May 2025

Stage 1: Appropriate Assessment – Screening and Stage 2: Natura Impact Statement

Proposed 110kV Substation and Underground Grid Connection at Grangeford, Co. Carlow

On behalf of

Prt Solar Limited

MALONE O'REGAN ENVIRONMENTAL

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Stage 1: Appropriate Assessment – Screening and Stage 2: Natura Impact Statement

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Prt Solar Limited

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1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') was commissioned by Prt Solar Limited. ('the Applicant') to undertake an Appropriate Assessment to assess the likely significant effects, if any, with respect to the construction and operational phases of a proposed 110kV substation ('henceforth referred to as the 110kV Substation') and associated 110kV underground cable ('henceforth referred to as the UGC') connecting the proposed to the existing ESB 220kV Kellistown Substation and all associated works ('henceforth referred to as the Proposed Development') on nearby sites with European conservation designations (i.e., Natura 2000 sites).

The proposed 110kV Substation will be located on a Site that is ca. 1.7 hectares ('ha') in size and located in the townlands of Grangeford Old and Friarstown, Co. Carlow (OS ITM Reference 076106 336077) as outlined in Figure 1-1 ('the Site').

The proposed 110kV UCG will be ca. 8km in length, primarily along public roads, and will traverse through the townlands of Friarstown, Grangeford Old, Grangeford, Moanalow, Glenoge, Rathnashannagh, Inchisland Or Moatalusha, Rathtoe, Kellistown East, Ballycurragh and Kellistown West.

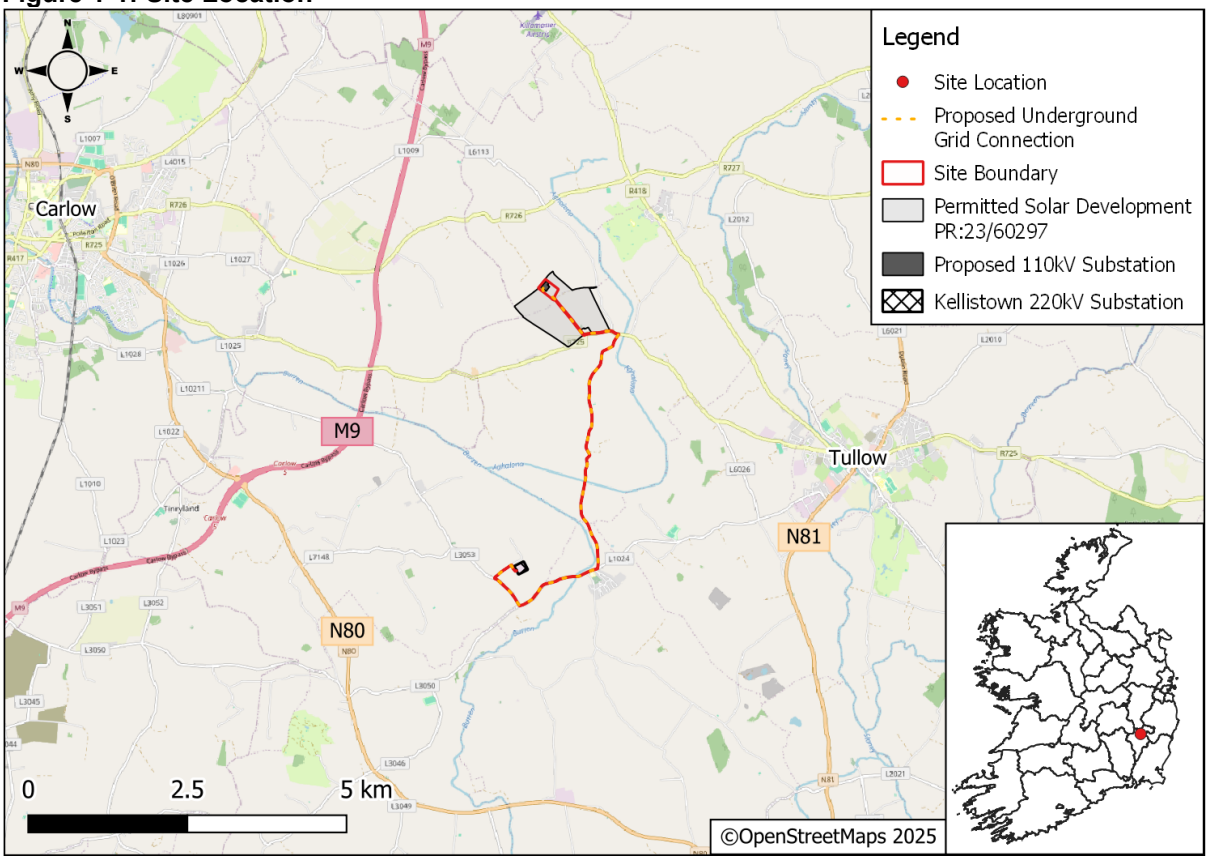
The Proposed Development will form a major new strategic connection node to the national grid within County Carlow. The Proposed Development will transmit power from the permitted Grangeford Solar Farm (Planning Ref: 23/60297; which amended previous permission Reg. Ref: 21/23 and ABP-309987-21) (henceforth referred to as the 'Permitted Solar Development') via an UGC, which will connect into the existing ESB Kellistown 220kV substation located circa ('ca.') 3.4km (direct distance) southwest of the Permitted Solar Development.

The Substation is designed to the latest Eirgrid Standard, comprising a 110kV AIS 2 Bay Station extendable to 4 Bay and 8 Bay configuration. Eirgrid recommends this design as it facilitates future expansion and improving the overall availability of renewable energy on the grid. This design optimises resources in the initial substation development and reduces the downtime and impact on the grid over its lifecycle, thus facilitating future grid connections and improving the effectiveness of the substation. This substation design will improve the availability of customer renewable energy connections on the system and enhance the integration of renewable sources, thus supporting the industry's collective goal of a sustainable energy future.

This report has been prepared to inform the Planning Authority with regard to Stage 1 (Screening) and Stage 2 (Appropriate Assessment) of the Proposed Development through the research and interpretation of best scientific, geographic and engineering knowledge and in view of the conservation objectives of the surrounding European sites. This report seeks to determine whether the Proposed Development will, on its own or in-combination with other plans / projects have a significant effect on European designated sites within a defined zone of influence of the Site.

On completion of the Appropriate Assessment Screening Report, it was found necessary to progress to a Stage 2 of the Appropriate Assessment process and prepare a Natura Impact Statement (NIS) to assess effects on the integrity of European Designated sites.

Figure 1-1: Site Location



1.1 The Applicant

Prt Solar Limited is an SPV established in 2021 for the purpose of developing, constructing and operating the Proposed Development. The company is wholly owned by Aer Soléir, a pan-European renewable energy developer, which is headquartered in Ireland.

