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CAPPAKEEL SOLAR FARM 110KV SUBSTATION AND GRID CONNECTION

Ecological Impact Assessment

Prepared for:

Perigus Energy Ireland Midco Limited

Perigus Energy

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ECOLOGICAL IMPACT ASSESSMENT

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Abstract: This report details the Ecological Impact Assessment for the Proposed Development 110kV Substation within the townland of Morett Co. Laois, and its grid connection to the national grid via a loop in/loop out connection to the Cushaling-Portlaoise 110kV Overhead line within the townland of Morett, and a tail fed connection to the Coolnabacky 110kV Substation within the townland of Coolnabacky, Co Laois. The Connection to the Coolnabacky 110kV substation will be via an underground tail fed connection traversing the townlands of townlands of Derrytrasna, Park Or Dunamase, Aghnahily, Dysart, Coolnacarrick, Heathlodge, Ballygormill North, Ballinlough, Killenny, Raheen, Money Upper, Lamberton Demesne, Greatheath, Cremorgan, Ballygormill South, Carrigeen, Greatheath, Hophall, Ballycarroll, Morett and Powelstown, Co. Laois.

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1. INTRODUCTION

Perigus Energy Ireland Midco Limited has engaged Fehily Timoney and Company (FT) to prepare an Ecological Impact Assessment (EcIA) for the development of a 110kV Substation within the townland of Morett Co. Laois, providing a grid connection to the national grid for the permitted Cappakeel Solar Farm via a loop in/loop out connection (hereafter referred to as the 'Proposed Development'). Consent for the solar farm was granted by Laois County Council on 18th September 2025, (Pl. Ref. 2560148), section 34 of the PDA, with consent for the solar farm granted by ACP on 17th February 2026 (Ref No.: PL-500061-LS).

This EcIA has been prepared in accordance with CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Version 1.2 (Updated April 2022). An EcIA is not a statutory requirement, however, it is a best practice evaluation process. This EcIA has been provided to assist the Competent Authority in its decision-making in respect of the Proposed Development. An EcIA is the process of identifying, quantifying and evaluating the potential effects of a Proposed Development on ecological features, based on an objective assessment of the best information available (CIEEM, 2018). An ecological feature is defined as a species, habitat, or ecosystem that has the potential to be affected by a Proposed Development.

The purpose of this EcIA is to:

- Establish an understanding of the baseline ecological conditions at the Proposed Development site;
- Identify, quantify, and evaluate potential effects of development-related actions on habitats, species, and ecosystems;
- Identify flora and fauna (and/or their breeding and resting places) of ecological value, including those protected under the Wildlife Act (and under Flora Protection Order) or the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) which could be impacted by the Proposed Development;
- Evaluate the ecological significance of the receiving environment
- Consider measures to mitigate the potential negative impact(s) of the Proposed Development on the receiving environment;
- Clearly and concisely present the findings of the assessment.

The specific objectives of the assessment were to:

- Undertake baseline ecological surveys and evaluate the nature conservation importance of the Proposed Development;
- Identify and assess the direct, indirect, and cumulative ecological implications or impacts of the Proposed Development during its lifetime;
- Where possible, propose mitigation measures to remove or reduce those impacts at the appropriate stage of development;
- Identify opportunities for biodiversity gain and enhancement.

1.1 Project Background

The Proposed Development consists of a 110kV Substation and associated works within the townland of Morett Co. Laois, which will connect the permitted Cappakeel Solar Farm to the national grid via the adjacent Cushaling-Portlaoise 110kV overhead line (OHL) within the site boundary, and connection to the Coolnabacky 110kV Substation via an underground tail fed connection to provide a circuit between the Cushaling-Portlaoise 110kV line and the Coolnabacky 110kV Substation traversing the townlands of Derrytrasna, Park Or Dunamase, Aghnahily, Dysart, Coolnacarrick, Heathlodge, Ballygormill North, Ballinlough, Killenny, Raheen, Money Upper, Lamberton Demesne, Greatheath, Cremorgan, Ballygormill South, Carrigeen, Greatheath, Hophall, Ballycarroll, Morett and Powelstown, Co. Laois. Planning permission for this component is sought from An Coimisiún Pleanála (ACP) under section 182A of the PDA.

This will provide connection to permitted energy generating part of the main Cappakeel Solar Farm which consists of solar panels and associated infrastructure, as noted earlier. Included in the planning application is an underground Internal Network cable (Medium Voltage [MV], 33kV) between the West (A), Centre West (B), Centre (C), Centre East (D) and East (E) Parcel of the proposed solar farm to provide the electrical link between the solar farm and the proposed 110kV Substation situated in the West Parcel. Consent for the solar farm was granted by Laois County Council on 18th September 2025, under Pl. Ref. 2560148, section 34 of the PDA, with consent for the solar farm granted by ACP on 17th February 2026 (Ref No.: PL-500061-LS).

As part of the Proposed Development, the proposed 110kV Substation and 'Loop In-Loop Out' (LILO) connection to the Cushaling-Portlaoise 110kV Overhead line is located within West Parcel (A), within the townland of Morrett. The Cushaling - PortLaoise 110kV OHL transmission line runs in a north/south axis c. 415m East of the proposed on-site 110kV Substation.

This report relates to the 110kV Substation and the 2 no. connections via the OHL connection to the Cushaling-Portlaoise 110kV line, and the underground tail-fed connection to the Coolnabacky 110kV Substation within roads. All components have been determined by ACP pursuant to consultations undertaken in accordance with Section 182A of the PDA to fall under the remit of ACP as Strategic Infrastructure Development (SID).

1.2 Proposed Development

The proposed site boundary for the SID application will constitute the construction of a 110 kV Substation and LILO connection to the existing Cushaling-Port Laoise 110kV OHL, and an underground tail fed connection within the road to the Coolnabacky 110kV Substation and associated works, which will include the following:

Full details on the Construction Methodology provided by TLI Group is outlined in Appendix 7 of the P&E report.

- A 110kV Substation occupying 1.80 hectares, comprising:
  - Transmission System Operator (TSO) compound with electrical equipment, transformer sub-compound, bus bars sub-compound, cable chairs and substation building of 437.5m² (25m x 18m), which will be enclosed by palisade fencing 2.6 m high containing an area of 1.22 hectares;
  - One 110kV transformer within the Independent Power Producer (IPP) compound, and the provision of an area for a second transformer if future connection is required;
  - TSO expansion area enclosed by palisade fencing 2.6m high at 0.90 hectares;
  - Operators compound (with switch room building, electrical equipment and rainwater collection system) enclosed by palisade fencing at 0.43 hectares. The proposed operators control building will have a gross floor area of 403.5m^2;
  - Perimeter protection area of post and rail fencing at approximately 1.40 hectares;

- 13no. lightning mast to a height of 18m;
- 1 No. telecom pole to a height of 23m.

- New entrance to the L-7815 local road from West Parcel (A) shared with the proposed solar farm.
- A minimum width of 4.5m and a maximum width of 10.9m access road corridor (1.183m long).
- Underground cable corridor of c. 348m in length and provision of 2 no. 21m high mast structures linking the proposed substation to the adjacent existing Cushaling-Portlaoise 110kV Overhead line.
- Associated construction works and drainage infrastructure.
- Underground Grid Connection (UGC) (of a single 110kV circuit comprising:
- 6 no. ducts in an excavated trench to accommodate 3 no. power cables, 2 no. fibre communications cables and 1 no. earth continuity conductor (ECC)

  - 20 no. joint bays,
  - Cable to run predominantly within the public road for a distance of c. 13.7km along the L-7815, L-3813, L-7830, L-7832, R-426 public roads, with a total of c. 12.56km within the public road, c. 2.4km within privately owned existing tracks. Works within the private land will be contained within the existing internal tracks.

The proposed site boundary for the proposed 110kV Substation and compound and underground tail fed connection, as indicated in the accompanying drawings, measures c. 22.70 hectares, and includes the elements described above.

1.2.1 110kV Substation Details

The proposed 110kV substation and loop in/loop out connection to the Cushaling-Portlaoise 110kV OHL is located within West Parcel (A) of the permitted Solar Farm, situated within the townland of Morett. Consent is now being sought through the submission of an SID application to ACP, under section 182A of the PDA for this part of the associated Solar Farm project.

The proposed 110kV Substation will provide a LILO grid connection for the now permitted Cappakeel Solar Farm to the national grid via the existing Cushaling - PortLaoise 110kV OHL, which runs in a north/south axis c. 415m east of the proposed 110kV Substation.

Connection agreements to the Irish National Grid require the developer to permanently hand over the substation to the Transmission Service Operator (TSO), which will be Eirgrid. Part of the substation will be retained by the operator which acts as the collection point for the energy generated from the solar panels (West (A), Central (C)and East Parcels (E)) and energy brought to the substation via the internal network cable. A further requirement of Eirgrid when taking charge of the TSO area of 110kV substations is to keep lands adjacent to the substation free from development so to accommodate future expansion.

As the proposed 110kV Substation will form part of the national grid transmission network and may be used by Eirgrid to support additional transmission network infrastructure, the development consent being sought as Strategic Infrastructure Development (SID) through Section 182A of the Planning and Development Act 2000 (as amended), is for permanent provision of the substation and its associated development components, with a final electric design determined by Eirgrid requirements.

As per Eirgrid requirements, all substation doors will be steel construction for safety and security purposes.

A level compound area will be created using cut and fill methods. The substation compound and drainage will be marked out by a qualified engineer. A drainage system will be excavated and installed around the compound area. Topsoil and subsoil will be removed from the footprint of the compound using an excavator. The excavated material will be stored separately and temporarily on adjacent berms for later use during reinstatement works. A layer of geotexile material will be laid over the footprint of the compound. Using an excavator, a base layer of Clause 804 material will be laid followed by a 6F2 capping layer which will provide the finished surface. Each layer will be compacted using a vibrating roller. Earthing cable will be laid underground around the substation for connection to the various electrical components during the electrical fit out phase. The construction of a substation compound circa 17,750m², comprising of approx. 437.5m² single storey 110kV substation control building, a 403.5m² IPP building and associated outdoor electrical equipment, including 1 no. 110kV transformer, associated internal access track, 2.6m high station perimeter fencing and concrete post and rail property boundary fence will be built.

Adequate lighting will be installed around the compound on the lighting masts. Lightning protection masts of approximate height 18m will be installed to protect the station from direct lightning strikes.

1.2.1.1 Security Fence

Palisade fencing will be erected around the TSO and Operators compounds for security/protection reasons. It will be c. 2.6m high standard metal palisade fence. The position of the security fence allows for an electrical insulation area around the substation equipment for safety. Separate security gate access is provided for access to the main TSO Compound and the Operators Compound. A low post and rail fence of is proposed outside the palisade fence to define the substation property and encloses the perimeter protection area. An area of landscaping is proposed outside the fenced areas.

1.2.1.2 Substation Access Road

Appropriate access, in accordance with Transport Infrastructure Ireland (TII) standards, can be provided for via a new site entrance to the 'West Parcel' (A) of the permitted Cappakeel Solar Farm via an existing site entrance from the L7815 local road. Further links are available within the permitted solar farm with the R445 approximately 450m north-west of the existing access point and provides a proposed haul route. Alternative access points are available from the L78151 local road, which runs directly south of the overall site between Morett and Killone.

Hedgerow maintenance may be required periodically to ensure the desired sightlines are maintained; however, public access is considered safe and suitable for the proposed traffic movement, and no public safety or obstruction to traffic flow is anticipated.

1.2.1.3 Mast Structures and Cable Corridor

End masts will be located on the existing Cushaling - PortLaoise 110kV OH transmission line in order to loop the proposed substation into the electricity transmission system. Mast sites are scanned for underground services such as cables, water pipes. For each leg of the two no. masts (8 legs in total) a foundation circa. 4.3m x 4.3m x 3m deep is required. The formation levels (depths) will be checked by the onsite engineer. The excavated material will be temporarily stored close to the excavation and excess material will be used as berms along the site access tracks.

To aid construction, a concrete pipe is placed into each excavation to allow operatives level the mast at the bottom of the excavation. The frame of the reinforcing bars will be prepared and strapped to a concrete pipe with spacers as required. The reinforcing bars will be lifted into each excavated foundation using the excavator and chains/slings. The base and body section of each mast will then be assembled next to the excavation. Concrete trucks will pour concrete directly into each excavation in distinct stages. A final pour for the mast is the encasing of the mast leg which will be finished 300mm over finished ground level. Mast foundations will be backfilled one leg at a time with the material already excavated at the location. The backfill will be placed and compacted in layers.

An earth mat consisting of copper or aluminium wire will be laid circa 400mm below ground around the mast. This earth mat is a requirement for the electrical connection of the equipment on the mast structure. Once the base section of each mast is completed and the concrete sufficiently cured, it is ready to receive the mast body. A hardstand area for the crane will be created by laying geogrid material on the ground surface and overlaying this geogrid with a suitable grade of aggregate. A physical barrier (Heras Fence Site Boundary) will be put in place to restrict plant from coming too close to the OHL. The mast will be constructed lying flat on the ground beside the recently installed mast base. The conductor will be moved off centre using a stay wire and weights to anchor the stay wire to ground. The mast section will be lifted into place using the crane and guide ropes. The body sections will be bolted into position. The conductor will be centred over the masts and held in place. Once the conductor is secured at both ends it is then cut and attached onto each mast. The section of conductor in between the two masts will be removed and utilised as connector wire for the new masts. Down dropper conductors (for electrical connections, insulators, surge arrestors), shackles and all associated accessories required for transition from line to cable will be installed on the interface masts.

1.2.1.4 Grid Connection Details - UGC Construction

The UGC will be primarily contained within the public road, and will consist of a single 110kV UGC circuit, which will be installed predominantly within the public road network. A small section of the UGC will be installed within existing private tracks (1.2km) The UGC works will consist of the installation of 6 no. ducts in an excavated trench to accommodate 3 no. power cables, 2 no. fibre communications cables and 1 no. earth continuity conductor (ECC). The fibre communication cable will allow communications between the proposed Cappakeel Solar Farm 110kV Substation and Coolnabacky 110kV Substation. See Appendix 7 of the P&E report for full details.

The UGC to Coolnabacky 110kV Substation will consist of 3 no. 160mm diameter HDPE power cable ducts, 2 no. 12mm diameter HDPE communications duct and a 125mm Earth Continuity Conductor duct to be installed in an excavated trench between the proposed solar farm substation and the Coolnabacky 110kV Substation on access road.

1.2.1.5 Trenching/Ducting

Trenching and ducting works will be carried out using a structured, step-by-step methodology in accordance with project specifications and design drawings as provided in Appendix 7 of the P&E report.

This will include excavation, installation of ducts within a Cement Bound Granular Mixture B (CBGM B), placement of protection measures, and progressive backfilling and reinstatement appropriate to the surface type. All ducts will be cleaned, tested, and prepared for cable installation, with works subject to inspection where required. For concrete and asphalt/bitmac road sections, immediate permanent reinstatement will be carried out in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with local authorities. The following will be applied during trenching/ ducting activities:

- All existing underground services along the UGC route will be identified and confirmed prior to the commencement of construction works.
- At watercourse crossings, the Contractor will adhere to all environmental control measures set out in the Planning and Environmental Report, the Construction Environmental Management Plan (CEMP), and applicable best-practice construction methodologies.
- Where the cable route intersects with culverts, the culverts will be retained in situ where feasible. Ducting will be installed either above or below the culvert to maintain minimum separation distances, in accordance with EirGrid and Uisce Éireann specifications.
- Where culvert removal is required to facilitate duct installation, a method statement will be prepared detailing measures such as temporary damming and over-pumping of water around the work area. This will be agreed with relevant stakeholders in advance. Upon completion, culverts will be reinstated to their original levels and dimensions. The Contractor will liaise with Inland Fisheries Ireland (IFI) prior to undertaking such works. Full details on methodology that would be required for damming and reinstatement are detailed in Appendix 7 of the P&E report.
- Excavated material will be temporarily stockpiled on-site for reuse during reinstatement. Stockpiles will not exceed 2 m in height and will be located at least 50 m from surface water features.
    - Suitable excavated material will be reused for trench backfilling.
    - Earthen (sod) banks will be carefully excavated, with surface sods stored separately for reuse during reinstatement.
    - The excavated trench will be dewatered if required, from a sump installed within the low sec on of the opened trench. Where dewatering is required, dirty water will be fully and appropriately attenuated, through silt bags, before being appropriately discharged to vegetation or surface water drainage feature.
    - No more than a 100 m section of trench will be open at any one time. A subsequent section will only be excavated once reinstatement of the preceding section is substantially complete.
    - The excavation, installation, and reinstatement of a typical 100 m trench section will take approximately two days.
    - Where cable installation occurs within roadways, temporary reinstatement may be undertaken to allow larger sections of road to be permanently reinstated in a single phase.
    - Following duct installation, cable pulling between joint bays will typically take one day. Cable jointing operations will take approximately one week per joint bay location.

Surface cable markers will be placed along the route where cable depth is unavoidably shallow, due to constraint such as existing services, to indicate the precise location of the UGC. These markers will be metallic plates in accordance with ESBN and EirGrid standards. Marker posts will be used on non-roadway routes to delineate the cable route and joint bay positions. Corrosion proof aluminium triangular danger sign, with 700 mm base, and with centred lightning symbol, on engineering grade fluorescent yellow background shall be installed in adequately sized concrete foundations. Marker post shall also be placed in the event that burial depth is not to standard. Si ng of marker posts to be dictated by ESBN as part of the detailed design process.

1.2.1.6 Management of Excess Trench Material

All excavated material will be temporarily stored adjacent to the trench prior to re-use in the trench reinstatement (where applicable). Stockpiles will be restricted to less than 2 m in height. Excavated tar from the public road network will be transported off site by an appropriately authorised waste collector and disposed of at an appropriately licenced waste facility.

1.2.1.7 Storage of Plant and Machinery

All plant, machinery and equipment will be stored on site within the UGC works area or within the temporary construct on compound to be located nearby to the proposed substation. Oils and fuels will be stored in an appropriately bunded area within the temporary construction on compounds.

1.2.1.8 Joint Bay Construction

Prior to the commencement of construction, areas around the perimeter of each joint bay required for heavy vehicle access will, where necessary, be protected using a geocomposite surface (e.g. Terram® or similar) in combination with stone aggregate to minimise ground disturbance. Any roadside drains within the temporary works area will be temporarily culverted.

Where ground levels slope towards a watercourse, or where there is a risk of sediment runoff, silt fencing in combination with straw bales will be installed between the works area and nearby watercourses or drainage features.

Excavated material will be stored in close proximity to the excavation and reused for reinstatement. Any additional soil temporarily stockpiled on-site will be located a minimum of 15 m from the nearest watercourse on level ground. These stockpiles will be enclosed with silt fencing at the base and regularly inspected by a designated competent person. Where evidence of sediment escape is identified, additional silt fencing and straw bales will be installed in accordance with environmental control measures.

Where dewatering of joint bays is required, water will be discharged to a suitable percolation area where ground conditions permit. In saturated conditions, a settlement tank will be utilised to remove suspended solids prior to discharge, in line with environmental protection requirements.

The risk of concrete entering surface waters is considered low, as all concrete will be poured directly into the excavated joint bay.

1.2.1.9 Existing Water-crossings

The cable will traverse three existing water crossings. These are detailed further below and in full in Appendix 7 of the P&E report. Where the cable route intersects existing watercourses, a detailed Construction Method Statement will be prepared by the Contractor in advance of works commencing. This method statement will be subject to approval by the relevant Local Authority and environmental agencies.

