	73
6.7	Decommissioning Impacts	73
7	Mitigation	74
7.1	Environmental Clerk of Works	74
7.2	General mitigation measures for construction phase	74
7.3	Habitats	77
7.4	Invasive Species Management	79
7.5	Protected Species	79
7.6	Enhancement	85
8	Residual Impacts	92
8.1	Impacts on Ecological Features	92
8.2	Cumulative Impacts	93
9	Summary of Impact Assessment	94
9.1	EclA Table	94
10	Concluding Statement	97

A	Relevant Policy and Legislation	XCVI
	II	
A.1	Biodiversity Policy Guidance	XCVI
	II	
A.2	Designated Sites and Nature Conservation	XCVI
	II	

List of Figures

Figure 1-1: Overall Project land parcels with Proposed Substation Development in Parcel 4	13
Figure 1-2: Site layout	14
Figure 2-1: Chart showing typical classifications of the significance of effects (EPA, 2022)	29
Figure 3-1: Statutory designated sites within the ZOI of the Proposed Substation Development	32
Figure 3-2: Non-statutory designated sites	35
Figure 3-3: Surface water network of the site and the surrounding area	36
Figure 3-4: Groundwater vulnerability of the Proposed Substation Development	37
Figure 4-1: Habitat map of the Proposed Substation Development extent	43
Figure 4-2: Improved agricultural grassland at the Proposed Substation Development site	44
Figure 4-3: WL2 Treelines as a field boundary	45
Figure 4-4: Heavily managed Hedgerows (WL1)	46
Figure 4-5: Drainage ditch (FW4) to the west of the site. Note the presence standing water backfilling from the river	47
Figure 4-6: River Camogue adjacent to the land parcel	47
Figure 4-7: Derelict building on site	48
Figure 5-1 Extent of the planning applications in relation to the Proposed Substation Development	66
Figure 5-2: Retained planning applications that may act in combination with the Proposed Substation Development	67
Figure 5-3: Planning application submitted to ACP.	68

Figure 7-1: Suggested planting as per landscape plan	88
List of Tables	
Table 2-1: Survey schedule summary	24
Table 2-2: Examples of criteria used to define the value of ecological features (NRA, 2009b)	25
Table 2-3: Examples of criteria used to define the value of ecological features of local importance (NRA, 2009b)	26
Table 2-4: Categories Effects (EPA, 2022)	26
Table 2-5: Definition of magnitude	28
Table 3-1: Natura 2000 sites within the Proposed Substation Development's Zol	31
Table 3-2: NHAs and pNHAs within Proposed Substation Development Zol	33
Table 3-3: WFD waterbody ecological and risk status	36
Table 3-4: Aquifer type and underlying geology of each land parcel	37
Table 3-5: Underlying soil type of each land parcel of the Proposed Substation Development	38
Table 3-6: Underlying subsoil type of each land parcel	38
Table 3-7: NBDC records	38
Table 3-8: IFI records.	40
Table 4-1: Habitats recorded during the site visit.	42
Table 4-2: Frequency of camera triggers per animal group.	49
Table 4-4 Bird species recorded during wintering bird surveys	51
Table 4-5 Bird species recorded during breeding bird surveys	53
Table 4-6: Summary of ecological features and the screening assessment	56
Table 5-1 Retained Planning Applications	63
Table 5-2 Strategic Infrastructure Development Applications	65
Table 6-1: Retained ecological receptors	69
Table 9-1 Summary of impacts and mitigation measures.	95

Abbreviations

AA	Appropriate Assessment
BAP	Biodiversity Action Plan
BCI	Bat Conservation Ireland
BOCCI	Birds of Conservation Concern in Ireland
BOU	British Ornithologists' Union
BSBI	Botanical Society of Britain and Ireland
CEMP	Construction and Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CMS	Construction Method Statement
DHLGH	Department of Housing, Local Government and Heritage
EC	European Commission
ECJ	European Court of Justice
EclA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EEC	European Economic Community
EPA	Environmental Protection Agency
GIS	Geographic Information Systems
GSI	Geological Survey Ireland
GW	Groundwater
GWB	Groundwater Body
IAQM	Institute of Air Quality Management
IFI	Inland Fisheries Ireland
INNS	Invasive Non-Native Species
IROPI	Imperative Reasons of Over-riding Public Interest
IUCN	International Union for Conservation of Nature and Natural Resources
LA	Local Authority
NBDC	National Biodiversity Data Centre
NHA	National Heritage Area
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Services
NRA	National Road Authority
OPW	Office of Public Works
OPR	Office of the Planning Regulator

pNHA	Proposed National Heritage Area
QI	Qualifying Interest
PRF	Potential Roosting Features
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SCI	Special Conservation Interest
SPA	Special Protection Area
SW	Surface Water
WFD	Water Framework Directive
Zol	Zone of Influence

Executive Summary

JBA Consulting Engineers and Scientists Ltd. (hereafter JBA) has been commissioned by Harmony Solar East Limerick Ltd to prepare an Ecological Impact Assessment for a proposed substation development (hereafter Proposed Substation Development) located within the townland of Gotoon in County Limerick.

A suite of surveys was carried out between December 2024 and October 2025, including habitats, birds, mammals, and bats, and the results of these are used to inform this report as well as the accompanying AA and NIS.

The site of the Proposed Substation Development is situated in the townlands of Gotoon, Coolscart, and Kilfrush in County Limerick. The Proposed Substation Development comprises an area of 17.02 ha. The site is located south-west of the village of Hospital and north-west of Knocklong village. The Proposed Substation Development land is in agricultural use at present. There is an existing agricultural building located within the south-east corner of the parcel, and a derelict shed structure located in the northern area of the parcel. The parcel benefits from existing hedgerows along the field boundaries. The river Camogue runs along the southwest boundary of the site. The expected mix of countryside and farmland birds was recorded including red and amber listed species such as Redwing and Meadow Pipit.

The works will require the creation of a new entrance, installation of a new access track, construction of the infrastructure, land clearance and levelling.

In the absence of mitigation, there is potential for some slight negative effects on treelines, hedgerows, drainage ditches and the Lower River Shannon SAC, moderate negative effects on Otter, and significant negative effects on badger, bats, birds, depositing lowland rivers.

Mitigation measures are proposed to mitigate the impact of the Proposed Substation Development, including biosecurity measures, water pollution prevention protocols, as well as some enhancement measures such as hedgerow planting and riparian corridor restoration, owl box installation, hedgerow management, and timing of seasonal works, to provide for different ecological receptors.

Bird and Bat species recorded on site form the expected composition of species in these types of habitats and are predominantly widespread and common species. Provided mitigation measures are implemented, enhancement measures are applied, the Proposed Substation Development is not likely to have significant negative effects.

1 Introduction

JBA Consulting Engineers and Scientists Ltd. (hereafter JBA) has been commissioned by Harmony Solar East Limerick Ltd to prepare an Ecological Impact Assessment (EclA) for the installation of a substation and all associated works in the vicinity of Hospital, Co. Limerick.

A Screening for AA and a NIS have been carried out for the Proposed Substation Development.

1.1 Aims

The aims of this EclA are to:

- Establish baseline ecological conditions to enable identification of potentially important ecological features within the Zol of the Proposed Substation Development;
- Determine the ecological value of identified ecological features;
- Assess the significance of impacts of the Proposed Substation Development on ecological features of value;
- Identify avoidance, mitigation, or compensatory measures;
- Identify residual impacts after mitigation and the significance of their effect;
- Identify any in-combination impacts from other projects and
- Identify opportunities for ecological enhancement and net gain of biodiversity.

1.2 Site Location

The site of the Proposed Substation Development is situated in the townlands of Gotoon, Coolscart, and Kilfrush in County Limerick. The Overall Project further extends to the townlands of Ballyhaush, Millfarm, Coolalough, Ballycahill, Newtown and Knocklong (Figure 1-1, Figure 1-2).

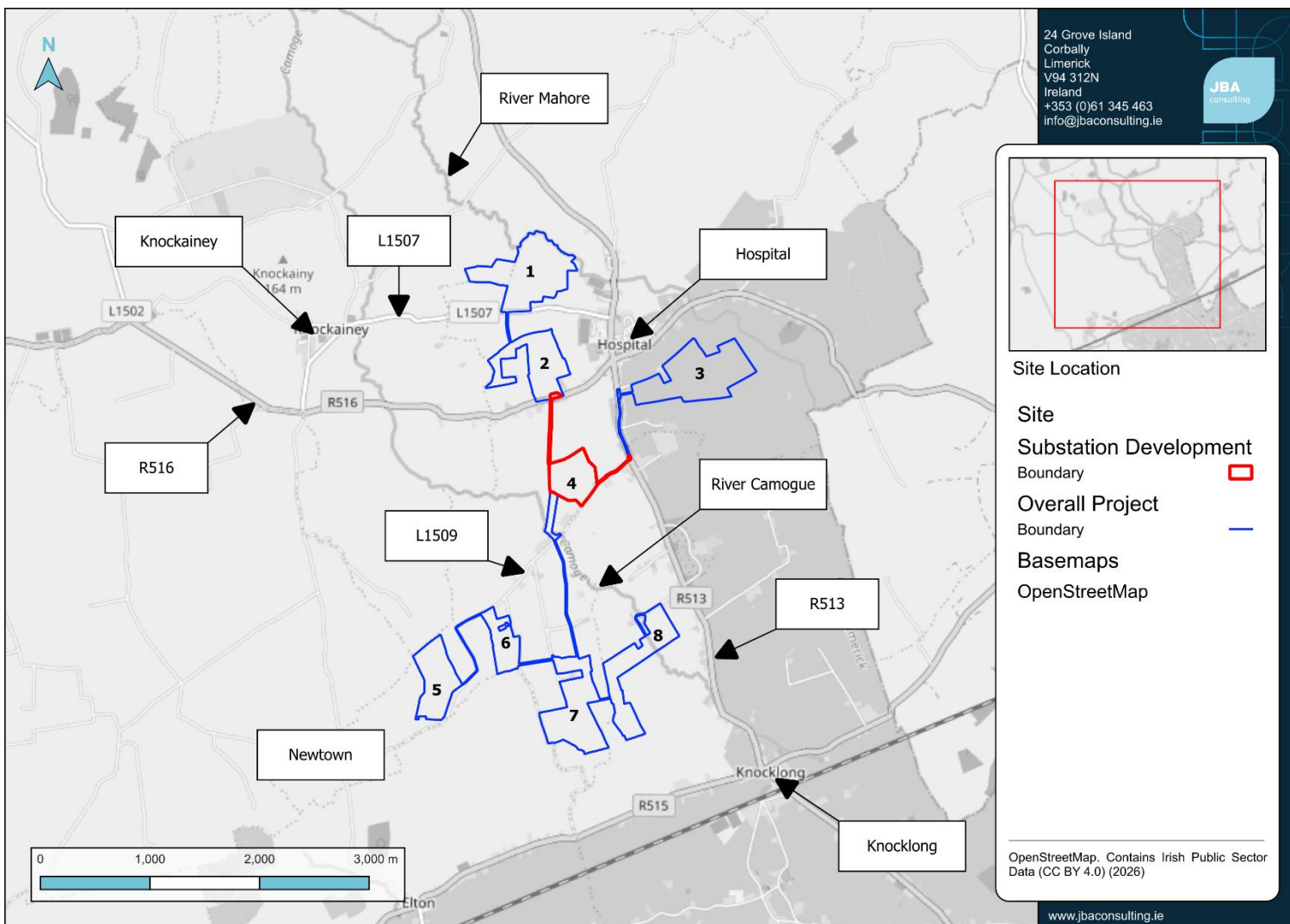


Figure 1-1: Overall Project land parcels with Proposed Substation Development in Parcel 4

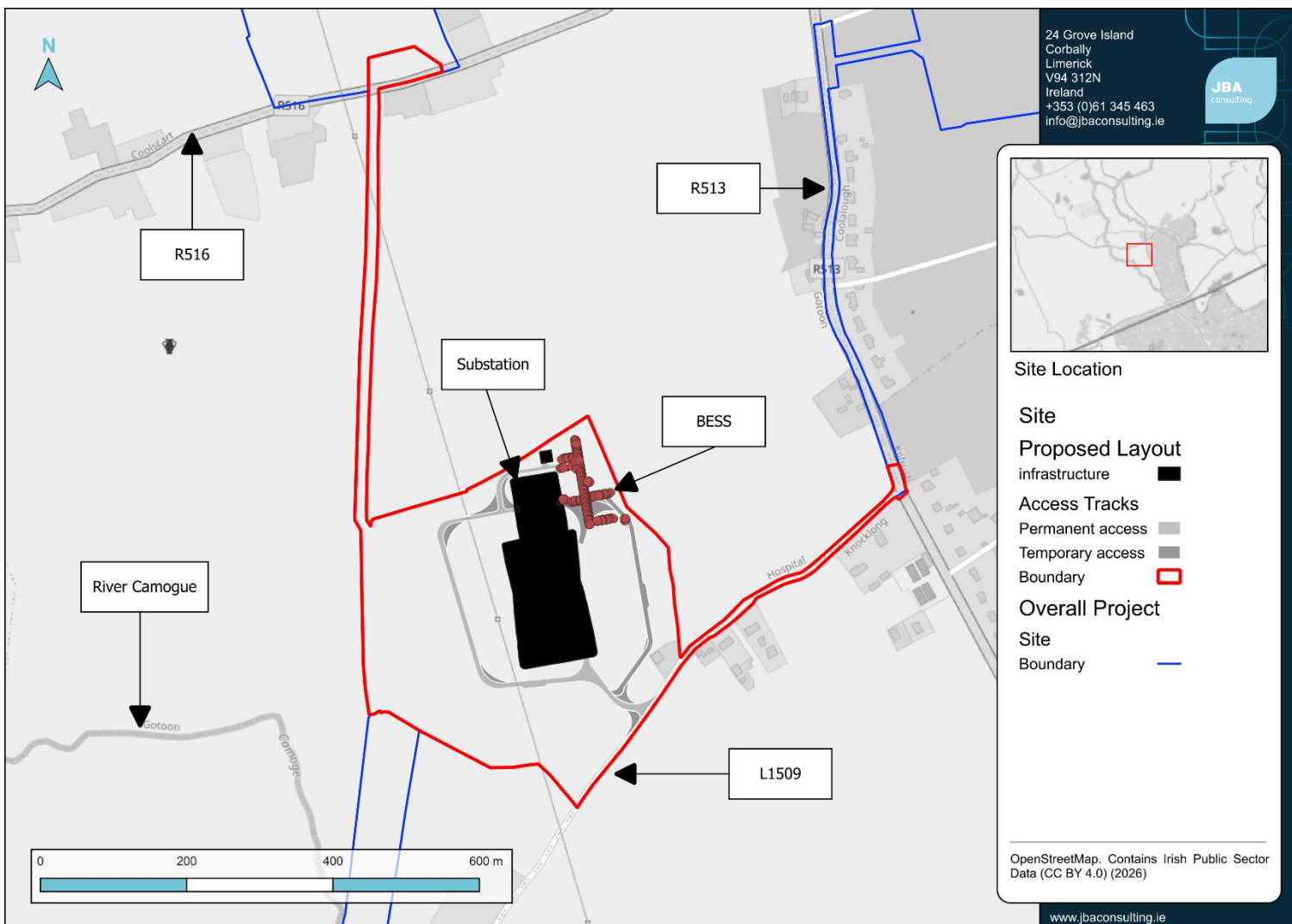


Figure 1-2: Site layout

1.3 Project Description

The site of the Proposed Substation Development is situated in the townlands of Gotoon, Coolscart, and Kilfrush in County Limerick. The Overall Project further extends to the townlands of Ballyhaughish, Millfarm, Coolalough, Ballycahill, Newtown and Knocklong.

The Proposed Substation Development comprises an area of 17.02 ha. The site is located south-west of the village of Hospital and north-west of Knocklong village.

The Proposed Substation Development land is in agricultural use at present. There is an existing agricultural building located within the south-east corner of the parcel, and a derelict shed structure located in the northern area of the parcel. The parcel benefits from existing hedgerows along the field boundaries.

The site lies entirely within the 'Agricultural Lowlands' Landscape Character Area (LCA) as designated within the Limerick Development Plan 2022-2028.

There are no residential dwellings within the red line boundary for the Proposed Substation Development. There are, however, residential properties and farm holdings within the surrounding area, including properties located along the L1509 public road to the south of the site and within the wider rural area between Hospital and Knocklong.

The site associated with the Proposed Substation Development is within four private landownerships. Agreements are in place between the landowners and the Applicant to facilitate the construction and operation of the Proposed Substation Development on these lands. Letters of consent from the landowners have been provided to the Applicant and will be submitted with the SID application.

1.3.1 220kV GIS Substation and Compounds

The Proposed Substation Development will comprise a new 220 kV loop-in/loop-out substation, including a Transmission System Operator (TSO) compound and a Customer compound.

The TSO compound will include a 220kV GIS substation building with a total floor area of 3,550.8m² and a height of 20.7m. It will also include 220kV electrical infrastructure, including switchgear, gantries, insulators, conductors, protection and control equipment, and all associated electrical plant and apparatus required to facilitate the loop-in/loop-out connection to the existing 220kV overhead line.

The Customer compound will include a customer building with a total floor area of 311.8m² and a height of 7.62m, accommodating a switchgear room, SCADA room, office, storeroom, hall, mess room and WC. The Customer compound will include a 220kV customer transformer positioned within a banded enclosure, with a height of 9.5m above finished ground level, together with associated electrical plant, switchgear, control equipment and cabling.

The compounds will include internal access tracks to the two buildings, areas of gravel and hardstanding, service and maintenance access, drainage infrastructure, security fencing and gates. Parking will also be provided within the compounds. Wastewater from the on-site washroom and toilet facilities will be collected in a sealed holding tank and periodically removed

by a licensed waste management contractor. Potable water will be delivered to the site as required.

Construction details are provided in the Outline Construction Methodology document accompanying this application.

1.3.2 Battery Energy Storage System (BESS)

The Proposed Substation Development will include a Battery Energy Storage System (BESS), providing up to 75 MW / 300 MWh of electricity storage capacity. The BESS will be located within a dedicated BESS compound forming part of the Proposed Substation Development.

The BESS compound will include 55 no. containerised battery storage modules, each measuring 6.06 m long, 2.44 m wide and 2.9 m high. It will also include 28 no. containerised transformer and power conversion / conditioning units, each measuring 6.06 m long, 2.44m wide and 2.9 m high. The BESS units will generally be supported on concrete rails, with localised concrete slabs provided where required.

The BESS compound will include ancillary BESS infrastructure, including inverters, transformers, switchgear, control equipment, thermal management systems, fire detection and suppression systems, acoustic screening, cabling, ducting and associated electrical plant.

Each BESS unit will be equipped with a comprehensive fire detection and mitigation system, including in-cell temperature monitoring, unit-level off-gas detection, and smoke detection to provide early warning of abnormal battery conditions. Active fire suppression systems, such as aerosol or clean-agent suppression, will be included alongside off-gas ventilation and explosion relief measures designed in accordance with relevant NFPA guidance. The selected BESS technology will have undergone testing to UL 9540A or CSA TS800 standards, demonstrating its capability to limit thermal runaway propagation and reduce the potential for fire spread beyond the affected unit. Water is not proposed to be used on site for fire suppression or boundary cooling as the testing completed on the BESS units has shown this not necessary to prevent fire propagation to other units.

1.3.3 Overhead Line and Loop In Loop Out (LILO) Works

A 220 kV overhead line currently traverses the Proposed Substation Development site. To facilitate the Proposed Substation Development, the existing overhead line will be reconfigured to provide a LILO connection to the proposed 220 kV substation.

Two new 220kV steel towers will be fitted onto the existing overhead line. These towers will deviate the overhead line for 52m onto two new steel gantries within the EirGrid TSO compound. Associated cable sealing ends and post insulators will transition the overhead line to two circuits of 220 kV underground cable, which will connect into the proposed 220 kV GIS Substation. There will be three associated power cables within a single circuit, this cable trench will enclose 2 no. communication ducts and a single ECC duct. A communication chamber will be required beside the proposed gantry structures to transition the communications link between the overhead line and the underground cable.

1.3.4 Underground Cabling

From the cable sealing ends at the two new gantries, 69m of 220 kV underground cabling will continue to the proposed 220 kV GIS Substation. Associated infrastructure will include ducting, communications link, marker posts and other ancillary works.

Underground cabling and ducting will also be provided within the Proposed Substation Development site to connect the TSO compound, Customer compound, BESS compound, transformer infrastructure and associated electrical plant.

The Proposed Substation Development will be connected to the Proposed Solar Farm Development by way of underground electrical cabling routed across private lands. This solar farm connection cabling is located within the Red Line Boundary for the Proposed Solar Farm Development and is subject to the separate planning application to Limerick City and County Council.

1.3.5 Lightning Protection

The Proposed Substation Development will include 4 no. lightning protection masts, with a height of 18m. Lightning protection will be provided to protect the substation compounds, BESS compound and associated electrical infrastructure.

1.3.6 Telecommunications Infrastructure

The Proposed Substation Development will include 1 no. telecommunications mast with a height of 37.52m. The telecommunications mast will support the operational, control and communications requirements of the Proposed Substation Development.

1.3.7 Site Access

A new access point will be provided from the L1509 public road to serve the Proposed Substation Development. The access will facilitate construction, operation, maintenance and emergency access to the substation and BESS compounds. Internal access tracks will be constructed within the site to provide access to the TSO compound, Customer compound, BESS compound and other operational areas.

The L1509 will also provide the principal route for delivery of the 220kV customer transformer. Localised widening of the L1509 within the public road boundary will be undertaken where required to accommodate the transformer delivery vehicle, together with localised works at its junction with the R513. Any temporary alterations required to the existing footpath or roadside signage at the junction will be reinstated following completion of the transformer delivery.

A contingency transformer delivery route is also included within the Red Line Boundary, extending northwards across agricultural lands to the R516. This follows the same corridor as the underground cable route associated with the Proposed Solar Farm Development and is included as an alternative delivery option should it be required. No additional hedgerow removal or ground disturbance is anticipated in association with this route, as any necessary works would be undertaken in conjunction with the cable installation. Any works required solely to facilitate the transformer delivery would be temporary and the affected lands would be reinstated following delivery.

1.3.8 Parking and Maintenance Access

Service and maintenance parking facilities will be provided within the Proposed Substation Development site. The site will not be open to the public and will be accessed only by authorised personnel for operational, maintenance, inspection and emergency purposes.

1.3.9 Lighting

Lighting will be provided within the Proposed Substation Development. Lighting will ordinarily remain switched off and will only be activated when required for operational, maintenance, switching or emergency purposes. Lighting will be manually activated at the entrance gate and is expected to be required only intermittently during the year

1.3.10 Fencing and Security Gate

The Proposed Substation Development will include security gates, boundary fencing and all associated security infrastructure. The TSO compound, Customer compound and BESS compound will be secured by perimeter fencing, including palisade fencing, together with post and rail / stockproof fencing.

1.3.11 Closed-Circuit Television (CCTV)

CCTV cameras will be installed and will be directed internally within the development and will therefore not monitor lands outside of the boundary. The CCTV will operate using passive infra-red technology.

1.3.12 Temporary Construction Compound

The Proposed Substation Development will include a temporary construction compound located within the red line boundary (2,700 m²). Given the confined area and constraints within the Proposed Substation Development site, construction sequencing will need to be considered at the detailed design phase to facilitate the temporary construction compound, the construction of the cable route and the construction of the substation.

The temporary construction compound will include a 'portacabin' site office with employee parking, welfare facilities that comply with Safety, Health and Welfare at Work (Construction) Regulations 2013-Part 14 Construction Site Welfare Facilities (Construction Site Welfare Facilities) and shall be used for storage of all construction materials and machinery. The compound may also include:

- Bunded fuel storage area.
- Potable water supply.
- Contractor lock-up facility.
- Water tanker.
- Diesel generator.
- First aid facilities.

A layer of granular material will be spread and lightly compacted within the temporary construction compound to provide hardstanding for site offices and storage containers. Areas of the compound may be used as vehicle hardstanding.

The temporary construction compound will be removed on completion of the construction phase, and the area will be reinstated to its original condition.