Aer Soléir, headquartered in Dublin, Ireland, is a developer, owner and operator of utility scale onshore wind, solar and battery storage in select markets in Europe. They are backed by Quantum Energy Partners, a leading capital provider to the global sustainable energy and decarbonization sectors with more than $21 billion in capital commitments. Aer Soléir is a 30-person team focused on acquisition, development, engineering, and construction as well as procurement and finance. The team is led by Andy Kinsella (former CEO of Mainstream Renewable Power) and Manus O'Donnell (former CIO of NTR) and supported by senior members with decades of experience in the renewable energy and financial sectors, all of whom have worked for international leaders in the renewable energy industry. Aer Soléir plans to continue to grow throughout Europe, adding to their portfolio of over 2.5GW+, which they have developed since inception in April 2021.

1.2 Planning Background

1.2.1 Permitted Planning Permissions

The Proposed Development will be critical infrastructure that will be intrinsically linked to both permitted and planned renewable energy projects, comprising both solar and battery energy storage developments. Details of these projects are described below. These renewable energy projects will not be able to function as standalone developments as they will be reliant on connections to the Proposed Development in order to connect to the national grid.

It is anticipated that, subject to obtaining consent for the Proposed Development, the proposed 110kV substation will be developed in lieu of a previously permitted 38kV substation granted

by Carlow County Council (Planning Ref: 2360297). The Proposed Development will connect the Permitted Solar Development to the national grid. It is envisioned that the Proposed Development will be constructed in conjunction with the Permitted Solar Development as part of one development (henceforth known as the 'Overall Development'). Please refer to Figure 1-1.

Carlow County Council Planning Reg: 21/23 (ABP Ref No. 309987-21) – Granted

> *10 Year permission for development consisting of the construction of a Solar PV development comprising photovoltaic panels laid out in arrays over a total development site area will be ca. 65.6 ha, the construction of a 38kV substation (ca 114.4m^2 x 4.75 tall) a transformer unit (ca. 18m^2 x 4m tall) and associated bund (ca. 55m2), along with ancillary development including; 24 no. Power Hubs (ca. 15.25m^2 x 2.4m) which incorporate an inverter and a transformer, 1 no. single storey communications building (11.1m^2 x 2.5m), 1 no. single storey client side sub-station building (15.25m^2 x 2.9m), 1 no. single storey equipment storage building (7.5m^2 x 2.7m), 10 no. CCTV cameras mounted on 4m high poles, perimeter security fencing, site access, site egress and all ancillary works.*

A Notification to Refuse Permission was issued by Carlow County Council on the 23rd March 2021 due to a limitation on MW's outputs stipulated in their Development Plan at that time. A first party appeal was submitted to An Bord Pleanála on 17th May 2021. Planning was granted by An Bord Pleanála (ABP Ref: 309987-21) on the 26th October 2021.

This planning permission was superseded by Planning Ref: 23/60297 below.

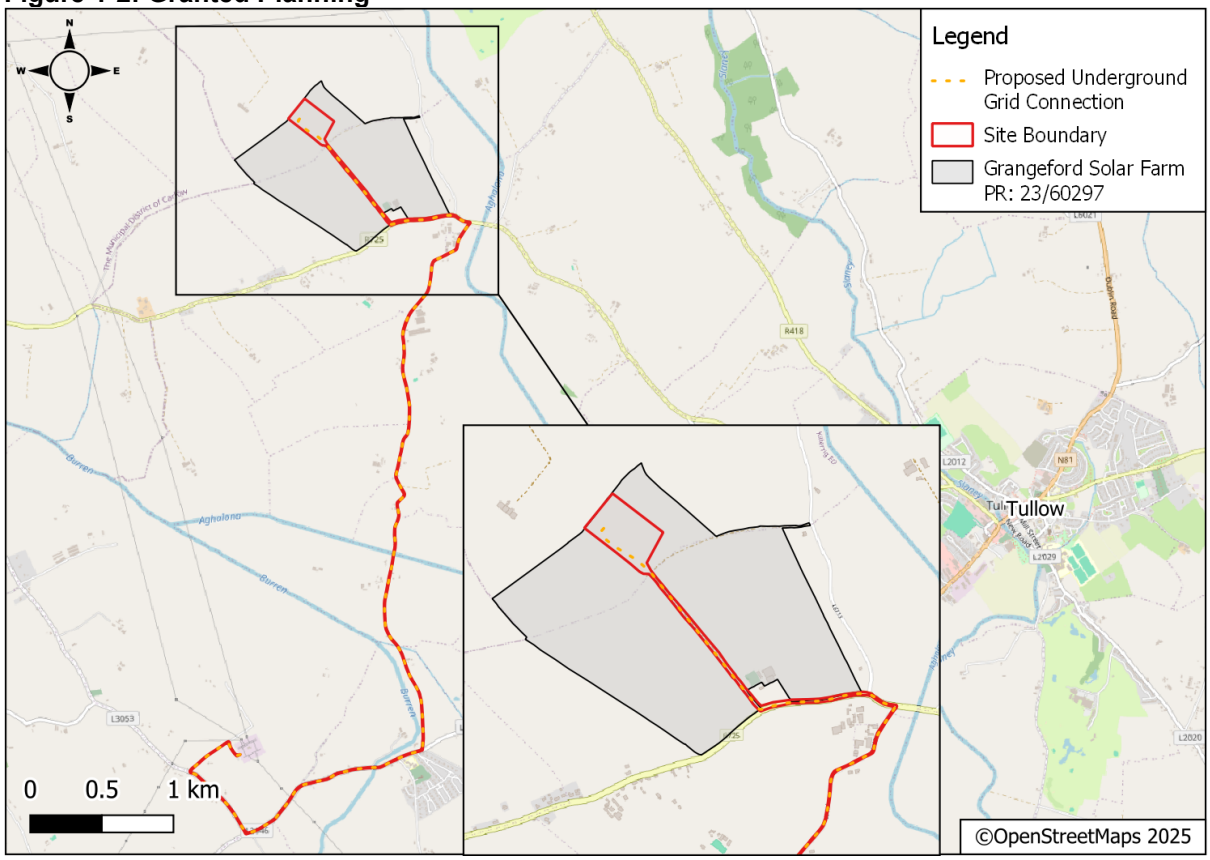
Carlow County Council Planning Reg: 23/60297– Granted

> *10-year permission. The development will consist of the construction of (i) a Solar PV development comprising photovoltaic panels laid out in arrays over a total development site area of ca. 91.2ha, (ii) the construction of a 38kV substation building ((6.1m (h) x 20.9 (l) and 7.3 (w)) and associated compound area, a transformer unit (ca. 6m x ca. 3.6m) and associated bund, (iii) 352 number Battery Energy Storage System units comprising 22 modules (ca. 21.9m x ca.5.2m) each with 16 number cabinet units within each module and (iv) all ancillary development including 15 number transformer integrated units (ca. 10.5m x ca.2.7m), 12 number inverter units (ca. 6.0m x ca.2.4m), 7 number CCTV cameras mounted on 4m high poles, a 3m high acoustic barrier, with berm and fencing, perimeter security fencing, site access, site egress and all ancillary works and services. The development will have a 40-year operational lifetime.*

This planning permission superseded the previously permitted solar development (Planning Ref: 21/23; ABP Ref No. 309987-21). Carlow County Council granted the Permitted Solar Development on the 24th September 2024.