Crossings at existing culverts will be undertaken using either an undercrossing or an overcrossing method, depending on the depth and characteristics of the watercourse.

1.2.1.10 Bridge 1 Overcrossing – Open Trench Installation

This bridge is located between JB-16 & JB-17, along the L-3813 local road (ITM Coordinates: Eastings – 653458.0289, Northings – 701493.2993).

To facilitate the installation of the UGC trench, the existing road level will be raised by approximately 0.11 m. As a consequence of this raised roadway, the bridge parapet walls will also require adjustment. This will be achieved through the installation of extended handrails to ensure that safety and design requirements are maintained in proportion to the new road level.

All works will be carried out in accordance with the requirements of the relevant Local Authority and Transport Infrastructure Ireland (TII) specifications.

The proposed road raise will ensure that the ducting can be installed at a minimum depth of 0.45 m below the finished road surface, in compliance with EirGrid Specification XDC-CBL-STND-H-006, Sheet 002, Rev 00. The indicative arrangement for the raised road section is shown in Drawing No. 300100925-DR-515, which should be read in conjunction with this Outline Construction Methodology (OCM).

1.2.1.11 Culvert 1 Undercrossing – Open Trenching

The proposed undercrossing of this concrete pipe culvert is located between Joint Bay (JB) 17 and Joint Bay (JB) 18 along the L-3813 local road (ITM Coordinates: Eastings – 653505.7679, Northings – 701923.8520).

Where feasible, the existing culvert will be retained in situ, and the ducting will be installed beneath the culvert to maintain the required minimum separation distances in accordance with EirGrid specifications.

1.2.1.12 Culvert 2 Undercrossing – Open Trenching

The proposed undercrossing of this precast culvert is located along the L-3813 local road between Joint Bay (JB) 17 and Joint Bay (JB) 18, approximately 245 m northeast of Culvert 1 at ITM Coordinates: Eastings – 653671.0769, Northings – 702079.9106.

Where feasible, the existing culvert will be retained in situ, and the ducting will be installed beneath the culvert to achieve the required minimum separation distances, in accordance with EirGrid specifications.

1.3 Operational Life

Once completed, the Proposed Development will be transferred to EirGrid, and will form a part of the National Transmission Network and therefore will operate in a perpetuate state.

1.4 Statement of Authority

Contributor	Role	Biography
Kate O'Regan	Report Author/ Habitat surveys/ Mammal surveys/ River Habitat Surveys	Kate is a Project Ecologist with three years' experience in consultancy with FT. She holds a first-class BSc. in Zoology and first-class MSc in Marine Biology from University College Cork. Since joining Fehily Timoney, Kate has prepared Appropriate Assessments and Ecological Impact Assessments for waste facilities and road improvement schemes along with ornithological chapters and collision risk models for renewable energy projects. Kate has previous experience in data management, statistical analysis, mapping and technical report writing. Kate has also completed a wide range of site work including habitat, ornithological, bat, freshwater aquatic, intertidal, subtidal, insect and mammal surveys.
Madeleine Van Der Poel	Report Reviewer	Maddy holds an M.Sc. (Hons) in Forestry and Nature Conservation from Wageningen University in the Netherlands and has six years of postgraduate experience. She is a Senior Ecologist with Fehily Timoney, with experience in both terrestrial and freshwater ecological assessments. She has prepared Biodiversity chapters for EIARs and completed numerous Appropriate Assessments for large infrastructure projects.
Mike Trewby	Report Reviewer	Mike Trewby BSc PGDip MCIEEM has worked as an Associate Director at Woodrow Sustainable Solutions Ltd and is a highly experienced ecologist with more than 20 years of field research and ecological assessment experience, specialising in ornithology, ecological survey methodologies, and environmental monitoring. Recognised as one of Ireland's leading experts in chough ecology, he has played a significant role in research, conservation management, and the designation of Special Protection Areas (SPAs), while also undertaking extensive work on raptors, seabirds, breeding waders, bats, mammals, and other protected species. Mike combines strong technical expertise with proven project management skills, delivering complex ecological assessments, ornithological impact studies, Appropriate Assessment documentation, stakeholder engagement, and Ecological Clerk of Works services across a wide range of infrastructure and renewable energy projects.
Rita Mansfield	Report Approver	Rita holds a BSc. (Hons) in Applied Ecology and a H. Dip Environmental Protection and Pollution Control. Rita is a Principal Ecologist and Associate Director with 20 years' experience as a technical ecology lead within the environmental and planning services sector. She specialises in statutory consent and environmental assessment for large scale public infrastructure projects in the energy, water (including flood relief schemes) and transport sectors. She is a qualified ecologist with responsibility for environmental impact assessment, planning applications (conventional and strategic infrastructure development), Appropriate Assessment, foreshore licensing, and stakeholder engagement for large scale plans and projects in Ireland, including for

Contributor	Role	Biography
		wind energy developments. Rita has undertaken and managed a wide range of ecological field assessments including mammal, herpetofauna, bird, fishery, invertebrate and habitat assessments. Rita has held numerous licences under the Wildlife Act and Habitats Directive for disturbance to species which included mitigation (e.g. construction of artificial otter holt, bat exclusion). Rita has provided advice on ecological / environmental design to various private and public sector clients.
Yumi Mihara	Habitat Surveys/ River Habitat Surveys	Yumi is a Senior Ecologist working as part of the Energy and Environment Team at Fehily Timoney and Company. Yumi has specialised in botany, with over 8 years' experience working in ecological consultancy section across Japan and Ireland. She holds a MSc in Environmental Science from Hokkaido University with a focus on Plant Physiology and a BSc in Environmental Science from Tokyo University of Agriculture with a focus on Habitat Classification via Phytosociological Methods. She has practical field survey skills in botany, including rare/protected/invasive plant survey, habitat classification and mapping and relevé survey in diverse habitats such as subalpine mountains in Japan, and heathlands, raised bogs, calcareous grasslands, coastal cliffs and urban areas in Ireland. She has also prepared reports on Appropriate Assessment Screening (AA), Natura Impact Statements (NIS), Ecological Impact Assessment (EcIA), Hedgerow Appraisal and Invasive Species Management Plans (ISMP) in Ireland.
Danny Franklin		Danny holds a B.Sc. (Hons) in Zoology, University College Cork (UCC) and a M.Sc (Hons) in Wildlife Conservation and Management, University College Dublin (UCD). He has four years postgraduate experience and is a Project Ecologist with Fehily Timoney. Danny has three years of ecological consultancy experience in the forestry industry preparing Appropriate Assessment documents as part of the Forestry Service licencing process.
Shannon Burke		Shannon is a Project Ecologist on the Energy and Planning team at Fehily Timoney and Company. She holds a BSc (Hons) in Plant Biology and a PhD in Environmental Biology from University College Dublin. She has researched a variety of environmental topics, including plant physiology, biological invasions, and wetland ecology. Her PhD research focused on the carbon stocks and sequestration rates of Irish coastal wetlands. Shannon has extensive knowledge in terrestrial, coastal, wetland, and freshwater ecology and has completed a wide range of fieldwork nationwide including soil, habitat, macroinvertebrate, and ornithological surveys. She is also experienced in laboratory work, desk-based studies, and teaching. Shannon has developed strong skills in mapping, data management, statistical analysis, and report writing through her PhD. She is an experienced technical writer, having published in several scientific journals and completing a PhD dissertation.

Contributor	Role	Biography
		Shannon specialises in plant identification, habitat classification, and freshwater invertebrate ecology, with additional experience in invasive species, ornithology and bats. Since joining FT, she has honed these skills through ecological surveys, Appropriate Assessment Screening reports, Ecological Impact Assessment reports, and Natura Impact Statements.

2. LEGISLATION AND POLICY

2.1 International Legislation

The following International Directives are of relevance to environmental assessment and planning in the Republic of Ireland.

2.1.1 Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)

The Habitats Directive legislation incorporates the requirements of 92/43/EEC into domestic law. The Directive aims to protect a wide range of species and habitat types and requires member states to take measures to maintain or restore them to favourable conservation status. The Regulations provide the legal framework for the implementation of the Habitats Directive in Ireland, including the designation and protection of Special Areas of Conservation (SACs) and the appropriate assessment of plans and projects to prevent adverse impacts on Natura 2000 sites, which consist of SACs and Special Protection Areas (SPAs). The Regulations also set out the conservation objectives for European (Natura 2000) sites and the measures to be taken to avoid significant adverse effects on such sites.

2.1.2 Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

The Council Directive on the Conservation of Wild Birds (2009/147/EC), also known as the Birds Directive, aims to conserve all wild bird species in the EU by establishing rules for their protection, conservation, management, and control, and provides a comprehensive framework for this purpose. The Directive covers birds, their eggs, nests, and habitats. It was first adopted by the European Council in 1979. The Directive instructs Member States to take measures to maintain populations of all bird species naturally occurring in the EU in a wild context. It also includes provisions for the establishment of a general scheme of protection of all wild birds and the management of hunting including the prohibition of large scale and non-selective means of bird killing. Additionally, the Directive requires the identification and classification of Special Protection Areas (SPAs) for certain bird species listed in Annex I of the Directive, which form part of the Natura 2000 network of designated and protected sites. The EU requires member states to submit reports to the European Commission every 6 years on the measures and impacts relevant to that state. The most recent amendment is Regulation (EU) 2019/1010.

2.1.3 Water Framework Directive (WFD)

The EU WFD 2000/60/EC aims to protect and improve water quality. It applies to rivers, lakes, groundwater, estuaries, and coastal waters. The WFD was agreed by all individual EU member states in 2000, and its first cycle ran from 2009 – 2015. The Directive runs in 6-year cycles; the second cycle ran from 2016 – 2021, and the current (third) cycle runs from 2022-2027. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high-water quality status where it exists. The WFD requires member states to manage their water resources on an integrated basis to achieve at least 'good' ecological status, through River Basin Management Plans (RBMP), by 2027.

2.1.4 Bern and Bonn Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982) was enacted to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was introduced to give protection to migratory species across borders in Europe.

2.1.5 Ramsar Convention

The Ramsar Convention on Wetlands is an intergovernmental treaty signed in Ramsar, Iran, in 1971. The treaty is a commitment for national action and international cooperation for the conservation of wetlands and their resources. In Ireland there are currently 45 Ramsar sites which cover a total area of 66,995 Ha.

2.2 National Legislation

2.2.1 European Communities (Birds and Natural Habitats) Regulations 2011 (as amended)

The European Communities (Birds and Natural Habitats) Regulations 2011, as amended is part of the legislation that transposes the Birds Directive (2009/147/EC) and the Habitats Directive (92/43/EEC) into Irish law. The Regulations and their amendments provide the legal framework for the protection, management, and control of wild birds and their habitats in Ireland, and place obligations on all public authorities to have regard to the requirements of the Habitats Directive beyond the realms of planning related consents issues under the Planning and Development Act 2000, as amended. The Regulations also provide for the protection of species of European importance.

2.2.2 Wildlife Acts 1976 (as amended)

The Wildlife Act 1976 is the principal national legislation that aims to protect and conserve wild fauna and flora, regulate the exploitation of game resources, and afford protection to all wild species of fauna. The Wildlife Act 1976 as amended addresses various aspects of wildlife protection and conservation, including the regulation of hunting, the protection of habitats, and the enforcement of wildlife regulations.

The Wildlife Act protects species from injury, disturbance and damage to breeding and resting sites. All species listed in the Wildlife Acts must, therefore, be a material consideration in the planning process.

The Flora (Protection) Order, (2022) gives legal protection to certain species of wild flora, i.e., vascular plants, mosses, liverworts, lichens and stoneworts. Under the Order, it is an offence to uproot, damage, alter, or interfere with any species listed species listed within the Order, or to damage or alter their supporting habitats.

Sites of national importance for nature conservation are afforded protection under planning policy and the Wildlife Acts, 1976–2012. NHAs are sites that are designated under statute for the protection of flora, fauna, habitats and geological interest. Proposed NHAs (pNHAs) are published sites identified as of similar conservation interest but have not been statutorily proposed or designated.

2.2.3 Fisheries (Consolidation) Act 1959

Section 171 of the Fisheries (Consolidation) Act 1959 creates the offence of throwing, emptying, permitting or causing to fall onto any waters deleterious matter. Deleterious matter is defined as not only any substance that is liable to injure fish but is also liable to damage their spawning grounds or the food of any fish or to 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 of fish.

2.2.4 Local Government (Water Pollution) Act (as amended)

The Local Government (Water Pollution) Act 1977 is an Irish piece of legislation that aims to protect and improve water quality in Ireland. The act provides for the regulation of wastewater treatment and discharge, as well as the management of water resources. Under Section 3 of the Local Government (Water Pollution) Act, 1977 (as amended by Sections 3 and 24 of the 1990 Act) it is an offence to cause or permit any polluting matter to enter waters.

2.3 Plans and Policies

2.3.1 National Biodiversity Action Plan 2023-2030

The National Parks and Wildlife Service prepared the 4th National Biodiversity Action Plan (NBAP). Ireland's 4th NBAP sets the national biodiversity agenda for the period 2023-2030 and aims to deliver the transformative changes required to the ways in which we value and protect nature.

2.3.2 Laois County Development Plan (2021-2027)

The Laois County Development Plan (2012-2027), has several objectives relevant to biodiversity including:

- BNH 1: Protect, conserve, and seek to enhance the county's biodiversity and ecological connectivity;
- BNH 2: Conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), the Wildlife Acts 1976 and 2010 (as amended) and the Flora Protection Orders;
- BNH 3: Support and co-operate with statutory authorities and others in support of measures taken to manage proposed or designated sites in order to achieve their conservation objectives and maintain the favourable conservation status and conservation value of Sites under National and European legislation and International Agreements and maintain and /develop linkages between them where feasible;
- BNH 4: Protect and maintain the conservation value of all existing and future Natural Heritage Areas, Nature Reserves, Ramsar Sites, Wildfowl Sanctuaries and Biogenetic Reserves in the county.
- BNH 5: Projects giving rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall not be permitted on the basis of this Plan (either individually or in combination with other plans or projects)[1]. Screening for AAs and AAs undertaken shall take into account invasive species as relevant;

- BNH 6: Assess, in accordance with the relevant legislation, all proposed developments which are likely to have a significant effect (directly or through indirect or cumulative impact) on designated natural heritage sites, sites proposed for designation and protected species;
- BNH 7: Protect Natural Heritage Areas (NHA) from developments that would adversely affect their special interests;
- BNH 10: Support the objectives of the All Ireland Pollinator Plan 2015-2020 by encouraging the planting of pollinator friendly trees and plants within grass verges along public roads and existing and future greenways, new hedgerows, public parks and public open spaces in towns and villages, including part of mixed use and residential developments.

3. METHODOLOGY

CIEEM guidelines on EcIA recognises the requirement for a proportionate approach to the ecological assessment for a Proposed Development noting that "*the level of detail required in an EcIA will inevitably be proportionate to the scale of the development and complexity of its potential impacts*". In this regard the guidelines prescribe that the zone of influence (ZoI) of the Proposed Development should be established i.e. the area(s) over which ecological features may be affected by the biophysical changes caused by the Proposed Development and associated activities. The guidelines also state that "*ecologists undertaking EcIAs should determine whether an ecological feature within the zone of influence of a development should be 'scoped out' (excluded) and justify the reasons for doing so*".

Each ecological feature will have different zones of influence, depending on its ecological characteristics and sensitivity to an environmental change.

Consideration is given to the following in determining the spatial and temporal scale of potential biophysical changes in the environment which might occur as a result of the development:

- The characteristics, size and location of the Proposed Development; and
- whether there could be landscape[2] or ecological connectivity[3] to any ecological receptor.

As such the scale of the EcIA extends beyond the footprint of the works and associated development boundary for the Proposed Development and considers potential for direct and indirect links to ecological receptors and associated ecological structure and function. From this, the key ecological receptors (KERs)[4] are identified and are considered further in terms of their Zones of Influence (ZoI) i.e. the pathway for an effect on the KER (as determined through source-pathway-receptor model[5]) and the sensitivity of the KER to the effect as informed by best available guidance / data. In this regard, the following is noted:

[2] Landscape connectivity is a combined product of structural and functional connectivity, i.e. the effect of physical landscape structure and the actual species use of the landscape.

[3] Ecological connectivity is defined as a measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts and foraging areas or the corridors of appropriate habitat needed by some slow colonising species if they are to spread.

[4] According to the National Roads Authority guidelines (NRA 2009), key ecological receptors are features of sufficient value to be material in the decision-making process for which potential effects are likely. According to the NRA Guidelines, key ecological receptors are therefore defined as features of Local (Higher Value), County, National, or International Importance.

[5] Based on the guidance provided in the Office of the Planning Regulator: Office of the Planning Regulator (OPR) (2021) Practice Note PN01 Appropriate Assessment Screening for Development Management and Office of the Planning Regulator (OPR) (2021) Practice Note PN02 Environmental Impact Assessment Screening.

The temporary ZoI for dust effects during construction and demolition is established having regard to 'Guidance on the Assessment of dust from demolition and construction' (Institute of Air Quality Management, Holmen et al, 2024) which states that for ecological receptors, effects from dust soiling is 'High' to 'Medium' up to 20m from the source (depending on sensitivity of ecological receptor) and reduces to 'Medium' to 'low' over 50m from the source. The guidelines state that ecological receptors should be considered within 50m of the project and within 250m of site entrances and construction compounds where trackout[1] may occur.

In terms of the ZoI of construction works in proximity to the Dunrally stream, regard is had to (Stephanie Lachance, 2008) which found that downstream of culverts, the elevated fine-sediment accumulation from construction persisted for distances up to c. 1.5 km before returning to upstream background conditions. This is considered in terms of increased risk of sedimentation during the construction phase causing a likely effect on the structure and function of the habitat at the stream and within 1.5km downstream.

During the construction period, there will be an increase in human activity in the locality of the project which can cause disturbance / displacement of animals which can range from high (response to noise / visual stimuli) to low (unlikely to cause response) and can depend on the sensitivity of individual species to the stimuli. In terms of disturbance / displacement responses during construction, the following guidelines / studies are referred to:

- NatureScot Research 'Disturbance Distances Review: An Updated Literature Review of Disturbance Distances of Selected Bird Species' (Goodship, N.M and Furness, R.W, 2022) - a general Zoi of 1km is adopted, but reviewed on a species level as appropriate;
- Transport Infrastructure Ireland Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (CC-ENV-01104) (TII, 2006 republished 2025) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (CC-ENV-01103) and TII (2006, and republished 2025) - a ZoI of 150m is adopted.

Regard was had to the UK Bat Mitigation Guidelines (Reason & Wray, 2025)[6] and the zone of influence for disturbance to bats was considered within the footprint of the Proposed Development given the limited scale and nature of the proposed works.

For Groundwater Dependent Terrestrial Ecosystems (GWDTE) regard was had to 'Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Land Use Planning System SEPA Guidance Note 31' (2017) which notes a 250m potential zone of influence from ground works.

A desk study was carried out to collate and review available information, datasets and documentation sources pertaining to the site's natural environment. These sources included:

[6] Reason, P.F. and Wray, S. (2025). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2. Chartered Institute of Ecology and Environmental Management, Ampfield.