1.3.13 Landscaping and Hedgerows

Existing hedgerows and field boundaries will be retained where possible. Some hedgerow and vegetation removal will be required to facilitate the substation compound which includes site access, internal access tracks, electrical infrastructure, cabling, drainage infrastructure and visibility splays.

Landscaping and biodiversity enhancement measures will be provided as part of the Proposed Substation Development. These measures will include new native hedgerow planting, reinforcement of retained existing field boundaries, grassland enhancement and other biodiversity measures as required.

1.3.14 Removal of Existing Structures

The Proposed Substation Development will include the removal of a derelict farm building within the site. The development will also include the removal of 1 no. existing 25m steel lattice tower and any associated redundant infrastructure required to facilitate the proposed 220kV loop-in/loop-out connection works.

1.3.15 Ancillary Development

The Proposed Substation Development will include all associated and ancillary development, site works and services, including earthworks, localised alterations to the landscape, underground services, ducting, cabling, drainage, signage, lighting, fencing, access infrastructure, landscaping and site reinstatement.

1.3.16 Proposed Solar Farm Development

The Proposed Solar Farm Development is the subject of a separate application to Limerick City and County Council and comprises ground-mounted solar photovoltaic panels and associated infrastructure, including electrical plant, internal access tracks, underground cabling, site access works, and landscaping and biodiversity measures. The Proposed Solar Farm Development lands extend to 210 hectares across eight land parcels in County Limerick.

1.4 Excavation Depths

Different elements of the development will require different specific excavations. Fencing is not expected to require excavations with posts being driven in; Posts around gateways may need some excavations to afford more stability and solidity to the gate.

- Cabling will require excavations and trenching to a depth of approximately 1.25m.
- Mast foundations will require foundations of 3.6m
- Cut and fill will require excavation of approximately 3.1m

1.5 Construction Duration

The planning permission for the construction is to last 10 years. Construction is expected to last 18 months.

1.6 Drainage

A drainage management plan has been prepared for the Proposed Substation Development. The drainage strategy has been developed in accordance with SuDS principles and the site-specific drainage assessment. It is intended to preserve existing overland flow pathways outside the formal drainage catchment, manage the additional runoff generated by the proposed hardstanding areas and avoid increasing flood risk to downstream or third-party receptors.

The strategy comprises two complementary drainage systems:

- Outside the formal hardstanding drainage catchment, shallow interception trenches, trackside drains, check dams, cross-underdrains and diffusers will maintain the continuity of existing overland flow pathways across the access tracks. These measures will limit localised ponding and prevent the access infrastructure from creating new barriers to flow or concentrating runoff towards adjacent land.
- Within the formal drainage catchment, runoff from the buildings and hardstanding areas will be collected through surface grading, gullies, and vegetated swales. The swales will convey runoff to the proposed attenuation pond, which will operate as a detention basin and discharge at a controlled maximum rate of 5.1 l/s to the receiving watercourse. The pond will provide attenuation storage and a dedicated interception zone for the first 5 mm of rainfall.

2 Methodology

2.1 The EclA Team

The surveys for the baseline ecology were undertaken by JBA Ecologists Anne Mullen (BSc Env, MSc Eco MCIEEM), Dominic Tilley (BSc, MSc, PhD), Johanna Healy (BSc (Hons), MSc), Mia Heigh (BSc (Hons)) and Olly Lynch-Milner (BSc (Hons), MSc). These staff members thus fulfil the Environmental Impact Assessment (EIA) Directive personnel requirements of 'competent persons'.

The assessment has been reviewed by Anne Mullen BSc MSc. Anne is Senior Ecologist with JBA Consulting, with over 10 years' experience in ecological consultancy. Anne is a full Member of the Chartered Institute of Ecological and Environmental Management (CIEEM).

2.2 Policy and Legislation

Policy and legislation for nature conservation, protected and priority species relevant to the Proposed Substation Development is provided in Appendix A.

2.3 Methods

This EclA assesses the ecological features present within the site and its surrounding area (the Zol) in relation to the Proposed Substation Development. This allows for identification of the potential impacts of the Proposed Substation Development on the ecological features of the site at an early stage, whilst identifying the potential ecological constraints on the Proposed Substation Development. The assessment is based on a desk-based assessment, which determines the baseline conditions at the site of the Proposed Substation Development, as well as site surveys, which provided information on habitats and species present on the site and its surroundings.

The EclA outlines the findings of the desk-based assessment and the surveys and identifies any potential impacts of the Proposed Substation Development on ecological features within the Zol of the site and proposes mitigation measures to avoid or reduce impacts where necessary.

2.3.1 Desktop study

A desktop study was conducted of available published and unpublished information, along with a review of data available on the NPWS, BSBI and NBDC web-based databases, in order to identify key habitats and species (including legally protected and species of conservation concern) that may be present within ecologically relevant distances from the Proposed Substation Development as explained below. A baseline habitat assessment was performed using satellite imagery of the site. The data sources below (accessed October 2025) were consulted for the desktop study:

- Aerial photography available from www.osi.ie and ESRI World Imagery.

- NPWS website (www.npws.ie) where Natura 2000 site synopses, data forms and conservation objectives were obtained along with Annex I habitat distribution data and status reports.
- Catchment data (www.catchments.ie).
- NBDC Biodiversity Maps (maps.biodiversityireland.ie).
- EPA Maps (<https://gis.epa.ie/EPAMaps>).
- GSI website (www.gsi.ie).
- GSI GW data viewer (<https://dcenr.maps.arcgis.com>).
- BSBI Plant Records (bsbi.org/maps).
- National Planning Application Database (myplan.ie).
- IFI website (<https://opendata-ifigeo.hub.arcgis.com/>).

To determine the ecological baseline conditions at the site, a review of all available information was made. When determining the pre-work conditions onsite, including the presence or absence of protected habitats and/or species, the precautionary principle was used where limited information was available. This review included the following:

- A desk-based assessment was carried out to collate information regarding protected/notable species and statutorily designated nature conservation sites in, or within close proximity to, the study area.
- A data search for protected and notable species was conducted using the NBDC Mapping System (NBDC, 2025). A study area encompassing a 5km radius from the site was used.
- Information for statutory designated sites including SPAs, SACs, Ramsar Sites, NHAs and pNHAs was collected from the online resources provided by the NPWS.

Other information on the local area was obtained, including information from the following sources:

- The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary (NPWS, 2025a).
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments (NPWS, 2025b).
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments (NPWS, 2025c).
- EPA online databases on water quality (available online at <https://gis.epa.ie/EPAMaps/>) (EPA, 2025).
- Aerial photography available from <https://www.geohive.ie/> and Google Maps <http://maps.google.com/>.
- All Ireland Red Data lists for vascular flora, mammals, butterflies, various invertebrate classes, amphibians and fish.
- WFD water maps (available online at <https://www.catchments.ie/>).
- IUCN Red List of Threatened Species.

2.3.2 WFD Objectives

The Water Action Plan 2024, A River Basin Management Plan for Ireland (DHLGH, 2024) sets out the approach that Ireland will take to enhance protection, prevention, and monitoring of Irish waterbodies. The main actions include:

- Improved wastewater treatment;
- Conservation of leakage reduction;
- Scientific assessment of waterbodies and implementation of local measures;
- A new collaborative Sustainability and Advisory Support Programme;
- Dairy Sustainability Initiative;
- Development of water and planning guidance for local authorities;
- Extension of Domestic Waste Water Treatment Systems grant schemes; and
- A new Community Water Development Fund.

Regardless of their current quality, SW should be treated the same in terms of the level of protection and mitigation measures employed, i.e., there should be no negative change in status.

2.3.3 Ecological Site Surveys

To inform this report a suite of ecological surveys, including breeding bird, wintering bird, mammal, bat and habitat surveys, was carried out between December 2024 and October 2025. The surveys were carried out by Johanna Healy, Mia Heigh, Olly Lynch-Milner, Anne Mullen and Dominic Tilley. The results of the surveys are detailed in the associated EclA with relevant information retained for this screening.

The ecological survey recorded habitats and protected species, following the methods outlined in the documents below:

- Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.*, 2011).
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009a).
- Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (NRA, 2006)
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2024).

Aerial photographs and site maps assisted the survey. Habitats have been named and described following Fossitt (2000). Nomenclature for higher plants follows that given in The New Flora of the British Isles 4th Edition (Stace 2019). Identification of Irish plants generally follows Webb's An Irish Flora (Parnell and Curtis 2012).

Bird nomenclature and taxonomy follows guidance from the BOU (2022) and AviList (AviList Core Team, 2025). Species status was checked with reference to the BOCCI in Ireland list (Gilbert, Stanbury and Lewis, 2021).

Table 2-1: Survey schedule summary

Date	Target
19/12/2024, 20/12/2024	Walkover, Birds, Mammals
22/01/2025, 23/01/2025	Birds, Mammals
18/02/2025, 21/02/2025	Birds, Mammals
31/03/2025, 02/04/2025	Habitats, Birds
09/04/2025, 11/04/2025	Birds, Mammals
30/04/2025, 14/05/2025, 21/05/2025	Habitats, Birds
17/06/2025, 18/06/2025	Birds
31/07/2025, 01/08/2025, 08/08/2025	Birds, Bat statics
4/09/2025, 11/09/2025, 16/09/2025, 18/09/2025	Bats, notes on birds
7/10/2025	Cabling habitats, notes on birds

2.4 Guidance

This assessment was conducted in accordance with the following guidance documents:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2024)
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022)
- Best Practice Guidance for Habitat Survey and Mapping, The Heritage Council (Smith *et al.*, 2011)
- Bat Mitigation Guidelines for Ireland (Marnell, Kelleher and Mullen, 2022)

2.5 Screening of Ecological Features

The ecological features identified during the walkover survey and from desk-based assessments were reviewed. An informal screening process is presented at the start of the results section to ensure that the assessment focuses only on features where the impact could have important consequences for biodiversity (valued ecological features). Any features which are important beyond the site level were identified for further evaluation. Ecological features with little or no value beyond the site level were screened out and a short statement explaining this is given in the screening section.

2.6 Assessment of the Effects on Features

Ecological features include nature conservation sites, habitats, species assemblages/communities, populations, or groups of species. The assessment of the significance of predicted impacts on ecological features is based on both the 'value' of a feature, and the nature and magnitude of the impact that the Proposed Substation Development will have on it.

2.7 Valuation of Ecological Features

The value of designated sites, habitats and species populations is assessed with reference to:

- Their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations).
- Any social benefits that habitats and species deliver (e.g., relating to the enjoyment of flora and fauna by the public).
- Any economic benefit that they provide.

The valuation of designated sites considers different levels of statutory and non-statutory protection. Assessment of habitat depends on several factors, including the size of the habitat, its conservation status and quality. This assessment also takes into account connected off-site habitat that may increase the value of the on-site habitat through association. Valuation of species depends on a number of factors including distribution, status, rarity, vulnerability, and the population size present.

Table 2-2: Examples of criteria used to define the value of ecological features (NRA, 2009b)

Level of Value	Examples of Criteria
International	An internationally important site e.g., SPA, SAC, Ramsar (or a site considered worthy of such designation). A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive). Designated shellfish waters. Major fisheries area.
National	A nationally designated site e.g., NHA, pNHA, statutory Nature Reserve, or a site considered worthy of such designation. A viable area of a habitat type listed in Annex I of Directive 92/43/EC (the Habitats Directive) or of smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring substantial population of a nationally important species, e.g., listed on the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended. A species included in the Irish Red Data Lists/Books. Significant populations of breeding birds.
Regional/County	Species and habitats of special conservation significance within County Limerick. An area subject to a project/initiative under the County's BAP025-2030. A regularly occurring substantial population of a nationally scarce species.
Local (work site and its vicinity)	Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A good example of a common or widespread habitat in the local area. Species of national or local importance, but which are only present very infrequently or in very low numbers within site area.
Less than local	Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species.

Ecological valuation may also be considered of Local Importance (higher value) or Local Importance (lower value) (Table 2-3).

Table 2-3: Examples of criteria used to define the value of ecological features of local importance (NRA, 2009b)

Level of Value	Examples of Criteria
Local Importance (higher value)	Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared. Resident or regularly occurring populations (assessed to be important at the Local level) of the following: *Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive: *Species of animal and plants listed in Annex II and/or IV of the Habitats Directive: *Species protected under the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended; and/or *Species listed on the relevant Red Data List. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
Local Importance (lower value)	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.

2.8 Descriptive Terminology

Ecological effects or impacts can be described and categorized in a number of ways. Examples of relevant terms are listed in the table below (Table 2-4).

Table 2-4: Categories Effects (EPA, 2022)

Effects	Categories of Effects
Quality of Effects	Positive Effects A change which improves the quality of the environment (for example, by increasing species diversity; or improves the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Probability of Effects	Likely Effects

Effects	Categories of Effects
	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can be reasonably expected not to occur because of the planned project if all mitigation measures are properly implemented.
Significance of Effects	Imperceptible An effect capable of measurement but without significant consequences.
	Not Significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.
Duration and Frequency of Effects	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
Types of Effects	Indirect Effects (i.e. Secondary Effects) Impacts on the environment, which are not a direct result of the project, often produced away from the proposed development or because of a complex pathway.
	Cumulative Effects The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	'Do-Nothing' Effects The environment as it would be in the future should the proposed development not be carried out.
	'Worst Case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Residual Effects

Effects	Categories of Effects
	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g., combination of SOx and NOx to produce smog).

These factors are assessed together to determine the magnitude of the impact on the status of a habitat or species population, and on the integrity of the site that supports them. Professional judgement is then used to assign the impacts on the receptors to one of four classes of magnitude, detailed in Table 2-5.

2.8.1 Magnitude of Impacts

Ecological impacts can be categorised and assessed in a number of ways.

Table 2-5: Definition of magnitude

Level of Magnitude	Examples of Criteria
High	An irreversible or long-term impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status.
Medium	A medium to long-term impact on the integrity of a site or conservation status to a habitat, species assemblage/community, population or group, which if adverse, is unlikely to threaten its sustainability (or if beneficial, is likely to be sustainable but is unlikely to enhance its conservation status).
Low	A short-term but temporary impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group that is within the range of variation normally experienced between years.
Negligible	A short-term but temporary impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group that is within the normal range of annual variation.

2.8.2 Significance of Impacts

The significance of an impact is a product of the ecological feature and the magnitude of the impact on it, moderated by professional judgement. Figure 2-1 shows a matrix which is used for guidance in the assessment of significance, with impacts being considered from imperceptible to profound. Impacts can also be assessed as positive or negative using the same matrix.

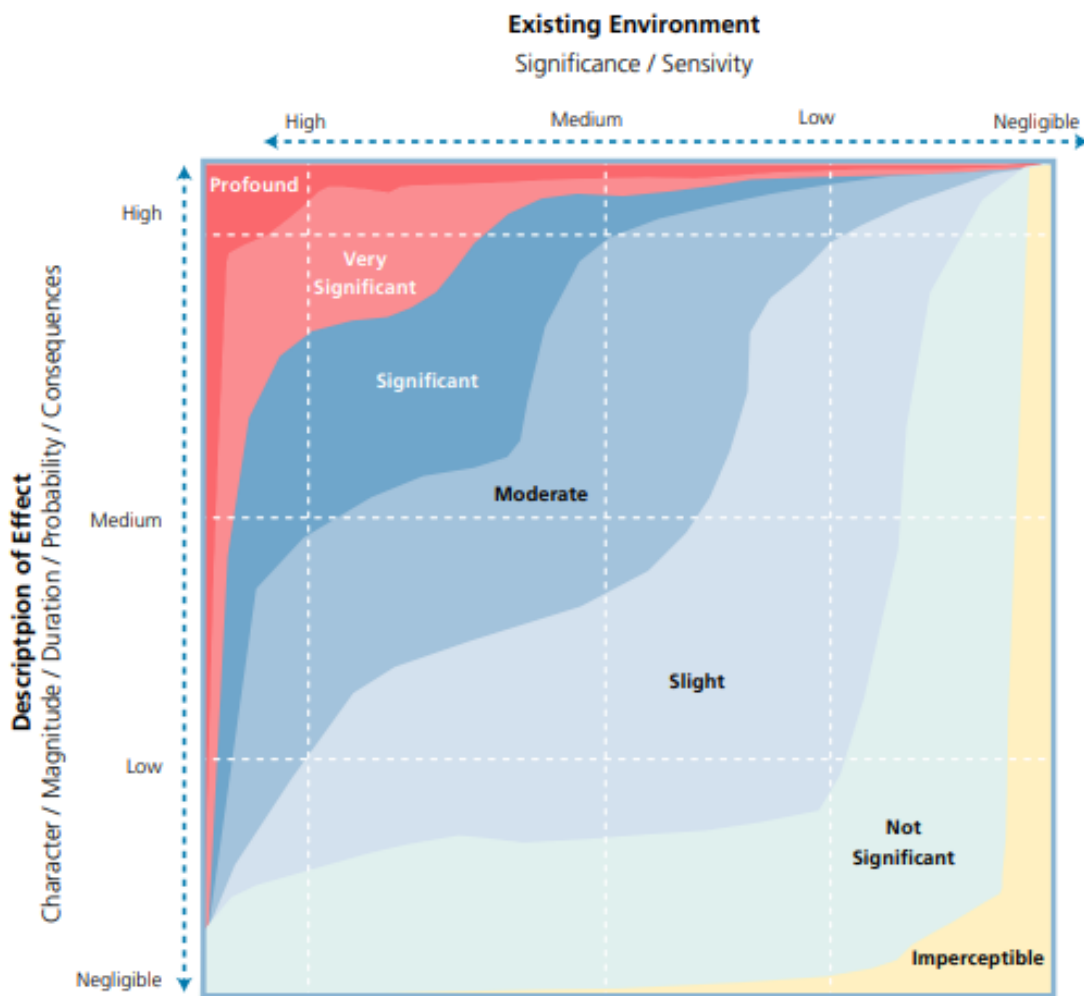


Figure 2-1: Chart showing typical classifications of the significance of effects (EPA, 2022)

2.8.3 Residual Impacts

Where significant residual impacts are still identified, further mitigation measures will be proposed as part of the Ecological Impact Assessment process to avoid, reduce, or minimise them. Each impact assessment section assigns a final significance level to the impact described, which considers and includes the implementation of any stated mitigation measures: these are the residual impacts.

2.9 Cumulative Impacts

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features. Potential sources of cumulative impacts were sought within an area where there is potential for a significant impact on a site or species. A desk-based search was made to identify plans and projects that could be a potential source of cumulative impact.

2.10 Limitations and Assumptions

This EclA is based on site visits and existing data from the above-mentioned sources. The report relies on some assumptions and is subject to some limitations.:

- The precautionary principle is utilised when determining potential ecological sensitivities within the Proposed Substation Development's ZOI.
- Information on the works and conditions on site are based on the current knowledge at the time of writing. Changes to the site since this report was drafted cannot be accounted for. Significant changes to the site are not anticipated prior to the start of construction.
- This assessment is based on the methodology for the Proposed Substation Development as described in this report. Where changes to the methodology occur, an ecologist will need to be consulted to determine if the changes are likely to alter the ecological impacts and would therefore need reassessment.
- Data from biological record centres or online databases is historical information. Datasets may be incomplete, inaccurate or missing. The absence of records for an area may be due to the under recording in the area and not necessarily imply the absence of species. These records are therefore to be treated as minimum information available for the area.
- Some of the site surveys were undertaken during suboptimal survey periods. Hence numbers/species recorded may not be representative of activity or diversity during the optimal surveying period. However, the site was visited periodically over a 10-month period allowing for a comprehensive overview of the ecological receptors.
- Access to Proposed Substation Development site was restricted during the main habitats survey season due to the presence of a bull, however access was available at other times, allowing for site assessment. The repeated site visit throughout the year allowed for a good understanding of the habitats on site.
- Bat transects were not carried out in Proposed Substation Development site, but a static detector was deployed and provides insight on species composition. Data collected from this parcel combined with data from the Overall Project allow for an assessment of the site.

2.11 Zone of Influence

The Zoi for the Proposed Substation Development is based on a judgement of the likely extent of the ecological impacts. This will vary for different ecological features, depending on their sensitivities to environmental change. Most impacts will occur within the site boundary and the immediate vicinity of the works (<10m). However, some effects may be transmitted further afield. The Zoi extends to

- SW – any downstream hydrological connections to Natura 2000 site(s).
- GW - determined by the underlying aquifer but generally 5km to 10km.
- Air (disturbance) - noise disturbance to supporting *ex-situ* habitat(s) of QI and/or SCI species within or adjacent to the site (500m) (Cutts, Hemingway and Spencer, 2013).
- Air (emissions and dust) - air pollution (250m) using IAQM guidance (IAQM, 2024).
- Land – physical disturbance to supporting *ex situ* habitat(s) of QI and/or SCI species within or adjacent to the site.
- 10km radius is used for non-statutory sites (NHAs, pNHAs).

3 Desktop Study

3.1 Designated Sites

This section lists the designated sites of international and national importance which includes SPA, SAC, Ramsar sites, NHA, a pNHA, and statutory Nature Reserves.

AA Screening and NIS have been carried out for this Proposed Substation Development in a separate report. Using the precautionary principle, mitigation measures were put forward and shall be implemented to ensure that there will be no likely adverse effects to the Lower River Shannon SAC.

3.1.1 Natura 2000 Sites

Eight Natura 2000 sites within the Proposed Substation Development's Zol were identified in the AA Screening. All but one, the Lower River Shannon SAC, were screened out. The designated sites are presented in Table 3-1 and shown in Figure 3-1.

Table 3-1: Natura 2000 sites within the Proposed Substation Development's Zol

Natura 2000 site	Site Code	Hydrological connection	Direct distance from site
Glen Bog SAC	IE0002047	Shared GWB	4km
Tory Hill SAC	IE0000439	Shared Catchment	17km
Barrigone SAC	IE0000439	Shared Catchment	42km
Askeaton Fen Complex SAC	IE0002279	Shared Catchment	34km
Curraghchase Woods SAC	IE0000174	Shared Catchment	31km
Lower River Shannon SAC	IE0002165	SW connection; Shared Catchment	12km
River Shannon and River Fergus Estuaries SPA	IE0004077	SW connection; Shared Catchment	38km
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	IE0004161	Shared Catchment	43km

Screening rationale

Tory Hill SAC, Askeaton Fen Complex SAC, Barrigone SAC, and Curraghchase Woods SAC all share the same catchment as the Proposed Substation Development. However, due of the nature of the Proposed Substation Development (low-to-no emissions), and the lack of a direct hydrological connection (i.e. not downstream), the distance between the site and the different SACs, there is no viable pathway. Therefore, it is highly unlikely for there to be a significant effect from the Proposed Substation Development on these SACs.

Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is designated for Hen Harrier: the Proposed Substation Development site does not present suitable breeding habitat for this species. While Hen Harrier may use wet grassland intermittently for foraging, due to the improved or semi-improved nature of the site, the Proposed Substation Development site is unlikely to support Hen Harrier, and no evidence of Hen Harrier was recorded on any of

the surveys carried out. Additionally, the distance from the Stack's to Mullaghareirk Mountains is significant – 43km. Therefore, this SPA is unlikely to be significantly impacted by the Proposed Substation Development.

Due to the distance and shared GWB between the Proposed Substation Development site and Glen Bog SAC, this site was examined for potential impacts from the development. Glen Bog SAC was brought forward to the NIS, and upon further investigation, the pathway was not considered to be viable and therefore was ultimately screened out.

Due to the SW connection between the development site and the Lower River Shannon SAC, and the River Shannon and River Fergus Estuaries SPA, these sites were retained for further investigations on potential impacts. Only the Lower River Shannon SAC was screened in at the AA stage applying the precautionary principle. This is treated in the accompanying NIS.