Figure 1-2 illustrates the Permitted Solar Development permission boundary and the Proposed Development boundary.

Figure 1-2: Granted Planning



1.2.2 Strategic Infrastructure Development

The proposed 110kV substation will become a node on the national grid for this region in County Carlow whilst also forming the connection point for the associated Permitted Solar Development (Planning Ref: 23/60297) and for future renewable projects in the area.

It is considered that this project falls within the requirements of the Planning Development (Strategic Infrastructure Act 2006), which falls within the scope of Section 182A of the Planning and Development Act 2000, as amended, and also meets the criteria as a development which contributes substantially to the fulfilment of any of the objectives in the National Planning Framework.

The relevant criteria of Section 182A (2) are as follows:

- the development would be of strategic economic or social importance to the State or the region in which it would be situated;
- the development would contribute substantially to the fulfilment of any of the objectives in the National Planning Framework or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situated;
- the development would have a significant effect on the area of more than one planning authority.

In respect of (b) above, the proposed substation will have the capacity to serve future renewable energy developments and would contribute substantially to the fulfilment of any of the objectives in the National Planning Framework or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situated.

The Permitted Solar Development will not use the total capacity of the extendable substation (180MW). Hence, this will offer significant strategic benefit to the surrounding areas for the development of future renewable energy projects.

1.3 Statement of Authority

This report was reviewed and approved by Ms. Kathryn Broderick, Principal Consultant - Ecologist. Kathryn has over 8 years of experience working in the ecological consultancy sector. As part of her role, Kathryn is required to undertake habitat surveys and appraisals as well as specialist-protected species surveys in support of Ecological Impact Assessments and Appropriate Assessments. Kathryn has also completed a diploma in Environmental Law and Planning, which had a focus on EIA and AA assessment, which has provided her with a comprehensive understanding of the legal context and requirements of these types of assessments.

1.3.1 Regulatory Context

The following guidance documents were adhered to for the preparation of this NIS report:

- Office of Public Relations ('OPR') Practice Note PN01, *Appropriate Assessment for Screening for Development Management*, The Office of the Planning Regulator [1];
- *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*, European Commission [2];
- *Guidelines for Ecological Impact Assessment in the UK and Ireland*, Chartered Institute of Ecology and Environmental Management [3];
- *Managing Natura 2000 Sites:* The Provision of Article 6 of the Habitats Directive 92/43/EEC [4]*;*
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities,* Department of Environment, Heritage and Local Government ('DoEGLH') [5]; and,
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10*, DoEGLH [6].

This NIS was prepared in accordance with and in compliance with the following legislation:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as "The Habitats Directive". This provides the framework for the legal protection of habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. The Habitats Directive was transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 / 2011) (as amended) [7].

For completeness, the Planning and Development Act 2000 (as amended) states "European site" means:

a. A candidate site of Community Importance;
b. A site of Community Importance ('SCI');
c. A Special Area of Conservation ('SAC');
d. A candidate Special Area of Conservation ('cSAC'); or,
e. A Special Protection Area ('SPA')

These are Special Areas of Conservation ('SACs') designated under the Habitats Directive and Special Protection Areas ('SPAs') designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC) (better known as "The Birds Directive"). The Birds Directive was also transposed into Irish law through the Planning and Development Act 2000 (as amended) and S.I 477 / 2011 [7].

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment.

> *"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the Appropriate Assessment ('AA') process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

1.4 Stages of Appropriate Assessment

There are four distinct stages to undertaking an AA as outlined in current European Union ('EU') and Department of Environment, Heritage and Local Government ('DoEHLG') guidance:

Stage 1: Screening

This process identifies the potential impacts of a plan or project on a Natura site, either alone or in combination with other plans and projects and considers whether these impacts are likely to be significant. If potentially significant impacts are identified, the plan or project cannot be screened out and must proceed to Stage 2.

Stage 2: Appropriate Assessment

Where potentially significant impacts are identified, an assessment of the potential mitigation of those impacts is required; this stage considers the appropriateness of those mitigation measures in the context of maintaining the integrity of the Natura 2000 sites. If potential significant impacts cannot be eliminated with appropriate mitigation measures, the assessment must proceed to Stage 3.

Stage 3: Assessment of Alternatives Solutions

This process examines alternative ways to achieve the objectives of the plan or project that avoid adverse impacts on the integrity of the Natura 2000 site if mitigation measures are deemed insufficient.

Stage 4: Imperative Reasons of Overriding Public Interest ('IROPI')

Assessment where no alternative solution exists for a plan or project and where adverse impacts remain. This includes an assessment of compensatory measures, which, in the case of projects or plans, can be considered necessary for IROPI.

2 METHODOLOGY

2.1 Determining Zone of Influence

The starting point for this assessment was to determine the Zone of Influence. The Zone of Influence comprises of the area in which the Proposed Development may potentially affect the conservation objectives (or qualifying interests) of a European site.

Guidance in Appropriate Assessment of Plans and Projects in Ireland notes that a distance of 15km is recommended for the identification of relevant European sites. [5]. However, guidance from the NPWS recommends that the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative) [6]. For some projects, the distance could be greater than 15km and in some cases, less than 100m.

The definition of the zone of influence for the proposed works includes evaluating the following:

- Identification of the European sites that are situated within, in close vicinity or downstream within the zone of influence of the Proposed Development;
- Identification of the designated habitats and species and conservation objectives for the identified European sites;
- Identification of the environmental conditions that stabilise and increase the qualifying interests of the European sites towards favourable conservation status;
- Identification of the threats / impacts, actual or potential, that could negatively impact the conservation objectives for the European sites;
- Identifying the activities of the proposed works that could give rise to significant adverse impacts; and,
- Identification of other plans or projects for which in-combination impacts would likely have significant adverse effects.

2.1.1 Source-Pathway-Receptor Model

European sites are only at risk from significant effects where a source-pathway-receptor link exists between a Proposed Development and a European site. This can take the form of a direct impact (e.g., where the Proposed Development is located within/in close vicinity to the boundary of a European site), or an indirect impact where impacts occur outside of the European site but affect ecological receptors within the European site (e.g., impacts to water quality which can affect estuarine habitats at a distance from the impact source).

The likely effects of the Proposed Development on any European site have been assessed using a source-pathway-receptor model. A source-pathway-receptor model is a standard tool used in environmental assessment [8] [9]. The model comprises of:

- A source: any potential impacts from the Proposed Development, e.g., the runoff of sediment / construction pollution;
- A pathway: the means or route by which a source can affect the ecological receptor; and,
- A receptor: the qualifying interests and/or special conservation interests of the European sites.

In order to establish the Zone of Influence of the Proposed Development works, the likely key environmental impacts/changes associated with the Proposed Development were determined having regard to the project characteristics set out in Section 3.3 of this report. The Zone of Influence for various potential impact pathways are discussed in Section 4.1.