- OSI Aerial photography and 1:50000 mapping;
- National Parks and Wildlife Service (NPWS) Floral Protection Order (FPO) map viewer - Bryophytes
- NPWS FPO map viewer - Vascular Plants
- NPWS Habitats Directive - Article 17 GIS and Metadata map viewer
- NPWS Protected Sites Map Viewer
- NPWS Birds Directive - Article 12 GIS and Metadata map viewer
- Geological Survey Ireland (GSI) area maps
- EPA website datasets (soil, surface water quality, ground water quality, designated sites)
- National Biodiversity Data Centre (NBDC) maps (Maps - Biodiversity Maps);
- Inland Fisheries Ireland Data hub
- Map of Irish Wetlands
- Botanical Society of Britain and Ireland 10 square hectares
- Information on landscape suitability for bats was obtained from the NBDC at www.maps.biodiversityireland.ie and
- Laois County Development Plan 2021-2027;
- Consented Cappakeel Solar Farm Planning Application (Ref No.: PL-500061-LS) and Associated documents – Ecological Impact Assessment (EcIA)

3.3 Field Assessment Methodology

An ecological walkover survey was carried out on the 9th October 2025 within the Proposed Development Route RLB. Habitats, mammals, avifauna, other fauna and potential bat roost features were examined and outlined below. A winter bat roost survey was carried out on the 29th January 2026 which is detailed in Section 3.3.4

3.3.1 Survey Limitations

- Surveys along the UGC were conducted from the public road and publicly accessible areas including the Great Heath Of Portlaoise pNHA (000881), Rock of Dunamase pNHA (000878) and an area of WD2 - Mixed broadleaved/conifer woodland located at 653771.221 702124.471. Access to third party lands was not permitted. This is not considered a significant limitation considering the UCG works will be within road.
- Habitat surveys were undertaken in October, which falls outside the optimal survey period of April to September. However, the surveys were completed by an experienced and suitably qualified botanist, and the findings are therefore considered to be robust and reliable.

3.3.2 Habitats

The habitats within Proposed Development were identified and classified according to 'A Guide to Habitats in Ireland' (Fossitt, 2000). The flora species present in each habitat type was recorded using the DAFOR scale.

The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011) published by the Heritage Council. The FieldMaps GIS app was used for mapping habitats. Scientific and common names for plants follow Stace (2010).

During habitat surveys, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (As Amended).

3.3.3 Mammals

All field sightings and field signs observed on the day were recorded using FieldMaps, such as tracks, trails, droppings, resting places or other marking signs. Survey techniques followed best practice guidance:

- NRA (2009) 'Ecological Surveying Techniques for Protected Flora and Fauna During the Planning of National Road Schemes'
- NRA, (2006). Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes
- NRA, (2008). Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes
- JNCC (2004) 'Common Standards Monitoring Guidance for Mammals'
- Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1
- Reid (2013) National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76

3.3.4 Bats

Preliminary roost assessments (PRA) were conducted along the UGC route by FT ecologists on 9th of October 2025, to record suitable habitats for bat roosting, commuting and foraging. The focus of this survey was suitable roosting features within the ZoI/immediately adjacent to the UGC route.

There as a stone masonry bridge hereinafter known after known as Bridge 1 as labelled in the Construction methodology (See Appendix 7 of the P&E report), located within the Proposed Development. These assessments were conducted following methodology from Collins (2023) . Reference was also made to the diagnostic features set out in the Augney et al., 2008 Guidelines and the Bat Tree Roost ID Key (Rotherham, 2018).

3.3.5 Avifauna

Bird species observed along the UGC route were noted during the ecological site walkover on 9th October 2025 and during the culvert inspection on 29th January 2026.

3.3.6 River Habitat Assessment

A river habitat survey (RHS) was undertaken on the 9th October 2025 along 1km stretch the Dunrally Stream_010 (IE_SE_14D050200) that flows north of the field containing the substation. Survey methodology followed the UK Centre for Ecology and Hydrology guidelines, and River Habitat Survey (RHS) data collected used RAPID 3.0 software[10]. The following criteria were assessed: the substrate type, water depth, flow velocity, instream vegetation, and fishery habitat suitability.

On 29th January 2026, a RHS was undertaken at the stream flowing below Bridge 1.

3.3.7 Other Fauna

During the course of the ecological surveys at the Proposed Development the potential for species from other groups of fauna - such as amphibians, invertebrates etc. - were noted and included in the report.

3.4 Ecological Evaluation Process

The value of the ecological resources and features or receptors was determined using the ecological evaluation guidance given in the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) and Guidelines for Assessment of Ecological Impacts of National Roads Schemes (NRA, 2009). This evaluation scheme seeks to provide value ratings for ecological receptors, with values ranging from internationally to locally important.

Internationally important receptors would include Special Areas of Conservation (SAC) or Special Protected Areas (SPA) while those of national importance would include Natural Heritage Areas (NHA).

This evaluation scheme is aimed at assessing the ecological value of sites focusing on habitats, flora and fauna within the site. The value of habitats is assessed based on condition, size, rarity, conservation and legal status. The value of flora and fauna are assessed on its national distribution, abundance or rarity, and associated trends (biodiversity value), legal status and conservation status.

Some of the habitats and species identified were selected as key ecological receptors. The NRA (NRA, 2009) refer to key ecological receptors as those ecological features which are evaluated as Locally Important (higher value) or higher and are likely to be impacted significantly by the Proposed Development. The features that were evaluated as being of Local Importance (higher value) and higher in this study were selected as key ecological features and the impact significance on each of these features was assessed.

[10] Rapid 3.0 software. UK Centre for Ecology & Hydrology. Available at: https://www.ceh.ac.uk/services/rapid-21-software (Accessed: 07 March 2025).

3.4.1 Ecological Resource Evaluation

Ecological resources are evaluated using the criteria outlined in Appendix 1, in accordance with NRA (2009) guidelines.

3.5 Process for Assessing Impact Significance

Once the value of the identified key ecological receptors (species, habitats, features and resources) was determined, the next step was to assess the potential effect or impact of the Proposed Development on the identified key ecological receptors. This was carried out with regard to the criteria outlined in various impact assessment guidelines (NRA, 2009; CIEEM, 2018 and revisions). The impacts were assessed under a number of parameters such as magnitude, extent, duration and reversibility. The EPA (2022) evaluation criteria utilised in this appraisal of the Environmental Factor, Biodiversity. These criteria are included in the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022). Section 1. outlines the impacts identified from the Proposed Development.

Where impacts are assessed to be significant, mitigation measures have been incorporated into the project design to remove or reduce these impacts. The residual impacts after mitigation are also assessed.

The cumulative impact of the Proposed Development is assessed by discussing the impact of the Proposed Development in terms of other developments that have planning permission, that are under construction or are in existence in the area. The cumulative impacts of neighbouring developments, and agriculture in the greater area are also considered (see Section 5.4 for further details).

4. EXISTING ENVIRONMENT

4.1 Sites of International and National Importance

4.1.1 Special Areas of Conservation and Special Protected Areas (SAC's and SPA's)

The Source-Pathway-Receptor model has been used to assess the likelihood of any potential projects and EU protected sites in within a defined ZoI. The findings of this are detailed in An Appropriate Assessment Screening (AASR) and Natura Impact Statement (NIS) that accompany this document.

Slieve Bloom Mountains SPA (004160) lie 14.6km W of the Proposed Development and was considered within the AASR which concludes that there is no pathway for effect. However, the assessment concludes that the Proposed Development, in combination with the consented Cappakeel solar farm, granted by Laois County Council on 18th September 2025, (Pl. Ref. 2560148), section 34 of the PDA and by ACP on 17th February 2026 (Ref No.: PL-500061-LS), is likely to have significant effects on the River Barrow and River Nore SAC (002162) located 11.2km downstream of the Proposed Development.

The NIS concludes that implementing mitigation measures specified, there are no potential for adverse effects on integrity of European sites by the Proposed Development.

4.1.2 Natural Heritage areas and proposed Natural Heritage Areas (NHAs and pNHAs)

Table 4-1: The nearest Natural Heritage areas and proposed Natural Heritage Areas (NHAs and pNHAs) relative to the Proposed Development

Site Name	Distance from Proposed Development
Clonreher Bog NHA (002357)	8.2km W
The Great Heath Of Portlaoise pNHA (000881)	Site traverses this pNHA
Rock of Dunamase pNHA (000878)	>0m Immediately W
Timahoe Esker pNHA (000421)	80m S
Derries Wood pNHA (000416)	2.6km NE downstream

The nearest NHA to the Proposed Development is the Clonreher Bog NHA (002357) located 8.2km W of grid route. This site comprises areas of high bog and cutover bog. This site is of conservation significance as it is comprised of raised bog, a rare habitat throughout the EU according to the site synopsis available for this site [15]. This site is outside the ZoI and as such impacts are not envisaged. There are no other NHAs within the ZoI.

[15] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002357.pdf

The Proposed Development traverses through The Great Heath Of Portlaoise pNHA (000881). This site consists of acidic grassland, a lough namely Bog Lough and a fen which lies immediately west of the Proposed Development .

Rock of Dunamase pNHA (000878) lies immediately adjacent (west) of the Proposed Development. This site consists of small limestone outcrops surrounded by hazel (*Corylus avellana*) scrub, shallow limestone soil and meadow grassland with records of species such as quaking-grass (*Briza media*), fern-grass (*Catapodium rigidum*) and Heath-grass (*Danthonia decumbens*) held here.

Timahoe Esker pNHA (000421) is located 80m S of the Proposed Development and supports broad-leaved woodland with species such as hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), oak (*Quercus* spp.), holly (*Ilex aquifolium*), elder (*Sambucus nigra*), hawthorn, (*Crataegus monogyna*) and beech (*Fagus sylvatica*). The Timahoe eskers are part of a Nature reserve and owned by the government. They are some of the best few intact esker remaining in Co. Laois[16].

Derries Wood pNHA (000416) is located 2.6km NE of the Proposed Development with the Dunrally stream flowing into this site 3.9km downstream of the stream. This site is a refuge for pine marten (Martes martes) and mute swan (*Martes martes*) and various duck species and is considered a woodland of conservation significance due to the presence of rare insects including *Criorhina ranunculi* (Diptera, Syrphidae) in Beechwood and *Chrysops caecutiens* (Diptera, Tabanidae) on old bog habitat. Habitats within Derries Wood pNHA include conifer plantation, lake, fen, disused gravel and small sections of bog.

4.1.3 Other Sites of Conservation Interest

The Wetland Survey Ireland online map viewer (Wetland Surveys Ireland, 2024) was used to identify wetland sites within the ZoI of the Proposed Development. Two wetland sites are located within The Great Heath of Portlaoise including:

- a lake (MIW_LA6) of B rating: Nationally important (911m W of the Proposed Development).
- Garrymaddock (WMI_LA61) wetland site is located 2.52km (instream distance) along the Dunrally Stream, downstream from the Proposed Development.

Ballin Lough (MIW_LA277) is located 409m E of the Proposed Development. This is a limestone/marl lake with surrounding tall herb swam vegetation with a C Rating: Local conservation value (high value). Ballinlough Quarry Ponds are 874m E of the Proposed Development MIW_LA278 classified with a F Rating: Unknown value - survey required.

No RAMSAR sites, Statutory Nature Reserves, Wildfowl Reserves or National Parks were identified within the ZoI of the Proposed Development.

4.2 Habitats

A total of 8 no.habitats have been identified within the footprint of the Proposed Development. Description of each habitat is outlined below. An evaluation of these habitats with respect to TII (2009, reissued in 2025) 'Guidelines for Assessment of Ecological Impacts of National Road Schemes' is presented in 4.5.1 and Table 4-6. Habitats are illustrated in Figure 4-6. See Appendix 2 for full species lists relative to each named habitat.

4.2.1 BL3 Buildings and artificial surfaces

This is the dominant habitat along the grid route consisting of existing roads, footpaths private dwellings and farmyards.

This habitat is assessed to be **local importance, lower value.**

4.2.2 WL2 Treelines

Treelines were present adjacent to the Proposed Development, bordering the road along the proposed UGC. This included two mature higher quality treelines, one south of Rock of Dunamase pNHA dominated by mature sycamore (*Acer* pseudoplatanus) (Figure 4-1). There is also a mature well-established ash (Fraxinus excelsior) dominated treeline running along the R426 towards the south of the grid route. These are outside the Proposed Development and will not be impacted by the works.

This habitat is assessed to be **local importance, lower value**.



Figure 4-1: Example of treeline along the Proposed Development south of Rock of Dunamase

4.2.3 WL1 Hedgerow

This is the most dominant habitat running parallel to Proposed Development along the existing road and some bordering fields within the substation site. Overall this habitat was dominated by hazel (*Corylus avellana*), bramble (*Rubus fructicosus*) and ivy (*Hedera helix*). Some sections included hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*) and ash (*Fraxinus excelsior*). As would be expected for roadside hedgerows there was evidence of regular cutting and some sections had been recently cut at the time of surveying. The hedgerows showed signs of maintenance with some heavily manicured/ recently cut at the time survey.

This habitat is assessed to be **local importance, lower value**.

4.2.4 GA1 Improved agricultural grassland

This was one of the most dominant habitats within the Proposed Development. Species included perennial Rye-grass (*Lolium perenne*) was the dominant species in this habitat. Broad-leaved dock (*Rumex obtusifolius*), dandelion (*Taraxacum vulgaria*) and cock's-foot (Dactylis glomerata) were abundant. clover (*Trifolium sp*.) and yorkshire-fog (*Holcus lanatus*) were frequent. Rough meadow-grass (*Poa trivialis*), wild carrot (Daucus carota), meadow brome (Bromus commutatus), Italian rye-grass (*Lolium multiflorum*), creeping buttercup (*Ranunculus repens*) and Meadowsweet (*Filipendula ulmaria*) were occasional.

Some areas within the Great Heath of Portlaoise pNHA (000881) have been classified as GA1 due to the intensive modifications with signs of regular mowing and grazing of cattle and horses. Improved grassland provides suitable foraging habitat for local avifauna. This is discussed further in Section 3.3.5.

This habitat is therefore assessed to be **local importance, higher value**.

4.2.5 PF1 Rich fen and flush

There is fen located <1m west of the Proposed Development and lies within the Great Heath of Portlaoise pNHA (000881) (Figure 4-2). This habitat is also outlined in The Great Heath of Portlaoise (000881) Site Synopsis[17]. The existing road is raised ~75cm above the fen. This habitat appears to be fed by an interaction between calcareous springs and surface water as it slopes towards a small stream flowing immediately south of the habitat. The area of fen habitat lies >250m away from groundworks locations.

This habitat is dominated by purple moorgrass (*Molinia caerulea*) and also contains black bog rush (*Schoenus nigricans*), soft rush (*Juncus effusus*), hard rush (*Juncus inflexus*), *Molinia* sp., Devil's bit scabious (*Succisa pratensis*), sharp flowered rush (*Juncus acutiflorus*) and heather (*Calluna vulgaris*).

There were some 6410 Molinia meadows on calcareous, peaty or clayey-silt laden soils positive indicator species including *Carex nigra/panicea*, jointed rush (*Juncus acutiflorus), J.articulatus,* water mint *(Mentha aquatica)* and purple moorgrass (*Molinia caerulea)*. While this does not meet the criteria for 6410 Molinia meadows (at least seven positive indicator species)[18][19], there is potential for it to develop into this habitat.

[17] [17] pNHA Site Synopses archive

[18] IWM 102 Annex 1 Grasslands.pdf

[19] Template 3 Cover Front and Back Gov

This habitat is assessed to be of **national importance** considering its association with the Great Heath of Portlaoise p NHA.



Figure 4-2: Rich fen and flush (PF1) along Proposed Development

4.2.6 FW2 Depositing/Lowland River

The Proposed Development within the Barrow Water Framework Directive (WFD) catchment (ID_14). The DUNRALLY STREAM_010 (IE_SE_14D050200) runs in an easterly direction, north of the substation (5.4m from the development footprint) and flows into the River Barrow and River Nore SAC (002161) 11.2km downstream. This watercourse was classified as Moderate-Good Quality with Q value of 3-4 recorded in 2023 at the nearest national monitoring site RS14D050100 (1.95km downstream of the proposed substation. Instream siltation was noted at this station at the time of survey.

River Habitat Survey (RHS) was conducted on 1km section of Dunrally Stream flowing north of the substation (Figure 4-3). The Proposed Development does not cross this watercourse but lies 5m S. The stream runs along agricultural grassland and is largely vegetated with water stagnant or not visible. The stream is 2m wide, with a south bank height of 3m and north bank height of 7m. Instream vegetation included fools watercress (*Helosciadium nodiflorum*), floating sweet-grass (*Glyceria fluitans*), watermint (*Mentha aquatica*) and water-cress (*Nasturtium officinale*). The banks are heavily vegetated with by nettle (*Urtica dioica*), bramble (*Rubus fruticosus*), false oat grass (*Arrhenatherum elatius*).

Substrate was visible with less instream vegetation towards the eastern end of the 1 km survey stretch. at location 654571.616 703257.911 ITM coordinates The substrate predominantly consisted of fine sediment with gravel dominant and some large boulder like slabs. The flow was classified as slow with a maximum depth of 20cm. See Appendix 3 for full RHS results.



Figure 4-3: Dunrally Stream located north of substation

A small stream is located below Bridge 1 at 653460.9, 701487.3 ITM coordinates (Figure 4-4), flowing a culvert under the road. in between the fen and woodland (Full RHS available in Appendix 3). This stream is fast flowing with riffles present (~riffles recorded at time of survey 29th January 2026). It should be noted that this survey was conducted two days after a nationwide heavy rainfall Storm Chandra which would have resulted in exceptionally high/fast river levels. There is evidence of channel realignment and deepening on the side with the graveyard. The stream was notably dug out deeper on the graveyard side potentially to reduce groundwater level and prevent flooding of the graveyard. A small weir is located where the river meets the graveyard. This stream flows from the fen towards the graveyard in a northeasterly direction. This flows into small agricultural drains before reaching the Dunrally_010 located ~1km NE of Bridge 1.

The dominant substrate was gravel and sand with boulders constituting 2% and cobble 10% of the substrate.

This habitat has been assessed to be of **national importance**.




Figure 4-4: Stream below Bridge 1

4.2.7 BL1 Stone walls and other stonework

There is old stonewall along the grid road located at 653449.9, 701513.2 ITM coordinates that runs parallel to the road for ~45m bordering the adjacent graveyard.

This habitat also includes the stonemason Culvert 1 Undercrossing located at 653458.0289, 701493.2993.

This habitat is assessed to be of **local importance, lower value**.

4.2.8 GA2 Amenity Grassland

This habitat does not lie within the Proposed Development but prevalent immediately adjacent along the proposed UGC. This consists of private gardens located along the route in this rural residential area. There is also some maintained amenity grassland within the Rock of Dunamase pNHA boundary surrounding the stonemason ruin features.

Within the Great Heath of Portlaoise pNHA there is highly maintained amenity grassland with evidence of regular mowing observed during the ecological survey. Species within this area include common bent (*Agrostis capillaris*), gorse (*Ulex europaeus*) and cock's-foot (*Dactylis glomerata*).

This habitat is assessed to be of **local importance, lower value**.

4.3 Flora

4.3.1 Protected or Rare Flora

4.3.1.1 Desk study

The NPWS FPO Sites Mapviewer showed records of lesser centaury (*Centaurium pulchellum*) within hectad N50 and small-white orchid (*Pseudorchis albida)* within 10km grid square S59 which transect the Proposed Development[20].