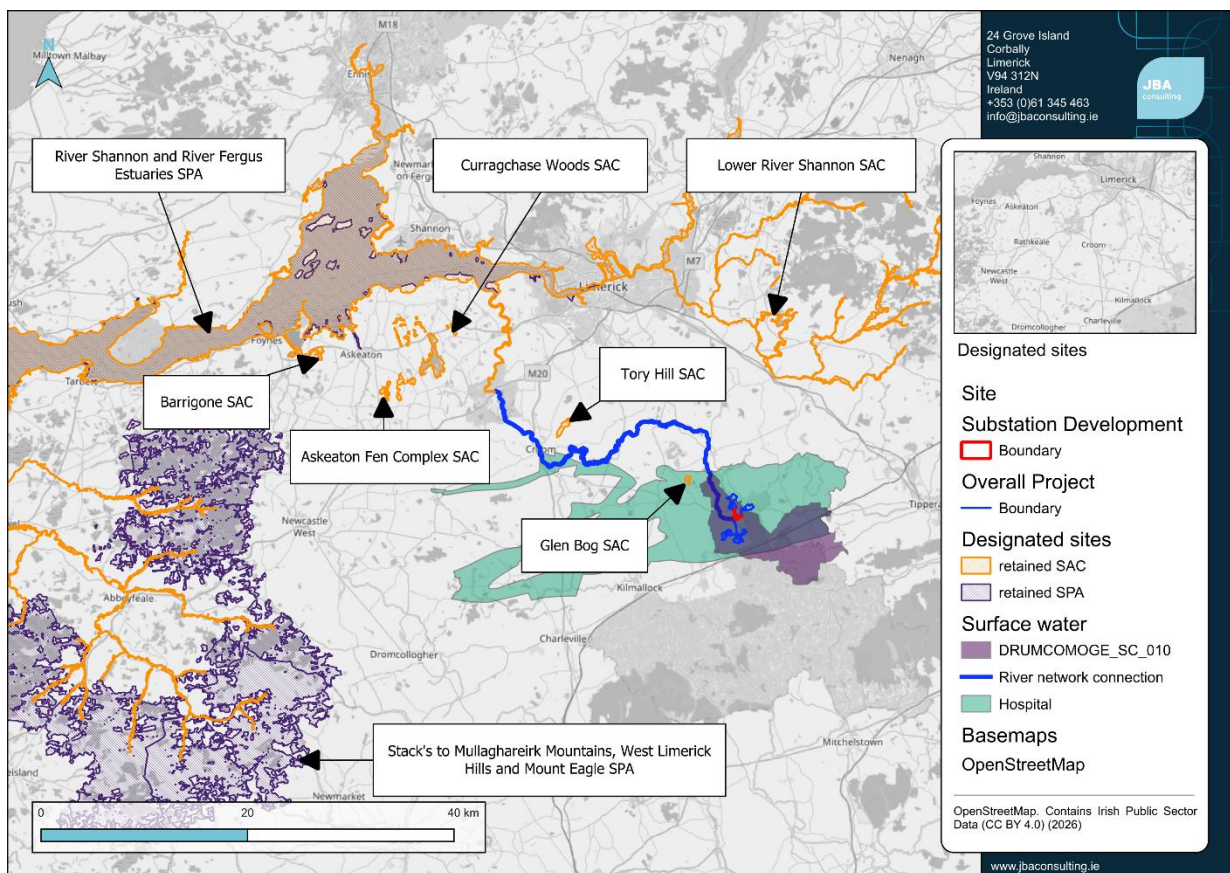


Figure 3-1: Statutory designated sites within the Zol of the Proposed Substation Development

3.1.2 Nationally Designated and Proposed Sites

This section details the designated NHAs and pNHAs searched for within a 10km radius of the Proposed Substation Development. 3 pNHAs are present within this radius, detailed in Table 3-2 and shown in Figure 3-2. Details for these sites are discussed further in the below sections. There will be no operational emissions from this Proposed Substation Development. No water discharges to GW and SW are anticipated, other than rainfall run-off.

Table 3-2: NHAs and pNHAs within Proposed Substation Development Zol

Site	Site code	Direct distance from site	Hydrological connection
Herbertstown Fen pNHA	000436	3km	Shared catchment
Glen Bog pNHA	001430	3.8km	Shared GWB
Lough Gur pNHA	000437	5.3km	Shared catchment

Glen Bog pNHA overlaps with Glen Bog SAC and is considered as the SAC; this site is dealt within Appropriate Assessment process. The site is screened out due to the lack of viable pathway at the NIS stage.

Herbertstown Fen pNHA is a large wet fen of good botanical and ecological interest. It is also of interest to birds as it provides the only semi-natural refuge in this area of intensively managed agricultural land. Many waders feed in the surrounding fields. The fen contains a wide range of fen plants and habitats typically associated with this type of habitat. Common Club-rush *Schoenoplectus lacustris* is common along with a large variety of sedges *Carex* spp. There are a number of open pools with rich pond-type vegetation including water-lily *Nuphar* spp. Greater Bladderwort *Utricularia vulgaris* and Branched Bur-reed *Sparganium erectum*. The eastern part of the fen is slightly raised and the vegetation here is more heath-like with an abundance of Heather *Calluna vulgaris* along with Purple Moor-grass *Molinia caerulea* and Royal Fern *Osmunda regalis*.

The site is relatively undisturbed with little signs of grazing or attempts at agricultural improvement. It is of vital importance to the wildlife interest of the site that this status is maintained (NPWS, 2009a).

This pNHA is not hydrologically connected to the Proposed Substation Development site, as it is in the Fedamore GW body, and the Proposed Substation Development is in the Hospital GW body. The lack of pathway makes it highly unlikely for the site to be affected by the Proposed Substation Development.

Lough Gur pNHA is divided into several basins by steep hills of grey reef limestone. Two large wetlands are associated with the site: Lake Bog lies to the east, between Loughgur cross and Knockadoon Hill, and Red Bog occupies an area to the south. Currently the lake, both wetlands and Knockadoon Hill together form a pNHA. The water quality of the lake is poor. Historic records indicate the water was reported to support Rigid Hornwort *Ceratophyllum demersum*, with some Stoneworts *Chara* spp. in shallower water. Surrounding swamps are dominated by Common Club-rush *Schoenoplectus lacustris*, Water Horsetail *Equisetum fluviatile* and Broadleaf Cattail / Bulrush *Typha latifolia*. Behind this are reed-beds with Common Reed *Phragmites australis* and scattered Greater Tussock-sedge *Carex paniculata*.

There are also areas of wet grassland and marshland, mainly dominated by Creeping Bent *Agrostis stolonifera* with Fool's Watercress *Apium nodiflorum*, Common Marsh-bedstraw *Galium palustre*, Bottle Sedge *Carex rostrata*, Water Mint *Mentha aquatica* and a wide range of other wetland species. Golden Dock *Rumex maritimus* is a wetland species of restricted occurrence in Ireland which has shown a recent decline: now Lough Gur hosts one of its four known extant populations.

Red Bog is a calcareous fen with some open pools. The fen area contains Blunt-flowered Rush *Juncus subnodulosus*, Lesser Tussock-sedge *Carex diandra* and Twisted-fruit Sedge *Carex disticha* amongst other fen species, such as Common Sedge *Carex nigra*, Meadowsweet *Filipendula ulmaria*, Yellow Flag Iris *Iris pseudacorus* and Marsh Cinquefoil *Potentilla palustris*.

Lake Bog is similar with a rich flora variously dominated by Common Reed *Phragmites australis* and Creeping Bent *Agrostis stolonifera*, and in places with swarms of Greater Tussock-sedge *Carex paniculata*. Willows (*Salix* spp.) are widespread across this wetland.

Knockadoon Hill is a limestone hill whose surface runoff drains into the wetlands of the site. In places the soil is shallow with outcropping limestone. Its grassland and scrub communities add great diversity to the NHA.

The open water and wetlands support a great variety, and important numbers of waterbirds. Notably, there are nationally important numbers of Shoveler, Tufted Duck and Coot. Other species present in important numbers include Cormorant, Mute Swan, Whooper Swan, Wigeon, Teal, Gadwall, Mallard, Pochard, Lapwing and Curlew.

Botanically, the swamp, marshland and wet grassland is the most important aspect of the site. Not only is this where the Golden Dock is found, but it is in itself is a rare complex of semi-natural habitats. The grassland, scrub and open water areas, being important supplementary habitats, add variety to the site. The open water, however, shows obvious signs of nutrient enrichment and must now be regarded as vulnerable to a collapse in the current ecological function, to be replaced by a system unfavourable for higher aquatic plant growth (NPWS, 2009b).

The Proposed Substation Development site is not hydrologically connected to this pNHA as it is in the Fedamore GW body, and the Proposed Substation Development is in the Hospital GW Body. The Proposed Substation Development site does not host suitable habitats to act as *ex situ* habitat for characteristic flora of the pNHA or to support the water birds associated with the pNHA. In addition, the distance between the Proposed Substation Development and the pNHA mean that no viable pathway exists. Therefore, Lough Gur pNHA is unlikely to be affected by the Proposed Substation Development.

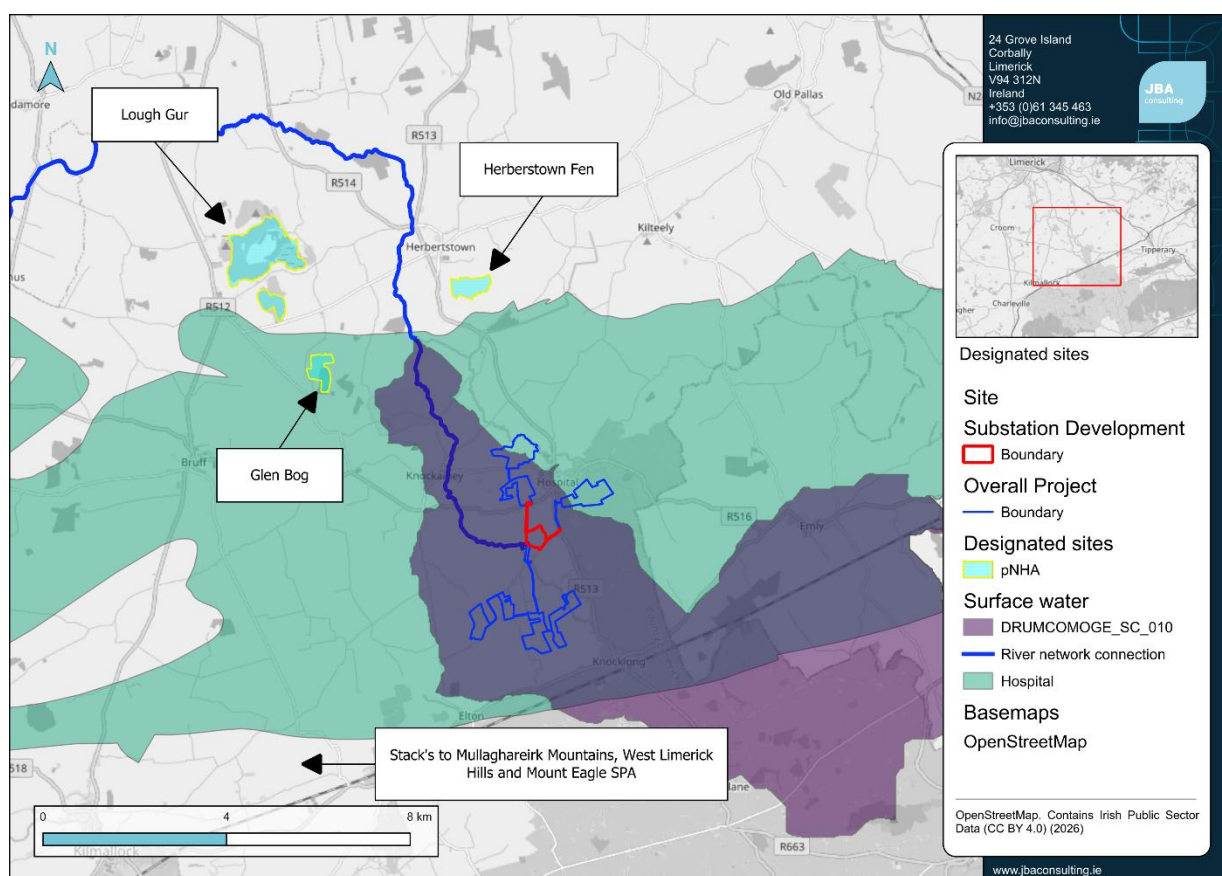


Figure 3-2: Non-statutory designated sites

3.1.3 Screening of Designated Sites

JBA carried out an AA screening and an NIS for the Proposed Substation Development on this site. It was concluded that **likely significant effects** may occur without any mitigation.

The retained QIs of the Lower River Shannon SAC requiring mitigation are:

- Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation [3260].
- Sea Lamprey *Petromyzon marinus* [1095].
- Brook Lamprey *Lampetra planeri* [1096].
- River Lamprey *Lampetra fluviatilis* [1099].
- Salmon *Salmo salar* [1106].
- Otter *Lutra lutra* [1355].

The AA concluded that likely significant effects may occur on the Lower River Shannon SAC; were not deemed to be viable. No pNHA is likely to be affected by the Proposed Substation Development.

3.2 Surface Water

The Proposed Substation Development site is located within the DRUMCOMOGE_SC_010, within the Shannon Estuary South Catchment. The Camogue (DRUMCOMOGE_010) runs adjacent to the site, with field drains connecting the land to the watercourse. The Camogue discharges into the Maigue, which in turn flows into the Shannon Estuary.

The Camogue (Drumcomoge_10) river is classified as At Risk and of 'Poor' ecological status (EPA, 2026).

The Hydrology and Hydrogeology Assessment prepared for the Proposed Substation Development concluded that *The WFD status of surface and ground waterbodies in the area will not deteriorate, nor will the Proposed Substation Development jeopardise future improvements in WFD status.*

Table 3-3: WFD waterbody ecological and risk status

Denomination	Waterbody	Type	Ecological status 2019-2024	Risk
Camogue	DRUMCOMOGE_010	River Type 31	Poor	At Risk

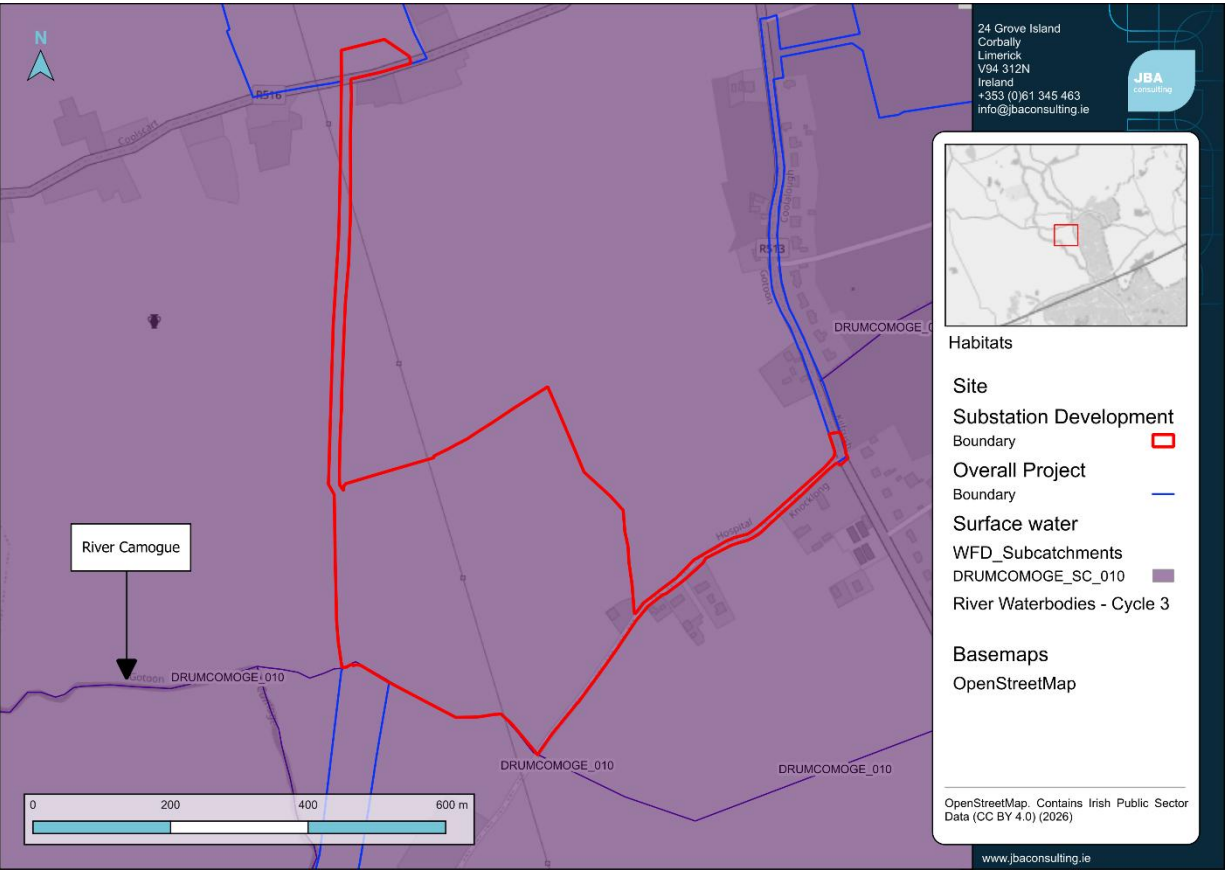


Figure 3-3: Surface water network of the site and the surrounding area

3.3 Groundwater Bodies

The site is located within the Hospital GWB, which is classified as 'Not At Risk', and of 'Good' ecological status (EPA, 2024).

The spread of the site means that it overlays different aquifers and subsoil types (Table 3-4). The majority of the site overlays a Locally Important Aquifer - Bedrock which is 'Moderately Productive' only in Local Zones (GSI, no date).

GW vulnerability varies across the site, broadly from 'Low Moderate' in the southern section of the development to at Moderate to Extreme in the northern part of the development (Figure 3-4).

Table 3-4: Aquifer type and underlying geology of each land parcel

Aquifer	Description
Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones	Dark muddy limestone, shale

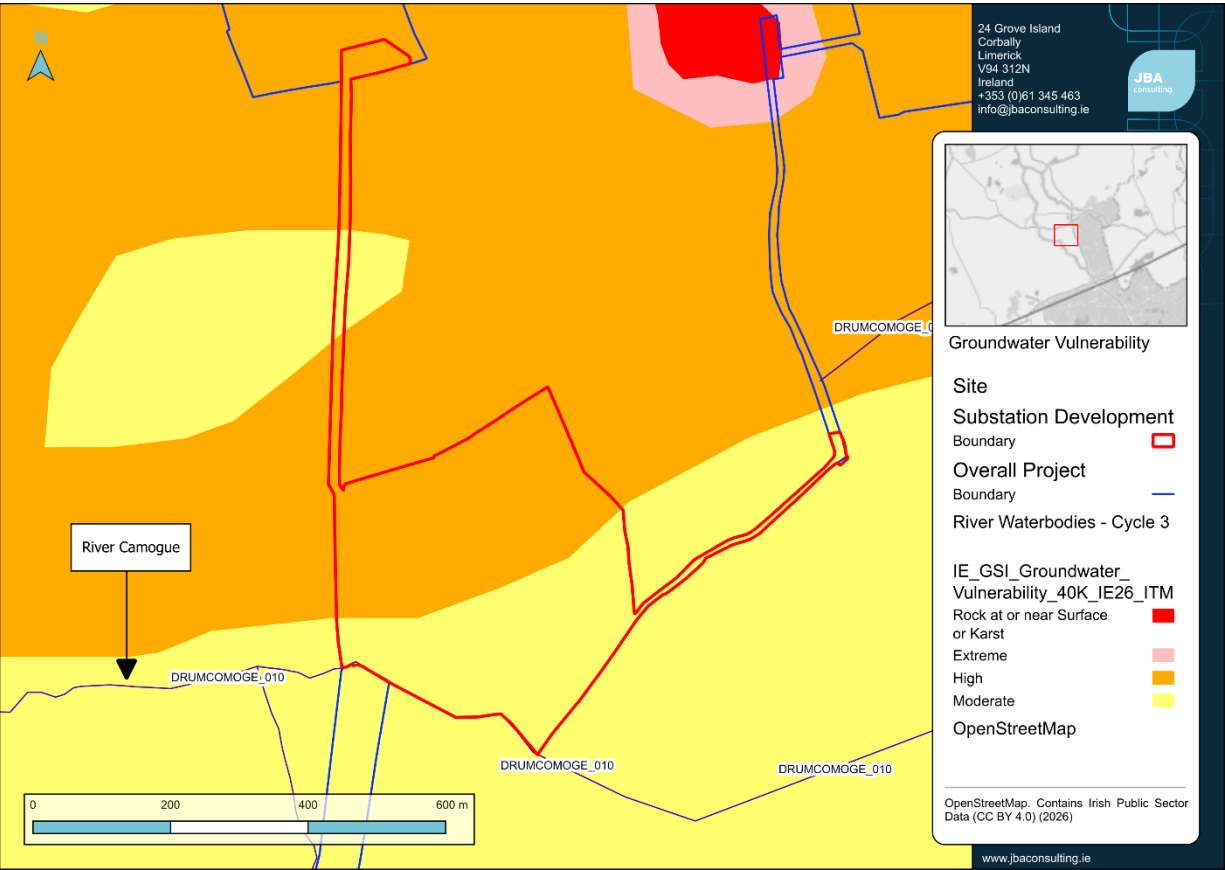


Figure 3-4: Groundwater vulnerability of the Proposed Substation Development

3.3.1 Soils

Underlying soil type varies across the site but largely consists of fine loamy drift with limestones and clayey drift with limestones (Table 3-5).

Table 3-5: Underlying soil type of each land parcel of the Proposed Substation Development

Parcel	Soil association
4	1000a – fine loamy drift with limestones
4	5RIV – river alluvium

Table 3-6: Underlying subsoil type of each land parcel

Parcel	Subsoil
4	Rck – Bedrock at surface
4	TLs - Limestone till Carboniferous

Rck – Bedrock at Surface: Solid, indurated rock (e.g., limestone, sandstone, igneous) that is exposed or has very thin overburden. High density, high strength, and low compressibility.

TLs - Limestone Till Carboniferous: Glacial till (unsorted glacial drift) derived from limestone rock, containing grey-black limestone boulders in a clay/silt matrix. Typically alkaline, often characterized as a stiff, low-permeability "boulder clay". Often contains high gravel content.

3.4 Records of Protected/Threatened Species

3.4.1 NBDC

A 2km radius custom polygon was created through NBDC Biodiversity Maps (NBDC, 2026) in order to assess which Natura 2000 QI/SCI species were recorded in close proximity to the site within the last ten years. Records older than 10 years were consulted but not presented here to only keep time relevant records.

A total of 253 entries were recorded in the area; this was filtered down to 38 entries after excluding records that are over 10 years old. Lack of records however is likely due to under-recording in this area rather than an absence of species. Only 20 records cover species with specific legislative protection.

Table 3-7: NBDC records

Species name	Date of last record	Designation
Bird		
Golden Plover <i>Pluvialis apricaria</i>	11/01/2018	Protected Species: Wildlife Acts Protected Species: EU Birds Directive >> Annex I Birds of Conservation Concern - Red List
Goshawk <i>Accipiter gentilis</i>	11/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Grey Plover <i>Pluvialis squatarola</i>	05/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List

Species name	Date of last record	Designation
Grey Wagtail <i>Motacilla cinerea</i>	11/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
House Martin <i>Delichon urbicum</i>	06/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
House Sparrow <i>Passer domesticus</i>	07/01/2018	Birds of Conservation Concern - Amber List
Jack Snipe <i>Lymnocyptes minimus</i>	11/01/2018	Protected Species: Wildlife Acts Protected Species: EU Birds Directive
Mallard <i>Anas platyrhynchos</i>	11/01/2018	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Birds of Conservation Concern - Amber List
Pheasant <i>Phasianus colchicus</i>	11/01/2018	Protected Species: Wildlife Acts
Robin <i>Erithacus rubecula</i>	11/01/2018	Protected Species: Wildlife Acts
Snipe <i>Gallinago gallinago</i>	11/01/2018	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Starling <i>Sturnus vulgaris</i>	11/01/2018	Birds of Conservation Concern - Amber List
Woodcock <i>Scolopax rusticola</i>	11/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Yellowhammer <i>Emberiza citrinella</i>	07/01/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Flora		
Giant Hogweed <i>Heracleum mantegazzianum</i>	10/01/2018	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland)
Japanese Knotweed <i>Reynoutria japonica</i>	10/01/2018	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland)
Mammal		
Badger <i>Meles meles</i>	11/01/2018	Protected Species: Wildlife Acts
Common Pipistrelle <i>Pipistrellus pipistrellus sensu stricto</i>	11/07/2019	EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Otter <i>Lutra lutra</i>	11/01/2018	EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	11/07/2019	EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

3.4.2 Fishery Records

Inland Fisheries Ireland surveys for the Water Framework Directive Fish Ecological status carried out in 2024 along the Camogue record the presence of six species across different

location upstream and downstream (Table 3-8). Brown Trout *Salmo trutta*, , Lamprey Spp. (*Petromyzon spp.* and/or *Lampetra spp.*), Minnow *Phoxinus phoxinus*, Atlantic Salmon *Salmo salar*, Three-spined Stickleback *Gasterosteus aculeatus* and Stone Loach *Barbatula barbatula* (IFI, 2025).