2.2 Desk Based Review

A desk-based review of information sources was completed, which included the following sources of information:

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service ('NPWS') website was reviewed with regard to the most up-to-date detail on conservation objectives for the European sites relevant to this assessment [10];
- The Carlow County Council ('CCC') Planning Portal was reviewed to obtain details about existing / proposed developments in the vicinity of the Site [11];
- The Department of Housing, Local Government and Heritage's planning portal – the National Planning Application Database, was reviewed to obtain details about existing / proposed developments in the vicinity of the Site [12];
- The National Biodiversity Data Centre ('NBDC') website was reviewed with regard to species distributions [13]; and,
- The Environmental Protection Agency ('EPA') Maps website was reviewed to obtain details about watercourses in the vicinity of the Site [14].

2.3 Field Based Studies

2.4 Previous MOR Surveys

As part of the previous solar planning permissions (21/23; ABP Ref No. 309987-21 and 23/60297), MOR Environmental ecologists undertook site surveys of the Permitted Solar Development lands on 15th September 2020 and 30th May 2023 by suitably qualified and experienced MOR ecologists.

These surveys included habitat assessments utilising the Heritage Council's – '*A Guide to Habitats in Ireland'* [15], and assessed the potential for onsite habitats and habitats within the wider area to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation.

Although the information provided from these field visits is out of date, it is considered that this information provides appropriate background information to the proposed 110kV substation site.

2.4.1 Habitat Surveys 2024/2025

A Site walkover was undertaken on the 17th May 2024 by a suitably qualified and experienced MOR Environmental ecologist to assess extent and the quality of habitats present on the Site and to identify any potential ecological receptors associated with the European sites. A follow up survey was complete on the Site on 29th January 2025.

The habitat survey was undertaken for the Site utilising the Heritage Council's – '*A Guide to Habitats in Ireland'* [15]. This is the standard habitat classification system used in Ireland and includes both a desk-based and field-based assessment.

The assessments were extended also to identify the potential for these habitats to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation.

2.4.2 Otter Survey

The survey aimed to identify and examine areas where otter might occur by noting any evidence of otter observed. Evidence of otter searched for included:

- Holts (features log piles, caves and cavities);
- Slides (flattened areas of mud or vegetation);
- Paw prints;
- Evidence of foraging (usually in the form of feeding remains such as fish scales and shellfish); and,
- Spraints (isolated otter droppings).

2.4.3 Invasive Species

The Site was also assessed for the presence of any noxious / invasive species such as Japanese knotweed (*Reynoutria japonica*) and any other invasive species within the Site and adjacent area.

2.4.4 Other Species

In addition, as part of the overall ecological assessment for the Site, an assessment was carried out for the potential of the Site to support any other species considered to be of value for biodiversity, including those that were identified as occurring locally by the desktop study. This information was used as part of the NIS to inform the assessment of potential adverse effects on both Annex I species and habitats identified as part of the study.

2.5 Survey Conditions and Limitations

No survey limitations were encountered.

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

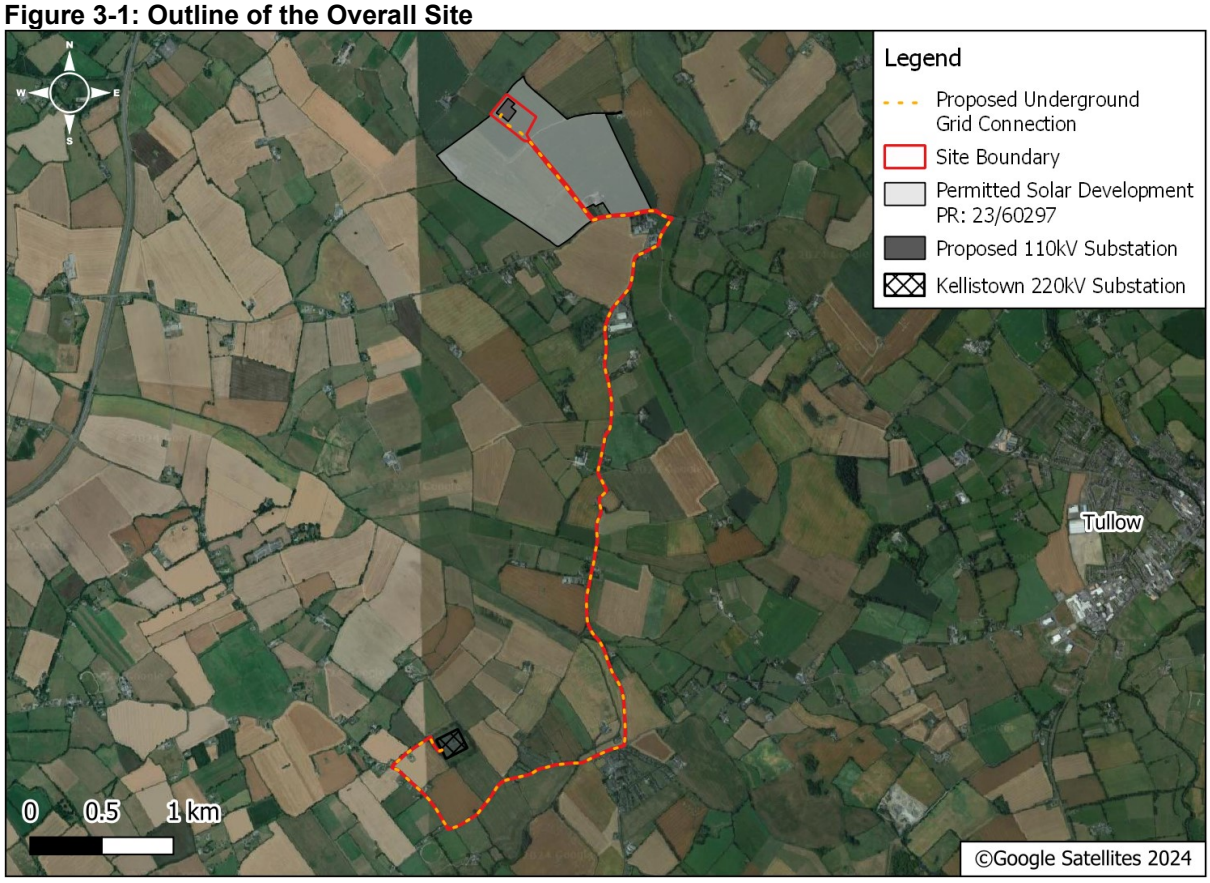
3.1 Site Context

The Site is located within a predominately rural landscape within the townlands of Friarstown Grangeford Old, Grangeford, Moanalow, Glenoge, Rathnashannagh, Inchisland, Rathtoe, Ballycurragh, Kellistown West and Kellistown East, Co. Carlow. The Site is surrounded by agricultural grassland, with scattered residential properties and farmyards. The Killerig Golf Club is located ca. 1km northeast of the Site at the closest point. Refer to Figure 2-1.

The Site is 1.7ha in size, located in predominantly agricultural land, which at the time of writing this report is under arable crop with hedgerow / treeline forming the northern perimeter of the Site. The Site is accessed via the R725 and the L6113.

The proposed 110kV UGC will be situated along existing internal access tracks / agricultural land, with the majority located within existing public road infrastructure, both regional and local, before connecting to the existing ESB 220kV Kellistown Substation.