The Proposed Development does not overlap any Bryophyte Sites (NPWS FPO Bryophyte Sites Mapview[21]).

4.3.1.2 Field survey

No rare or protected flora were recorded during the ecological surveys.

4.3.2 Invasive Non-Native Flora

4.3.2.1 Desk study

NBDC holds records of Japanese Knotweed (Reynoutria japonica) within 2km grid square grid square N50F where the northerns section of the Proposed Development lies and contains the The Great Heath Of Portlaoise pNHA (000881) and S59D (centre - south traverses).

Spanish Bluebell (*Hyacinthoides hispanica*) was recorded within the 2km grid square S59I, within which the central/southern sections of the grid route are located. This species was not recorded along the grid route during the ecological walkover (9th October 2025).

4.3.2.2 Field survey

No records of Japanese Knotweed were recorded along the grid route during ecological walkover.

Third Schedule species Rhododendron *Rhododendron ponticum* was recorded during the ecological walkover One plant was recorded within WD2 Mixed broadleaved/conifer woodland adjacent to the grid route located at 653207.474 699917.122 ITM coordinates, during the ecological walkover (Figure 4-5).

[20] Flora (Protection) Order 2022 Map Viewer

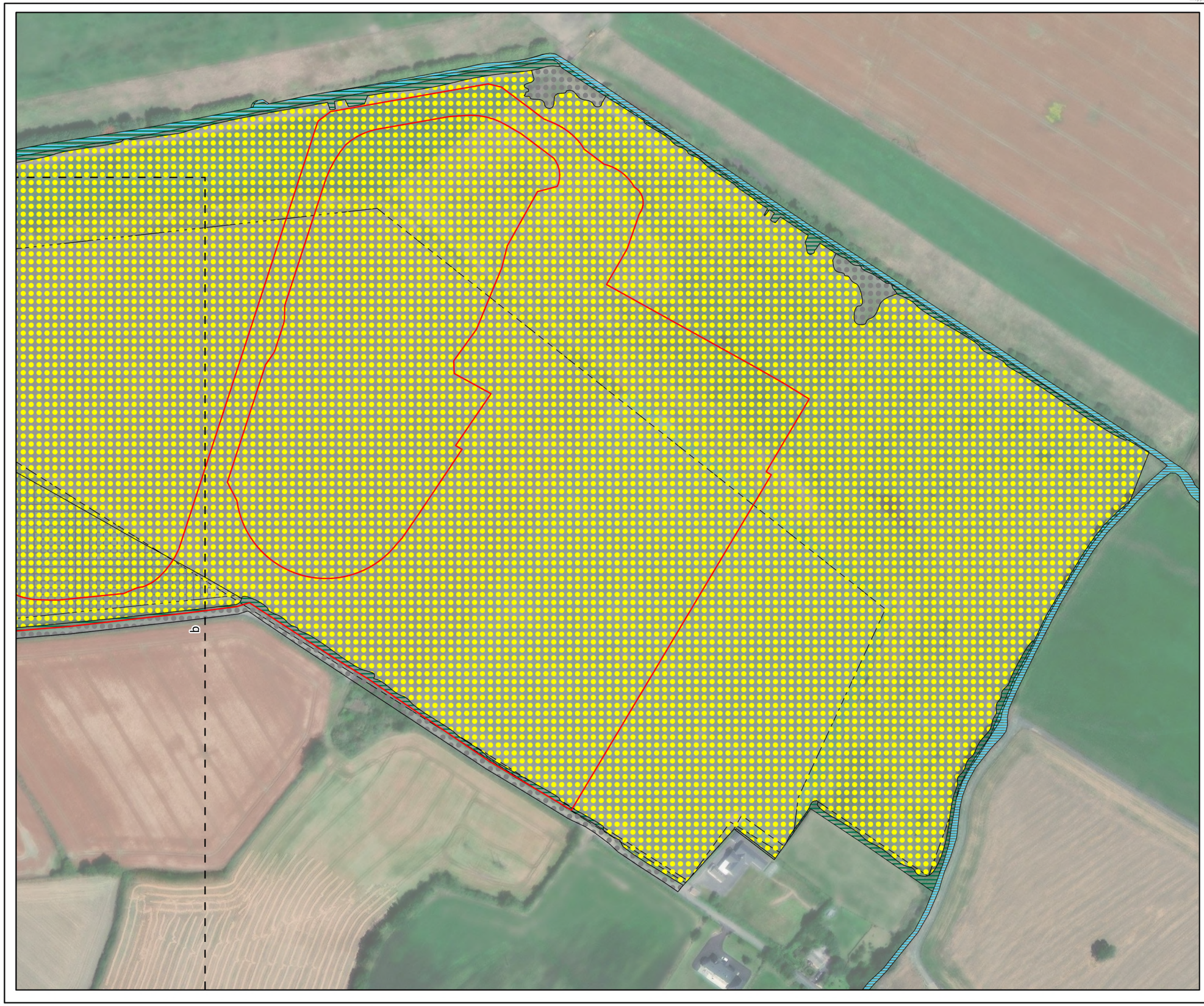
21 NPWS Bryophyte Viewer https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=71f8df33693f48edbb70369d7fb26b7e



Figure 4-5: Record of Rhododendron (*Rhododendron ponticum)* during the ecological walkover

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Legend

- Site Boundary
- BC1 - Arable crops
- BC3 - Tilled land
- BL3 - Buildings and artificial surfaces
- FW2 - Depositing/lowland rivers
- GA1 - Improved agricultural grassland
- WL1 - Hedgerows

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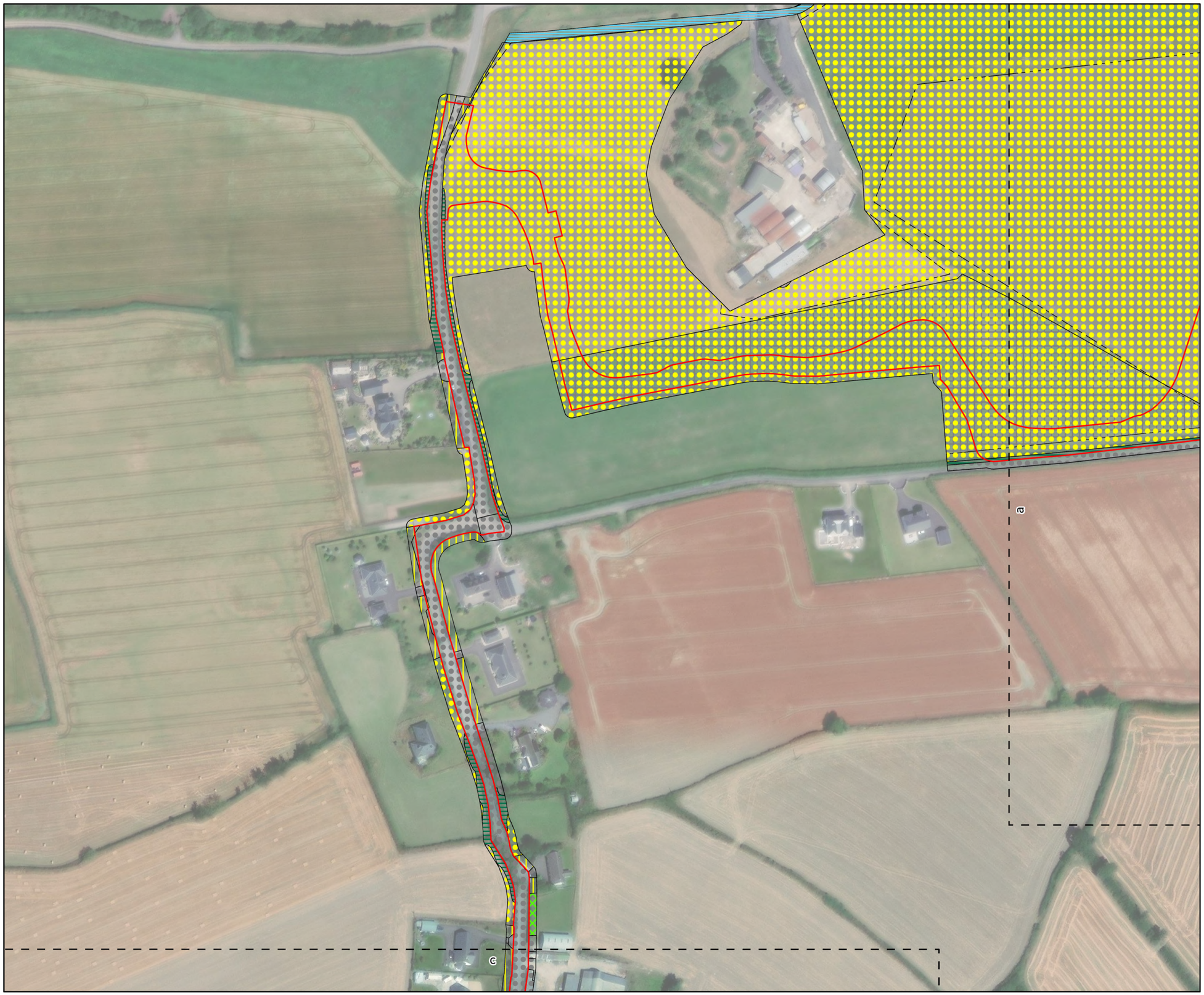
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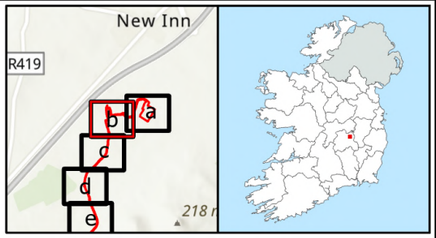
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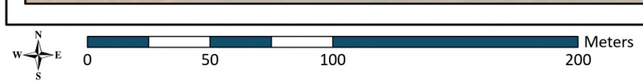
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Legend

- Site Boundary
- BC1 - Arable crops
- BC3 - Tilled land
- BL3 - Buildings and artificial surfaces
- FW2 - Depositing/lowland rivers
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WS1 - Scrub



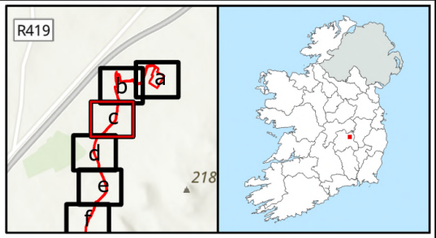
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- FW2 - Depositing/lowland rivers
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD1 - (Mixed) broadleaved woodland
- WD2 - Mixed broadleaved/conifer woodland
- WL1 - Hedgerows

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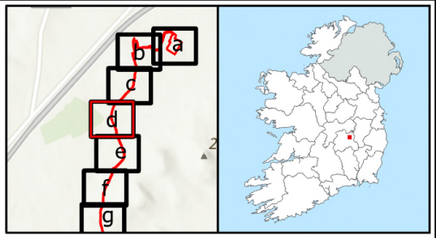
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Legend

- Site Boundary
- BL1 - Stone walls and other stonework
- BL3 - Buildings and artificial surfaces
- FW2 - Depositing/lowland rivers
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- GS4 - Wet grassland
- HH1 - Dry siliceous heath
- PF1 - Rich fen and flush
- WL1 - Hedgerows
- WN2 - Oak-ash-hazel woodland

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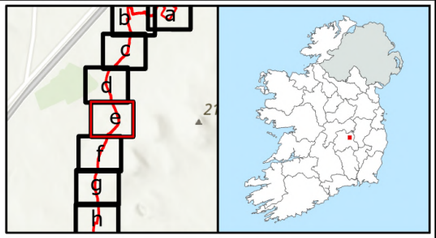
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GS4 - Wet grassland
- WL1 - Hedgerows
- WS1 - Scrub

N W E S

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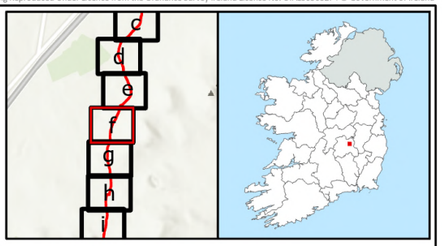
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- GS4 - Wet grassland
- WL1 - Hedgerows

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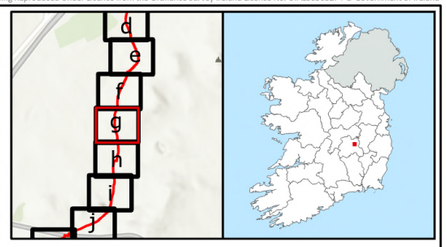
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- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD2 - Mixed broadleaved/conifer woodland
- WL1 - Hedgerows

N W E S

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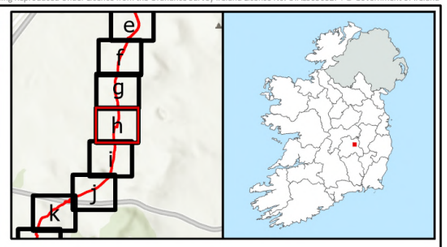
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows

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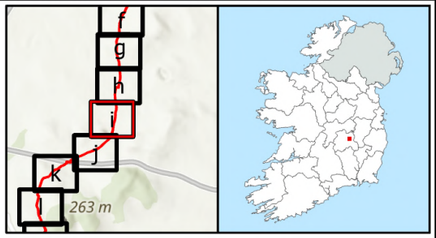
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD4 - Conifer plantation
- WL1 - Hedgerows
- WL2 - Treelines
- WS1 - Scrub
- WS2 - Immature woodland

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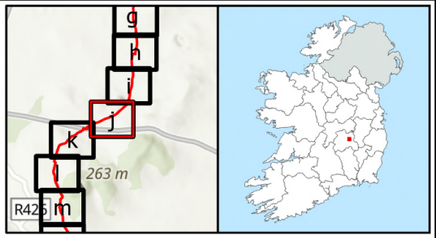
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- BL1 - Stone walls and other stonework
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD4 - Conifer plantation
- WL1 - Hedgerows
- WL2 - Treelines
- WS1 - Scrub
- WS2 - Immature woodland
- WS3 - Ornamental/non-native shrub

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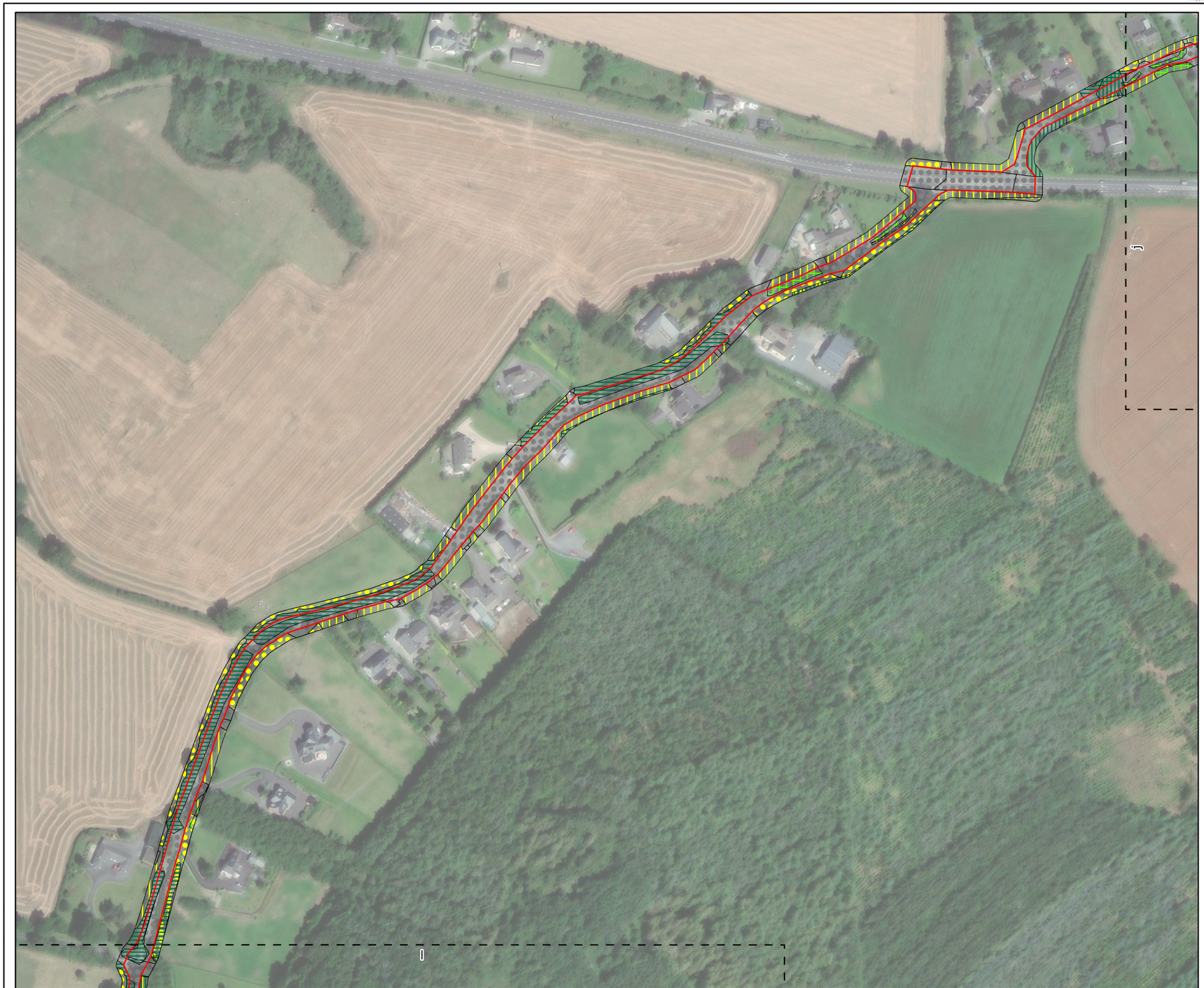
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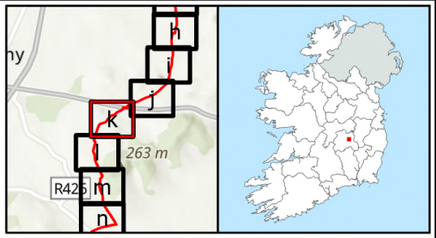
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD1 - (Mixed) broadleaved woodland
- WD2 - Mixed broadleaved/conifer woodland
- WL1 - Hedgerows
- WL2 - Treelines
- WS3 - Ornamental/non-native shrub

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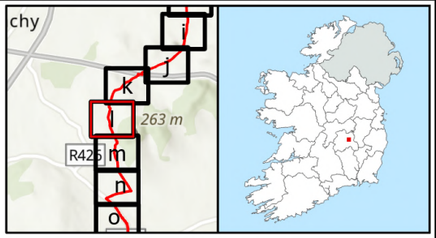
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Legend

- Site Boundary
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- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WD1 - (Mixed) broadleaved woodland
- WL1 - Hedgerows
- WL2 - Treelines
- WS1 - Scrub

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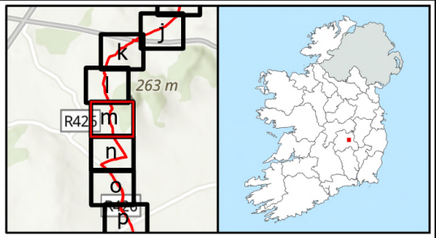
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WL2 - Treelines