The Camogue Rivers flows into the River Maigue providing a hydrological connection between the Overall Project and the Lower River Shannon SAC. Lamprey (*Petromyzon spp.* and/or *Lampetra spp.*), and Atlantic Salmon *Salmo salar* are QIs of the Lower River Shannon SAC. Mitigation measures to protect water quality and therefore these species are presented in the NIS.

Table 3-8: IFI records.

River	Year	Location	Species	Ecological status
Camogue	2024	Ballycahill Bridge	Brown trout; Minnow; Stone loach; Three-spined Stickleback; Lamprey sp.	Moderate
Camogue	2024	Ballincarroona	Brown trout; Minnow; Stone loach; Three-spined Stickleback; Salmon	Moderate

The Camogue river presents small narrow channels of free-flowing water: in the section along the southwestern boundary of the Proposed Substation Development site the stream banks are covered in herbaceous vegetation with some overbank flows during flood events. This area is unlikely to provide suitable spawning conditions for Lamprey or Salmonids due to the slow-moving water, and absence of pools and riffles. This section may be occupied by Lamprey ammocoetes.

The other streams and drainage ditches presented very little in terms of fisheries potential, due to heavy management, low water flow and many drying out during the summer months.

Overall, there is potential for some QI fish to be present within the vicinity of the site, and IFI records confirm their presence upstream and downstream from the site.

3.4.3 Crayfish

The white-clawed crayfish *Austropotamobius pallipes* is Ireland's only native crayfish, and is listed as endangered on the IUCN Redlist (Füreder *et al.*, 2010). They are afforded protection under the Habitats Directive and the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended.

They are found in limestone rich watercourses and lakes with clean moderate flow waters and abundant refuges such as rocks, tree roots or logs. They are highly vulnerable to pollution, sedimentation and hydrological changes. Crayfish have been recorded in the Camogue (Sweeney, 2018).

3.4.4 Bat Records

A data request was submitted to BCI to gain an understanding in the possible distribution of bats and bat roosts in the area. This data request does not constitute consultation with BCI. As with all data repositories, the absence of records does not represent an absence of bats.

No known bat roosts are located within the Proposed Substation Development site or its immediate surroundings. *Ad hoc* bat surveys carried out in Hospital village, recorded the presence of *Pipistrelles* and *Myotis* sp. These species would be expected in the sort of habitats in the area.

4 Existing Environment

Designated sites, habitats, and species identified in the baseline conditions are presented in detail in the following sections.

4.1 Habitats

The habitats recorded during the site survey are listed below in Table 4-1 and mapped in Figure 4-1. These habitats are described in more detail within the following sub-sections. The value of each feature is based on recordings from the site visit.

The valuation of designated sites considers different levels of statutory and non-statutory protection. Assessment of habitat depends on several factors, including the size of the habitat, its conservation status and quality. The assessment also takes account of connected off-site habitat that may increase the value of on-site habitat through association. Valuation of species depends on a number of factors including distribution, status, rarity, vulnerability, and the population size present.

The overall area covers approximately 17.02 ha. Habitat areas and lengths of linear features are to be considered as indicative rather than absolute values.

Table 4-1: Habitats recorded during the site visit.

Habitat Type	Fossitt Code	Annex I link?	Approximate Area in m ² or Linear m
Improved agricultural grassland	GA1	None	145 000 m ²
Wet grassland	GS4	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) 6410). Not present in project area.	3200 m ²
Dry meadows and grassy verges	GS2	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) (6510). Not present in project area.	800 m ²
Treelines	WL2	None	950 m
Hedgerows	WL1	None	1050 m
Drainage ditches	FW4	None	880 m
Depositing/lowland rivers	FW2	Water courses of plain to montane levels, with submerged or floating vegetation of the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> (3260)	310 m
Buildings and artificial surfaces	BL3	None	300 m ²

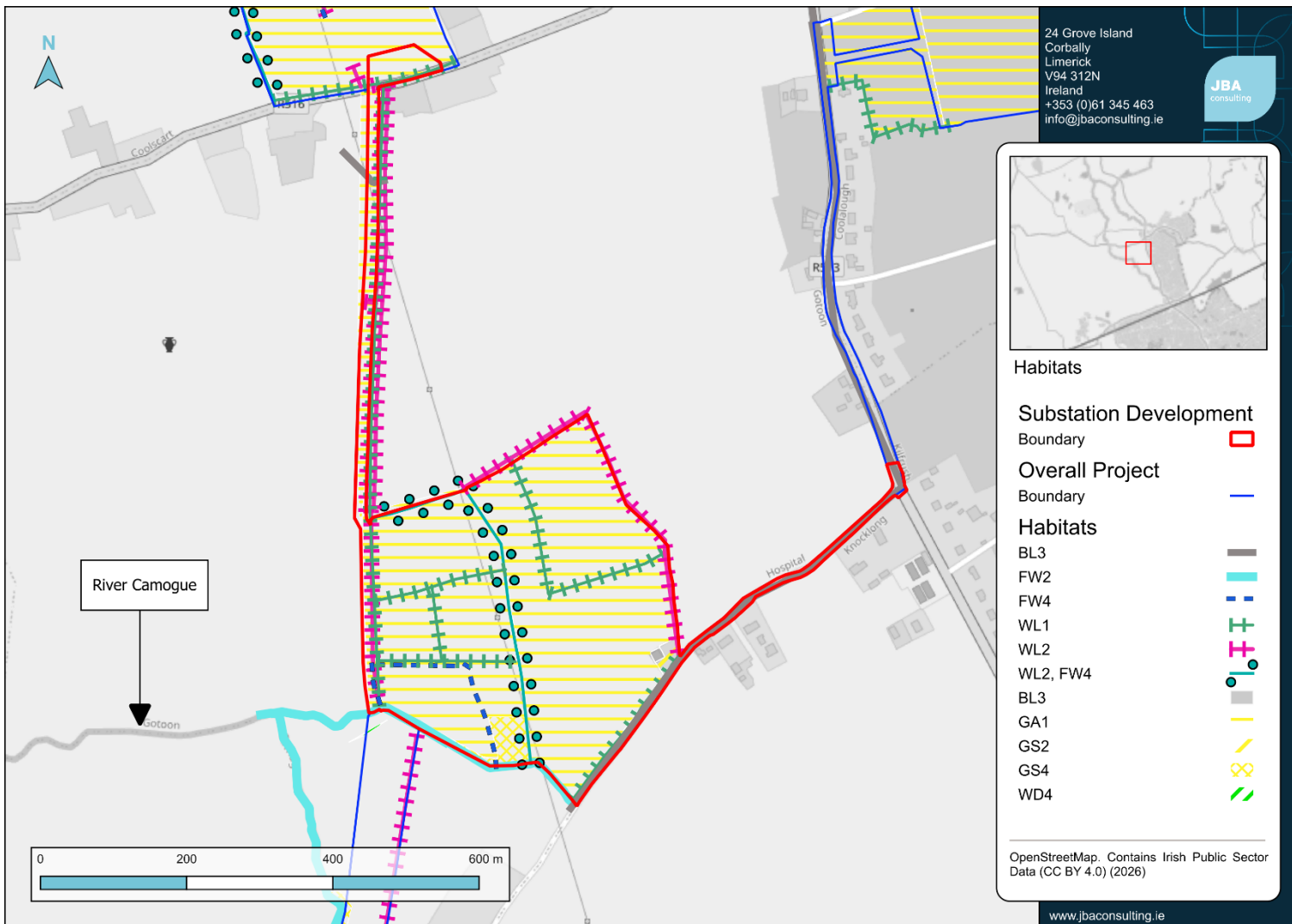


Figure 4-1: Habitat map of the Proposed Substation Development extent

4.1.1 Improved Agricultural Grassland (GA1)

This habitat covers approximately 145 000 m² and is split up by hedgerows and drainage ditches. The Proposed Substation Development including access tracks will cover approximately 32 750 m². This grassland is managed and used primarily for cattle grazing. Some areas in the southwest of the land parcel have been drained. Approximately 60 000 m² on the west of the plot are intensively managed, with signs of reseeding. Approximately 80 000 m² on the east of the plot show signs of fewer interventions, with a more species rich sward. The area is however typically dominated by Perennial Rye-grass *Lolium perenne*, with species such as White Clover *Trifolium repens*, Common Mouse-ear Chickweed *Cerastium fontanum*, Meadow Buttercup *Ranunculus acris*, Creeping Buttercup *Ranunculus repens* and Broad-leaved Dock *Rumex obtusifolius*.

These grasslands are of Local Importance (lower value) to ecological value and largely serve an agricultural purpose.



Figure 4-2: Improved agricultural grassland at the Proposed Substation Development site

4.1.2 Wet Grassland (GS4)

These grasslands are typically found on flat ground that is often waterlogged, typically due to mineral or organic soils that are poorly drained. This habitat was found along the river Camogue, in areas of fields that have been drained covering approximately 3000m². This habitat in this land parcel is heavily modified, and can be considered to be a wet GA1 habitat.

These grasslands are of Local Importance (lower value) to ecological value and largely serve an agricultural purpose.

4.1.3 Dry Meadows and Grassy Verges (GS2) and Dry Meadows and Earthen Bank Mosaic (GS2/BL2)

Some small areas of this habitat occur in the southeast corner of the site covering approximately 500m². This habitat is more akin to an unused area of land around agricultural buildings.

Typical species consisted of Cock's-foot *Dactylis glomerata*, Common Bent *Agrostis capillaris*, Yorkshire Fog, False Oat-grass *Arrhenatherum elatius*, Meadow Buttercup *Ranunculus acris*, Ribwort Plantain *Plantago lanceolata*.

These grasslands are of Local Importance (lower value) to ecological value and largely serve an agricultural purpose.

4.1.4 Treelines (WL2)

The field boundary around the Proposed Substation Development is dominated by treelines. These are typically overgrown hedgerows that are now dominated by trees. These provide ecological corridors across the landscape (Figure 4-3).

These are of mixed species including Ash *Fraxinus excelsior*, Pedunculate Oak *Quercus robur*, Sycamore *Acer pseudoplatanus*, Apple *Malus domestica/sylvestris*, Willow *Salix sp*, Hawthorn *Prunus spinosa*, Ivy *Hedera hibernica*, Bramble *Rubus fruticosus agg*, as well as other herbaceous woodland edge species.

Treelines are of Local Importance (higher value) to ecological value and largely serve an agricultural purpose.



Figure 4-3: WL2 Treelines as a field boundary

4.1.5 Hedgerows (WL1)

Hedgerows often formed field boundaries that divided up different fields within land parcel, while treelines commonly denoted the outer edges/boundaries of the farm/landholding. Hedgerows also commonly were used as a boundary between a field and a roadway. By their nature, hedgerows are typically lower in stature to treelines and are not dominated by mature trees but do have some. They are comprised of low to moderate height scrub. In many cases, the hedgerows were also associated with and along drainage ditches (Figure 4-4).

The most common hedgerow species were Hawthorn, Blackthorn, Bramble and Dog Rose *Rosa canina*. The large Hawthorn hedgerow demarcating the northeastern corner of the plot was left unmanaged; it is thin at the base with little to no undergrowth. All other hedgerows were heavily managed cut to a low level.

Hedgerows are of Local Importance (higher value) to ecological value and largely serve an agricultural purpose.



Figure 4-4: Heavily managed Hedgerows (WL1)

4.1.6 Drainage Ditches (FW4)

This is a common habitat, running adjacent to the treelines/hedgerows, dividing up the different smaller fields within the overall parcel. They are typically incorporated to assist with removing water from land, especially improved agricultural grasslands (Figure 4-5). The drains which were observed to be dry during the site visit had a grassy cover with Creeping Bent and Soft Rush. Drains which had standing water often had aquatic species such as Floating Sweet-grass *Glyceria fluitans*, Pink Water-speedwell *Veronica catenata*, Brooklime *Veronica beccabunga* and Fool's Water-cress *Helosciadium nodiflorum*.

This habitat is of Local Importance (lower value) to ecological value and largely serve an agricultural purpose.



Figure 4-5: Drainage ditch (FW4) to the west of the site. Note the presence standing water backfilling from the river

4.1.7 Depositing / Lowland Rivers (FW2)

These are natural watercourses, unlike the drainage ditches which are manmade. This habitat encompasses river sections that are typically lowland and have reduced velocity that enables deposition of sediments. The Camogue flows along the southwestern aspect of the site (Figure 4-6). This is a tributary of the River Maigue. Rivers in this area are characterised by a mix of exposed substratum of gravels to areas where aquatic river vegetation has developed. The banks of the river were dominated by herbaceous species, with no significant riparian habitat.

This is a habitat of county level importance.



Figure 4-6: River Camogue adjacent to the land parcel

4.1.8 Buildings and Other Artificial Surfaces (BL3)

A derelict building is present in the north section of the Proposed Substation Development site. This building has no roof and presents very little opportunities for wildlife. (Figure 4-7). These habitats are of less than local ecological value.



Figure 4-7: Derelict building on site

4.2 Protected Species

During the site visits evidence of protected species on both national and international levels were recorded. This includes both volant and non-volant mammal species.

4.2.1 Non-volant Mammals

Protected mammal activity recorded the presence of Badger *Meles meles*. Other species occurring on site include Fox *Vulpes vulpes* and Wood Mouse *Apodemus sylvaticus*. Evidence included visual observations, tracks, setts, droppings, and camera trap recordings.

Records include evidence of foraging, travelling, and satellite setts. The extensive available habitat allows for ample opportunities for them.

Species such as Pine Marten *Martes martes*, Stoat *Mustela erminea*, Red Squirrel *Sciurus vulgaris*, Hedgehog *Erinaceus europaeus*, and Pygmy Shrew *Sorex minutus* were not recorded. However, this is more likely due to their cryptic nature, rather than the absence of the species in the area. Owing to habitats present on site, these species are likely to be present within the footprint of the Proposed Substation Development and the surrounding areas.

4.2.1.1 Trail camera results

A trail camera was deployed along the northern boundary of the site, between 22/01/2025 and 18/02/2025, at the location of a suspect badger sett entrance on the northern boundary.

Species were grouped into broad categories, with micromammals encompassing mice and rats, domestic corresponding to cats and dogs, and birds corresponding to all bird species recorded. Environmental triggers are those caused by shadows or foliage movement.

Table 4-2: Frequency of camera triggers per animal group.

	Number of triggers (% total)
Environmental	906 (90.5%)
Micromammal	29 (3%)
Badger	50 (5%)
Bird	15 (1.5%)

4.2.1.2 Badger activity

Evidence of Badger using the site was recorded along the northern (one excavation) and eastern boundaries (5 excavations). Excavation likely to be used by Badger were recorded in the base of the hedges, with confirmation of use through camera trapping. Little activity was recorded and no evidence of breeding setts was noted at the time of the visits. These are likely to be outlier locations occasionally used. No evidence of fresh digging was recorded, and no clear paths were noted.

4.2.1.3 Summary

The site is suitable for a suite of mammals including protected species. Low levels of mammal activity were recorded, but the site has potential.

Due to the nature of the habitats found on site, the widespread mammal activity recorded, and the presence of protected species, this site is considered to be of Local Importance for mammals.

4.2.2 Bats

At least five species were recorded at the Proposed Substation Development site via a mix of the transects and the analysis of the static detector data. Descriptions of regularly occurring bat species in the area are presented below.

Common pipistrelle *Pipistrellus pipistrellus* is a generalist species occurring across a wide range of habitats including urban, agricultural, and woodland edge habitats. They forage on small aerial insects. They are sensitive to habitat loss, and lighting.

Soprano Pipistrelle *Pipistrellus pygmaeus* are closely related to Common Pipistrelle, occupying a similar niche.

Leisler's Bat *Nyctalus leisleri* is associated with open habitats, parklands, farmland, and woodland edges. They generally forage above canopy height. They are sensitive to loss of mature trees with roost potential, loss of habitat and lighting.

Brown Long-eared Bat *Plecotus auritus* are associated with broadleaf woodland, wooded parkland, and mature gardens. They are sensitive to the loss of woodland and mature trees, loss of roosting habitat and lighting.

Daubenton's Bat *Myotis daubentonii* is associated with freshwater habitats, such as slow flowing rivers, canals, lakes, and ponds. They forage insects over water bodies. They are sensitive to water quality, loss of riparian habitat and lighting.

Whiskered Bat *Myotis mystacinus* is associated with woodland edges, hedgerows, riparian corridors, and sheltered linear features. They use these linear features to forage. They are sensitive to loss of treelines/hedgerows, lighting and loss of roosting places.

Natterer's Bat *Myotis nattereri* is associated with woodland, mature hedgerows, treelines, and pasture mosaics. They forage by gleaning insects from the surface of the vegetation. They are sensitive to the loss of hedgerows, treelines, woodlands, lighting and loss of roosting spaces.

The site of the Proposed Substation Development host a range of habitats that are suitable for these species, and the desktop review suggest that they may be present in the area.

4.2.2.1 Preliminary Roost Survey

The preliminary roost survey encompasses areas where structures were present, where field gaps were to be widened or where changes around sight-lines for access mean that some trees may be removed. The transient nature of non-maternity type roosts of bats means that bats may be present on a given night, but not on another night in some of the roosting features.

A roofless derelict building is present on site: it is unlikely to be suitable for use by bats as a significant roost, due to the lack of an attic space for cavity dwelling species, and the open and exposed nature of the building in general to both wind and rain. The main hedgerow running through the plot is comprised of mature Hawthorn, but presents negligible roost features due to the nature of the trees.

4.2.2.2 Static bat detector results

Static detectors were deployed across each land parcel and left to record for a week in August 2025. Number of calls is used as a proxy of species distribution; however, the number of calls does not represent the number of individuals. *Myotis*, Leisler's, Brown Long-eared, Common Pipistrelle and Soprano Pipistrelle were recorded. Common Pipistrelle and Soprano Pipistrelle represent 87% of all calls recorded, Leisler's represent approximately 8% of the calls, with *Myotis* less 5% and Brown Long-eared less than 1% (Table 4-3).

Table 4-3: Static detector results recorded at the Proposed Substation Site.

Species	Count	Proportion
<i>Myotis</i>	44	0.05
Leisler's	66	0.08
Brown Long-eared	2	0.00
Common Pipistrelle	188	0.22
Soprano Pipistrelle	552	0.65

4.2.2.3 Summary

Bat species recorded on site comprise the expected assemblage of bat species in a rural landscape. Common and Soprano Pipistrelle were the most frequently recorded species. Myotis species recorded in the area may benefit from the watercourse.

The abundance of suitable habitat in the surrounding area, and on site provides opportunities for a suite of species. Due to these considerations, the diversity of species recorded and the sensitive nature of bats, they are considered to be of **Local Importance (Higher)**.

4.2.3 Birds

Bird species presented correspond to species recorded in the Overall Project area. Due to the habitats present on site and in the surrounding areas, and the highly mobile nature of birds, it is important to assess the full suite of species which occur. Land Parcel relative locations are presented in Figure 1-2. The Proposed Substation Development corresponds to Parcel 4 of the Overall Project.

4.2.3.1 Wintering Birds

Thirty-nine bird species were recorded during the winter bird surveys; birds were distributed across all parcels. Ducks were recorded along streams and drainage ditches; Heron, Little Egret and Cormorant were recorded along the river in Parcel 1. These species may also use the river Camogue adjacent to the site.

Buzzard and Kestrel were recorded both in the Northern and Southern sections of the development area indicating likely multiple territories for each species. Barn Owl was reported by the landowner in Parcel 7, approximately 1.7km south of the Proposed Substation Development.

The expected composition of passerines and low levels of winter visitors were recorded throughout the site. This is likely due to the homogenous distribution in habitats, and the rural setting meaning low levels of disturbance.

Table 4-4 Bird species recorded during wintering bird surveys

Species	Scientific name	BoCCi4 (Season)	IUCN Red List (2023)	Annex I
Wigeon	<i>Mareca penelope</i>	Amber (B/W)	LC	-
Mallard	<i>Anas platyrhynchos</i>	Amber (B/W)	LC	-
Pheasant	<i>Phasianus colchicus</i>	Green (B)	LC	-
Woodpigeon	<i>Columba palumbus</i>	Green (B)	LC	-
Woodcock	<i>Scolopax rusticola</i>	Red (B)	LC	-
Jack Snipe	<i>Limnocyrtus minimus</i>	Green (W)	LC	-
Snipe	<i>Gallinago gallinago</i>	Red (B/W)	LC	-
Cormorant	<i>Phalacrocorax carbo</i>	Amber (B/W)	LC	-
Grey Heron	<i>Ardea cinerea</i>	Green (B/W)	LC	-
Little Egret	<i>Egretta garzetta</i>	Green (B/W)	LC	I
Buzzard	<i>Buteo buteo</i>	Green (B)	LC	-

Species	Scientific name	BoCCi4 (Season)	IUCN Red List (2023)	Annex I
Barn Owl	<i>Tyto alba</i>	Red (B)	LC	
Kestrel	<i>Falco tinnunculus</i>	Red (B)	LC	-
Magpie	<i>Pica pica</i>	Green (B)	LC	-
Jackdaw	<i>Coloeus monedula</i>	Green (B)	LC	-
Rook	<i>Corvus frugilegus</i>	Green (B)	LC	-
Hooded Crow	<i>Corvus cornix</i>	Green (B)	LC	-
Raven	<i>Corvus corax</i>	Green (B)	LC	-
Blue Tit	<i>Cyanistes caeruleus</i>	Green (B)	LC	-
Great Tit	<i>Parus major</i>	Green (B)	LC	-
Long-tailed Tit	<i>Aegithalos caudatus</i>	Green (B)	LC	-
Goldcrest	<i>Regulus regulus</i>	Amber (B)	LC	-
Wren	<i>Troglodytes troglodytes</i>	Green (B)	LC	-
Starling	<i>Sturnus vulgaris</i>	Amber (B)	LC	-
Song Thrush	<i>Turdus philomelos</i>	Green (B)	LC	-
Mistle Thrush	<i>Turdus viscivorus</i>	Green (B)	LC	-
Redwing	<i>Turdus iliacus</i>	Red (W)	NT	-
Blackbird	<i>Turdus merula</i>	Green (B)	LC	-
Fieldfare	<i>Turdus pilaris</i>	Green (W)	LC	-
Robin	<i>Erithacus rubecula</i>	Green (B)	LC	-
House Sparrow	<i>Passer domesticus</i>	Amber (B)	LC	-
Dunnock	<i>Prunella modularis</i>	Green (B)	LC	-
Pied Wagtail	<i>Motacilla alba</i>	Green (B)	LC	-
Meadow Pipit	<i>Anthus pratensis</i>	Red (B)	LC	-
Chaffinch	<i>Fringilla coelebs</i>	Green (B)	LC	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green (B)	LC	-
Linnet	<i>Linaria cannabina</i>	Amber (B)	LC	-
Goldfinch	<i>Carduelis carduelis</i>	Green (B)	LC	-
Reed Bunting	<i>Emberiza schoeniclus</i>	Green (B)	LC	-

The site is assessed as Local Importance (Lower) for wintering birds due to the roosting and foraging opportunities present.

4.2.3.2 Breeding Birds

Forty-six bird species were recorded during the breeding bird surveys; birds were distributed across all parcels. Kingfisher is an Annex 1 species. Three species (7%) are red listed, 11 species are Amber listed (24%), and 31 are green listed (69%). Evidence of breeding Kestrel and Buzzard was also recorded. Bird species recorded are the typical composition for countryside and farmland habitats. Kingfisher was recorded along the Mahore river. The banks of the Camogue along the southwestern boundary of the Proposed Development site are not suitable to host Kingfisher due to herbaceous vegetation and low profile.