Figure 3-1: Outline of the Overall Site



3.2 Watercourses within the Vicinity of the Site

The Site is situated within the Barrow Water Framework Directive ('WFD') Catchment [Catchment_ID: 14] and the Barrow_SC_090 subcatchment [Subcatchment_ID: 14_13] [16].

There are no open watercourses within the proposed 110kV substation site. However, as per EPA maps there are six hydrological features of note within close proximity to the Site and three watercourses will be crossed via the UGC route, as outlined below and illustrated in Figure 3-3 and Figure 3-4.

1. The Ardnehue River

The Ardnehue River is located ca. 560m to the west / southwest of the Site at its closest point. This river flows in a south-westerly direction, draining into the Burren 14 River, ca. 3.2km downstream of the Site. The Burren 14 flows in a west / northwesterly direction, eventually discharging into the River Barrow, ca. 11.6km downstream of the Site. The River Barrow forms part of the River Barrow and River Nore SAC.

2. Grangeford Old Stream

According to the EPA maps, the Grangeford Old Stream is located ca. 230m southwest of the Site and joins the Ardnehue River (described above). However, this watercourse **was not identified** as part of the site inspection completed in May 2024.

The absence of this watercourse remains consistent with the findings of the previous site surveys completed in 2021 and 2023 as part of the previously permitted planning applications (21/23; ABP Ref No. 309987-21 and 23/60297). This portion of the Site is noted as being 'benefited land' that was drained as part of the Drainage District and has been infilled.

3. The Baunogenasraid Stream

The Baunogenasraid Stream runs parallel to the proposed UGC for ca. 200m and then flows in a southwesterly direction. The Baunogenasraid Stream discharges into the Burren River ca 2.8km downstream.

4. The Aghalona River

The Aghalona River will be crossed by the proposed UGC via Horizontal Directional Drilling ('HDD') under the existing bridge / culvert. This river flows in a southwesterly direction before discharging into the Burren River ca. 2.5km northwest of the Site.

5. The Roscat River

The Roscat River flows in a westerly direction and discharges into the Burren River ca.165m west of the proposed UGC route. This River will be crossed by the proposed UGC via HDD under the existing bridge along the road infrastructure.

6. The Burren 14 River ('Burren River')

The Burren River flows in a northwesterly direction and discharges into the River Barrow 11.6km downstream of the Site. The proposed UGC will cross the Burren River via HDD under the existing bridge. The River Barrow forms part of the River Barrow and River Nore SAC.

Water Quality Status and Risk

Under the Water Framework Directive ('WFD') 2000/60/EC, the Environmental Protection Agency ('EPA') classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [1]. According to the river waterbody WFD 2016-2021 [1], the water quality status and risk for the above-mentioned watercourses is as follows:

- The Ardnehue River has a *'moderate'* water quality status and is considered to be *'not at risk;'*
- The Grangeford Old Stream has a '*good*' water quality status and is classified as '*not at risk*';
- The Baunogenasraid Stream has a '*good*' water quality status and is classified as '*not at risk*';
- The Aghalona River has a *'moderate'* water quality status and is classified as *'at risk;'*
- The Roscat River is classified as *'moderate'* and *'under review';* and,
- The Burren River has a *'moderate'* water quality status and is deemed *'not at risk'* along the section of river into which the Ardnehue and Aghalona rivers drain.

Approximately 3.5km downstream, the Burren River is considered to be '*at risk'* of not achieving a *'high'* water quality status even though its water quality remains *'moderate'*.

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-2 and 3-3 below.

Figure 3-2: Watercourse in Vicinity to the Proposed Tail-Fed Substation

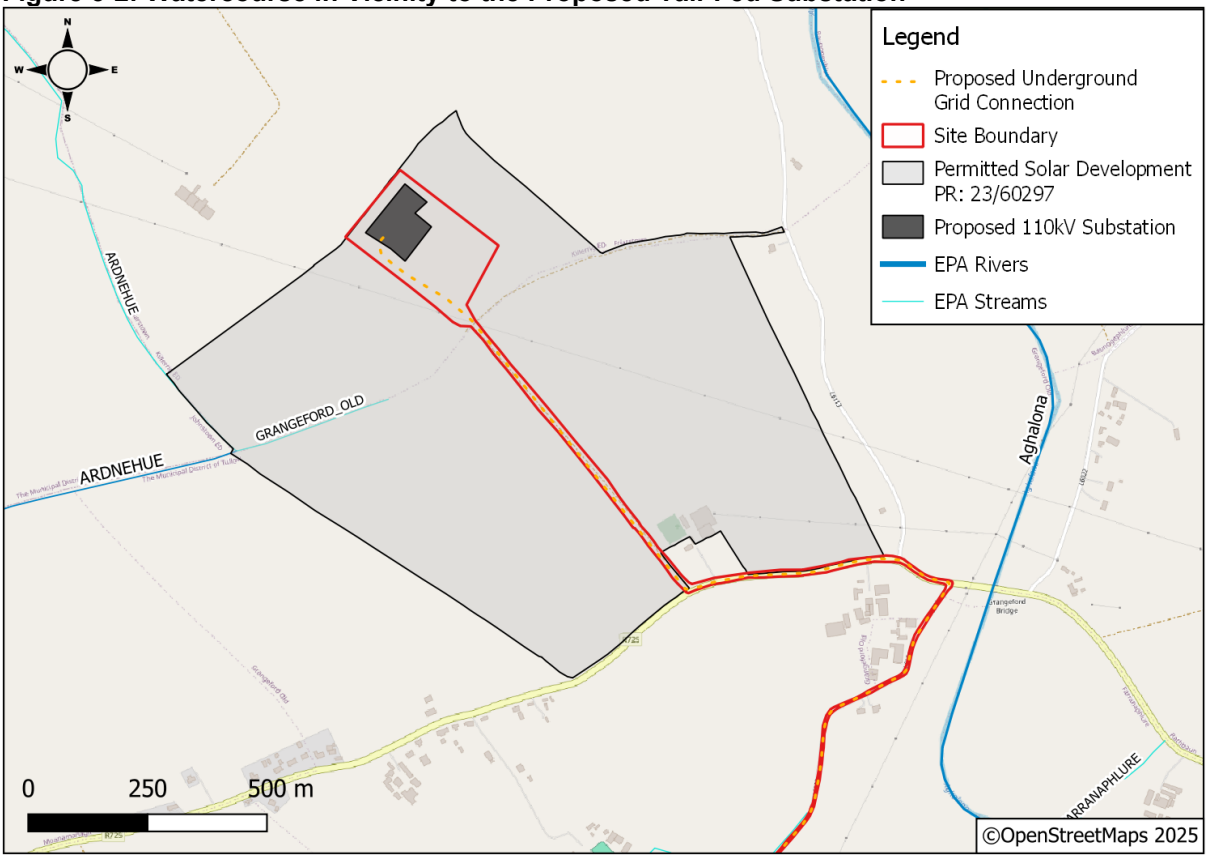
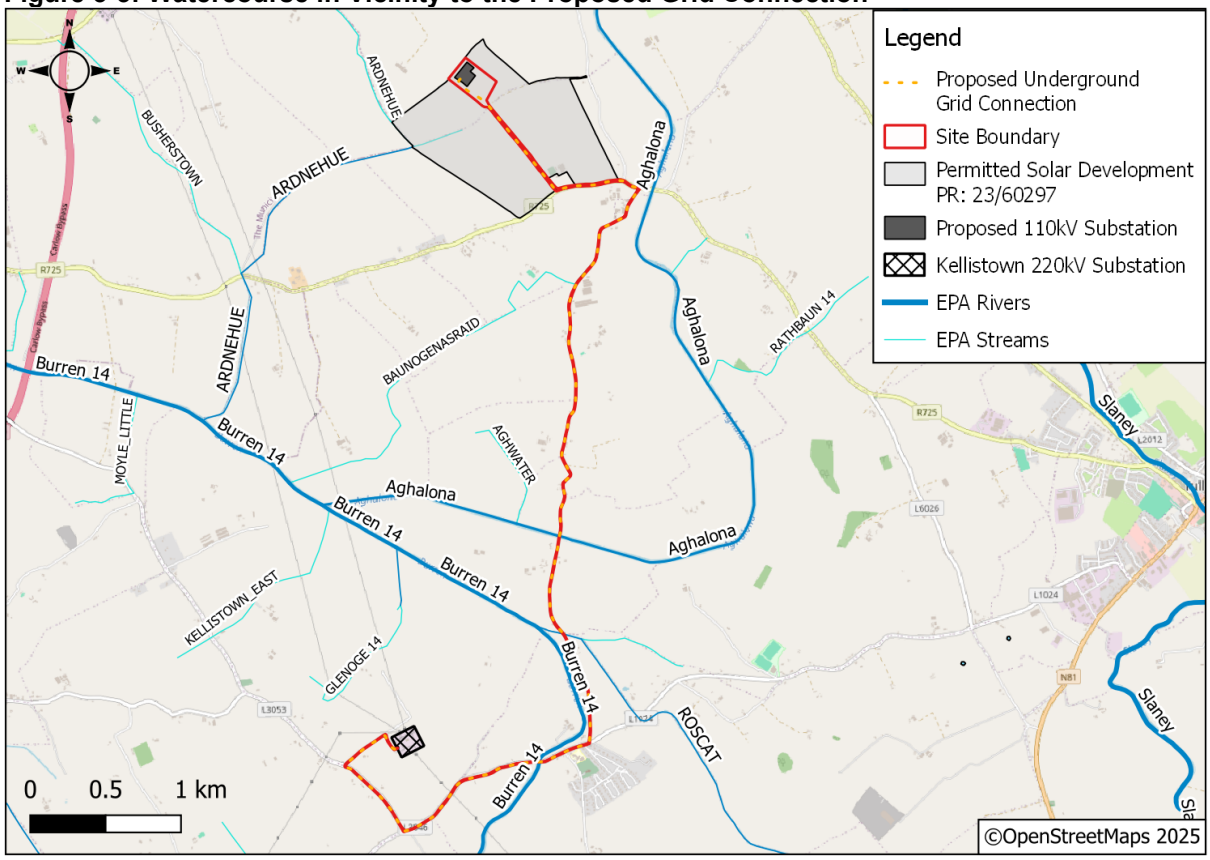