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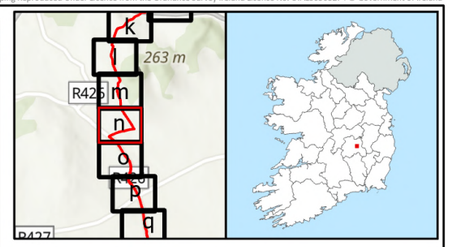
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WL2 - Treelines

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Legend

- Site Boundary
- BC1 - Arable crops
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- GS2 - Dry meadows and grassy verges
- WL1 - Hedgerows
- WL2 - Treelines

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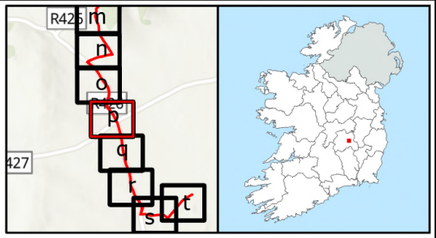
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Legend

- Site Boundary
- BC1 - Arable crops
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- GS2 - Dry meadows and grassy verges
- GS4 - Wet grassland
- WD1 - (Mixed) broadleaved woodland
- WD2 - Mixed broadleaved/conifer woodland
- WL1 - Hedgerows
- WL2 - Treelines

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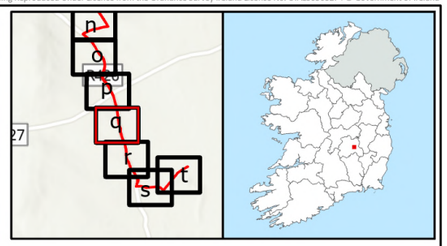
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WL2 - Treelines

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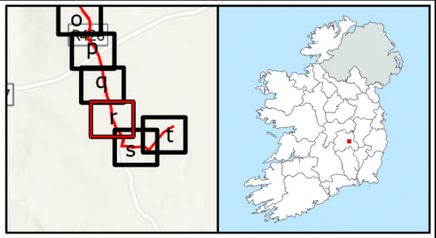
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WL2 - Treelines
- WS1 - Scrub

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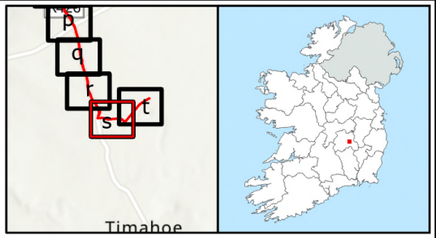
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Legend

- Site Boundary
- BL3 - Buildings and artificial surfaces
- GA1 - Improved agricultural grassland
- GA2 - Amenity grassland (improved)
- WL1 - Hedgerows
- WS2 - Immature woodland

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- BL3 - Buildings and artificial surfaces
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- WL1 - Hedgerows
- WS2 - Immature woodland

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4.4 Fauna

4.4.1 Avifauna

4.4.1.1 Desk study

Across the 2km grid squares N50G, N50F, S59J, S59I, S59D, S59C, S59H, S59G, a total of 50 species have been recorded in the last ten years (Table 4-2). This includes seven red-listed species barn owl (*Tyto alba*), golden plover (*Pluvialis apricaria*), kestrel (*Falco tinnunculus*), red kite (*Milvus milvus*), swift (*Apus apus*), woodcock (*Scolopax rusticola*) and yellowhammer (*Emberiza citrinella*). Of these, three are listed under Annex I, namely golden plover peregrine and red kite. A total of 13 amber-listed species were recorded within these grid squares: Coot (*Fulica atra*), Goldcrest (*Regulus regulus*), Greenfinch (*Chloris chloris*), House Martin (*Delichon urbicum*), House Sparrow (*Passer domesticus*), Linnet (*Linaria cannabina*), Mallard (*Anas platyrhynchos*), Mute Swan (*Cygnus olor*), Sand Martin (*Riparia riparia*), Skylark (*Alauda arvensis*), Starling (*Sturnus vulgaris*), Swallow (Hirundo rustica), Willow Warbler (*Phylloscopus trochilus*). See full list of species the associated 2km grid outlined in Table 4-2.

4.4.1.2 Field survey

There is suitable nesting and foraging habitat for several bird species within 500m disturbance zone of the grid route including treelines, hedgerows, woodlands, fen and scrub. No signs of nesting were recorded along the grid route and all the works will be contained within road.

According to Cappakeel Solar Farm Planning Application (Ref No.: PL-500061-LS) EcIA, a number of incidental bird sightings were recorded within the solar farm land parcels including species buzzard (*Buteo buteo*), bullfinch (*Pyrrhula pyrrhula*), blackbird (*Turdus merula*), stonechat (*Saxicola rubicola*), dunnock (*Prunella modularis*), house sparrow (*Passer domesticus*), robin (*Erithacus rubecula*) and wren (*Troglodytes troglodytes*).

The red listed species yellowhammer was recorded as ‘confirmed breeding’ in a tilled field located alongside a hedgerow (654266.136 702894.858 ITM coordinates), situated 5m S of the proposed substation field. A kingfisher was recorded flying along the Dunrally stream to the north of the proposed Substation. The hedgerows and treelines within the substation field are of value to passerine species for breeding, roosting and foraging. The combination of hedgerows and arable land provides habitat for yellowhammer, which was common throughout the surrounding area. Raptors such as buzzard (and potentially kestrel) hunt over the agricultural grassland, though this habitat is generally considered to be of low value.

All local avifauna using the are assessed to be of **local importance, higher value.**

Table 4-2: Avian Species recorded within 2km grid squares traversed by the Proposed Development (N50G, N50F, S59J, S59I, S59D, S59C, S59H, S59G)

Common Name	Scientific Name	Designation
Barn Owl	*Tyto alba*	Red List
Blackbird	*Turdus merula*	Green List
Blackcap	*Sylvia atricapilla*	Green List
Blue Tit	*Cyanistes caeruleus*	Green List
Bullfinch	*Pyrrhula pyrrhula*	Green List
Buzzard	*Buteo buteo*	Green List
Chaffinch	*Fringilla coelebs*	Green List
Chiffchaff	*Phylloscopus collybita*	Green List
Collared Dove	*Streptopelia decaocto*	Green List
Coot	*Fulica atra*	Amber List
Dunnock	*Prunella modularis*	Green List
Goldcrest	*Regulus regulus*	Amber List
Golden Plover	*Pluvialis apricaria*	Annex I; Red list
Goldfinch	*Carduelis carduelis*	Green List
Great Tit	*Parus major*	Green List
Greenfinch	*Chloris chloris*	Amber List
Grey Heron	*Ardea cinerea*	Green List
Hooded Crow	*Corvus cornix*	Green List
House Martin	*Delichon urbicum*	Amber List
House Sparrow	*Passer domesticus*	Amber List
Jackdaw	*Coloeus monedula*	Green List
Jay	*Garrulus glandarius*	Green List
Kestrel	*Falco tinnunculus*	Red List
Linnet	*Linaria cannabina*	Amber List
Magpie	*Pica pica*	Green List
Mallard	*Anas platyrhynchos*	Amber List
Moorhen	*Gallinula chloropus*	Green List
Mute Swan	*Cygnus olor*	Amber List
Peregrine	*Falco peregrinus*	Annex I; Green list

Common Name	Scientific Name	Designation
Pheasant	*Phasianus colchicus*	Green List
Pied Wagtail	*Motacilla alba yarrellii*	Green List
Raven	*Corvus corax*	Green List
Red Kite	*Milvus milvu*	Annex I; Red list
Robin	*Erithacus rubecula*	Green List
Rock Dove	*Columba livia*	Green List
Rook	*Corvus frugilegus*	Green List
Sand Martin	*Riparia riparia*	Amber List
Sedge Warbler	*Acrocephalus schoenobaenus*	Green List
Skylark	*Alauda arvensis*	Amber List
Song Thrush	*Turdus philomelos*	Green List
Sparrowhawk	*Accipiter nisus*	Green List
Starling	*Sturnus vulgaris*	Amber List
Stonechat	*Saxicola rubicol*a	Green List
Swallow	*Hirundo rustica*	Amber List
Swift	*Apus apus*	Red List
Willow Warbler	*Phylloscopus trochilus*	Amber List
Woodcock	*Scolopax rusticola*	Red List
Woodpigeon	*Columba palumbus*	Green List
Wren	*Troglodytes troglodytes*	Green List
Yellowhammer	*Emberiza citrinella*	Red List

4.4.2 Mammals (excluding Bats)

4.4.2.1 Desk study

A total of seven mammalian species were recorded within 2km grid squares traversed by the Proposed Development including badger (*Meles meles*), pine marten (*Martes martes*) and red squirrel (*Sciurus vulgaris*) (Table 4-3).

4.4.2.2 Field survey

No evidence of mammals was recorded along the Proposed Development. There is potential for deer resting areas in the rich fen and flush and adjacent woodland. There is suitable habitat for foraging/commuting otter outside the Proposed Development within the unnamed stream below Bridge 1. No signs of activity were recorded during the survey. Despite locally suitable habitat, otter are less likely to commute through the agricultural drains downstream of Bridge 1.

No evidence of mammals was recorded within the substation field despite suitable hedgerow linear habitats.

Non-volant mammal species are assessed to be of **local importance, higher value.**

Table 4-3: Mammalian species recorded within 2km grid squares traversed by the Proposed Development (N50G, N50F, S59J, S59I, S59D, S59C, S59H, S59G)

Common name	Scientific Name	Designation
Pine Marten	*Martes martes*	WA, Annex V
Badger	*Meles meles*	WA
Red Squirrel	*Sciurus vulgaris*	WA
Irish Hare	*Lepus timidus subsp. hibernicus*	WA, Annex V
Hedgehog	*Erinaceus europaeus*	WA
Irish Stoat	*Mustela erminea subsp. hibernica*	WA
Red Fox	*Vulpes vulpes*	N/A

4.4.3 Bats

4.4.3.1 Desk study

The NBDC has mapped landscape suitability for bats, based on Lundy et al., (2011), which were assessed in the context of the Proposed Development. This map divides the country into 1km grid squares and ranks the habitat within the squares according to its suitability for various bat species and provides a visual map of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species.

The Proposed Development lies within hectad N50 and S59. N50 carries an overall score of 32 out of 100. The species with the highest individual suitability scores for the area includes Common pipistrelle *Pipistrellus pipistrellus* (51), Brown long-eared bat *Plecotus auritus* (47) and Leisler's Bat *Nyctalus leisleri* (46) within hectad N50. Hectad S59 that holds on overall suitability score of 28.56. The species with the highest individual scores include Common pipistrelle *Pipistrellus pipistrellus* (48), Natterer's bat *Myotis nattereri* (42), Whiskered bat *Myotis mystacinus* (40).

Table 4-4: Bat Species recorded within 2km grid squares traversed by the Proposed Development (N50F)

Common Name	Scientific Name	Designation
Daubenton's Bat	*Myotis daubentonii*	WA, Annex IV
Leisler's Bat	*Nyctalus leisleri*	WA, Annex IV
Soprano Pipistrelle	*Pipistrellus pygmaeus*	WA, Annex IV

4.4.3.2 Field survey

The following outlined in Table 4-5 potential bat roost features (PRFs) were identified adjacent to the Proposed Development.

Table 4-5: Potential Bat Roost Features adjacent to the Proposed Development

PRF	Description	Distance to Proposed Development	Suitability
Three Farm Buildings	Multiple cracks, holes and eaves present on all three buildings adjacent to Proposed Development. Connectivity to linear foraging features including treelines and hedgerows	2m W	Moderate - High
Mature sessile oak tree	Ivy covered with suitable crevices. Gappy linear hedgerow	2m W	Moderate - High
Bridge 1	Low height (50cm) of the culvert underside. Damp and very close to water surface	UGC traverses this feature	Low
Beech tree	Multiple holes, ivy coverage and good connectivity to the wider landscape via treeline and stream	2m W	Moderate

There are three old farm buildings with PRFs including cracks, holes and eaves 2m W of the road/Proposed Development (Figure 4-7). These buildings are located at 653868.120, 702548.702 ITM and have been classified to be of moderate to high suitability considering the suitable features and connectivity to linear foraging features such as treelines and hedgerows.



Figure 4-7: Farm buildings with potential bat roost features of moderate suitability along Proposed Development

There was also a mature sessile oak tree on road edge ~77m S (653853.5, 702465.9 ITM) of buildings/ mentioned above (Figure 4-8). Ivy covered possible suitable crevices but not great connectivity to foraging corridor – gappy hedgerow with scattered trees in surrounding. This tree has been classified of Moderate-High potential.



Figure 4-8: Mature Sessile Oak Tree with PRF features

4.4.3.2.1 Winter Roost Inspection

Bridge 1 (Figure 4-9) located at 653460.9, 701487.3 ITM coordinates was classified of low suitability due to the low height (50cm) of the culvert underside (Figure 4-10).



Figure 4-9: Bridge 1 with low bat roost potential



Figure 4-10: Bridge 1 underside

A beech (*Fagus Sylvatica*) tree on the graveyard side of Bridge 1 is considered to be of moderate potential bat roost suitability due to presence of multiple holes, ivy coverage and good connectivity to the wider landscape via treeline and stream (Figure 4-11).



Figure 4-11: Beech Tree with moderate bat roost potential

None of the PRFs are within the footprint of works and will not be subject to removal or direct disturbance. The works do not involve any vegetation removal and as such there will be no foraging habitat loss. Therefore, bat species are assessed to be of **local importance, lower value.**

4.4.4 Aquatic Fauna

4.4.4.1 Desk Study

4.4.4.1.1 White-clawed crayfish

NBDC hold records of white-clawed crayfish (*Austropotamobius pallipes)* in the Dunrally stream at monitoring stream RS14D050200 located 5.07km downstream of the substation (most recently in 2017). This is outside the 1.5km ZoI in Section 3.1. The Dunrally Stream is within the Barrow catchment which is affected by crayfish plague.

4.4.4.1.1 Fish Species

Brown trout (*Salmo trutta*), European eel (*Anguilla anguilla*), minnow (*Phoxinus phoxinus*), Atlantic salmon (*Salmo salar*) were recorded within the River Barrow at the Rosnamullane_A site (NRSP20R_14_1746_176A_a) located 8.4km downstream of the substation (IFI's "WFD Rivers Ecological Status 2008 to recent"). The River Barrow and River Nore SAC (002162) is another 2.6km downstream (total 11km downstream from substation). These records are outside the 1.5km ZoI in Section 3.1.

4.4.4.2 Field survey

4.4.4.2.1 Lamprey

There is potential suitable habitat for lamprey (*Lampetra fluviatilis*) in the Dunrally stream particularly for juveniles within the fine sediment outlined in Section 4.2.6. This species is a named QI of the downstream River Barrow and River Nore SAC.

4.4.4.2.2 Salmonids

The stream below Bridge 1 consists of good gravel substrate for salmonids locally and LHS bank overhangs for providing protection where water pools. However, the stream becomes agricultural drains further downstream with less suitable habitat. Fish are unlikely to migrate up through these drains. Suitable salmonid habitat is not within the 1.5km ZoI in Section 3.1.

4.4.4.2.3 White-clawed crayfish

The habitat within the 1km stretch of surveyed Dunrally stream does not provide suitable substrate and/or refuges for white-clawed crayfish (*Austropotamobius pallipes).* Suitable habitat is not within the 1.5km ZoI in Section 3.1.

Lamprey is assessed of **national importance** considering this species is a named QI of the downstream River Barrow and River Nore SAC**.**

4.4.5 Other Fauna

According to NPWS Article 17 Annex Species[22], 1065 Marsh fritillary *Euphydryas aurinia* have been recorded within the 10km gride square N50 which contains grid route traverses The Great Heath of Portlaoise pNHA. There is suitable habitat for marsh fritillary within the PF1 Rich fen and Flush with records of Devil's Bit Scabious *Succisa pratensis* recorded (Section 4.2.5).

4.5 Ecological Evaluation

The habitats and fauna outline in Section 4. were evaluated and some were selected as key ecological receptors with reference to TII (2009, reissued in 2025) ' Guidelines for Assessment of Ecological Impacts of National Road Schemes' (Table 4-6 and Table 4-7). The features that were evaluated as being of Local Importance (higher value) and higher in this study were selected as key ecological features and the impact significance on each of these features was assessed in Section 5.

4.5.1 Habitats

Table 4-6: Evaluation of habitats within the study area (NRA, 2009)

Habitat	Evaluation	Rationale	Selection as Key Ecological Receptor (KER)
River Barrow and River Nore SAC (002162)	International Importance	An NIS has been prepared for the Proposed Development and concludes that implementing mitigation measures specified, there are no potential for adverse effects on integrity of European sites by the Proposed Development.	Yes
Slieve Bloom Mountains SPA (004160)	International Importance	An NIS has been prepared for the Proposed Development and concludes that implementing mitigation measures specified, there are no potential for adverse effects on integrity of European sites by the Proposed Development.	No
The Great Heath Of Portlaoise pNHA (000881)	National Importance	The habitats designated for protection within pNHA lie outside the Proposed Development and are not within the ZoI for habitat loss and as such they will not be impacted by the Proposed Development.	No
Rock of Dunamase pNHA (000878)	National Importance	The habitats designated for protection within this pNHA lie outside the	No

[22] The Status of EU Protected Habitats and Species in Ireland

Habitat	Evaluation	Rationale	Selection as Key Ecological Receptor (KER)
		Proposed Development and are not within the ZoI for habitat loss and as such they will not be impacted by the Proposed Development.	
Timahoe Esker pNHA (000421)	National Importance	The habitats designated for protection within this pNHA are not within the ZoI for habitat loss and as such they will not be impacted by the Proposed Development.	No
Derries Wood pNHA (000416)	National Importance	The habitats designated for protection within this pNHA are not within the ZoI for habitat loss and as such they will not be impacted by the Proposed Development.	No
Barrow Valley at Tankardstown Bridge (000858)	National Importance	The habitats designated for protection within this pNHA are not within the ZoI for habitat loss and as such they will not be impacted by the Proposed Development.	No
PF1 Rich fen and flush	National Importance	The Proposed Development does not contain groundworks within 250m of this GWDTE and this habitat is not within the ZoI for habitat loss. As such, this habitat will not be impacted by the Proposed Development.	No
FW2 Depositing/ Lowland River	National	The Proposed Development is within 5m of the Dunrally stream which provides a pathway to the River Barrow and River Nore SAC, therefore there is potential for water quality impacts during construction, therefore it has been considered as a KER.	Yes
WL2 Treelines	Local Importance (Lower value)	This habitat is not within the ZoI for habitat loss and as such there is will not be impacted by the Proposed Development.	No
WL1 Hedgerows	Local Importance (Lower value)	This habitat is not within the ZoI for habitat loss and as such there is will not be impacted by the Proposed Development.	No
GA1 Improved agricultural grassland	Local Importance (Higher Value)	There will be some loss of GA1 habitat in the field where the Proposed Development.	Yes

Habitat	Evaluation	Rationale	Selection as Key Ecological Receptor (KER)
BL1 Stone walls and other stonework	Local Importance (Lower value)	This habitat is not within the ZoI for habitat loss and as such there is will not be impacted by the Proposed Development.	No
BL3 Buildings and artificial surfaces	Local Importance (Lower value)	This is an artificial habitat with little to no vegetation and is not considered a KER.	No

4.5.2 Species

Table 4-7: Evaluation of fauna within the study area (NRA, 2009)

Species	Evaluation	Rationale	Selection as Key Ecological Receptor (KER)
Avif auna	Local (Higher Value)	There is suitable nesting and foraging habitat for several bird species, including confirmed breeding yellowhammer situated 5m S of the proposed substation field (within 500m disturbance zone to the Proposed Development as outlined in Section 4.4.1). As such, there is potential for construction phase related noise disturbance. Additionally, there will be small-scale loss of improved agricultural grassland due to the construction of the substation. This will result in reduction in foraging habitat for some passerine and raptor species. Therefore, local avifauna are considered KERs.	Yes
Mammals (excluding bats)	Local (Higher Value)	There is potential for disturbance to local mammals using habitats along the Proposed Development including woodlands, heath, scrub and fen. There is no pathway for direct effects on mammalian species as no signs of activity or breeding/ resting sites were identified during the ecological walkover. In addition, the works are confined within road and as such, there will be no loss of habitat. However, mammals are considered as a KER due to potential for disturbance.	Yes
Bats	Local (Lower Value)	There are no PRFs located within the Proposed Development and as such there are no pathway for effects. The key resources identified on site for bats are the treelines and linear habitat features on site. The Proposed Development does not include for the removal of any treeline or hedgerows (beyond what is already consented under the solar farm development).	No

Species	Evaluation	Rationale	Selection as Key Ecological Receptor (KER)
Aquatic Fauna	National	Construction activities associated with the Proposed Development within a minimum distance of 5 m of the watercourse—present a risk of sedimentation with potential to negatively affect water quality and aquatic habitat. This could impact aquatic fauna within the 1.5km downstream ZoI for sedimentation. As such, aquatic fauna are considered KERs.	Yes

5. POTENTIAL IMPACTS

5.1 Impacts during Construction

5.1.1 Habitats

The consented solar farm (Planning Ref No.: PL-500061-LS) includes for the removal of 75m of hedgerows (in 15 sections within the solar farm site, each five metres long) for access purposes. The proposed substation site is located within the boundary of the consented solar farm project, and will utilise the consented access. As such, no additional hedgerow removal beyond what is already consented will be required, of which 10m (two 5m sections) is located within the proposed substation boundary. The extent of such hedgerow removal is not of a scale that would cause a change to the field or land parcel shape and/or boundaries and will not alter habitat availability, connectivity or continuity for mammals and birds.