Table 4-5 Bird species recorded during breeding bird surveys

Species	Scientific name	BoCCi4 (Season)	IUCN Red List (2023)	Annex I
Mallard	<i>Anas platyrhynchos</i>	Amber (B/W)	LC	-
Pheasant	<i>Phasianus colchicus</i>	NA	LC	-
Swift	<i>Apus apus</i>	Red (B)	LC	-
Woodpigeon	<i>Columba palumbus</i>	Green (B)	LC	-
Moorhen	<i>Gallinula chloropus</i>	Green (B)	LC	-
Grey Heron	<i>Ardea cinerea</i>	Green (B/W)	LC	-
Sparrowhawk	<i>Accipiter nisus</i>	Green (B)	LC	-
Buzzard	<i>Buteo buteo</i>	Green (B)	LC	-
Kingfisher	<i>Alcedo atthis</i>	Amber (B)	LC	I
Kestrel	<i>Falco tinnunculus</i>	Red (B)	LC	-
Magpie	<i>Pica pica</i>	Green (B)	LC	-
Jackdaw	<i>Coloeus monedula</i>	Green (B)	LC	-
Rook	<i>Corvus frugilegus</i>	Green (B)	LC	-
Hooded Crow	<i>Corvus cornix</i>	Green (B)	LC	-
Raven	<i>Corvus corax</i>	Green (B)	LC	-
Coal Tit	<i>Parus ater</i>	Green (B)	LC	-
Blue Tit	<i>Cyanistes caeruleus</i>	Green (B)	LC	-
Great Tit	<i>Parus major</i>	Green (B)	LC	-
Swallow	<i>Hirundo rustica</i>	Amber (B)	LC	-
House Martin	<i>Delichon urbicum</i>	Amber (B)	LC	-
Long-tailed Tit	<i>Aegithalos caudatus</i>	Green (B)	LC	-
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber (B)	LC	-
Chiffchaff	<i>Phylloscopus collybita</i>	Green (B)	LC	-
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	Green (B)	LC	-
Blackcap	<i>Sylvia atricapilla</i>	Green (B)	LC	-
Goldcrest	<i>Regulus regulus</i>	Amber (B)	LC	-
Wren	<i>Troglodytes troglodytes</i>	Green (B)	LC	-
Treecreeper	<i>Certhia familiaris</i>	Green (B)	LC	-
Starling	<i>Sturnus vulgaris</i>	Amber (B)	LC	-
Song Thrush	<i>Turdus philomelos</i>	Green (B)	LC	-
Mistle Thrush	<i>Turdus viscivorus</i>	Green (B)	LC	-
Blackbird	<i>Turdus merula</i>	Green (B)	LC	-
Fieldfare	<i>Turdus pilaris</i>	Green (W)	LC	-
Spotted Flycatcher	<i>Muscicapa striata</i>	Amber (B)	LC	-
Robin	<i>Erithacus rubecula</i>	Green (B)	LC	-
Stonechat	<i>Saxicola rubicola</i>	Green (B)	LC	-
House Sparrow	<i>Passer domesticus</i>	Amber (B)	LC	-

Species	Scientific name	BoCCi4 (Season)	IUCN Red List (2023)	Annex I
Dunnoch	<i>Prunella modularis</i>	Green (B)	LC	-
Pied Wagtail	<i>Motacilla alba</i>	Green (B)	LC	-
Meadow Pipit	<i>Anthus pratensis</i>	Red (B)	LC	-
Chaffinch	<i>Fringilla coelebs</i>	Green (B)	LC	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green (B)	LC	-
Greenfinch	<i>Chloris chloris</i>	Amber (B)	LC	-
Linnet	<i>Linaria cannabina</i>	Amber (B)	LC	-
Goldfinch	<i>Carduelis carduelis</i>	Green (B)	LC	-
Reed Bunting	<i>Emberiza schoeniclus</i>	Green (B)	LC	-

The site is assessed as Local Importance (Higher) for breeding birds due to the nesting and foraging opportunities present.

4.2.3.3 Summary Birds

Bird surveys were carried out across all land parcels; they were spread out to cover breeding, wintering and passage migrant birds. 31 species were recorded both in the winter and the summer, 15 were only recorded in the summer and eight only in the winter.

Of the summer species, eight are expected to be migrants – Blackcap, Chiffchaff, Willow Warbler, Sedge Warbler, House Martin, Swallow, Swift, Spotted flycatcher, and seven would be expected to be resident or occur regularly in Ireland during the winter. For instance, Kingfisher was only recorded once but is likely to hold a territory along the river Mahore.

Of the winter species, two species – Redwing and Jack Snipe – would not be expected during the summer months. All other species occur in Ireland year-round, although numbers of Snipe, Woodcock, and Wigeon tend to be increased by winter visitors.

Woodcock, Snipe, and Redwing are red listed. Woodcock and Snipe face pressures from hunting, habitat degradation, loss of breeding habitat, and climate change. Redwing face pressures from habitat loss and climate change. Agricultural grasslands and hedgerows such as those across the development site provide foraging habitat for these birds.

Swift are the only red listed summer migrant; they face pressures from loss of breeding habitat. The Proposed Substation Development site does not support any suitable nesting features for this species, and the Proposed Substation is unlikely to be suitable to promote their nesting.

Meadow Pipit are a red listed year-round resident; this is a ground nesting bird that is associated with rough grasslands. Some of the less intensively managed areas provide suitable breeding habitat for this species.

Overall, due to the site size, homogeneity of habitats and low diversity of bird species, birds are considered to be of local importance (higher).

4.2.4 Reptiles & Amphibians

No evidence of reptiles or amphibians was recorded on site; Drainage ditches may provide opportunities for amphibians, and frogs in particular.

The site is assessed as less than Local Importance (Higher) for reptiles and amphibians.

4.2.5 Invertebrates

No specific invertebrate surveys were carried out. Terrestrial invertebrate species were recorded during the ecological walkover, as well as during each site visit. Species recorded include Red-tailed Bumblebee *Bombus lapidarius*, Buff-tailed Bumblebee *Bombus terrestris*, Common Carder Bee *Bombus pascuorum*, Red Admiral *Vanessa atalanta*, Painted Lady *Vanessa cardui*, Small Copper *Lycaena phlaeas*, Meadow Brown *Maniola jurtina*, Speckled Wood *Pararge aegeria*, Green Veined White *Pieris napi* and Large White *Pieris brassicae*.

The Red-tailed Bumblebee is Near Threatened in Ireland.

Given the nature of habitats on site and in the surrounding areas, the site is assessed as Local Importance (Lower) for invertebrates.

4.2.6 Fish

Fishery records are provided in Section 3.4.2, as part of the desktop assessment.

Given the nature of the site, the potential for some protected fish species (Salmon and Brook Lamprey), but overall moderate quality of the area, the site is assessed as Local Importance (Higher) for fish.

4.2.7 Crayfish

Crayfish records are provided in Section 3.4.3, as part of the desktop assessment.

Given the nature of the site, the potential for crayfish to be present, but overall moderate quality of the area, the site is assessed as Local Importance (Higher) for crayfish.

4.2.8 Protected Flora

There were no plant species listed under the Flora (Protection) Order 2022 recorded during the ecological walkover survey. No rare or threatened species were recorded. Therefore, the site is assessed as Local Importance (Lower) for flora.

4.3 Invasive Non-native Species

No invasive species were recorded on site.

The site is assessed as Local Importance (Lower) for invasive species.

4.4 Ecological Features Considered for Further Assessment

The screening of designated sites and ecological features identified during the desktop study and ecological survey are given in Table 4-6. Sites and features screened out are not considered further in this assessment. Ecological features carried forward are assessed for potential impact during construction and operation in the following sections.

Table 4-6: Summary of ecological features and the screening assessment

Ecological Feature	Value	Screening	Reasoning
Designated sites			
Glen Bog SAC	International	Screened out	No viable pathway as determined in NIS; no impact.
Tory Hill SAC	International	Screened out	No viable pathway; no impact.
Barrigone SAC	International	Screened out	No viable pathway; no impact.
Askeaton Fen Complex SAC	International	Screened out	No viable pathway; no impact.
Curraghchase Woods SAC	International	Screened out	No viable pathway; no impact.
Lower River Shannon SAC	International	Screened in	SW and GW-to-SW impact pathways present.
River Shannon and River Fergus Estuaries SPA	International	Screened out	No likely impact.
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	International	Screened out	No viable pathway; no impact.
Herbertstown Fen pNHA	National	Screened out	No viable pathway; no impact.
Glen Bog pNHA	National	Screened out	Assessed as part of Glen Bog SAC.
Lough Gur pNHA	National	Screened out	No viable pathway; no impact.
Habitats			
Improved Agricultural Grassland	Local Importance Lower	Screened out	Abundant habitat in the area; low diversity.
Wet grassland	Local Importance Lower	Screened out	Low diversity; heavily managed akin to agricultural grassland.
Dry meadows and grassy verges	Local Importance Lower	Screened out	Moderate diversity, no likely impact from development.
Treelines	Local Importance Higher	Screened in	Important biodiversity corridor; mature trees; high potential.
Hedgerows	Local Importance Higher	Screened in	Important biodiversity corridor; mature features; high potential.

Ecological Feature	Value	Screening	Reasoning
Drainage ditches	Local Importance Lower	Screened out	Connectivity, support biodiversity. Abundant habitat in the area.
Deposing Lowland Rivers	County Level importance	Screened in	Supporting habitat for protected species; connected to Natura 2000 sites.
Buildings and artificial surfaces	Less than local	Screened out	Limited ecological value
Protected Flora	NA	Screened out	None recorded.
Vertebrates			
Reptiles and Amphibians	Local Importance Lower	Screened out	Some minor areas of high suitability.
Mammals			
Mammals (excluding specific individual species)	Local Importance Lower	Screened out	Small and micromammals; unlikely to be affected by the development.
Otter	Local Importance Higher	Screened in	Potential for presence in the river. Protected species nationally and internationally.
Badger	Local Importance Higher	Screened in	Potential for impact throughout the development site; nationally protected species.
Bats	Local Importance Higher	Screened in	Protected species.
Birds			
Wintering Birds	Local importance Lower	Screened out	Protected species; low diversity; low numbers of waders and waterfowl; site predominately unsuitable.
Breeding Birds	Local importance Higher	Screened in	Protected species; abundance of suitable habitat.
Invertebrates	Local importance Lower	Screened out	Low abundance; abundance of habitat.
Fish	Local Importance (Higher)	Screened out	QI species of SAC; addressed in the NIS.
Crayfish	Local Importance (Higher)	Screened in	Protected species affected by water quality
Invasive Species	Local Importance Lower	Screened out	Treated in invasive species management plan.

5 Other Relevant Plans and Projects

5.1 Cumulative Effects

Cumulative effects are the combined impacts on ecosystems, habitats, species, or ecological processes that result from the incremental effects of a proposed project or activity, when added to other past, present, or reasonably foreseeable future actions. These effects may be the sum of individual impacts; their interactions or a combination leading to outcomes that are greater, more persistent, or more widespread than anticipated.

The Proposed Substation Development is not a project that will have operational discharge such as those operated under EPA Licence; there are no anticipated discharges of substances listed under the specific pollutants or Schedule 6 priority substances and certain other pollutants of the Surface Water Regulations (*European Communities Environmental Objectives (Surface Waters) Regulations, 2009*). No discharges of any substance such as those which bioaccumulation are reasonably foreseeable. No operational discharges are anticipated from the project; runoff rates from the site once the Proposed Substation Development is completed are not anticipated to adversely affect existing surface water drainage patterns (see associated Drainage Management Plan), therefore once the Proposed Substation Development is past the construction stage, the risk to the integrity of downstream habitats is negligible.

The lack of operation discharges allows the ZOI for cumulative impacts to be kept to a discrete size, rather than examining all projects downstream.

5.2 Plans

5.2.1 Limerick Development Plan 2022-2028

The Limerick Development Plan 2022–2028 sets out a six-year strategy for the sustainable development of Limerick City and County. The plan puts emphasis on compact growth, integrated land use and transport planning, and climate action to support a transition to a low-carbon economy. The plan seeks to accommodate significant population and housing growth, with projections for an additional 56,000 people in the city and suburbs by 2040.

The plan focuses on economic development, sustainable communities, and climate actions. This includes reducing carbon emissions, improving energy efficiency, and promoting renewable energy sources.

The development plan has been assessed, and has inherent mitigation, and thus is unlikely to have an adverse effect on Natura 2000 sites and therefore is not likely to act in combination with the Proposed Substation Development.

5.2.2 Limerick Biodiversity Action Plan 2025-2030

The Limerick BAP 2025-2030 sets out a five-year framework for urgent conservation, restoration, and community engagement, focusing on halting biodiversity loss and promoting ecosystem services across the region. It aims to create a regional area where biodiversity thrives, with all sectors and stakeholders collaborating to restore, protect, and enhance nature.

These actions to address biodiversity loss in the county, while fully intended to have a positive impact, may have the potential to have in-combination or cumulative effects with the current Proposed Substation Development. However, as all actions contained in a BAP are planned to be a positive benefit to the receiving environment, especially in comparison to existing and baseline conditions, the actions, in and of themselves, are not anticipated to be a source of negative impacts on the receiving environment. The Plan was determined in the AA Screening to not likely have a significant effect on any European sites in Limerick (Fehily Timoney & co, 2024).

Hence, this Plan is not anticipated to have in-combination or cumulative effects with the Proposed Substation Development.

5.2.3 River Basin Management Plan 2022-2027

The RBMP for Ireland 2022-2027 sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027 (DHLGH, 2024).

The RBMP plans aimed to identify catchment measures to safeguard waters and meet the following environmental objectives of the WFD:

- Prevent deterioration of water body status.
- Restore good status to water bodies.
- Achieve protected areas objectives.
- Reduce chemical pollution of water bodies.

Although Ireland is not on target to meet the objectives of the WFD, the Plan is not anticipated to contribute to cumulative or in-combination effects with the current Proposed Substation Development.

The Plan has been assessed, and applying the precautionary principle, in view of the included mitigating provisions therein, and it has been determined that the 3rd Cycle RBMP shall not adversely affect the integrity of a European site.

5.2.4 Climate Action Plan 2025

The Climate Action Plan 2025 (CAP25) is the latest update to Ireland's Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021.

The Plan sets out the steps required to meet the national climate objective of pursuing and achieving, by no later than the end of the year 2050, the transition to a climate-resilient, biodiversity-rich, environmentally-sustainable and climate neutral economy. It aligns with the legally binding economy-wide carbon budgets and sectoral emissions ceilings that were agreed by Government in July 2022.

CAP 25 was determined not likely to have significant effect on specific Natura 2000 sites, either individually or in combination with other plans or projects, and that an AA is not required (Whitlow, 2024).

5.2.5 Climate Action and Low Carbon Development Act 2015

The Climate Action and Low Carbon Development Act 2015, as amended, establishes Ireland's first statutory framework for transitioning to a low-carbon, climate-resilient economy by 2050. It sets out a national transition objective and requires the government to prepare recurring national mitigation and adaptation plans to guide emissions reduction and climate-impact preparedness across key sectors. The Act also creates the independent Climate Change Advisory Council to provide expert analysis and monitor progress. While the legislation marks a foundational step in formalising Ireland's climate governance, it originally lacked binding emissions targets or enforceable pathways, prompting later strengthening through subsequent amendments.

The Proposed Substation Development will help support the targets set out under the Climate Action legislation.

A search of planning applications was carried out on 19/08/2026. The search was carried out on the National Planning Application website (Tailte Éireann, 2026). The online filter tools were used to select only planning applications submitted to Limerick City and County Council (i.e. excluding all application made to the other local authorities), and only applications received after 01/01/2020. A broad area covering lands surrounding the Proposed Substation Development site and leading to the River Shannon was selected, and the filtered data downloaded in shapefile format. This resulted in 2370 planning applications.

A 1km buffer along the watercourse connection from the Proposed Substation Development to the Lower River Shannon SAC was applied, and all planning applications within this buffer were retained for further investigation. This is because these applications are the most likely to have an effect on watercourses connected to the SAC, and therefore, they could potentially act in combination with the Proposed Substation Development. This resulted in 189 applications. The retained planning applications were further filtered to exclude all planning applications that had been refused (with no appeal) or withdrawn. 145 planning application granted conditional permission or outline permission are retained (Figure 5-1).

Due to the size and scale of the Proposed Substation Development, the 2km ZOI is applied around the Proposed Substation Development site itself. This results in 18 planning applications; for these to act in-combination, they need to be connected to the watercourses that interact with the Proposed Substation Development, these planning application were visually checked for direct watercourse connections as these are the most likely to provide a viable pathway (Figure 5-2 and Table 5-1).

5.3 Proposed Solar Farm

The 'Overall Project' has been considered throughout this Planning Application.

The Proposed Solar Farm forms an integral component of the Overall Project and has been assessed, insofar as reasonably practicable, using the best available information regarding its location, scale, function, design principles and likely environmental characteristics. Relevant

assessments supporting this application have considered the potential environmental effects of the Overall Project as a whole.

The Proposed Solar Farm is subject to planning consent sought from Limerick City and County Council under Section 34 of the Planning and Development Act 2000 (as amended).

5.4 Strategic Infrastructure Development (SID)

5.4.1 Renewable Energy Applications/Appeals Lodged by Month

An Coimisiún Pleanála website was searched (August 2026) for Renewable Energy Applications/Appeals Lodged by Month with summary statics available for applications from January 2025. A total of 91 applications were recorded including solar farms and wind farms. Of these, four applications were in County Limerick, in Ballynisky, Garrane, and Ballinlee. Two of these apply to the same site, Garrane.

Summary statics are also available for decisions made with one application for a solar farm in Rathkeale approved in March 2025, and one application in Garrane for a wind farm deemed incomplete.

5.4.2 Map search

Strategic Infrastructure Development (SID) planning applications submitted to ACP (ACP, 2026) were manually checked in August 2026; This website does not have Application Programming Interface (API), and therefore data cannot be automatically extracted and downloaded. Therefore, preliminary processing was carried out using tools built into the website. The website filtering tools were used to retain planning applications in County Limerick, that were submitted as part of an SID application. This led to eight SID planning applications being retained (Table 5-2). Of these eight applications (Figure 5-3) one is within a ZOI of the Proposed Substation Development and therefore retained for potential cumulative effects. This is application 323780 (highlighted in Table 5-2) for Ballinlee Wind Farm consisting of 17 no. wind turbines, a permanent 110kV substation and ancillary development. All other applications were beyond the ZOI and will not act in combination with the Proposed Substation Development.

The other applications are not within the ZOI of the Proposed Substation Development and are at such distance that they are not likely to have any cumulative effects with this proposed application.

5.5 Summary

The different Plans and legislation are not anticipated to act in combination with the Proposed Substation Development. These Plans and the Legislation support action to help combat climate change and to reduce impacts on the environment.

Developments carried out to achieve these targets may act in-combination with the Proposed Substation Development leading to impacts on ecological receptors.

The Proposed Solar Farm aspect of the Overall Project, and the Proposed Wind Farm Development (application 323780) may act in-combination with the Proposed Substation Development.

Table 5-1 Retained Planning Applications

Application	Development	Location
2110	construction of an entrance, a single storey dwelling house, installation of a waste water treatment system and all associated site works	Kilfrush , Knocklong , Co. Limerick
20380	the construction of a dwelling, domestic garage, ste entrance, install effluent treatment system including all associated site development works	Millfarm , Hospital , Co. Limerick
20460	the construction of extensions to the sides & rear of existing dwelling house to include rooms at first floor level, alterations to elevations including porch, new replacement domestic waste water treatment system with polishing filter together with all	Knockainey West , Knockainey , Co. Limerick
20788	the construction of an equine feeding shed, adjoining exercise yard, a haybarn and all associated site works within the curtilage of a Protected Structure, Country House B40(19)	Knockainey West , Hospital , Co. Limerick
21262	a dwelling, entrance, garage, boundary walls, installation of septic tank or polishing filter and all associated site works	Knockainey West , Hospital , Co. Limerick.
22262	the demolition of existing dwelling house and for the construction of a replacement dwelling house, septic tank and percolation area, entrance and all ancillary site works	Gortacloona , Knockainey , Co. Limerick
22318	a 2-storey dwelling house, garage, advanced treatment system, tertiary filter, a new entrance and all associated site works	Kilfrush , Knocklong , Co. Limerick
201157	the construction of a shared entrance, dwelling house, garage, domestic waste water treatment system with polishing filter together with all associated site works	Ballycahill , Knocklong , Co. Limerick
201158	the construction of a shared entrance, dwelling house, garage, domestic waste water treatment system with polishing filter together with all associated site works	Ballycahill , Knocklong , Co. Limerick
201197	construction of an extension to existing cubicle house, new dungstead and ancillary site works	Rathanny , Hospital , Co. Limerick
201229	construction of a dwelling, garage, site entrance, install on-site effluent treatment system including all associated site development works	Bottomstown , Knockainey , Co. Limerick
211534	the construction of an entrance, dwelling house, garage, septic tank & percolation area together with all associated site works	Rathanny , Hospital , Co. Limerick

Application	Development	Location
211667	construction of a vehicular entrance, dwelling house, domestic waste water treatment system with polishing filter together with all associated site works	Gortacloona , Knockainey , Co. Limerick
221142	cattle underpass, effluent tank and all associated concrete works	Knockainey West , Hospital , Co. Limerick
2460885	the construction of a Cattle handling facility and Manure pit with underground Concrete tank and all Associated works and Retention permission for a Loose house including 3 stables	Gorteenacreeagh , Knockainey , Hospital
2561282	the development will comprise retention of existing domestic garage with carport and associated site works	Knockainey West , Hospital , Co. Limerick
2561347	the construction of a dwelling house, waste water treatment system and percolation area, entrance and all ancillary site works	Kilfrush , Knocklong , Co. Limerick
2660364	the construction of a dwelling house, waste water treatment system and percolation area, entrance and all ancillary site works	Knockainey West , Hospital , Co. Limerick

Table 5-2 Strategic Infrastructure Development Applications

Reference	Description	Location	Decision
323635	9 no. wind turbines, grid connection and all associated site works	located in the townlands of Garrane, Ballynagoul, Creggane and Charleville, Co. Limerick.	Case is due to be decided by 07/10/2026
323780	10 year planning permission for Ballinlee Wind Farm consisting of 17 no. wind turbines, a permanent 110kV substation and ancillary development	located in Ballincurra, Ballingayrou, Ballinlee North & South, Ballinrea, Ballyreesode, Camas North & South, Carrigeen, Knockuregare, Ballybane and other townlands in County Limerick.	Case is due to be decided by 03/11/2026
324164	A renewable energy development including 14 wind turbines, 110kV underground cabling connection, and all associated infrastructure and works	in the townlands of Carrow, Moheragh, Gortaderry, Co. Tipperary; Toomaline Lower, Toomaline Upper, Doon South, Lisgaugh, Cooga Upper, Coolyhenan, Milltown and Killonan, Co. Limerick.	Case is due to be decided by 29/04/2027
323893	Proposed construction of a new 110 kV substation	Located on Roches Avenue, Raheen Business Park, Limerick, County Limerick	Approve with Conditions 28/05/2026
318302	Expansion of the Bauxite Disposal Area, extension to the existing Salt Cake Disposal Cell and extension of the permitted borrow pit at Aughinish Alumina Limited	In the townlands of Aughinish East, Aughinish West, Island Mac Teige, Glenbane West, and Fawnamore at or adjacent to Aughinish Island, Askeaton, Co. Limerick	Grant Perm. w Conditions 31/03/2025
316168	Proposed upgrade of the existing Castletroy Wastewater Treatment Plant	Dromore, Castletroy, County Limerick	Grant Perm. w Conditions 12/10/2023
313816	A new 110kV substation to feed into the existing Aughinish - Kilpaddock 110kV overhead line situated within lands at Ballinknockane and Ellaha, Co. Limerick	Townlands of Ballinknockane and Ellaha, Co. Limerick	Approve with Conditions 09/03/2023
301561	Port capacity extension to consist of modifications to the existing jetties and quays, phased expansion of the port estate and all associated site development works	Port of Foynes, in the townlands of Corrig and Durnish, Foynes, Co. Limerick	Grant Perm. w Conditions 21/12/2018