Figure 3-3: Watercourse in Vicinity to the Proposed Grid Connection



3.2.1 OPW Flood Maps

The Office of Public Works ('OPW') Flood Maps identifies Drainage Districts, Arterial Drainage Schemes and Benefited Areas. Arterial Drainage Schemes were works that were carried out under the Arterial Drainage Act, 1945 to improve land for agriculture and to mitigate flooding. The Benefited land identifies land that was drained as part of the Drainage District with the aim to improve land for agriculture and to mitigate flooding.

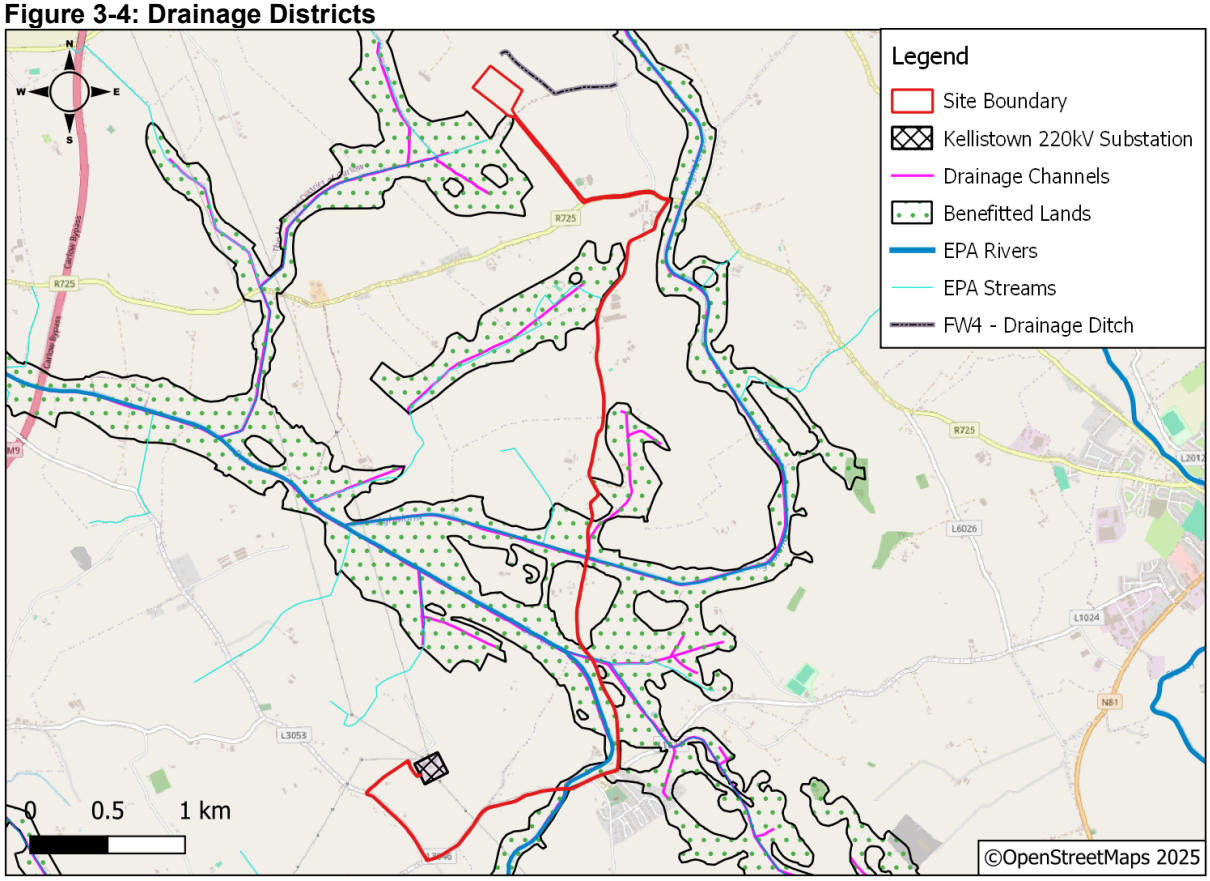
The Site does not form part of the Benefitted Lands Scheme; see Figure 3-4. However, a section of land within the western portion of the Permitted Solar Development, directly adjacent to the Site Boundary, forms part of the Benefitted Lands Scheme. Additionally, a drainage ditch channel was also identified within the Permitted Solar Development under the Barrow Drainage District Scheme. The drainage ditch channel is located predominantly along the western perimeter of the Permitted Solar Development, ca. 100m at its closest point from the Proposed Development.