There is a pathway for the release of sediment to the Dunrally watercourse. Construction activities associated with the Proposed Development within a minimum distance of 5 m of the watercourse—present a risk of sedimentation with potential to negatively affect water quality and aquatic habitat. Consequently, there is potential for deterioration in water quality, degradation of aquatic habitats.

Similarly, an unnamed stream below Bridge 1 flows north towards Dunrally stream. The raising of the road at this location to allow for ducting will result in potential for surface water contamination to enter this stream which will ultimately end up in the Dunrally stream.

In the absence of mitigation, there is potential for surface water contamination and sedimentation resulting in habitat degradation. This would result in a **temporary, significant reversible effect**.

In addition to surface water protection mitigation measures described in Section 6. to minimise effect on the Dunrally stream river habitat, a full NIS has been prepared to assess the significance of effect on the downstream River Barrow and River Nore SAC.

5.1.2 Avifauna

Habitat Loss

As per Section 5.1.1, the proposed substation will not result in loss of hedgerow or treeline habitat beyond what is already consented, which has been evaluated as not being significant as part of the consented solar farm.

However, there will be small-scale loss of improved agricultural grassland. This will result in reduction in foraging habitat for some passerine and raptor species but this is not considered to have a significant effect due to the low value and high availability of this habitat type in the surrounding wider area. Therefore, **a permanent non-significant effect is anticipated.**

Disturbance

Considering the grid route construction will be phased, (100m over 2 days) and the confined nature of the works within road, disturbance to local birds inhabiting neighbouring habitats is not anticipated**.**

The construction of the substation has the potential however, to result in temporary noise disturbance to local nesting avian species including ‘confirmed breeding’ yellowhammer situated 5m of the substation field. As such, there is potential for **temporary slight, negative effect on avifauna in a local context.**

5.1.3 Mammals

Habitat Loss

There is no pathway for direct effects on mammalian species as no signs of activity or breeding/ resting sites were identified within the Proposed Development ZoI during the ecological walkover. As per Section 5.1.1, the proposed substation will not result in loss of hedgerow or treeline habitat beyond what is already consented, which has been evaluated as not being significant as part of the consented solar farm. As such, there will be no loss of habitat. **No significant effects are anticipated**.

Disturbance

Considering the grid route construction will be phased, (100m over 2 days) and the confined nature of the works within road, disturbance to local mammals inhabiting neighbouring habitats is not anticipated. **No significant effects are anticipated.**

5.1.4 Aquatic Fauna

There are no instream works required for the Proposed Development. However, there is a pathway for the release of sediment to the Dunrally watercourse. Construction activities associated with the Proposed Development within a minimum distance of 5 m of the watercourse—present a risk of sedimentation with potential to negatively affect water quality and aquatic habitat. Consequently, there is potential for deterioration in water quality, degradation of aquatic habitats. Considering lamprey habitat was recorded within the 1.5km ZoI outlined in Section 3.1, there is potential for sedimentation to degrade lamprey habitat, and cause disturbance to this species. This would result in a **temporary, significant reversible effect.**

5.2 Impacts during Operation

5.2.1 Habitats

No further excavations will be required during the operational phase of the Proposed Development and therefore there will be no source of impact for effects on depositing/lowland river; Dunrally stream and the stream below Bridge 1.

5.2.2 Avifauna

There is potential for increased collision risk between local avifauna including foraging raptors and the two newly installed 21m steel loop-in masts within the substation field. This could result in direct mortality or displacement of birds flying over this field. Considering the proposed 21m masts are to replace existing 16m, the risk of increased collision is deemed imperceptible and as such resulting in a **long-term imperceptible effect on local avifauna.**

5.2.3 Mammals

As no further excavation or construction works shall be required during the operational phase of the Proposed Development, no further impacts to terrestrial mammals are envisaged. There shall be some human activity within the site as part of general maintenance. However, this shall not differ markedly from the current level of human activity associated with agricultural practices within the site. No further impacts are envisaged to terrestrial mammals during the operational phase of the Proposed Development.

5.2.4 Aquatic Fauna

No further construction works will be required during the operational phase of the Proposed Development and therefore there will be no source of impact for effects on aquatic fauna during operation of the Proposed Development.

5.3 Impacts during Decommissioning

The Proposed Development will remain in situ beyond the operational lifetime of the solar farm, as an operational component of the national electricity grid network. As such, decommissioning of the grid route and substation will not be required and therefore result in no source of impact on ecological key receptors.

5.4 Cumulative Impacts

Cumulative impacts will depend on species present, number and frequency of occurrence of fauna observed at the Proposed Development and at adjacent proposed and existing developments. The timing of the construction phase can also have a bearing on the magnitude of the impact. It is also dependent on distance from the Proposed Development to other existing and proposed similar developments and the habitats present between same or their linkage to the proposed solar development site.

A cumulative impact arises from incremental changes caused by other past, present, or reasonably foreseeable actions together with the Proposed Development. The surrounding environment consists of one-off dwellings with farmsteads and concentrations of single dwellings dispersed along the local road network, with the majority of surrounding lands dominated by grazing and crop growing.

The main damaging operations and threats to the greater region's ecological resources are agriculture, and other developments.

5.4.1 Agriculture

Agriculture is widespread within the greater area, with cattle farming and arable crops being the dominant land use. Potential impacts include an increase in nutrient levels of local watercourses.

The EPA records show the Dunrally Stream as having an ecological status of 'Good'. Therefore, there is no likely negative impacts to water quality from agriculture and so there will be no cumulative impacts.

5.4.2 Forestry

Forestry is a common practice in the surrounding area, with a large area of forestry directly to the northeast of the site. Potential effects include fragmentation of ecological corridors, increased sediment in watercourses, and risk of pollution of watercourses.

The EPA records show the Dunrally Stream as having an ecological status of 'Good'. Therefore, there is no likely negative impacts to water quality from forestry and so there will be no cumulative impacts.

5.4.3 Other Developments

The Proposed Development is likely to result in short-term, significant reversible effects on the Dunrally stream and localised temporary disturbance to mammals and avifauna. A planning search to assess other developments within the same water catchment and within the local disturbance zone were assessed.

A total of 430 planning applications were identified within the Barrow_050 14_17 Sub-Catchment. These were predominantly single dwelling developments, alterations or extensions.

As shown in Appendix 4, there were 32 no. larger developments. Natura Impact Statements (NISs) were prepared for 11 of these and were found to not have a significant effect on local hydrology and downstream River Barrow and River Nore SAC with appropriate mitigation measures applied. The remaining applications 21 were found to not have a pathway for effects on local hydrology.

Significant cumulative disturbance effects on local avifauna and mammals (within 500m) are not anticipated considering the temporary/phased nature for the UGC route works and considering the small-scale of the other developments within the ZoI that are not considered to have a significant effect on the local ecological environment. The two larger scale projects within the disturbance ZoI are planning application no. 2560237 and An Coimisúin Pleanála (ACP) no. 500151. With the implementation of mitigation measures significant effects are not envisaged for either of these projects (Appendix 4) and therefore cumulative effects with the Proposed Development are not predicted.

5.4.4 Cappakeel Solar Farm

The Proposed Development was also assessed cumulatively with the consented Solar Farm (ACP Ref. 500061),. Potential in-combination surface water effects arise with the permitted solar farm development (ACP Ref. 500061), which includes the construction of 2 no. clear-span bridges, one located approximately 350m upstream of suitable lamprey spawning habitat. However, considering the application of mitigation measures prescribed for the solar farm there is not potential a cumulative effect.

6. MITIGATION MEASURES

6.1 Mitigation by Avoidance and Design

Mitigation is prescribed in accordance with the Environmental Protection Agency EPA guidance on EIAR (EPA, 2022) which requires mitigation by avoidance as a first approach. Where this is not feasible, measures to prevent impacts from giving rise to significant effects should be adopted (e.g. design of bunded storage). Where impacts cannot be avoided e.g. generation of noise, mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

A process of 'mitigation by avoidance', as informed by constraints assessment, was undertaken during the design of the Proposed Development with the objective of avoiding/ minimising the potential for adverse effects on European sites.

6.2 Site Supervision

Project Ecologist/Ecological Clerk of Works (ECoW) will be employed for the duration of the construction phase to ensure that all the mitigation measures set out in the EcIA, NIS and any conditions of consent pertaining to biodiversity are employed. The Project Ecologist/ECoW will advise on environmental effects and communicate with the project owner and contractor to ensure the required actions to implement the mitigation prescribed in this EIAR are carried out. The Project Ecologist/ECoW will be awarded a level of authority and will be allowed to stop construction activity if there is potential for significant environmental effects other than those predicted and mitigated in the EIAR.

6.3 Construction Phase Mitigation

6.3.1 Mitigation for the sediment runoff

Along with the water quality mitigation set out in the CEMP, the following mitigation measures are proposed during cabling works construction:

- Weather warnings will be monitored, and no construction will take place during extreme events to mitigate against potential flooding.
- Mitigation measures will be provided where surface water flows may be temporarily prevented from reaching gullies during trench excavation. Mitigation measures will include the provision of temporary over ground surface water channels using sand bagging for example to divert flows to downstream gullies.
- Trenches will be excavated during dry periods where possible in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows.
- Any excavated material will be used in the reinstatement of the cable trenches subject to approval. Surplus material will be removed from the site to an appropriate licenced facility. There will be no stockpiling of excavated material.

- All excavated soil material will be managed on site in accordance with the CEMP.
- Silt fencing will be provided around any exposed areas to prevent the ingress of suspended solids into adjacent watercourses. These mitigation measures will prevent surface water contamination and will prevent subsequent flows of contaminated water into watercourses. Silt fences will be established downslope along the perimeter of source areas of contaminated runoff. Silt fences will be installed close to source (as opposed to close to receptor). Silt fences will be constructed using a permeable filter fabric (e.g. Hy Tex Terrastop Premium silt fence or similar) and not a mesh or terram. The base of the silt fence will be bedded at least 15- 30 cm into the ground. Once installed the silt fence will be inspected regularly, daily during the proposed works, weekly on completion of the works for at least one month, but particularly after heavy rains and periodically thereafter. The integrity of the silt fencing will be checked daily by the ECoW and after poor weather conditions (rain or wind) and any failures rectified immediately. Any build-up of sediment along the fence will be removed as deemed necessary by the ECoW and in accordance with manufacturers requirements. The silt fencing will be left in place until the works are completed (which includes removal of any temporary ground treatment). Silt fences will not be removed during heavy rainfall. The silt fence will not be pulled from the ground but cutaway at ground level and posts removed. A record of when it was installed, inspected and removed will be maintained by the ECoW.
- A temporary berm (i.e., polypropylene bag, filled with clean pea gravel grade or rectangular straw bales) will be placed along the edge of the track to prevent loose material being dislodged or washed into the waterbody. Double silt fencing will be placed upslope of the buffer zone on each side of the water body. The silt fencing will have removable "gates" as required to allow access of excavator while maintaining ease of replacement overnight or during periods of heavy rainfall. The silt fencing will be extended at least 10m upstream and downstream of the crossing location.
- Daily visual inspections of drains and streams will be performed during the construction period to ensure suspended solids are not entering the streams and rivers alongside the work area, to identify any obstructions to channels, and to allow for appropriate maintenance of the existing roadside drainage regime. Water quality in the nearby downstream drains and watercourses will be monitored in real time for turbidity. Where turbidity equals or exceeds 28 Nephelometric Turbidity Units (NTU) the works will be stopped and an investigation into cause carried out and measures taken as appropriate.
- There will be no storage of material/equipment, excavated material or overnight parking of machinery inside the 20m buffer zone.
- Bog mats will be used underneath the excavator inside the 20-meter vegetative buffer zone to prevent soil erosion and potential water quality impacts from localised surface water runoff.
- Temporary storage of excavated overburden from the diversion channel will be undertaken outside of the 20m buffer on flat ground or within a local hollow.
- A containment berm will be placed downslope of the excavated material which in turn will be surrounded by secondary silt fence protection to prevent saturated soil from flowing back into the water body.
- The silt fencing on either side of the stream buffer will be left in place and maintained until the disturbed ground has re-vegetated.
- There will be no batching or storage of cement allowed at the stream crossing. There will be no refueling allowed within 100m of the stream crossing. All plant will be checked for purpose of use prior to mobilisation at the stream crossing.
- The waterproofing spray system will only be carried out during calm, dry weather periods (little to no breeze) to prevent drift of airborne substances or runoff towards the river.

- Consultation with the NPWS will be carried out as species protected under the Wildlife Act, EU Habitats Directive and the EU Freshwater Fish Directive occur within the river water bodies which the site drains into.
- Oils/hydrocarbons will be stored in a designated secure bunded area in watertight containers, preventing washout or disturbance of containers.
- Any generators stored in the compound will be bunded to 110% capacity.
- No fuel or oils will be stored within 50m of any watercourses or other surface water feature.
- Any temporary spoil heaps will be more than 10m away from trenches, drains and watercourses. The heaps will be surrounded by silt fences and preferably placed in a well vegetated area. Compact the surface of any stored soil or spoil heaps and keep their height to less than 2m.
- Surplus soil that is spread within the site will be deposited at least 50m away from watercourses, rolled and re-seeded with a certified native grassland seed mix. In heavy rainfall spoil heaps must be covered with geotextile to prevent erosion when not in use.
- Any surplus material will be transported off site and disposed of at a fully authorised soil recovery facility.
- Stockpiles will be restricted to less than 2m in height. Store all materials separately in bunded, safe areas greater than 50m from a watercourse and 10m from a drain which will be subject to approval by the site manager and ecological clerk of works (ECoW). Any surplus material will be transported off site and disposed of at a fully authorised soil recovery facility.

Joint bay locations are located at a minimum distance of 147m from Dunrally stream. Nonetheless, during the installation of joint bays where ground levels slope towards a watercourse, or where there is a risk of sediment runoff, silt fencing in combination with straw bales will be installed between the works area and nearby watercourses or drainage features to prevent sediment migration. Check dams, constructed from stone or geocomposite-wrapped sandbags, will be installed both upstream and downstream of these culverts to intercept and retain any suspended solids generated during the works.

6.3.2 Mitigation for Accidental Spills and Leaks

Construction vehicles will be refuelled off-site, wherever possible. This will primarily be the case for road vehicles such as vans and trucks. Refuelling of mobile plant during construction will be carried out by mobile fuel tanks equipped with pressure relief valves, built-in vents, handles for easy transportation, pumps, hoses and meters to facilitate fuel transfer operations. Any additional fuel containers and for smaller equipment (such as generators, lights etc.) used on site will be positioned on appropriately sized plant nappy/bund and stored within additional secondary containment e.g. bund for static tanks or drip trays for smaller mobile containers. Taps/nozzles for fuels and storage containers for oils will be fitted with locks to ensure their use is controlled. Only designated trained and competent operatives will be authorised to refuel plant on site.

All tank and drum storage areas will, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the aggregate volume of all other substance which could be stored within the bunded area.

- The purpose of this requirement is to ensure that any potential leaks, spills, or other releases from tanks or drums are effectively contained within the bunded area, preventing any environmental contamination or harm. The bunded area acts as a secondary containment system, providing an additional layer of protection against accidental releases and facilitating proper clean-up and mitigation measures.
- All plant and equipment will be in good working order, checked regularly and maintained when necessary and a maintenance log maintained.
- Fuels, lubricants and hydraulic fluids will be carefully handled to avoid spillage, properly secured and provided with appropriate type of spill containment kits in case of incident.
- All spill-kits will be inspected on a weekly basis by the EnCoW to ensure they are maintained as fit for purpose.
- Welfare / hygiene facilities will be located within the construction compounds only.
- All water from vehicle wheel washes will be removed from site and disposed of in line with Waste Legislation.

6.3.3 Mitigation for Concrete works

- Precast concrete will be used wherever possible for the structural elements such as foundations for LILO masts, substation foundations and joint bays during the construction phase. On-site batching will not be permitted. Concrete will instead be transported to the Site by concrete truck.
- Concrete pour is required for the installation of joint bays, laying of 110kV masts foundation and substation foundations. Concrete works are at a minimum setback distance of ca .100m from surface watercourses.
- Temporary storage of cement-bound materials (if required) will take place on designated hardstanding areas only, with no direct drainage to surface waters. These areas will be appropriately bunded, for example using sandbags and geotextile sheeting or silt fencing, to contain any potential runoff and prevent environmental contamination.
- All pouring operations will be continuously supervised to prevent accidental spillages outside the excavation. Only concrete chutes will be washed out on site at a designed impermeable (lined) washout area at the site compound; there will be no concrete wash out of trucks. The residual liquids and solids from concrete wash-out will be disposed of off-site at an appropriate licensed waste facility.
- Additionally, the formwork and site preparation works will contain the concrete in an enclosed, excavated area. For watercourse crossings requiring concrete works, these works will be carried out under dry works conditions, as discussed further below in relation to 'Works in or Adjacent to Waters'.
- The acquisition, transport and use of concrete will be planned fully in advance of commencing works such that volumes are minimised, the route to and through the Site is predetermined so as to aim to avoid drains and watercourses and wash down areas are appropriately located. Additionally, all concrete works will be supervised at all times by the Developer's appointed EcOW.
- No surplus concrete will be stored or deposited anywhere on site. Such material will be returned to the source location or disposed of off-site appropriately.