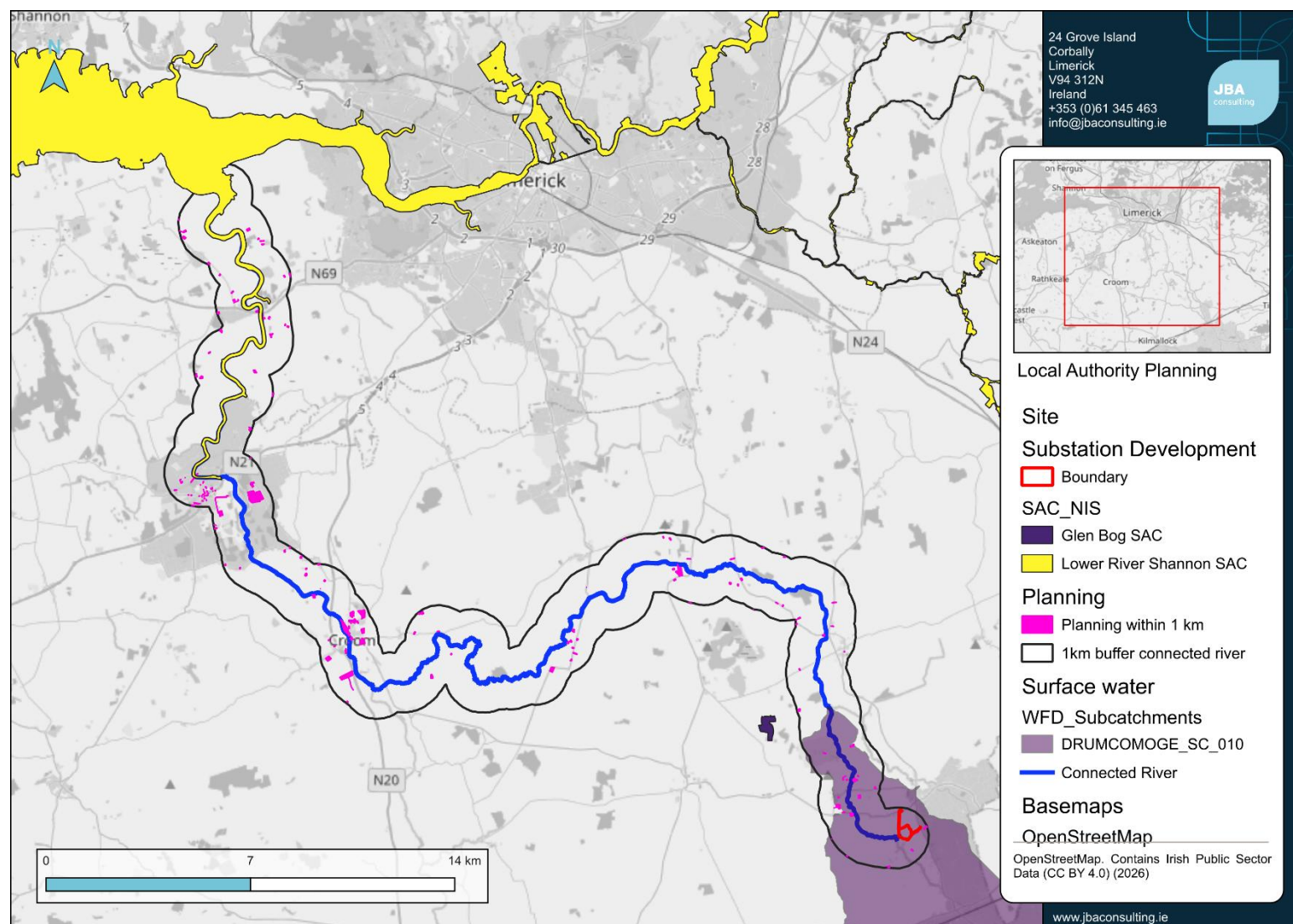


Figure 5-1 Extent of the planning applications in relation to the Proposed Substation Development

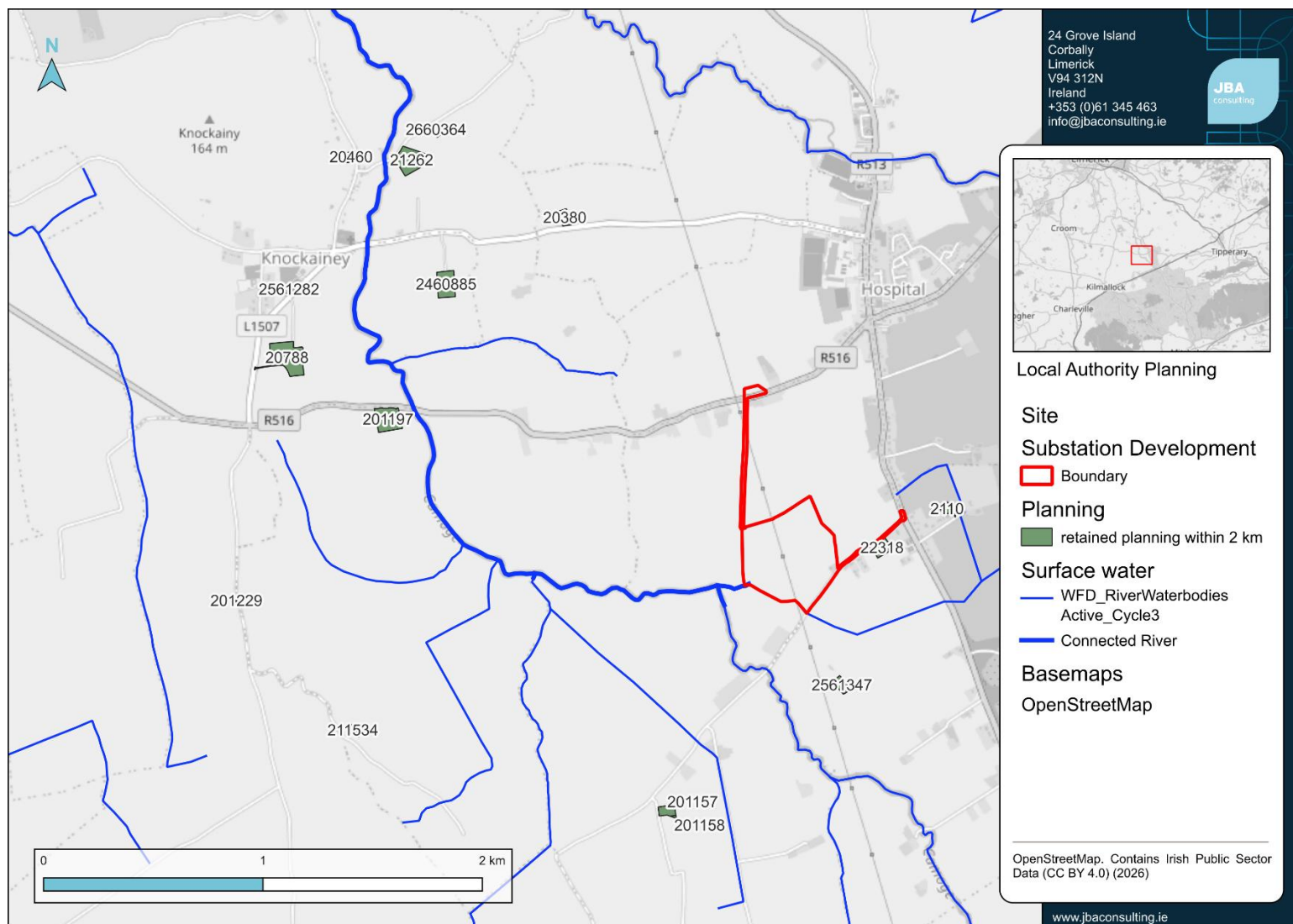


Figure 5-2: Retained planning applications that may act in combination with the Proposed Substation Development

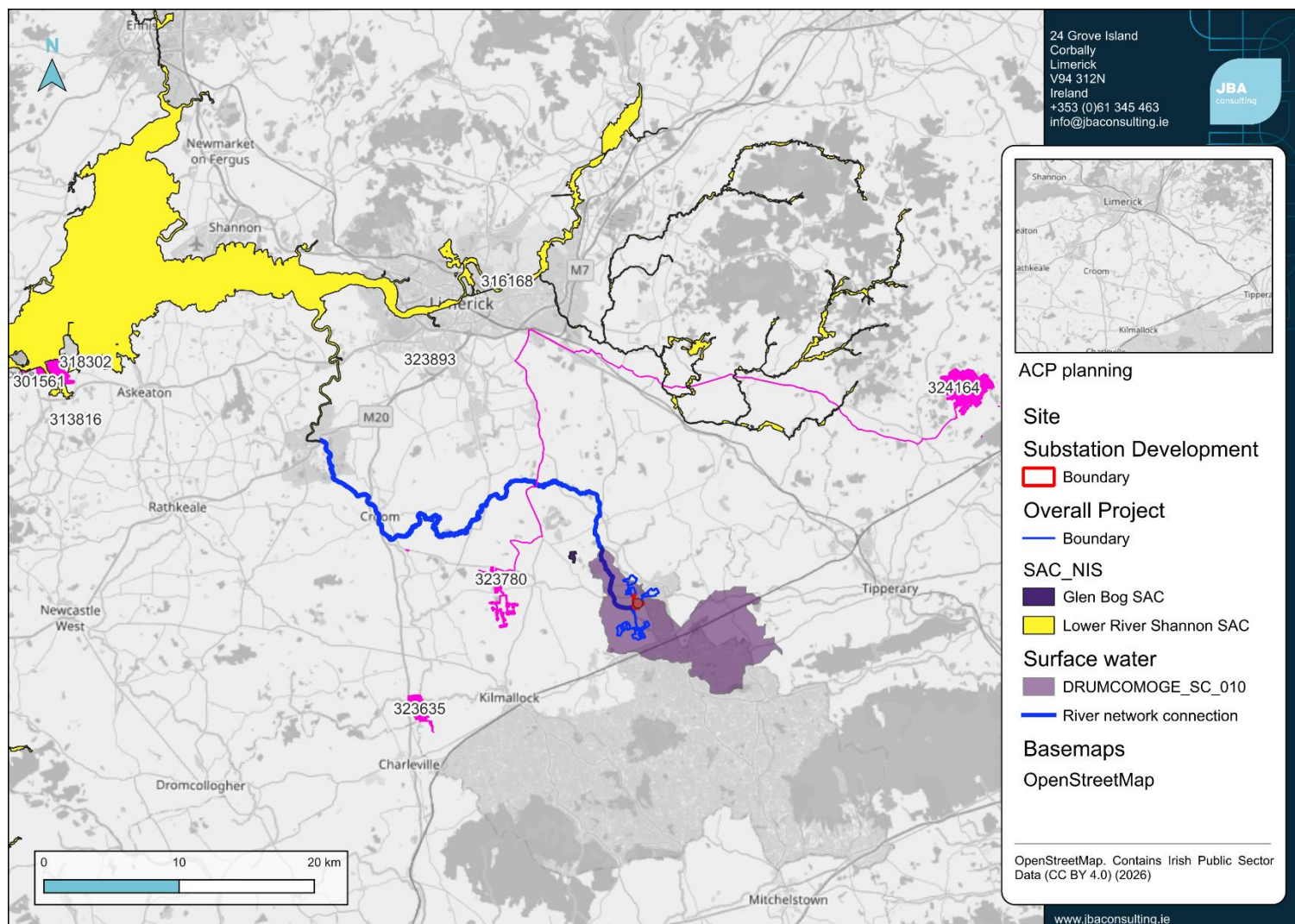


Figure 5-3: Planning application submitted to ACP.

6 Impact Assessment

6.1 Introduction

The impacts on the valued ecological features are assessed here. The initial assessment considers the potential impact pathways and whether these apply to the ecological features. The impact assessment considers the Proposed Substation Development's construction and maintenance, and the anticipated effects in the absence of mitigation.

The potential impacts from the works are assessed under the following:

- Disturbance to habitats and species.
- Direct habitat loss.
- Water quality impacts via on-site drains.

The following sections describe the nature of immediate/short-term impacts, as well as any medium- or long-term impacts predicted for designated protected sites, habitats and species in the absence of implemented mitigation measures during the maintenance works.

6.2 Do Nothing Scenario

The lands comprising the Proposed Development site are currently used for agricultural purposes, including cattle grazing and hay/silage production. The lands are not zoned and are in semirural location. Therefore, they are not likely to become zoned for development purposes in the near- to mid- future. Thus, if the Proposed Substation Development were not to go ahead, land use and management would be expected to remain similar to the current management practices. Therefore, habitats and species' site usage would be expected to not be substantially different to current levels.

Should agricultural practices stop, land would likely undergo ecological succession most likely to a landscape with increased scrub and woodland. However, no attempts are made at determining potential outcomes in this scenario.

6.3 Impacts on Ecological Features

The following sections describe the nature of the construction phase impacts predicted for protected sites, habitats and species in the absence of implemented mitigation measures during the Proposed Substation Development's construction phase.

The following ecological features to be assessed include:

Table 6-1: Retained ecological receptors

Ecological Feature	Value
Lower River Shannon SAC	International
Hedgerows	Local Importance Higher
Drainage ditches	Local Importance Higher
Depositing Lowland Rivers	County Level Importance
Otter	Local Importance Higher

Ecological Feature	Value
Badger	Local Importance Higher
Bats	Local Importance Higher
Crayfish	Local Importance Higher
Wintering Birds	Local importance Lower
Breeding Birds	Local importance Lower

6.3.1 Impacts to designated sites

The Lower River Shannon SAC was retained, and, by applying the precautionary principle, Lamprey, Salmon, Otter, and the river itself were screened in for potential impacts due to water quality concerns. In the absence of mitigation, the SAC may face slight short term negative impacts. Impacts are assessed and mitigation measures are presented in the accompanying NIS.

6.3.2 Habitats

6.3.3 Improved Agricultural Grassland (GA1)

Approximately 36 000 m² of this habitat will be permanently lost to the construction of the substation and access tracks. This habitat is of lower ecological value.

6.3.4 Wet Grassland (GS4)

This habitat will remain unaffected by the Proposed Substation Development. The area closest to the river will be fenced off to maintain the riparian buffer; the remaining part may be tracked over to facilitate construction. This habitat is of poor ecological value and akin to GA1.

6.3.5 Dry Meadows and Grassy Verges (GS2) and Dry Meadows and Earthen Bank Mosaic (GS2/BL2)

This habitat will remain unaffected by the Proposed Substation Development.

6.3.6 Treelines (WL2)

Treelines are not expected to be lost to the Proposed Substation Development. Some individual trees may need to be removed/pruned/coppiced to facilitate works such as the new entrance. Trees provide roosting and foraging opportunities for birds and mammals as well as supporting epiphytic plant communities, fungi and invertebrates.

In the absence of mitigation, the development will have a slight, medium- term, negative effect.

6.3.7 Hedgerows (WL1)

The hedgerows on site offer cover and foraging opportunities for mammals, birds, bats and invertebrates.

Some 300m of hedgerow will be lost to support the construction of the Proposed Substation, with about 690m of new hedgerow planting. Therefore, there will be no net loss in hedgerow habitat.

Furthermore, the retained existing hedgerows totalling some 2630m will be bolstered to improve connectivity and species composition.

Hedgerow management will be such that sides and tops will be maintained in a standard hedge cutting regime typical of agricultural landscapes.

In the absence of mitigation, the development will have a moderate, long- term, negative effect.

6.3.8 Drainage Ditches (FW4)

Approximately 300m of drainage ditch will be closed to facilitate construction and access track; this will be replaced by approximately 250m of new drainage ditch running approximately 70m to the west and parallel to the closed drain.

The development will have a neutral effect on this habitat.

6.3.9 Depositing / Lowland Rivers (FW2)

The Proposed Substation Development may impact on water quality during the construction phase through the increased risk of sediment mobilisation, and accidental spills of hydrocarbons.

In the absence of mitigation measures, the construction phase of the development will have significant, medium-term, negative effects on watercourses and on protected and sensitive species inhabiting these watercourses.

6.3.10 Buildings and Other Artificial Surfaces (BL3)

The derelict building will be removed from the site.

6.4 Protected Species

6.4.1 Otter

The Camogue river provides suitable habitat for this species. No in-stream or riverbank works are planned. Fencing around the site will not extend into the watercourses and mammal passages will be built into the fencing to allow for passage. Mammal trails and crossing points have been recorded and will inform the location of mammal passages in the fences (alongside with mammal passage in fences at regular intervals).

Otter may be impacted by noise disturbance, entrapment, and water pollution events. Noise disturbance and entrapment would be slight, temporary negative effects whereas water pollution events may cause moderate, short-term, negative effects.

6.4.2 Badger

Badger was recorded using the northern and eastern boundaries. Little activity was recorded, and no evidence of a breeding sett was recorded.

Fencing around the site will not block off access to the retained sett, and mammal passages will be such that badgers can get through.

Mammal trails and crossing points have been recorded and will inform the location of mammal passages in the fences (alongside with mammal passage in fences at regular intervals).

Badger may be impacted by noise disturbance, habitat fragmentation, loss of foraging habitat, and loss of setts. In the absence of mitigation this could lead to significant, long term, negative effects.

6.4.3 Bats

The Proposed Substation Development site is generally dark, with a mosaic of open grassland providing foraging opportunities, and linear features including rivers, hedgerows and treelines providing foraging, commuting and roosting opportunities.

About 300m of hedgerow will be removed to allow for the construction of the Proposed Substation, and about 820m will be planted. This hawthorn hedgerow is currently not managed, providing tall growth and a thin base.

Overall, there will be no permanent net loss of linear features, and no loss of potential roost features are anticipated. The hedgerows will take 5-10 years to develop and establish. This will result in negligible impacts on the availability and connectivity of linear features. However, out of precaution this possibility is not excluded, and tree felling may result in the loss of roosting features.

In the absence of mitigation, the Proposed Substation Development has the potential for significant, medium term, negative effects.

6.4.4 Birds

There will be no permanent loss of hedgerows and treelines, with management of these features to not be substantially different to current practices. There will be a loss in open grassland areas, with a change in overall perception of the site.

Bird communities comprise the expected mix of countryside birds, supplemented by winter and summer migrants. The migrant birds were not found to be in numbers such that effects on them would have an impact at population levels. No large-scale extensive use of the site by wintering birds was recorded.

There is an abundance of alternative habitats in the immediate vicinity of the site.

However, in the absence of mitigation there is potential for significant, medium-term, negative effects.

6.4.5 Fish

Fish are largely considered within the NIS. Without mitigation there may be sediment release to water course impacting water quality and fish. Impacts are anticipated to be variable and overall neutral on fish. In the absence of mitigation there may short-term negative effects via decreased water quality, but long-term nutrient release to rivers may decrease, due to a deintensification of agricultural activities and thus have a slight, long-term positive. Overall, in the absence of mitigation effects are considered neutral.

6.4.6 Crayfish

Crayfish are dependent on water quality and therefore susceptible to pollution and sediment runoff events. Without mitigation there may be sediment release to water course impacting water quality and fish. Impacts are anticipated to be variable and overall neutral on fish. In the absence of mitigation there may short-term negative effects via decreased water quality. Overall, in the absence of mitigation effects are considered neutral.

6.5 Operational Impacts

Once the site is operational, maintenance visits will be required at an expected monthly frequency.

Vehicular movement along the access tracks is not expected to generate dust or particulate emissions such that they would be detrimental to ecological receptors.

Grassland management will be carried out using grazing and cutting. Herbicide use is not expected.

6.6 Cumulative Impacts

In parallel with the construction of the Proposed Substation, a Proposed Solar Farm will be constructed. A separate application to the Local Authority has been submitted. Works to develop the Proposed Solar Farm have the potential to produce sediment from excavations, spills from pollutants, and noise disturbance for badgers and birds. Excavations may lead to impacts on GW bodies, and runoff from the site may lead to water contamination. An NIS and ECIA have been prepared and submitted to the local authority.

Breeding birds may be disrupted by land clearance and construction noise: however, the surrounding countryside supports an abundance of similar habitats providing foraging and breeding grounds. The temporary disturbance and loss of habitat will be replaced with new hedgerow planting providing replacement habitat, once it has established. Works on the solar fields are unlikely to cause a cumulative disturbance effect on birds.

Badger may be disturbed by clearance and noise: however, there is an abundance of similar banked hedgerows in the immediate vicinity allowing for badger to displace. No setts were recorded on the section of hedgerow that is to be removed.

Mitigation measures to protect Badger are required. Owing to the distance between the substation site and the closest solar array, works are not likely to have a cumulative effect on badger.

6.7 Decommissioning Impacts

No fixed operational period is proposed for the Proposed Substation Development. Accordingly, the timing and extent of any future decommissioning cannot be defined at this stage. Should any element of the Proposed Substation Development be decommissioned in the future, the works would be undertaken in accordance with the relevant legislation, guidance and good practice applicable at that time. This would include the safe de-energisation and removal of equipment no longer required, with materials reused, recycled or otherwise managed through appropriately authorised facilities, where practicable.

Decommissioning works will likely have similar impacts to the construction phase, with some localised disturbance, potential for sediment release, potential for habitat degradation and spread of invasives species.

7 Mitigation

This section describes the mitigation that will be utilised to ensure that the Proposed Substation Development does not adversely impact on the ecological receptors outlined in Section 6. Specific mitigation measures required for the QI and *ex situ* habitats and species of retained Natura 2000 sites are presented in the NIS that accompanies this EclA.

A site-specific Project CEMP and Construction Method Statement (CMS) will be submitted to the competent authority for agreement prior to site works commencing. The Project CEMP will take account of all measures outlined in the Preliminary CEMP, and the CMS will allow for input from a suitably qualified ecologist. The Proposed Substation Development's principal contractor, as well as all other construction contractors, will be required to comply with all the mitigation details outlined in the NIS, EclA and CEMP.

All prescribed mitigation measures will be implemented and adhered to throughout the duration of construction and operational phases, under guidance of the site ECoW.

7.1 Environmental Clerk of Works

Oversight of the works is required by an individual Environmental Clerk of Works (ECoW) or a team of ECoWs. For clarity, ECoW is used but this can refer to one or multiple people as necessary. The ECoW will comprise of competent ecologist with experience in water quality management, mammal mitigation and construction standards. The ECoW role is for oversight and verification, with prevention-based mitigation measures upstream of ECoW intervention. The ECoW will have the power to give a stop-works order.

7.2 General mitigation measures for construction phase

The activities of the project for the construction phase shall remain within the boundary of the Proposed Substation Development, with the exception of the need to transport materials to/from the site. Within this area, a number of mitigation measures and best practices are required to minimise the potential for significant effects on ecological receptors. Mitigation measures are presented in the following section, with further mitigation also described in the NIS, Flood Risk Assessment and CEMP.

These measures include but are not limited to guidance outlined in the following:

- Project CEMP submitted to Limerick City and County Council for agreement prior to site works commencing.
- CMS to be submitted to Limerick City and County Council for agreement prior to site works commencing.
- CIRIA C532: Control of water pollution from construction sites. Guidance for consultants and contractors. (www.ciria.org) (Masters-Williams, 2001).
- CIRIA C811: *Environmental good practice on site guide*; www.ciria.org) (Kwan, Dickinson and MacLeod, 2023).
- CIRIA C750D: *Groundwater control: design and practice*; www.ciria.org) (Preene, Roberts and Powrie, 2016).

- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA, 2005a).
- Ecology Guidelines for Electricity Transmission Projects - A Standard Approach to Ecological Impact Assessment of High Voltage Transmission Projects (EirGrid, 2020).
- EirGrid Evidence Based Environmental Studies Study 6: Water Quality & Aquatic Ecology. Literature review and evidence-based field studies on the effects of high voltage transmission lines on water quality and aquatic ecology in Ireland (EirGrid, 2016).

The mitigation measures outlined below will be implemented for the construction phase of the Proposed Substation Development.

- An ECoW will be appointed to ensure the mitigation measures are implemented correctly and to ensure no impacts will occur by monitoring the site, weather and nearby waterbodies.
- Site compounds will be located within the footprint of the Proposed Substation Development.
- Only plant and materials necessary for the construction of the works will be permitted to be stored at the compound location.
- All refuelling of vehicles will be carried off site where possible, or within the main site compound and only trained personnel will be permitted to operate fuel bowsers.