3.2.2 Drainage Ditch Network

A number of drainage ditches were noted within the vicinity of the Site, located adjacent to hedgerow / treelines along sections of the Permitted Solar Development perimeter. No drainage ditches were noted traversing the Site. The surveys undertaken at the Site in 2020, 2023 and 2024 confirmed that these ditches were not hydrologically connected to any EPA watercourse. See Figure 3-4.

Such drainage regimes are typical features of agricultural lands as they facilitate drainage from the fields during periods of heavy rainfall to reduce flooding.

Figure 3-4: Drainage Districts



3.3 Description of the Proposed Development

3.3.1 110kV Substation

The proposed 110kV electrical substation in Friarstown, on a site of ca.1.7ha will consist of:

- 1 no. electrical substation compound and access road, palisade fencing and gates, measuring 100.75m x 126.75m;
- 1 no. electrical substation / IPP control building measuring 10.74m x 20.15m and 6.920m in height;
- 1 no. Eirgrid switch room building measuring 18m x 25m and 8.55m in height;
- 6 no. lightning protection monopoles measuring up to 18m in height;
- Associated electrical apparatus, plant, and equipment; overhead and underground electrical and communications cabling and ancillary works;
- Upgrading of existing access road;
- Temporary site construction compound; and
- All associated ancillary works above and below ground including landscaping.

CCTV

The on-site CCTV would be remotely monitored via a 24/7 operational team who would alert all relevant personnel in the event of a break-in or vandalism at the Site. The cameras will only be focused along the fence line and will not be focused on any residential properties.

Fencing

The switchyard will be enclosed in a palisade-type security fence. A perimeter fence which will be installed to provide security, restrict access, and be deer-proof.

Lighting

Emergency lighting will only occur as part of the Proposed Development.

3.3.2 110kV Grid Connection

The proposed 110kV UGC will be ca. 8km in length. The UGC will interconnect the Proposed 110kV substation to the existing 220kV ESB Kellistown substation.

The UGC will consist of:

- Three 160mm diameter HDPE power cable ducts;
- Two 125mm diameter HDPE communications duct; and,
- One 63mm diameter earth continuity duct to be installed in an excavated trench, typically 825mm wide by 1,315mm deep.

Variations on this design to adapt to bridge crossings, service crossings and watercourse crossings, etc. The power cable ducts will accommodate one power cables per duct. The communications duct will accommodate a fibre cable to allow communications between the Grangeford Solar Farm Substation and Kellistown 220kV substation. The inclusion one earth continuity conductor duct will also be required.

The 110kV UGC route will exit the proposed 110kV Substation and traverse in a southerly direction within the permitted development (PR 2360297) along existing internal access tracks and exit directly onto the R725. The UGC will then follow the R725 in an easterly direction for ca. 550m before turning onto the local road.

The UGC will continue in a southerly direction to the existing ESB 220kV Kellistown Substation. The cable will be installed in a cable trench as per industry standards, including ducting, fibre optic conductor, insulated earthing conductor where required and link boxes at some jointing locations. The ESB will ultimately be responsible for ensuring that the most appropriate connection option will be selected. This asset, together with the substation, will be owned and operated by the Independent Power Producer ('IPP').

Full details of the proposed cable route development are provided within the TLI Group Construction Methodology Report, which will be submitted in support of this application. This report outlines the summary of features along the UGC design route.

3.3.3 Drainage

Surface Water Drainage

A Sustainable urban Drainage System ('SuDS') approach is proposed for the surface water drainage. Rainfall runoff from the control building roof in the substation will be collected and piped to a rainwater harvesting tank for reuse in the onsite toilets. As water use for flushing toilets will be very low due to the infrequent use of the building, the majority of rainwater from the roof will drain into a proposed soak-away.

The Proposed Development access road shall be surfaced with a layer of permeable stone hardcore. This free-draining material will allow rainfall to permeate into the ground. A small proportion of the access roads on site will be surfaced in concrete. The surface water run-off from this area will drain freely into the surrounding free-draining areas, which will be constructed in hardcore stone. Rainfall in these areas will permeate through the stone into the ground as per the green field conditions.

Foul Water

There will be no foul drainage required. During the construction phase, portable toilets will be provided at the temporary Contractors' Compound for the duration of the construction phase only. All waste from the portable toilets will be removed and disposed of off-site by an approved contractor.

During the operational phase, the substation building will contain a sink and toilet. As the welfare facilities on-site will be infrequently used, it is proposed that foul water will be diverted into a below-ground holding tank. All wastes collected in this holding tank will be removed by a suitably licensed waste contractor as required.

No specific drainage infrastructure will be required for the Proposed Development.

3.3.4 Earthworks

Localised levelling works will be required for the development of the Site. The detailed design of the substation will determine the extent of the earthworks. However, the substation will comprise of a concrete foundation for the transformers and electrical equipment, with the rest of the area filled with crushed rock.

It is estimated that the majority of the excavated materials will be reused within the Site or alternatively within the adjoining permitted solar farm for the purpose of constructing screening berms given the overall development will be constructed as a single construction project.

3.3.5 Soil Disposal

It is proposed that the majority of the excavated materials will be reused within the Site or alternatively within the adjoining permitted development for the purpose of constructing screening berms given the overall development will be constructed as a single construction project.

3.3.6 Site Access

Construction Phase

The Site is currently accessed via the existing commercial site entrance on the R725, which currently provides access for Nolan Farming, an ongoing farming business. This road runs west to east and is situated along the southern section of the Site. The existing entrance is wide and well-serviced and will be readily capable of taking all the vehicle movements during the construction phase of the 110kV substation.

It should also be noted that the existing commercial entrance on the R725 was successfully used while hosting the World Ploughing Contest in 2006, accommodating large numbers of farming equipment and spectator vehicles.

A temporary construction access via the L6113 was authorised as part of the permitted PV development (Ref No. 23/60297). For this Proposed Application, it is proposed that the L6113 will also serve as an alternative egress.

This existing access and egress were granted as part of the permitted development (PR:23/60297). It should also be noted that Transport Infrastructure Ireland ('TII') or the municipal district engineer had no objection to the permitted development.

Construction Phase Egress

It is proposed that the construction vehicles will follow the previously permitted one-way system to traverse the Proposed Development, thereby ensuring all Construction Phase egress will be via an existing site access point on the L6113 that also provides access to Nolan Farming. This is situated along the eastern section of the Site. This proposed one-way system will negate the need for construction traffic to exit the Proposed Development directly onto the R725, as previously requested by the Council.