- Concrete trucks will not be washed out on Site. Where chutes, hoppers/skips and equipment (e.g. vibrating wands) associated with concrete works need to be washed down this will be done into a sealed mortar bin / skip with the appropriate capacity and which has been examined in advance for any defects. The location of wash down areas will be set back as far as practically possible from any drain or watercourse, and a minimum of 50m. This requirement will be communicated to all on-site personnel and to each concrete truck driver prior to entering into the works area. Washout areas / mortar bins will be sized such that they are capable of withstanding an unexpected heavy rainfall event without overtopping and they will be covered when not in use.
- Concrete washing will be contained and managed. Waste concrete slurry, washings and supernatant will be allowed to settle/dry and will be taken to a licensed waste facility for disposal.
- Any shuttering / formwork installed to contain the concrete during pouring will be installed to a high standard with minimal potential for leaks. Additional measures will be taken to ensure this, for example the use of plastic sheeting, foams or other sealing products at joints.
- Pouring of concrete into standing water within excavations will not be undertaken. Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the treatment train and buffered surface water discharge systems in place.
- Concrete works will be scheduled during dry weather conditions to reduce the elevated risk of runoff and will avoid foreseen sustained rainfall (any event longer than 4-hour duration) and/or any foreseen intense rainfall event (>3mm/hour), and do not proceed during any yellow (or worse) rainfall warning issued by Met Éireann.
- It will be ensured that suitably sized covers are available for freshly poured concrete to avoid wash off in the event of rain.
- The ECoW will continually monitor the pH of any watercourse during concrete works in or adjacent to a watercourse or drain. Should any change in pH +/-0.5 be detected, concrete works will immediately be ceased. Steps will then be taken to identify the entry point to the drain or watercourse and appropriate measures will be implemented to prevent further escape to the environment. The ECoW should consult CIRIA C532 to consider the most appropriate measure.
- Spill kits will be readily available at the location of concrete works and will be appropriate for the containment and control of concrete spills and/or runoff.
- The Community Water Officer for the Western Region, National Parks and Wildlife Services and Inland Fisheries Ireland will be notified immediately of any concrete spills / runoff into a watercourse.

6.3.4 Mammals

A pre-construction mammal survey will be undertaken within the footprint of the development in order to reconfirm the findings from the ecology survey, and in the event that any badger sett/otter holts or couches should be encountered at any point, the NPWS will be informed and NRA Guidelines for the Treatment of Badgers Prior To the Construction of National Road Schemes/NRA Guidelines for Treatment of Otters Prior to the Construction of National Road Schemes will be followed. As an Annex IV species has not been recorded within the site during surveys, there is no requirement for a licence currently and this is not considered likely to change in the future given the habitats present within the footprint of the development. However, in the unlikely event that a strictly protected species is identified during re-confirmatory preconstruction surveys the appropriate licensing shall be sought.

6.3.5 Avifauna

Any vegetation removal that may be required within the footprint of works, will be carried out outside of the bird breeding season (March 1st – August 31st). It is particularly important that no section of hedgerow is cut more than once every three years.

In the event that vegetation clearance during the bird breeding season is unavoidable, an ECoW will be appointed to examine the area of construction/clearance for nests no more than 48 hours in advance of works. They will have the authority to include a buffer zone if needed until birds have fledged or breeding has been confirmed as failed.

7. RESIDUAL IMPACT

With the implementation of the detailed mitigation measures, the potential for negative effects on local receptors will be reduced.

The Proposed Development is not anticipated to have long-term significant effects on local ecological receptors discussed in Section 5.

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FEHILY TIMONEY

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APPENDIX 1

Ecological Resource Evaluation Criteria

NRA (2009a)	CIEEM (2018)	Defining Criteria
International Importance	International and European	• 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA), candidate Special Area of Conservation (cSAC) or proposed Special Protection Area (pSPA). • Sites that fulfil the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network. • Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.[23] • Resident or regularly occurring populations (assessed to be important at the national level)[24] of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Site (Convention for the Protection of World Cultural and Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man and The Biosphere Programme). • Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). • Biogenetic Reserve under the Council of Europe. European Diploma Site under the Council of Europe. • Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).[25]
National Importance	National	• Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park.

[23] See Articles 3 and 10 of the Habitats Directive

[24] t is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

[25] Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

NRA (2009a)	CIEEM (2018)	Defining Criteria
		• Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA) • Statutory Nature Reserve • Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park • Resident or regularly occurring populations (assessed to be important at the national level)[26] of the following: Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. • Site containing 'viable areas'[27] of the habitat types listed in Annex I of the Habitats Directive.
County Importance	County (or other local authority-wide area)	• Area of Special Amenity[28]. • Area subject to a Tree Preservation Order. • Area of High Amenity, or equivalent, designated under the County Development Plan. • Resident or regularly occurring populations (assessed to be important at the County level)[29] 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; and/or Species listed on the relevant Red Data list. • Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. • County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP[30], if this has been prepared.

[26] It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

[27] A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

[28] It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

[29] It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

[30] BAP: Biodiversity Action Plan.

NRA (2009a)	CIEEM (2018)	Defining Criteria
		• Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
N/A	River Basin District	• Hydrological Catchment Area • Connectivity to downstream waterbodies
N/A	Estuarine system/ coastal cell	• Estuary of river system or shoreline
Local Importance (Higher Value)	Local	• 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)[31] 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; 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)	Site	• 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.

[31] It is suggested that, in general, 1% of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

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APPENDIX 2

Habitat Species Lists

PF1 - Rich fen and flush

Species	DAFOR
Gorse (*Ulex europaeus*)	Abundant
Silverweed (*Potentilla anserina*)	Frequent
Hard Rush (*Juncus inflexus*)	Abundant
Bush Vetch *(Vicia sepium)*	Occasional
Soft-rush (*Juncus effusus)*	Frequent
Heather *(Calluna vulgaris)*	Frequent
Black Bog-rush (*Schoenus nigricans)*	Occasional
Devil's-bit Scabious *(Succisa pratensis)*	Frequent
Sharp-flowered Rush *(Juncus acutiflorus)*	Frequent
Purple moorgrass (*Molinia caerulea*)	Dominant
Water mint (*Mentha aquatica*)	Occasional
Jointed rush (*Juncus articulatus*)	Occasional
Carex nigra/panicea	Rare

WL1 - Hedgerows

Species	DAFOR
Hazel (*Corylus avellana)*	Dominant
Cow parsley (*Anthriscus sylvestris)*	Frequent
Ivy (*Hedera helix*)	Abundant
Hawthorn (*Crataegus monogyna*)	Frequent
Beech (*Fagus Sylvatica*)	Occasional
Ash (*Fraxinus excelsior*)	Occasional
Bramble (*Fraxinus excelsio*r)	Abundant
Common knapweed (*Centaurea nigra*)	Rare
Cleavers (*Galium aparine*)	Frequent
Bracken (*Pteridium aquilinum*)	Abundant
Japanese rose *(Rosa rugosa)*	Rare

GA1 - Improved agricultural grassland

Species	DAFOR
Common Bent (*Agrostis capillaris*)	Frequent
Yorkshire fog (*Holcus lanatus*)	Frequent
Perennial ryegrass (*Lolium perenne*)	Dominant
Gorse (*Ulex europaeus*)	Frequent
Common nettle (*Urtica dioica*)	Frequent
Broad-leaved dock (*Rumex obtusifolius*)	Abundant
Dandelion (*Taraxacum vulgaria*)	Abundant
Cock's-foot (*Dactylis glomerata*)	Abundant
Rough Meadow-grass (*Poa trivialis*)	Occasional
Wild Carrot (*Daucus carota*),	Occasional
Meadow Brome (*Bromus commutatus*)	Occasional
Creeping Buttercup (*Ranunculus repens*)	Occasional
Meadowsweet (*Filipendula ulmaria*)	Occasional

GA2 - Amenity Grassland

Species	DAFOR
Common Bent (*Agrostis capillaris*)	Frequent
Gorse *(Ulex europaeus)*	Abundant
Sweet Vernal-grass (*Anthoxanthum odoratum)*	Occasional
Lady's Bedstraw *(Galium verum*)	Occasional
Cock's-foot (*Dactylis glomerata)*	Frequent
Creeping Thistle (*Cirsium arvense)*	Occasional
Common Nettle (*Urtica dioica)*	Occasional

WL2 - Treeline

Species	DAFOR
Sycamore (*Acer pseudoplatanus*)	Dominant
Ash (*Fraxinus excelsior*)	Dominant
Ivy (*Hedera helix*)	Abundant
Blackthorn (*Prunus spinosa)*	Occasional
Bindweed (*Calystegia sepium)*	Frequent
Aspen (*Populus tremula)*	Occasional
Beech (*Fagus Sylvatica*)	Frequent

WS3 Ornamental/non-native shrub

Species	DAFOR
Garden privet *(Ligustrum ovalifolium*)	Abundant
Cherry laurel (*Prunus laurocerasus*)	Abundant

HH1- Dry siliceous heath

Species	DAFOR
Common Bent *(Agrostis capillaris*)	Frequent
Heather (*Calluna vulgaris*)	Occasional
Gorse (*Ulex europaeus*)	Abundant
Crested Dog's-tail (*Cynosurus cristatus*)	Abundant
Slender St John's-wort (*Hypericum pulchrum*)	Occasional
Hypnum jutlandicum	Occasional

Species	DAFOR
Tormentil (*Potentilla erecta*)	Occasional
Sweet Vernal-grass (*Anthoxanthum odoratum*)	Occasional
Lady's Bedstraw (*Galium verum)*	Occasional
Cock's-foot (*Dactylis glomerata*)	Frequent
Creeping Thistle (*Cirsium arvense*)	Occasional
Common Nettle (*Urtica dioica*)	Occasional

WN2 Oak-ash-hazel woodland

Species	DAFOR
Grey Willow (*Salix cinerea s.lat.)*	Abundant
Beech (*Fagus sylvatica*)	Abundant
Hazel (*Corylus avellana*)	Abundant
Ash (*Fraxinus excelsior*)	Occasional
Sycamore (*Acer pseudoplatanus*)	Occasional
Pedunculate Oak (*Quercus robur*)	Rare

WD2 Mixed broadleaved/conifer woodland

Species	DAFOR
Aspen (*Populus tremula*)	Dominant
Hazel (*Corylus avellana*)	Frequent
Ivy (*Hedera helix*)	Frequent
Hawthorn (*Crataegus monogyna*)	Occasional
Herb-Robert (*Geranium robertianum*)	Frequent
Common Nettle (*Urtica dioica*)	Frequent
Grey Willow (*Salix cinerea s.lat*.)	Occasional
False oat grass (*Arrhenatherum elatius*)	Frequent
Creeping buttercup (*Ranunculus repens*)	Occasional

Species	DAFOR
Hawthorn (*Crataegus monogyna*)	Frequent
Sitka Spruce (*Picea sitchensis*)	Occasional
Ash (*Fraxinus excelsior*)	Frequent
Beech (*Fagus sylvatica*)	Frequent
Rhododendron (*Rhododendron ponticum*)	Rare
Elder (*Sambucus nigra*)	Occasional
Hazel (*Corylus avellana*)	Occasional
Babington's Leek (*Allium babingtonii*)	Rare

Species	DAFOR
Ash (*Fraxinus excelsior*)	Frequent
Hazel (*Corylus avellana*)	Frequent
Beech (*Fagus sylvatica*)	Frequent
Scots Pine (*Pinus sylvestris*)	Occasional

WD1 (Mixed) broadleaved/conifer woodland

Species	DAFOR
Alder (*Alnus glutinosa*)	Abundant
Ash (*Fraxinus excelsior*)	Frequent
Hazel (*Corylus avellan*)	Dominant
Hawthorn (*Crataegus monogyna*)	Abundant
Sycamore (*Acer pseudoplatanus)*	Frequent

WS1 Scrub

Species	DAFOR
Bracken (*Pteridium aquilinum*)	Dominant
Hawthorn (*Crataegus monogyna*)	Frequent
Brambles (*Rubus fruticosus*)	Abundant
WillowHerb Sp. (*WillowHerb* Sp.)	Occasional
Ivy (*Hedera helix*)	Frequent

WS2 Immature woodland

Species	DAFOR
Sycamore (*Acer pseudoplatanus*)	Frequent
Brambles (*Rubus fruticosus*)	Abundant
Fireweed (*Chamaenerion angustifolium*)	Abundant
Grey willow (*Salix cinerea*)	Abundant
Ash (*Fraxinus excelsior*)	Occasional
Pedunculate Oak (*Quercus robur*)	Occasional
Broad-leaved Dock (*Rumex obtusifolius*)	Frequent
Hawthorn (*Crataegus monogyna*)	Occasional

FW2 Depositing/lowland river

Species	DAFOR
Floating Sweet-grass (*Glyceria fluitans*)	Occasional
Fools watercress (*Helosciadium nodiflorum*)	Dominant
Watermint (*Mentha aquatica*)	Rare
Watercress (*Nasturtium officinale*)	Rare
Ivy-leaved Duckweed (*Lemna trisulca*)	Rare
Common Duckweed (*Lemna minor*)	Occasional

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APPENDIX 3

River Habitat Survey Completed in accordance with Rapid 3.0 format by the UK Centre for Ecology and Hydrology – unnamed stream below Bridge 1

Attributes	Values		
Land Use Within 50 m of Bank-top	**RHS:**		**LHS:**
	Agricultural field and treeline		Amenity grassland/church graveyard
Valley Form			
Number of:	**Riffles**	**Pools**	**Point Bars**
	Present: 10	0	0
Artificial Features	Box culverts		
Channel realignment?	Possibly straightened to protect graveyard		
Channel over-deepened?	Dug out at graveyard, potentially to prevent flooding or reduce groundwater level		
Water impounded by weir/dam?	Small weir where river meets graveyard		
Channel Attributes			
Channel Substrate	primarily gravel with sand, 2% boulder, 10% cobble		
Flow-type	Riffle		
Flow Speed	Fast, but 2 days after nationwide flooding from Storm Chandra		
Channel Features	N/A		
Channel Modifications			
Channel Dimensions	**Bank width:**		
	Water width:		2m
	Water depth:		15cm
Instream Vegetation	**Notes:** opposite leaves pond weed covers approx 20% of river bed		
	☐Bryophytes		☐Amphibious
	☐Emergent broad-leaved herbs		☐Submerged broad-leaved
	☐Emergent reeds/sedges/rushes /grasses/horsetails		☐Submerged linear-leaved
	☐Floating-leaved (rooted)		☐Submerged fine-leaved
	☐Free-floating		☐Filamentous algae
Riverbank	**RHS**		**LHS**
Bank Material	Earth		Earth

Attributes	Values	
Land-use within 5 m of bank-top	Beech treeline with brambles	vegetated bank, grasses + mosses
Bank Modifications	No	No
Marginal and Bank Features	None	None
Bank Profile	Almost vertical, small flat patch next to bridge	Almost vertical
Bank Height		
Bankside Vegetation		
Extent of Trees	One large tree	
Features Associated with Trees	☐Shading of channel	☐Underwater tree roots
	☐Overhanging boughs	☐Fallen trees
	☐Exposed bankside roots	☐Large woody debris
Notable Features		
Features of Interest	☐Braided channels	☐Backwater(s)
	☐Side channel(s)	☐Floodplain boulder deposits
	☐Natural waterfalls (> 5 m high)	☐Water meadow(s)
	☐Natural waterfalls (< 5 m high)	☒Fen(s)
	☐Natural cascade(s)	☐Bog(s)
	☐Very large boulders (> 1 m)	☐Wet woodland(s)
	☐Debris dam(s)	☐Marsh(es)
	☒Leafy debris	☐Flush(es)
	☐Fringing reed-bank(s)	☐Natural open water
	☐Quaking bank(s)	**Other:**
	☐Sink hole(s)	
Choked Channel (> 33 %)	N/A	
Fisheries Potential	Good substrate locally for salmonids, LHS bank has overhangs for protection where water pools. However, stream becomes agricultural drains further downstream with less suitable habitat. Fisheries unlikely to migrate up through these drains. No silt for juvenile lamprey.	

Attributes	Values
Otter Potential	Good habitat suitability no signs of activity during survey (29th January 2026)
Invasive Species	No

FEHILY TIMONEY

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A SUSTAINABLE FUTURE

APPENDIX 4

Planning Search within
Barrow_SC_050 14_17
Sub-Catchment

An Coimisiún Pleanála Applications

ACP Case Number	Development Description	Decision Date	Ecological Impact
309349	Monasterevin Bridge Remediation Works, Monasterevin, Co. Kildare	22/07/2021	NIS
310427	Removal of vegetated sand and gravel deposits from the river at Ballymanus Bridge outside Stradbally, Co. Laois	09/12/2021	NIS
310430	Repair and replacement of the stone pitched flooring of the western arch of the Inch Bridge on L7950 across the Stradbally River	18/05/2022	NIS
313867	Silt/Gravel deposits removal using mini excavator and vacuum excavator at N80 Bridge.	27/06/2023	NIS
317590	Retention for onsite facilities and permission for new boundary wall.	19/03/2024	EIAR and NIS not required
318550	Construction of ball stop nets and all associated works at the existing driving range.	18/06/2024	EIAR and NIS not required
319947	Amend planning permission Reg. Ref. 17532 to consist of: Replacement of permitted Distribution Network Operator (DNO) substation with an Air Insulation Switchgear (AIS) substation, construction of an underground cable to provide a tail fed connection to the permitted 400kV Coolnabacky Substation (An Bord Plean?la Case Ref. PL11.VA0015) and all associated site development works. A Natura Impact Statement accompanies this application.	08/01/2025	NIS
321259	Construction of 5 dwelling houses; new site entrance and access road; the demolition/removal of derelict farm buildings and ancillary services and all associated site works.	23/10/2025	No impact
321383	Proposed rehabilitation works on Pass Bridge, Passlands, Monasterevin, Co. Kildare	04/03/2025	NIS
322153	a) Retain Dwelling as Constructed & (b) Permission to Complete/Finish Dormer Dwelling Construction with Effluent Treatment System & Percolation Area and all associated site works.	04/07/2025, 01:00	No impact
500706	Solar Farm. A co-located Battery Energy Storage System (BESS) park. Natura Impact Statement submitted with this planning application. The development is covered by the provisions of the (RED III) Renewable Energy Directive III (Directive (EU) 2023/2413).	In Process	Not Available

ACP Case Number	Development Description	Decision Date	Ecological Impact
500151	Proposed uprate of the existing 110 kV Overhead Line (OHL) and the replacement (""restringing"") of the existing overhead line circuit conductor with a new higher capacity conductor and all associated site works. NIS has been submitted with this application.	In process	Not available
500061	10-year permission and 40-year operational life for a solar farm on 5 no. land parcels. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development and accompanies this planning application.	In process	Not available

Laois and Kildare County Council Planning Applications

Application Number	Development Description	Decision Date	Ecological Impact Identified
2460296	The demolition of an existing 558.6 sqm mink processing building and equipment storage shed. The demolition of this building includes the disposal of asbestos from the roof (hazardous waste No. 17 06 05 of the European Waste Catalogue). Construction of a new 630.8 sqm portal frame cattle shed, re-purposing of an existing surface water attenuation tank for clean surface water & bovine effluent separately (the surface water attenuation tank was previously granted permission for removal under planning reg. no. 23/60152), Construction of a new 348.9 sqm portal frame feed store, 1235.3sqm three bay silage pit, construction of 374.5 sqm dungstead, all associated drainage and site works. Ballymanus House, beside this site, comprises entry 604 on the Record of Protected Structures forming part of the Laois County Development Plan.	22/07/2024	Natura Impact Assessment (NIS)