7.2.1 Site Compound

Before works commence the contractor is to provide a site layout plan identifying the exact location of the site compounds and a site establishment plan.

To prevent pollution events the following will be required:

- Bunded storage of fuels and refuelling area.
- Bunds shall be 110% capacity of the largest vessel contained within the bunded area.
- A separate container will be located in the contractors' compound to store absorbents used to contain spillages of hazardous materials. The container will be clearly labelled, and the contents of the container will be disposed of by a licensed waste contractor at a licensed site. Records will be maintained of material taken off site for disposal.
- The contents of any tank will be clearly marked on the tank, and a notice displayed requiring that valves and trigger guns be locked when not in use.
- All refuelling of vehicles will be carried out at the fuel stores within the main site compound and only appropriately trained personnel will be permitted to operate fuel bowsers.
- Drainage collection system for washing area to prevent runoff into SW system.

7.2.2 Water Quality

The activities required for the Proposed Substation Development's construction phase shall remain within the boundary of the proposed site. The CEMP will also strictly adhere to best practice environmental guidance including but not limited to the following:

- CIRIA (C512): Environmental Handbook for Building and Civil Engineering Projects.
- CIRIA (C532): Control of water pollution from construction sites. Guidance for consultants and contractors.
- CIRIA (C648): Control of water pollution from linear construction projects: Technical guidance.

- CIRIA (C649): Control of water pollution from linear construction projects: Site guide.
- CIRIA C811: *Environmental good practice on site guide*; www.ciria.org (Kwan, Dickinson and MacLeod, 2023).
- CIRIA (C750D): Groundwater control: design and practice.
- CIRIA (C753): The SUDS Manual.
- Inland Fisheries Ireland: Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters (IFI, 2016).
- Inland Fisheries Ireland: A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate/Flood Risk and Recreational Planning (IFI, 2020).

Specific measures related to preventing impacts to water quality caused by oil and fuel spills include:

- Oil booms and oil soakage pads should be maintained onsite to enable a rapid and effective response to any accidental spillage or discharge. These shall be disposed of correctly and records will be maintained by appropriate trained personnel of the used booms and pads taken off site for disposal.
- Fail-safe site drainage and bunding through drip trays on plant and machinery will be provided to prevent discharge of chemical spillage from the sites to GW/SW.

7.2.3 Pollution Control and Spill Prevention

Spill kits containing absorbent pads, granules and booms will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site foreman vehicle will carry large spill kits at all times. Absorbent material will be used with pumps and generators at all times and used material disposed of in accordance with the Waste Management Plan. All used spill materials e.g. absorbent pads will be placed in a bunded container in the contractors' compound. The material will be disposed of by a licensed waste contractor at a licensed facility.

Regular inspections and maintenance of plant and machinery checking for leaks, damage or vandalism will be made on all plant and equipment.

In the event of a spill, the Contractor will ensure that the following procedures are in place:

- Emergency response awareness training for all Proposed Substation Development personnel onsite works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spill kits for immediate use will be kept in the cab of mobile equipment.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur.

Typical contents of an on-site spill kit will include the following as a minimum:

- Absorbent granules.

- Absorbent mats/cushions.
- Absorbent booms.
- Gloves to handle contaminated materials and sealable disposal sacks.
- Track mats, drain covers and geotextile material.
- All potentially polluting substances such as oils and chemicals used during construction will be stored in containers clearly labelled and stored with suitable precautionary measures, such as bunding, within the site compound.

All tank and drum storage areas on the site will, as a minimum, be bunded to a volume not less than the following.

- 110% of the capacity of the largest tank or drum within the bunded area, or
- 25% of the total volume of substances which could be stored within the bunded area.

The site compound fuel storage areas and cleaning areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.

- Designated locations for refuelling are within the Site Compound.
- Potentially contaminated run-off from plant and machinery maintenance areas will be managed within the site compound SW collection system.
- Damaged or leaking containers will be removed from use and replaced immediately.

7.3 Habitats

7.3.1 Hedgerows

Hedgerow maintenance will follow best practices to maximise benefits to biodiversity:

- No clearing or cutting of vegetation during the statutory bird nesting season.
- Cutting to be delayed as late as possible to allow for birds and wildlife to forage on berries.
- Implement a 3-4 year cutting rotation to allow for different stages of plant growth.
- Favour 'A' shaped trimming allowing for tall hedges with wide bases.
- Maintain all mature trees.
- Retention of deadwood within the hedgerow.
- Retention and protection of all double hedges and treelines, as these are high value.

During construction:

- No construction equipment, materials, waste etc. to be stored within 3m of hedgerows.
- An arborists report shall be drawn up. Individual trees that require felling (i.e. those which require removal to secure safe site access and provision of sight lines, or where gap widening is required) will be assessed by an arborist.
- Removal of side branches of mature trees within a hedgerow will also be assessed by an arborist.
- Root protection zones will be put in place for mature/semi-mature trees within a hedgerow.
- Hedgerow section that that will be cleared will be replaced at minimum in a like -for- like manner in terms of length.

- Species composition of replacement section will be in keeping with typical species found in the area, with plants of native stock used.

7.3.2 Treelines

During construction:

- No construction equipment, materials, waste etc. to be stored within 3m of treelines.
- An arborist's report shall be drawn up. Individual trees that require felling (i.e. those which require removal to secure safe site access and provision of sight lines, or where gap widening is required) will be assessed by an arborist.
- Any removal of side branches will also be assessed by an arborist.
- Root protection zones will be put in place for mature/semi-mature trees.
- Treeline sections that that will be cleared will be replaced at minimum in a like -for- like manner in terms of length.
- Species composition of replacement section will be in keeping with typical species found in the area, with plants of native stock used.

Operational / Maintenance:

- Removal of damaged trees (e.g. storm damage) should be assessed by an arborist. Removal of limbs should similarly be assessed by an arborist.
- Little other maintenance of treelines need be undertaken, although where a well-established scrubby layer is present at the base, it may be treated as per the hedgerow maintenance above.

7.3.3 Drainage ditches

Drainage ditches will be retained in so far as practical and feasible. Where there is to be a removal of a drainage ditch, this should be undertaken in consultation with the ECoW. Approximately 300m of drainage ditch will be removed, with a 250m replacement ditch connecting to the existing network will be dug.

Culverting of ditches will comply with Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes

- No pumping of water from drainage ditches.
- No direct discharge to drainage ditches.
- No washing of equipment in drainage ditches.

7.3.4 Depositing Lowland Rivers

No new river crossings are anticipated. Should they be required, they will comply with Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes, and location-specific surveys will be required to fully assess the works. No instream-works and no riverbank works are anticipated; therefore geomorphology of the rivers will not be affected.

- 20m buffer with no work activities permitted.

- Sediment control measures to prevent water pollution and impacts of fish and invertebrates.
- No pumping of water from the rivers.
- No discharge to the rivers.
- No washing of equipment in the rivers.

Strict biosecurity measures as detailed by the IFI in IFI Biosecurity Protocol for Field Survey Work (IFI, 2010) and the OPW in Environmental Guidance: Drainage Maintenance & Construction (Brew and Gilligan, 2019) will be implemented, and detailed mitigation measures to protect water quality to protect aquatic habitats.

7.4 Invasive Species Management

Standard mitigation measures should be implemented to ensure that no invasive species are introduced to the Proposed Substation Development site, and appropriate biosecurity measures should be put in place. These are detailed in the invasive species management plan that was prepared for this site. The management plan is a live document to allow for adaptation to any new methods and control of previously unrecorded instance of invasive species.

No First Schedule species, as set out in S.I. No. 374/2024 European Union (Invasive Alien Species) Regulations 2024) were recorded on site, however, they are known to occur in the vicinity and therefore caution must be applied to prevent the spread of these species. Treatment of non-schedule species is considered as best practice and encouraged to favour biodiversity.

Strict biosecurity measures will be implemented, as detailed in IFI Biosecurity Protocol for Field Survey Work (IFI, 2010) and Environmental Guidance: Drainage Maintenance & Construction (Brew and Gilligan, 2019), as well as in the Invasive Species Management Plan.

7.5 Protected Species

7.5.1 General Avoidance Measures

Although it has been identified that there will be no permanent impact through disturbance to wildlife during the work, it is advised that general avoidance measures be undertaken to protect wildlife such as small mammals while the works are being carried out.

General avoidance measures that should be incorporated by the contractors working onsite include:

- Preparations of a toolbox talk for staff highlighting the ecological features of concern, appropriate use of site compounds, and Proposed Substation Development site.
- The use of lighting at night on site should be avoided. If the use of lighting is essential, then a directional cowl should be fitted to all lights to prevent light spill and to be directed away from treelines and hedgerows, and away from any potential roost locations.
- Limit the hours of working to daylight hours, to limit disturbance to nocturnal and crepuscular animals.
- Contactors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled.

- Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped.
- Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape.
- No heavy machinery in proximity to breeding setts or active Otter holts.

7.5.2 Mammals

The site of the Proposed Substation Development will be fenced. In order to not create barriers to movement, mammal gates/passageways will be placed at regular intervals around the entirety of the fenced area. The fencing should use as big a mesh as possible to allow free movement of micromammals and have mammal passage points at regular intervals to avoid entrapment of large mammal species. Mammal tracks and crossing points have been mapped, and will be used to inform mammal passage points, as well as regular intervals being provided.

Any vegetation scrub/tree type vegetation that is to be removed shall be checked for the presence of mammals prior to clearing. This includes checks for Badger, but also small mammals that are more cryptic such as hedgehog.

Mitigation measures that are necessary include:

- No heavy machinery to be used within 30m of a badger sett unless authorised by the NPWS.
- No work within 50m of an active breeding sett.
- Check for Badger activity prior to the work commencing.
- Controls around night working in the vicinity of setts, in consultation with the NPWS.

7.5.2.1 Badger

Prior to works commencing, a survey will be carried out to check the status of known setts and whether additional setts have been dug.

At the time of the surveys, badger activity was recorded along the northern and eastern hedges of the site; these did not present characteristics of breeding setts (low levels of activity, single entrances). However, prior to works going ahead, a detailed badger survey of the area will be carried out to assess badger activity.

The northwestern most sett is on the northern side of the drainage ditch, and on raised ground in relation to the southern side of the ditch. This ditch was relatively wet at the time of the surveys, suggesting that the ground beneath it is also wet making it unlikely for Badger to excavate in these areas. No signs of excavation were recorded in the field to the south of the ditch. This sett is beyond the footprint of construction and will not be affected by the work.

The sett at the centre of the site will require a permanent closure as it will overlap with infrastructure. At the time of the surveys, very little signs of activity were recorded, and it is unlikely to have been in use.

The setts along the eastern boundary will likely require a soft closure. These structures are beyond the footprint of the infrastructure, but should any tunnels extend under the works areas, then these

may be affected by the works. Soft closure will mean that the area is temporarily unavailable, and once the works are complete, mammals may start using the area again.

Soft closure: Prior to works commencing within 30m of these setts, the area will be monitored for mammal activity, with direct observations and the use of trail cameras. This is to determine whether any mammals are using these features. Once confirmed that no mammals are in them, they will be soft closed using stones and/or soil material, to obstruct the entrances. The area can then be fenced off for the duration of construction. Regular monitoring will be required to determine whether mammals are back using the features, and if so, the exclusion process needs to be recommenced. Once the construction work is finished, the temporary fencing can be removed, and the site will still be available to mammals should they choose to use it.

Permanent closure: At the time of survey the sett was likely inactive, with no signs of use recorded over the 10-month survey period. The following should be applied for this sett:

The entrance(s) will be soft blocked with vegetation, stones and a light application of soil. The area will be monitored actively, and through the use of trail cameras. If the entrance(s) remains undisturbed for approximately five days, the sett should be destroyed immediately using a mechanical digger, under the supervision of a licensed ecologist, and with permission from the NPWS. Should the destruction not be possible immediately, the entrance(s) should be hard-blocked with fencing and compacted soil, and the sett destroyed as soon as possible

Permission to close a sett must be sought prior to works commencing; this will require detailed knowledge of badger setts on site, status of affected setts, liaison with the NPWS ranger, preparation of a detailed procedure plan to carry out sett closures.

Guidelines on procedures for timelines and measures necessary for sett closure are provided in: Guidelines For The Treatment Of Badgers Prior To The Construction Of National Road Schemes Prior to works commencing (NRA, 2005b).

Briefly the measures include:

- Survey all areas within 50m of the works sites no more than 12 months prior to works commencing to determine status of setts.
- Exclusion of badgers should only be considered where a development would unavoidably destroy a badger sett (or any part of its underground tunnel and chamber system), or its immediate surroundings, making it unsuitable for continued occupancy.
- Exclusion of badgers from any currently active sett should only be carried out during the period of July to November (inclusive) in order to avoid the badger breeding season.
- In the instance of disused setts or setts verified as inactive, and to prevent their reoccupation, the entrances may be lightly blocked with vegetation and a light application of soil (soft blocking). The purpose of soft-blocking is to confirm that an apparently inactive sett is not occupied by badgers. If all entrances remain undisturbed for approximately five days, the sett should be sealed off with fencing to prevent badgers or wildlife re using it during the construction period.
- Inactive entrances may be soft and then hard-blocked, and any active entrances should have one-way gates installed to allow badgers to exit but not to return. The gates should be tied open for three days prior to being set to exclude.

- Gates should be left installed, with regular inspections (every 3 days), over a minimum period of 21 days. Should badger be found to be still using the sett, then the 21 day exclusion count restarts.
- Sett destruction should commence immediately following the 21-day exclusion period, provided that all badgers have been excluded.
- Destruction of a successfully evacuated badger sett may only be conducted under the supervision of qualified and experienced personnel under licence from the NPWS
- A report detailing evacuation procedures, sett excavation and destruction, and any other relevant issues should be submitted to the NPWS.

The following measure will apply:

- No clearance works shall occur during the December to June period.
- No closures shall occur during the December to June period
- Active and passive (trail cameras) monitoring of the setts to be carried out no more than 12 months prior to the works commencing, and again immediately (no more than 5 days) prior to the works commencing.
- Sett closure procedure to be presented to NPWS prior to works happening.

7.5.2.2 Otter

At the time of the surveys, no evidence of Otter was recorded. Prior to work commencing, a survey will be carried out along the Camogue River adjacent to check for the presence of otter holts/couches.

The survey will follow guidance from:

The Otter Field Survey and Monitoring Handbook (Findlay and White, 2026)

The access track is approximately 100m away from the river and the southern extremity of the Proposed Substation Development within 140m.

Where potential holts or mammal holes have been identified during the surveying, detailed investigations (e.g. trail camera) will be conducted prior to work commencing to characterise the nature of the holt.

- If a couch or resting holt is identified, a 20m buffer will be maintained around it where no works, or machinery will be permitted.
- If a maternity holt is identified, a 150m buffer will be maintained around it. No work is to be carried out within these buffers.

Presence of otter holts/ couches may trigger the need for a derogation licence should there be any disturbance caused to Otter, and advice from the NPWS must be sought at the time.

At present, no holt closures are anticipated, and it is unlikely that a holt closure will be necessary. Disturbance to Otter is unlikely to occur as a result to the Proposed Substation Development as the works will be approximately 100m away at the closest point to the river.

Works in areas away from the watercourses and beyond the 20m and 150m buffers may go ahead while awaiting guidance from the NPWS.

7.5.3 Bats

The removal of the derelict building and of the hedgerow in the land parcel are unlikely to lead to the loss of bat roosting features as both the building and the hedgerow were considered to be of negligible roosting value.

The removal of the hedgerow will lead to the loss of linear features used for foraging.

Habitat restoration through the restoration and reinforcement of existing hedgerows will provide more connectivity and improve foraging habitat for bats. Further hedgerow and riparian planting (detailed in Section 7.7 Enhancement) will also provide foraging opportunities for bats. Over time, with trees becoming more mature, this will also lead to the creation of potential roost features.

General measures:

- Hedge felling will use soft felling techniques with no same day mulching/chipping of vegetation.
- Trees/ tree like feature shall be checked for roosting potential prior to felling; derogation licence may be required if features are recorded.
- Pre-demolition survey of the derelict building to ensure no bats are present.

Lighting: the most bat (and wildlife) friendly lighting is to keep lights off. Therefore, the default setting for all lights should be that they are switched off at all times, unless they are required due to the presence of on-site personnel. To ensure that lights are not inadvertently left on, outdoor lighting shall be set on timers.

- During construction no work-lighting after sunset during peak bat activity months (May – August), unless access required for infrastructure safety.

On site lights shall be in line with bat lighting guidance documents such as:

Guidance Note 8 Bats and Artificial Lighting (ILP, 2023)

The following shall apply when choosing luminaires and their potential impact on Key Habitats and features:

- All luminaires shall lack UV elements when manufactured.
- No metal halide or compact fluorescent sources shall be used
- LED luminaires shall be used
- A warm white light source (2700Kelvin or lower) shall be adopted
- Light sources should feature peak wavelengths higher than 550nm
- Column heights shall be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, shall be used
- Luminaires shall be mounted horizontally, with no light output above 90° and/or no upward tilt
- External security lighting shall be set on motion sensors and set to as short a possible a timer as the risk assessment will allow (~1 minute). Motion sensors shall be placed such that small mammals will not be likely to set off the light.

- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand

7.5.4 Birds

In order to protect breeding birds, no vegetation clearance shall occur during the statutory breeding season (1 March to 31 August inclusive). Caution still needs to be applied as breeding season is getting earlier, and some birds may still have nesting or unfledged young in September.

Where feasible, vegetation clearance should only occur once fruit have been produced and largely consumed by wildlife. This will help support wintering birds such as Redwing. Vegetation clearance should be carried out as much as feasibly practical between December and mid-February. No vegetation clearance will be carried out during breeding season.

To support breeding raptors such as Kestrel, provision for suitable nest boxes shall be made. At least one box should be placed. Final location should be determined once final layout and location of the different elements are determined. A suitable location would be on the lattice structure of the power line tower, at least 3m of the ground, and facing away from the main substation.

Power lines shall be equipped with bird deflectors to minimise risk to large birds.

7.5.5 Amphibians and Reptiles

Field drains and areas of standing water should be checked for frog spawn or frogs prior to any work being carried out.

Drains that are plugged during the construction period to prevent sediment outfall to the rivers may hold more water for longer and therefore extra care must be taken to prevent damage to frog spawn.

Measures to support amphibians and reptiles should be included up as part of the Biodiversity Enhancement Plan. As longer or less intensively managed grass may suit some species, measures could focus on provision of supportive aquatic habitats for different parts of the lifecycles.

7.5.6 Invertebrates

The change in management practices from livestock grazing and cutting to a reduced cutting intensity may allow for more species diverse grasslands to establish which will in turn favour a diversity of invertebrates.

There should be no use of 'wildflower mixes' in any area as species composition of grasslands in the area and available seedbank should allow for natural recolonisation when combined with change in cutting regime and reduced nutrient inputs.

7.5.7 Crayfish

Water quality protection measures described in section 7.2.2, 7.2.3, and 7.4.4 as well as mitigation described in the NIS will ensure that water quality is not affected; no instream works are anticipated. Strict application of these measures along with strict biosecurity protocols to prevent the introduction of crayfish plague will be applied.

No instream works are anticipated therefore introduction of crayfish plague is not anticipated, however out of precaution, measures must be applied if any tools or equipment come into contact with the watercourses

7.6 Enhancement

The Overall Project set out enhancement measures across the Proposed Solar Farm Development area; these are not detailed here, but they cover aspects of riparian planting, hedgerow reinforcement and planting, meadow maintenance, and bird boxes.

Enhancement measures described here concern the site for the Proposed Substation Development only.

7.6.1 Riparian Planting

Guidance for Riparian corridor planting can be found in Native Riparian Woodlands – A Guide to Identification, Design, Establishment and Management (Little *et al.*, no date).

Managing riparian corridors and lands adjacent to rivers is an effective biodiversity enhancement and will help increase the diversity of plant and animal species that can occur in these areas and protect the watercourse from impact.

Riparian planting covering some 2200m² will be planted along the river Camogue at the southwest of the site. The planting will be at minimum 10m wide.

This riparian strip will be of mixed suitable trees and herbaceous species, allowing for both riparian woodland to develop and a marsh / herb rich grassland. This will provide habitat for mixed species of different taxa such as Otter, birds, and invertebrates, as well as the floral communities.

Trees planted in the riparian zone will be composed of native species such as Alder *Alnus glutinosa*, Grey Willow *Salix cinerea* and Birch *Betula* spp. The land side of the vegetation strip may be supported by planting species such as Hawthorn *Crataegus monogyna*, Hazel *Corylus avellana*, Holly *Ilex aquifolium* and other shrubs such as Guelder Rose *Viburnum opulus*, Blackthorn *Prunus spinosa* and Spindle *Euonymus europaeus*.

Planting will be carried out during the appropriate time of year using a mix of native species of Irish origin. These should be sourced from County Limerick to maintain local genetic structures, but if this is not possible, they will be sourced from further afield so long as they are of Irish origin.

Mitigation measures that are necessary include:

- No heavy machinery to be used within 20m of the riverbank.
- Checks for Otter activity prior to the work commencing.
- Only use site appropriate plants.
- Use minimal hole size necessary for planting.
- Do not expose areas of bare soil.
- No vegetation cutting during the statutory breeding bird season.

Trees shall not be planted directly below the overhead powerlines so as not to pose a risk to the infrastructure.

Trees that naturally regenerate in the areas under the power lines will be maintained in line with ESB maintenance guidance.

7.6.2 Attenuation Pond

The attenuation pond has the potential to provide habitat for wildlife, including amphibians and birds. A diversity of plant species such as Purple loosestrife *Lythrum salicaria*, Yellow Flag Iris *Iris pseudacorus*, Reed *Phragmites australis*, Water mint *Mentha aquatica*, Rush *Juncus* spp., Ragged robin *Silene flos-cuculi*, and Meadowsweet *Filipendula ulmaria* shall be planted or sown in appropriate locations along the pond banks. The top of the embankment and outside areas can be treated as meadows with Knapweed *Centaurea nigra*, Birds Foot Trefoil *Lotus corniculatus*, Vetches *Vicia* spp., Self-heal *Prunella vulgaris*, Oxeye Daisy *Leucanthemum vulgare*, and Yellow Rattle *Rhinanthus minor*.

7.6.3 Hedgerow Planting and Bolstering

The reinforcement and planting of new hedgerows will have a dual purpose at the site of the Proposed Substation Development.

690m of new planting will provide extra connectivity within the landscape. The bolstering of some 2630m of existing linear features will improve quality and species diversity, reinforce connectivity and increase ecological value of the features.

Primarily, this will provide ecological benefits by increasing connectivity in the landscape, as well as habitat and foraging opportunities for fauna. Then the planting will have a visual benefit by providing a visual barrier between the Proposed Substation and the surrounding environment.