Application Number	Development Description	Decision Date	Ecological Impact Identified
2460339	Extend and modify an existing 1514.7m2 agricultural building to include; Construction of an 88.9m2 single story extension, Elevational changes and removal of all existing cladding (including asbestos cladding); the provision of two new loading bay doors. This element of the works includes the disposal of asbestos from the roof and walls (hazardous waste No. 17 06 05 of the European Waste Catalogue), Alteration of the existing ground levels to provide a new dock leveler to facilitate convenient loading and un-loading of goods, New internal access roadway to include 10 additional parking spaces and approx. 1080sqm of additional hard standing area. Foul and surface water drainage including a new effluent holding tank and all associated site works. Ballymanus House, beside this site, comprises entry 604 on the Record of Protected Structures forming part of the Laois County Development Plan.	02/08/2024	Natura Impact Assessment (NIS)
2560049	New commercial vehicle testing centre with associated signage, new site boundary wall, new entrance, and all associated site works. The proposal includes additional change of use of existing buildings to (1) workshop ancillary to test center (2) cafe and (3) 3 no. shop units	03/09/2025	Screened out
2560359	install a new wastewater treatment system and all associated site works	08/08/2025	Screened out
2460366	Alter previously approved Planning ref. 17/147 for a retirement village on a site at Tierhogar, Killenard, Co.Laois. Alterations to the Medical Consulting rooms and dispensary, gym, bistro / restaurant, the removal of the Swimming Pool and the provision of a new stand alone sub-station along with all associated Site Works.	15/08/2024	Screened out
2560628	Erect a 24 metre high lattice tower with antennas, dishes and associated telecommunications equipment, including equipment cabinets at	04/02/2026	Screened out

Application Number	Development Description	Decision Date	Ecological Impact Identified
	ground level all enclosed by security fencing together with access track		
2228	construct new entrance to farmyard including constructing bridge over the Crooked river and all associated and necessary site works	18/10/2022	NIS No significant impact to River Barrow and River Nore SAC with recommended control measures and standard practice
22615	Restore to agricultural lands of a disused Sand & Gravel Pit. The works will comprise of the importation, compaction and contouring of approx. 77,000 tonnes of uncontaminated soil and stone arising from construction projects under a Waste Facility Permit	03/08/2023	Screened out
22695	Develop 6 serviced sites including six septic tanks and percolation areas, vehicle & pedestrian entrances, boundary treatments and all associated site works and services	06/11/2023	Screened out
2560302	Proposed uprate of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation in the townland of Ballykilleen, Co. Offaly and the existing Portlaoise 110 kV substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The Cushaling – Portlaoise 110 kV OHL is approximately 41.6 km long and comprises 17 no. steel lattice tower structures and 193 no. wooden pole structures. The Proposed Development works across the functional area of Co. Kildare will comprise: 1. The replacement ("restringing") of the existing overhead line circuit conductor with a new higher capacity conductor including installation of a new fibre communication connection; 2. The replacement of 2 no. steel towers and their foundations; 3. The replacement of steel members at 1 no. tower; 4. Full tower painting required at 1 no. location; 5. Shear block remedial works (raise and cap) at 1 no. tower location; 6. The replacement of wooden poles only at 8 no. locations; 7. The replacement of wooden poles and crossarm at 3 no. locations; 8. The replacement of crossarm only at 4 no. locations; 9. The replacement of existing danger notices at various locations, as required; 10. The replacement of hardware and fittings, such as insulators, insulator hardware, earthwire hardware and anti-climbing guards at various locations, as required; 11. The replacement of suspension	02/09/2025	NIS

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	clamps, vibration dampers and compression assemblies at all locations, as required; 12. All associated temporary site development works to gain access to the existing structures including clearance of vegetation, disassembly and reassembly of gate posts/piers and removal and reinstatement of existing fencing; and 13. Other temporary associated		
2460005	amend planning permission Reg. Ref. 17532 to consist of: Replacement of permitted Distribution Network Operator (DNO) 110kV substation and all associated infrastructure (Glass Reinforced Polyester (GRP) Cabinet, monitoring house, storage shed, auxiliary transformer and WC) with an Air Insulation Switchgear (AIS) 110kV substation comprising a single-storey control building (c. 6.28m height and c. 133.7sqm) within a palisade-fenced compound (c. 2.6m height and c. 1,779.8sq.m) and all associated electrical infrastructure and apparatus, and realignment of permitted solar arrays. The proposed development will consist of: Construction of a new vehicular entrance and access track connecting to permitted internal vehicular tracks; Construction of an underground cable (c. 160m length) to provide a tail fed connection to the permitted 400kV Coolnabacky substation (An Bord Pleanála Case Ref. PL11.VA0015); and, All ancillary site development works, including lighting, drainage, temporary construction compound and on-site parking to serve the operational and maintenance needs of the substation.	21/05/2024	NIS
2360368	Erect flood light stanchions and flood lighting to football pitch number 2. Permission is also sought to illuminate existing walking track and all associated site works.	01/11/2023	
2560831	Construct a Soiled water / Slurry lagoon and associated site works (This application is within the curtilage of a protected structure Ref RPS600 Ballykilcavan House).	11/02/2026	Documents unavailable

Application Number	Development Description	Decision Date	Ecological Impact Identified
2560148	develop at this site within the Townlands of Morett, Killone, Cappakeel, Rossmore and Raheennahown north, Co. Laois. The development will consist of a 10-year permission and 40-year operational life for a solar farm on 5 no. land parcels as described herein: West Parcel (A) (Morett townland), Central West Parcel (B) (Morett & Cappakeel. townlands), Centre Parcel (C) (Morett & Cappakeel. townlands), Centre East Parcel (D) (Cappakeel townland) and East Parcel (E) (Rossmore townland). The total site area for the proposed development is c. 249 hectares and consists of the following; c. 1,796,838sq. metres of solar photovoltaic panels on ground mounted steel frames; 44 no. hardstandings for electrical skids and storage; underground power and communication cables and ducts; c. 22,753m. of boundary security fencing; c. 12,915m. of new and existing internal access tracks including 2 no. open span bridge crossings; associated drainage infrastructure; 5 no. site entrances which include the upgrading of 2 no. access points onto the L3930, 1 no. new access point onto the L7815 local road and 2 no. new access points onto the L3930 local public road; 5 no. temporary construction compounds; landscaping and biodiversity enhancement measures and all associated site services and works. Installations of internal network cable comprise trenching for an underground medium voltage electrical cable and associated joint bays and infrastructure, for a distance of approximately 7,189 metres in length along the solar farm lands including 4 no. Horizonal Directional Drilling points to traverse the Dunrally stream and the local roads L3930, L3901 and L3817. A separate planning application will be made to An Bord Pleanála as part of a Strategic Infrastructure Development (SID). This will include the provision of a 110kV substation with electrical control building and ancillary electrical infrastructure, associated compound with palisade fence which is to be located in the West Parcel (A) in the townland of Morett. The substation will connect to the national grid via. A LILO grid connection onsite.	18/09/2025	EcIA/NIS

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	This planning application will be lodged with An Bord Pleanála in due course. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development and accompanies this planning application.		
2560147	for works associated with the proposed uprate of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation in the townland of Ballykilleen, Co. Offaly & the existing Portlaoise 110 kV substation in the townlands of Clonminam & Kylekiproe, Co. Laois. The replacement ("restringing") of the existing overhead line circuit conductor with a new higher capacity conductor incl. installation of a new fibre communication connection; Replacement of 8 no. steel towers & their foundations; Replacement of steel members at 1 no. tower; Full tower painting required at 3 no. locations; Shear block remedial works (raise & cap) at 6 no. tower locations; Replacement of wooden poles only at 15 no. locations; Replacement of wooden poles & crossarm at 5 no. locations; Replacement of crossarm only at 14 no. locations; Replacement of existing danger notices at various locations, as required; Replacement of hardware and fittings, such as insulators, insulator hardware, earthwire hardware and anti-climbing guards at various locations as required; Replacement of suspension clamps, vibrations dampers and compression assemblies at all locations as required; All associates temporary site development works to gain access to the existing structures including clearance of vegetation, disassembly & reassembly of gate posts/piers & removal & re instatement of existing fencing; other temporary associated & ancillary development works required for the purpose of the existing circuit, including temporary items, such as; guard poles, construction compounds (located in the townlands of Bracklone, Tullaghan, Morett, Clonaddodoran and Kyletalesha), clearance or	30/09/2025	NIS

Application Number	Development Description	Decision Date	Ecological Impact Identified
	management of vegetation, installation of silt traps, silt fences, stone tracks, ground protections mats & watercourse crossings. No additional structures are proposed along the existing circuit. Structure 203,which will be relocated approx. 101m back towards structure 202 due to its existing position on top of a gravel mound & there being potential for subsidence of the gravel in the long term. No alteration to the nature, extent, alignment, character, or voltage of the existing electricity infrastructure is proposed. In addition, works to support this uprate also include the Cushlaing-Portlaoise 110KV bay lead-in conductor uprate at the Portlaoise 110KV station. A Natura Impact Statement (NIS) has been submitted with this application. Full description of all works within Site Notice.		
2460277	Construct a five meter high ball wall with fence enclosure and adjoining astroturf playing area.	12/07/2024	Screened out
2460658	Construct a bridge over the Bauteogue River (Stradbally River) to link up the existing forestry roads (Bridle Paths) and access for the Electric Picnic and access to the rest of my farmland which is within the curtilage of a protected structure, Stradbally Hall, RPS No. 414 and NIAH no 12900432 .	20/08/2025	NIS
2560047	Revise plans of ball wall and astroturf playing area previously granted 24/60277 which consists of the revised layout of the proposed ball wall along with revised layout of adjoining astroturf playing surface	26/03/2025	Screened out
2360116	for the development of a Water Sports Hub comprising of (a) a single storey building with classroom, office, changing rooms/ toilets, kitchenette, drying room, workshop and external storage/ covered areas (b) A wastewater treatment system and percolation area (c) 2no. Equipment storage containers (d) all associated site works including a floating pontoon to River Barrow, paths, parking and boundary treatments.	18/12/2023	AA Screening but concerns raised by DHLGH
23298	the construction of a new 48m long x 24m wide and 12m high straw store and agricultural storage shed; Retention of as-built variations to a previous Grant of Planning Permission (P.A. Ref: 19/1078) including: extended gluten free grain store and its associated equipment and prefab grain testing room and all other associated site excavation,	27/09/2023	Screened out

Application Number	Development Description	Decision Date	Ecological Impact Identified
	infrastructural and site development works above and below ground		
2460637	amend granted permission application ref: 21/643 and subsequent granted permission application ref: 22/342. The proposed minor amendments consist of minor alterations to house types D1 & D2 including a redesign of the internal layout, external elevations and roof arrangement of the houses which occur at 5, 6, 10 & 11 The Avenue, 2, 3, 6 & 7 The Green, 5, 6, 9 & 10 The Links, 7, 8, 10, 11, 16 & 17 The Chase, Millers Hill, Killenard, Co Laois; and all associated site works	17/12/2024	Screened out
21148	commercial building to accommodate two auction rooms, a shop/showrooms, offices toilet block, canteen/coffee shop, restoration workshop and storage area, also to install a septic tank and percolation area , all associated and necessary site works using existing access road and full planning permission for signage	12/08/2021	Screened out
22650	raise existing agricultural land levels with inactive or inert soil/subsoil class D1 material totalling 12080 cubic meters of fill using existing adjusted entrance for use to improve the existing agricultural land use and all associated site works	19/09/2023	Screened out
2360252	erect 8 no. 20m high Floodlights to main pitch, Existing Floodlights to be re-located to southern pitch area, New Astro-Turf area, Wellbeing Seating Area to rear of Clubhouse and to include all associated site works.	24/08/2023	Screened out
2460688	Erect a 24m lattice telecommunications support structure on a 1.2 metre high raised foundation (providing an overall height of 25.2 metres) together with associated antennas and dishes and to remove the existing 15 metre lattice telecommunications structure with antennas (providing an overall height of 16.96 metres). The proposed development is all enclosed within an existing compound	10/01/2025	Screened out
2292	erect 19 No. single storey older peoples & persons with limited mobility housing units consisting of 4 No. blocks or terraced buildings comprising 13 No. one bedroom units & 6 No. two bedroom units. The development also includes the provision of a new access road & pedestrian access leading to a public road and for alterations to adjoining shop access including realignment of footpath along public road at proposed entrance. Also to provide carparking spaces, bin storage enclosure, site	12/12/2022	

Application Number	Development Description	Decision Date	Ecological Impact Identified
	lighting and revised site boundary treatments. To connect to council mains, sewage & storm sewers with associated siteworks and for temporary construction compound to remain in situ for a period of 2 years to facilitate construction works		
2133	construct an astroturf pitch with flood lighting, fencing and all associated site works	19/05/2021	Screened out
2460596	erect a 24m lattice telecommunications support structure on a 1.2 metre high raised foundation (providing an overall height of 25.2 metres) together with associated antennas and dishes and to remove the existing 15 metre lattice telecommunications structure. The proposed development is all enclosed within an existing compound.	03/12/2024	Screened out
24357	for the development of a solar panel array consisting of up to c.94kWp (c.414m2) of solar panels fixed to metal frames and anchored to the ground, cable ducts and all associated works, as revised by Significant Further Information consisting of a Flood Risk Assessment and an Appropriate Assessment with Natura Impact Statement	23/04/2025	NIS
2560237	amend the solar farm permitted under Laois County Council Reg. Ref. 17/532 and consists of a revised solar PV panel arrangement and maximum height of panels up to 3.2 metres; a reconfigured internal access route network; reduced number of MV transformers; provision of string inverters; revised CCTV arrangement; a spare parts storage container; weather stations; monitoring house; toilet facilities; and all other ancillary works associated with the development above and below ground including security fencing and gates, cabling, landscaping and drainage works. It is sought to increase the maximum export capacity of the solar farm to 80 MW and to increase the operational life of the solar farm from 30 to 40 years from the date of commissioning. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application.	16/06/2025	NIS
2460012	the development to Emo Court House, a protected structure (RPS 412A), under Part IV of the Planning and Development Act 2000, consists of the conservation of the roof structures and facade fabric as follows: Conservation of the Michael Scott designed roof structure, including reinstatement of the original south elevation, installation of new	08/03/2024	Screened out

Application Number	Development Description	Decision Date	Ecological Impact Identified
	zinc roof deck closely following the original design, renewal of flat roof structures and the conservation of existing steel windows. Renewal of the natural copper to the 19th-century dome. Reinstatement of original roof pitches and profiles to the east and west wing roofs, along with the renewal of all natural slate and subsidiary roof coverings. Installation of two automatic opening vents to the east wing and central flat roofs. Conservation of facade fabric includes repairs to high-level stonework, including decorative stone cornices, corbelling, friezes and column capital. Installation of a new lead weathering over the parapet and projecting stone cornices. Repair of the semi-circular balustrade over the eastern elevation, along with removal of inappropriate cementitious render and conservation of chimney stacks		
2360152	develop as follows: (a) the demolition & removal of 74 no. existing mink farm related buildings including all associated foul & surface water facilities comprising of: -30 number Type A Mink House structures, each of which vary in length between 25.6m & 119.8m & which each measure 3.6m in width & 2.5m in height, providing a total floor space of 12,494 sqm. -24 number Type B Mink House structures, each of which vary in length between 34.8m & 68.9m & which each measure 3.6m in width & 2.5m in height providing a total floor space of 6831.5 sqm -6 number Type C Mink House structures, each of which vary in length between 106.6m & 113.8m & which each measure 4.25m in width & 2.8m in height providing a total floor space of 3415.8 sqm -7 number Type D Mink House structures, each of which vary in length between 108.2m & 120.5m & which each measure 8.3m in width & 3.2m in height providing a total floor space of 7746.2 sqm -4 number Type E Mink House structures, each of which are 120.4m long & which each measure 3.6m in width & 2.6m in height providing a total floor space of 2408 sqm -1 no. staff facilities building providing a floor area	31/01/2024	NIS

Application Number	Development Description	Decision Date	Ecological Impact Identified
	of 22.7 sqm -2 no. existing storage buildings providing a total floor area of 118.4 sqm All of these existing buildings contain a total floorspace of 33,036.6 sqm. The demolition element of this development includes the disposal of asbestos from the roof of the existing buildings (hazardous waste No. 17 06 05 of the European Waste Catalogue) (b) the removal of structures ancillary to the mink farm comprising of: - 1 no 40ft shipping container - 4 no. animal feed silos with an overall capacity of approx. 1008 m3 (c) the modification & re-purposing of 3 no. existing mink farm related buildings comprising of: -An existing 558.6 sqm mink processing facility which will have its roof raised by 3m & be re-purposed for the housing of cattle -An existing 278.3 sqm storage shed which will have its roof raised by 1.2m & be re-clad with fiber cement cladding & be re-purposed for the storage of farm machinery -An existing 1403.2 fridge building & attached loading bay which will have it's existing asbestos cladding removed & be re-clad with fiber cement cladding (d) importation of inert topsoil to restore the original ground level of the site following removal of the aforementioned buildings & all associated site works. Ballymanus House, beside this site comprises entry 604 on the Record of Protected Structures		
22125	deforest lands comprising 8.86 hectares for the conversion to agricultural land	09/06/2022	NIS EcIA no significant effects after mitigation
21643	the proposed development consists of the following: 79 no residential units comprising of : 20 no. 3 bed semi-detached houses, 36 no. 4 bed	20/12/2021	NIS

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	semi-detached houses, 14 no. 4 bed detached houses, 4 no. 3 bed end terraces, 3 no. 2 bed mid terraces, 2 no. 3 bed bungalows. A new vehicular entrance from the L3171 Killenard Road. A separate pedestrian / cycle access from the L3171 Killenard road. Public realm landscaping including shared public open spaces, public seating, children's play area (200sq m.) and public lighting. Provision of all associated surface water and foul drainage services and connections ancillary to the development, as well as all associated site development works. A Natura Impact Statement (NIS) accompanies this application		
2430	develop as follows: the subject site comprises part of the walled gardens associated with Stradbally Hall and is bound to the south by an access track, and to the north by the walled gardens associated with Stradbally Hall. The proposed development is located within the curtilage of Stradbally Hall, which is a protected structure (RPS No. 414). The proposed development consists of the following: •Creation of an opening in the southern wall of the walled garden. •Construction of an ESB substation building, with a gross floor area of c. 28 sq.m, and with a height of c. 3 metres. •The substation building will accommodate client and medium voltage switchrooms, and will be clad in stone in keeping with the adjoining existing wall. •All associated and ancillary works.	11/04/2024	Screened out
2460108	construct 5 nr. detached, split-level, dormer dwelling houses (including 4 no. with single-storey, rear returns and side car-ports), a new site entrance and access road off the existing cul-de-sac road to the east off the Killenard Road L3171, the demolition/removal of existing derelict farm buildings, a landscaped pedestrian link from the L3171, proposed new boundaries, landscaping, a shared green area, related and ancillary services and all associated site-works	10/22/2024 12:00:00 AM	Screened out

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