The existing vegetation between the land parcel and the public road is of mixed species including non-natives. This hedgerow shall be reinforced by replacing non-native species, small shrubs with appropriate species so as to form a dense linear feature providing connection to the wider

landscape. Suggested planting areas are presented in

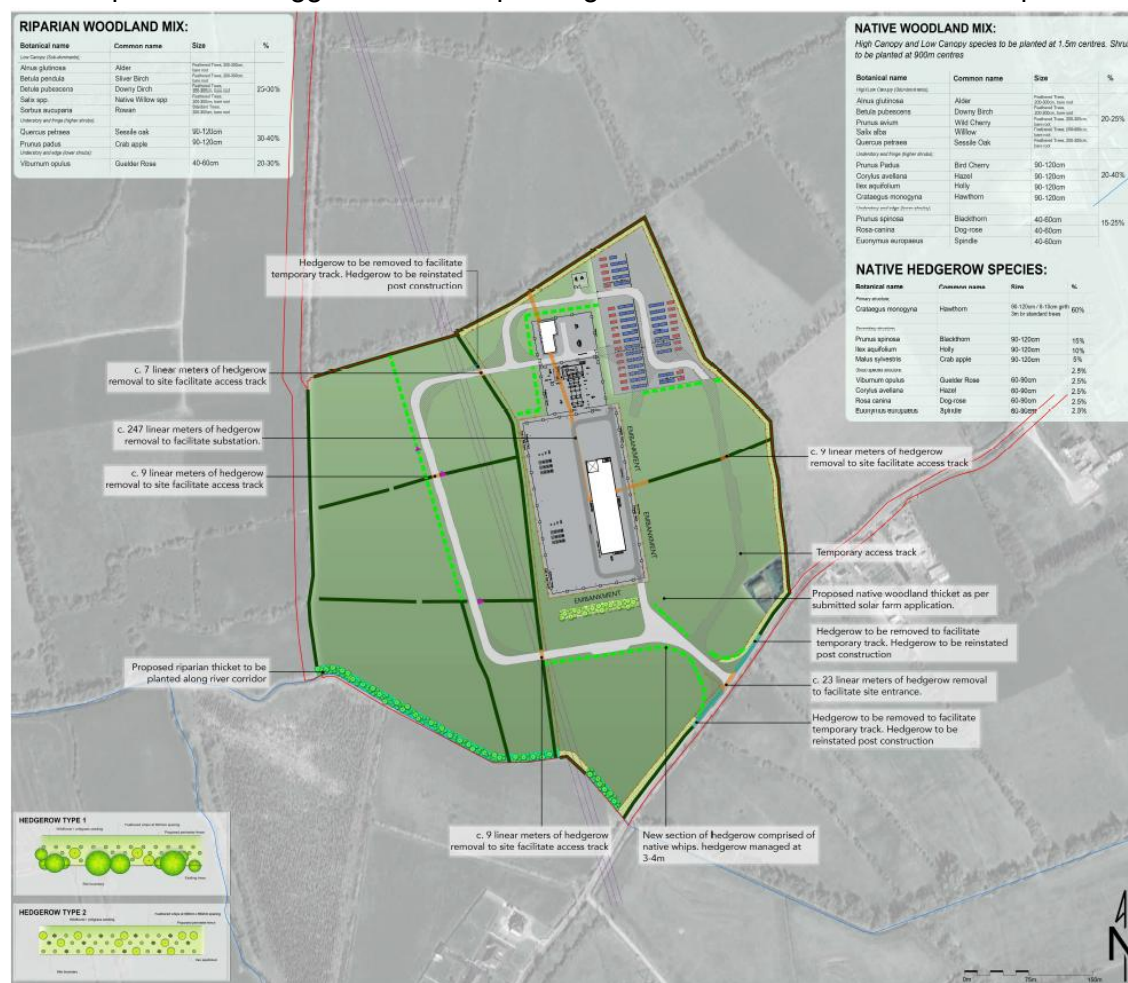


Figure 7-1 with full details presented in the associated landscape plan.

- A hedgerow shall be planted along each side of the new entrance access track.
- A hedgerow shall be planted around the perimeter of the agricultural building in the southeastern corner of the site.
- A hedgerow shall be planted along the new diverted ditch.

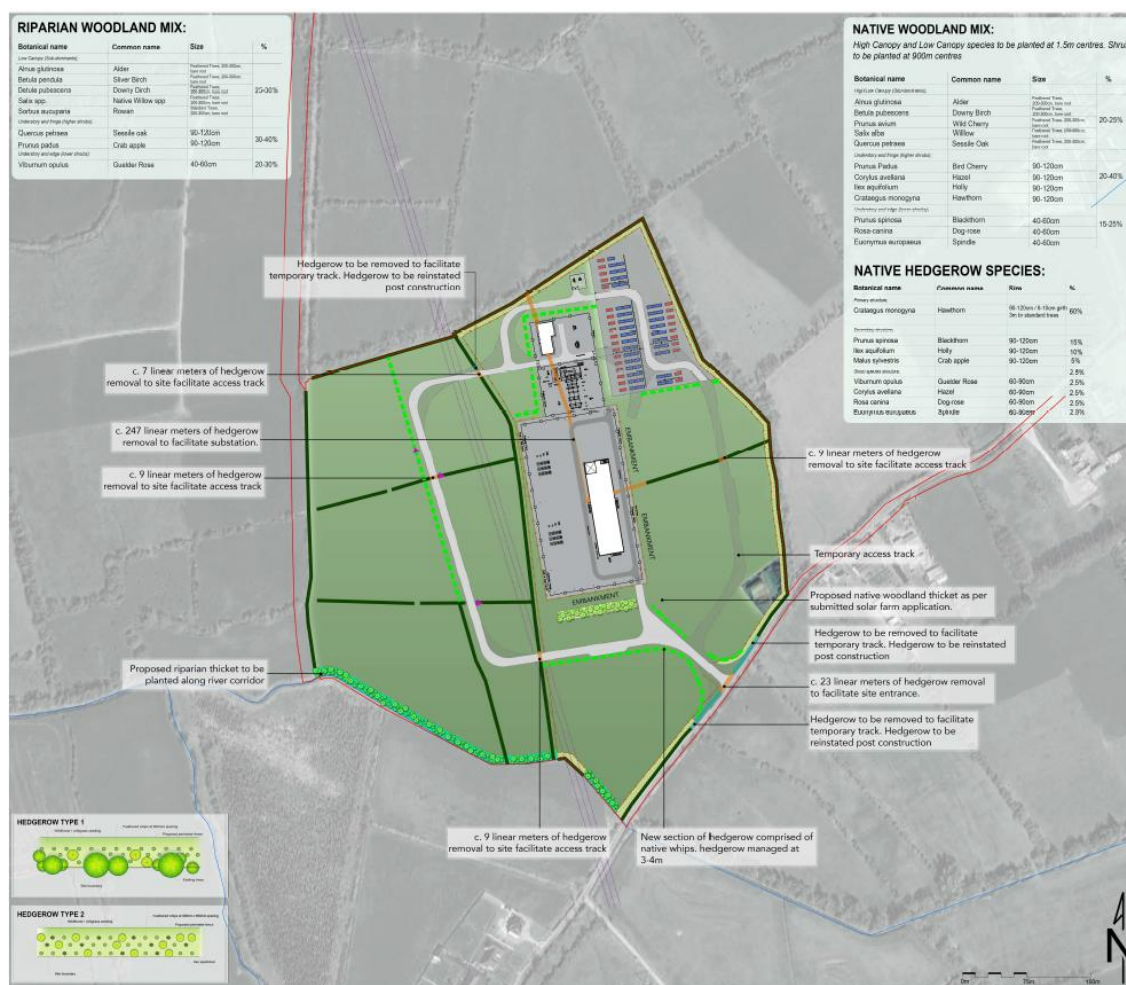


Figure 7-1: Suggested planting as per landscape plan

Each hedgerow will have feature trees that are left to mature and not subject to routine hedgerow management. Such feature trees may be individual plants from the proposed species mix that are left to grow, or trees of different species such as Oak, Ash, Rowan, Cherry, Wych Elm, Whitebeam.

These different planting areas will allow to join different linear features in the landscape, providing connectivity, replacement of lost hedgerows from the construction of the Proposed Substation Development, and restoration of existing features.

Suitable native species include Hawthorn, Blackthorn, Holly, Hazel, Spindle, Dog Rose, Guelder Rose, and Crab-apple. The species mix shall ensure that a diverse mix of these species is achieved, with no more than 70% of one species. This will help provide a diversity of foraging opportunities for wildlife.

Species should be of Irish origin, as these will be adapted to Ireland's climatic conditions. Plants of Irish provenance will also help stop the import and spread of pests and diseases. The biodiversity value of the planted hedgerow can be increased if they connect to existing hedgerow and treeline habitats. This allows for fauna to commute with ease.

General guidelines for planting of the hedgerow are as follows:

- Plant hedgerows from November to February.
- Cultivation of the ground, if necessary, for ease of planting.
- The hedgerow should be planted in double rows, using a zig-zag pattern, with 40cm between each plant.
- Protect roots of the bare root plants from drying out during planting.
- Plant to the root collar, ensuring roots are not exposed.
- Protect from grazing animals.
- Plants may benefit from pruning to 10 cm immediately after planting (except for Holly). This will encourage multiple new stems and a denser hedgerow.
- Weed management (avoid herbicide) may be necessary for 2-3 years until the hedgerow establishes.

Management of the hedgerow will largely be through cutting or trimming. For the first while, when the hedgerow is establishing, the edges may be trimmed lightly on an annual basis until the required size and shape is achieved. Once this has been achieved, cutting every third year should be sufficient. Cutting should be undertaken at the end of the year, but before the bird nesting season this will ensure berries remain for birds to forage. The 3–4 -year trimming programme should be done on a rotational basis so a variety of heights and side growth, with more flowers, berries and fruit are provided. Trimming alternate sides of hedgerows every other year produces a similar effect.

For existing hedges or planted hedges that are now established, and that may be gappy, hedge laying may be practiced reducing these gaps and increase the stock proofing of the hedgerow. Laying is optimal when the hedgerow stems reach a diameter of between 5cm and 10cm. Any hedgerows with stems beyond this diameter that need rejuvenation may benefit from coppicing to fill in gaps, coupled with filling-in of gaps with new plants. Expert advice from an experienced contractor regarding layering or coppicing to restore a hedgerow condition if it is overly gappy should be sought.

The grassy margin leading up to the hedge, which may be managed as a wildflower meadow is an important feature when combined with the hedgerow. Hence, the hedgerow should not become so wide that it interferes or takes away the area of this wildflower meadow margin.

Mitigation measures that are necessary during the planting include:

- No heavy machinery to be used within 30m of a badger sett unless authorised by the NPWS.
- No work within 50m of an active breeding sett.
- Checks for Badger activity prior to the work commencing.
- No hedge cutting during the statutory breeding bird season.
- Only use site appropriate plants.
- Use minimal hole size necessary for planting.
- Do not expose areas of bare soil.

7.6.4 Woodland thicket

Along with the hedgerow planting and bolstering a woodland thicket is proposed at the southern extent of the substation. This habitat will provide foraging and roosting space for small mammals, invertebrates and bird species.

This thicket will be of similar species composition as the hedgerows, with additional feature trees such as Oak *Quercus robur* to provide long term ecological benefits.

This thicket shall not be managed as a hedgerow; the thicket will be left to mature so that trees can develop to full potential over time.

7.6.5 Meadow

Grassy verges, field and fence perimeters, as well as the field areas to the west and south east of the site that will not be used for the Proposed Substation will be maintained as semi natural grasslands.

Enhancement measures will include an extensive mowing regime for ungrazed grassland areas. This will increase the herb diversity of these wildflower meadows and provide resources for pollinating insects.

Areas of wildflower meadows will be mown infrequently to reduce the grass dominance while allowing for herb species to grow from the seed bank. Habitat surveys show herb-rich verges suggesting that there is an adequate number of herb species present in the seedbank that can be left to develop naturally through extensive management of these verges without needing to rely on seed mixes.

Due to the likely high nutrient status of these lands, two cuts per year are recommended to maintain the species diversity of the wildflower meadows. One cut may be undertaken in June while the second cut is undertaken in late September/early October. The cut material must be taken away after each cut. This will result in a reduction in the soil nutrient status after every cut due to the removal of biomass. If two cuts per year are not possible, one cut in September will be necessary.

- Do not use 'wildflower' mixes.
- Two annual cuts, in June and in September/October. Once nutrient levels allow and growth is not as strong, the June cut should be discontinued.
- Lift grass cuttings: hay should be made in order to allow seed to fall out.

7.6.6 Bird Boxes

Raptor bird boxes will be installed in a suitable location, under guidance from a raptor specialist. A minimum of 1 bird box should be installed. This is to provide additional habitat and opportunities for local raptor populations.

The selection of sites, placement and installation, and maintenance of nest boxes should be informed by a raptor specialist and should consider the following:

- Select a suitable site based on bird requirements
- Ensure the nest box is in view (e.g., not concealed by vegetation if on a tree etc.) •
- Select a site where there is minimal human disturbance
- typically nest boxes should be placed 3m or more from the ground

- Ensure access for potential predators (e.g. Pine Marten)
- If the nest box is not in use by, it should be inspected and maintained each winter for a period of three years from its installation to ensure the nest box remains suitable

8 Residual Impacts

8.1 Impacts on Ecological Features

8.1.1 Impacts to designated sites

The Lower River Shannon SAC site is approximately 40km downstream of the Proposed Substation Development; to mitigate any likely significant effects on the SAC a suite of measures have been put forward in the associated NIS to prevent water pollution through release of sediment or other pollutants, minimise disturbance to Otter, and prevent effects on fish.

With the implementation of strict mitigation measures, combined with good construction practices no residual impacts are anticipated.

8.1.2 Habitats

8.1.2.1 Treelines

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats there is potential for slight, long- term, positive effects.

8.1.2.2 Hedgerows

With the implementation of strict mitigation measures, combined with good construction practices and considering temporary ecological lag for the maturation of landscape habitats, there is potential for slight, long-term, positive effects.

8.1.2.3 Drainage ditches

With the implementation of strict mitigation measures, combined with good construction practices, no residual effects are anticipated.

8.1.2.4 Depositing Lowland Rivers

With the implementation of strict mitigation measures, combined with good construction practices, no residual effects are anticipated. Ultimately, slight, long-term, positive effects on water quality may be achieved through reduced nutrient input, and lower livestock stocking densities.

8.1.2.5 Riparian Woodland

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats no residual effects are anticipated. Ultimately, slight positive effects with habitat spread may be achieved.

8.1.2.6 Grasslands

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats, neutral to slight long-term, positive effects may be achieved where enhancement measures are implemented. Minimal areas will be permanently lost to the installation of access tracks. Overall, a neutral impact is anticipated.

8.1.3 Protected Species

8.1.3.1 Otter

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats long-term neutral effects may be achieved.

8.1.3.2 Badger

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats, long-term neutral effects may be achieved.

8.1.3.3 Bats

With current knowledge, the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats, long-term neutral effects may be achieved.

8.1.3.4 Birds

With the implementation of strict mitigation measures, combined with good construction practices, and considering temporary ecological lag for the maturation of landscape habitats, long-term neutral effects may be achieved.

8.1.3.5 Amphibians and Reptiles

With the implementation of strict mitigation measures, combined with good construction practices, long-term neutral effects may be achieved.

8.2 Cumulative Impacts

With the implementation of strict mitigation measures, phasing of work and good practices, no cumulative impacts are anticipated.

9 Summary of Impact Assessment

9.1 EclA Table

The table below presents a summary of the EclA assessment when mitigation approaches are considered and included. Residual impacts are outlined below.

Table 9-1 Summary of impacts and mitigation measures.

Ecological Feature	Value	Significance of impact	Mitigation	Residual Significance of Impacts
Lower River Shannon SAC	International	Slight, short -term, negative effects	Water protection measures, dust prevention, sediment runoff prevention, noise avoidance measures.	No residual effects.
Treelines	Local Importance Higher / County Importance	Slight, medium-term, negative effect.	No clearance of treelines; minimal felling of trees to be assessed on a case-by-case basis.	No residual effect to slight positive effects. Opportunities to increase number of specimen trees.
Hedgerows	Local Importance Higher	Moderate, long-term, negative effect.	Replacement of lost hedgerows; bolstering of existing hedgerows.	No residual effect to slight positive effects. Opportunities to increase hedgerow diversity.
Drainage ditches	Local Importance Lower	Slight, temporary, negative effect	No discharges to drainage ditches; silt control measures.	No residual effects.
Deposing Lowland Rivers	County Level importance	Significant, medium term, negative effects	No discharges to watercourses; silt and pollution control measures. No works in riparian zones.	No residual effects are anticipated. Ultimately, slight positive effects may be achieved.
Otter	Local Importance Higher	Moderate, short-term, negative effects	No works within 20m of riparian habitat; no works within 150m of active breeding holt; no obstruction of riparian corridor.	No residual effects to slight positive effect with habitat enhancement providing more cover and improving water quality.
Badger	Local Importance Higher	Significant, long-term, negative effects	No works within 50m of active breeding sett, no heavy machinery within 30m of retained sett; mammal passages to allow for normal use of the area; soft closure of entrance for duration of construction.	Neutral effect with the loss of some potential habitat. Habitat enhancement providing more cover, and less disturbance to the area due to reduced farming activities.
Bats	Local Importance Higher	Significant, long term, negative effects	Check vegetation for bat potential prior to clearing. Soft felling of trees that may be used by bats. Check for roost potential prior to felling; Additional planting to reinforce green corridors.	Long term neutral effects; Loss of some open grassland area and hedgerow. Removed hedgerow replaced by new planting.
Birds (breeding)	Local Importance Higher	Significant, medium- term,	Delay cutting of fruit-bearing hedgerows.	No residual effect; no change to current land use management. Potential for increased

Ecological Feature	Value	Significance of impact	Mitigation	Residual Significance of Impacts
		negative effects	Maintain areas of open grassland for Snipe to forage. No clearing of vegetation during the breeding bird season. Provision of species-specific nesting boxes to support raptors.	breeding of raptors. Potential for long- term neutral effects may be achieved.
Amphibians and Reptiles	Local importance Higher	Neutral	Check for frogspawn during construction.	No residual effect.
Crayfish	Local Importance Higher	Neutral	Mitigation for protection of water quality. No washing equipment in watercourses and no taking of water from watercourses. Biosecurity measures.	No residual effects.

10 Concluding Statement

This EclA examines the potential impacts from the Proposed Substation Development in Gotoon, Co. Limerick.

The site is hydrologically connected to the Lower River Shannon SAC, and the Proposed Substation Development is accompanied by an AA Screening Report and a Natura Impact Statement. The Screening Report retains the Lower River Shannon SAC, the River Shannon and River Fergus Estuaries SPA and Glen Bog SAC for further examination. The NIS further examines the source pathway receptor chains between the Proposed Substation Development and the designated sites. The Lower River Shannon SAC is and some of its qualifying interests are retained with mitigation measures put forward.

The Proposed Substation Development will result in localised effects on the biodiversity of the Proposed Substation Development Site. This will result in the loss of some grasslands, hedgerows and trees, and in turn the loss of some nesting habitat, potential disturbance to protected mammals.

Design features, and standard mitigation measures with proven effectiveness, have been put forward to reduce the effects of all identified impacts and effects. Loss of hedgerows will be replaced by new planting of a greater length, with some enhancement planting in the riparian zone also proposed. The Proposed Substation Development will not result in significant residual effects

Additionally, a range of mitigation and avoidance measures will be implemented to protect important ecological features within the footprint of the site itself, including and any downstream sensitive ecological feature.

Mitigation measures will be overseen by an ECoW.

Operational impacts from the Proposed Substation Development may occur from maintenance of the infrastructure. Trained staff and good practices will be necessary to prevent accidental release.

A Relevant Policy and Legislation

The legislation discussed below is intended as a guide only and does not replace formal legal advice.

A.1 Biodiversity Policy Guidance

Biodiversity: The National Biodiversity Action Plan 2023-2030 (NPWS, 2024) sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and has been developed in response to the Earth Summit, held in Rio de Janeiro in 1992 (UN Convention on Biological Diversity) and subsequent EU and international biodiversity strategies and policies.

As part of the action plan process Local Authorities must produce BAPs. BAPs highlight local biodiversity issues and set out a series of objectives and action plans for the conservation of priority species and habitats where they occur in each district or county.

A.2 Designated Sites and Nature Conservation

A.2.1 Statutory Designated Nature Conservation Sites

Sites with statutory designations receive varying degrees of legal protection under Irish statute (i.e. Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended, and European Directives (i.e. Directive 2009/147/EC (the Birds Directive) and Directive 92/43 EC (the Habitats Directive). The EU directives were transposed into Irish national law and subsequent amendments were revised and consolidated in S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011..

There are a number of statutory designations used for sites of high nature conservation value in Ireland, which are applied depending upon the importance of the site in a local, regional, national, or international context. These include:

National

- NHA
- Wildfowl Sanctuary
- Statutory Nature Reserve
- Refuge for Fauna

European

- SPA
- SAC

International

- UNESCO Biosphere Reserve
- Ramsar Convention Site
- National Park (Category II) Sites

A.2.2 Non-Statutory Designations

Non-statutory sites are afforded no statutory legal protection but are normally recognised by local planning authorities and statutory agencies as being of local nature conservation value.

A pNHA is an area deemed to be of special interest containing important wildlife habitat and often containing rare or threatened species. They may also be selected on the basis of geology or geomorphology.

A.2.3 Protected and Notable Species

A number of species are protected under Irish and international legislation. In Ireland, primary protection is provided under the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended. Species of European importance receive additional protection in Ireland under S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011.

S.I. No. 365/2015 Flora (Protection) Order 2015 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.

A.2.4 Birds

Almost all resident wild birds are protected under the Wildlife Acts 1976-2021, as amended and the Wildlife (Amendment) Act 2023, as amended. This makes it an offence to:

- Intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built.
- Take, destroy or possess the egg of any wild bird.

A.2.5 Badger

Badgers are protected under the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended, and it is illegal to intentionally kill, capture, injure or ill-treat any Badger. It is also an offence to obstruct, destroy or damage a Badger sett or disturb Badgers within a sett. Disturbance is defined, for development purposes, as any activity that could damage a sett or be a greater than what Badgers commonly tolerate.

A.2.6 Bats

All Irish bat species are protected under the Wildlife Acts 1976-2021, as amended, and S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011. This makes it an offence to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).
- Intentionally or recklessly obstruct access to any bat roost.
- It is also an offence to obstruct access to any bat roost, or to disturb a bat using such a place.

Any identified roost(s) are, therefore, protected and any potentially disturbing or destructive works affecting a roost site will require a derogation licence from the NPWS.

A.2.7 Otter

Otter are protected under the Wildlife Acts 1976-2021, as amended, and the S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011 (. This makes it an offence to:

- Deliberately capture, injure or kill an Otter;
- Deliberately disturb an Otter such as to affect local populations or breeding success, damage or destroy an Otter holt;
- Possess or transport an Otter or any part of an Otter, sell or exchange an Otter;
- Intentionally or recklessly disturb any Otter whilst within a holt, or
- Intentionally or recklessly obstruct access to a holt.

Disturbing or destroying an Otter holt will require a derogation licence from the NPWS.

A.2.8 Reptiles and Amphibians

Common Frog, Natterjack Toad, Smooth Newt, and Common Lizard are all protected under the Wildlife Acts 1976-2021, as amended, and the Wildlife (Amendment) Act 2023, as amended.

A.2.9 Invasive Non-native Species

Certain invasive non-native animals and plants are listed under the Third Schedule of S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011. This makes it an offence to:

- Release, plant them in the wild, or
- Cause them to disperse, spread, or otherwise cause them to grow.

If these species occur on a site proposed for development or other work which may disturb the ground, control of these species is likely to be required.

Regulation (EU) No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species sets out to prevent, minimise and mitigate the adverse impacts of the introduction and spread, both intentional and unintentional, of invasive alien species on biodiversity and the related ecosystem services, as well as on human health and the economy.

A.2.10 Fisheries Legislation

The primary legislation governing Inland Fisheries Sector are the Fisheries Consolidation Act 1959, as amended, and the Inland Fisheries Act 2010, as amended.

The Fisheries Consolidation Act, 1959, as amended, makes provisions for the licences for sea and freshwater fishing.

Under the Fisheries Consolidation Act 1959, it is an offence to disturb the bed of a river. Section 171 of the Act creates the offence of throwing, emptying, permitting or causing to fall onto any waters deleterious matter. Deleterious matter is defined as any substance that is liable to injure fish; to damage their spawning grounds; or the food of any fish; or injure fish in their value as human food; or

to impair the usefulness of the bed and soil of any waters as spawning grounds or other capacity to produce the food or fish.

The Inland Fisheries Act 2010, as amended, was enacted to establish IFI and to define its functions, and to dissolve the Central Fisheries Board and Regional Fisheries Boards, which had been established under the Fisheries Act 1980, as amended. The Act also provides for other matters connected with the foregoing and to amend and extend the Fisheries Acts 1959 to 2007.

A.2.11 Salmonid Regulations

For the protection of fisheries, Ireland supports a network of Salmonid Waters designated by the Department of Environment, Heritage and Local Government (as it was called at that time) under the EU Freshwater Fish Directive (78/659/EEC) S.I. No. 293/1988 European Communities (Quality of Salmonid Waters) Regulations, 1988. These rivers, and a number of other non-designated waters, are important for salmonids (salmon and trout) and, accordingly, their water quality and fish habitat must be maintained (NRA, 2009b). These rivers must ensure to meet certain water quality standards as outlined in Schedule 2 of the legislation.

The regulations list particular rivers/waters which are to be protected under these regulations.

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