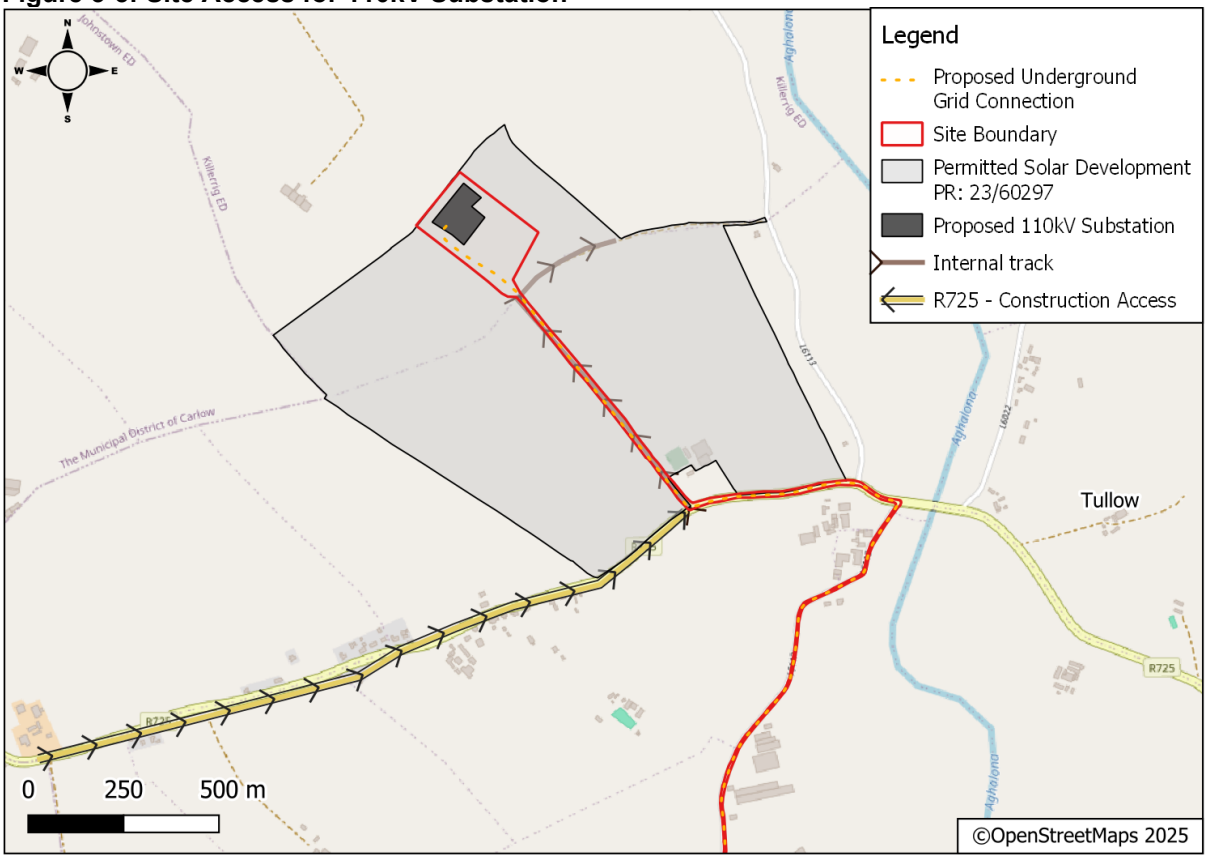
Internal Access

The Site will be accessed from the secure temporary compound in the Nolan farmyard via a network of pre-existing hardcore tracks extending to all areas of the Site and will be the principal means of all internal access. This was granted as part of the permitted PV development (PR 21/23; ABP Ref No. 309987-21).

Operational Phase Access and Egress

All Operational Phase access and egress will be via an existing commercial site entrance on the R725. This was granted as part of the permitted PV development (PR 21/23; ABP Ref No. 309987-21 and PR 23/60297).

Figure 3-5: Site Access for 110kV Substation



3.3.7 Sightlines

All site access and egress sightlines are in accordance with all sightline visibility requirements, as set out by the TII Design Manual for Roads and Bridges.

For vehicles entering the Site, the forward visibility in both directions is in excess of 150m, and for vehicles departing the Site, the forward visibility in both directions is in excess of 90m.

Both the R725 and L6113 provide adequate stopping Site distances and satisfy current standards; therefore, the Proposed Development will not contribute significantly to the risk to road users. TII or the municipal district engineer had no objection to these sightlines submitted as part of the permitted PV development (Ref No.23/60297).

3.3.8 Security Fencing/Hoarding Fencing

The Site will be secured by palisade fencing and gates. New double gates will be installed at the site entrance that will be kept locked and secured to prevent any unauthorised site access.

3.4 Specialist Ecological Input / Sensitive Design

Specialist ecological input was a key element of the design of the Proposed Development. This ensured that the design was extremely sensitive to valued ecological features that occur or may occur within the Site and the surrounding landscape. The key measures relevant for this Proposed Development are detailed below:

- The construction and maintenance of the Proposed Development will use the approved access as per Ref No.2360297 which utilises the existing farm access point. Options to access the Site have been carefully considered to ensure safe access to the Site;
- Buffers will be implemented and maintained throughout the lifecycle of the Proposed Development including:
    - A >100m buffer between all works and substation infrastructure and any designated European site;
    - A >500m buffer between all works and substation infrastructure and any EPA-designated watercourse;
    - A ca. 6m buffer between all works, substation infrastructure and existing hedgerows / treelines;
    - A ca. 5m setback from the perimeter fence and all infrastructure; and,
    - A minimum ca. 200m buffer between likely solar farm acoustic emission infrastructure and sensitive residential dwellings.

3.5 Construction Procedure

During the Construction Phase, the methods of working will comply with all relevant legislation and best practice guidelines in reducing the environmental adverse effects of the works. Although Construction Phase adverse effects are generally of a short-term duration and are localised in nature, the adverse effects will be reduced as far as practicable through compliance with current construction industry guidelines.

It is intended that there be a single construction programme for the Permitted Development and the Proposed Development.

A Construction Environmental Management Plan ('CEMP') will be prepared and submitted to the planning authority by the appointed contractor in advance of works commencing at the Site. The pCEMP will be a 'living document', and the final CEMP will be issued by the appointed contractor prior to construction commencing. The following guidance will be referred to and will be followed during the construction phase of the project to prevent environmental pollution that may occur:

- C532 – Control of Water Pollution from Construction, Guidance for Consultants and Contractors [];
- C811 - Environmental Good Practice on Site (5th edition) [];
- C648 - Control of Water Pollution from Linear Construction Projects: Technical Guidance [];
- Guidance for the Treatment of Otters Prior to the Construction of National Road Schemes [];
- All works will be undertaken in accordance with the Inland Fisheries Ireland ('IFI') '*Requirements for the Protection of Fisheries Habitat during Construction and Development'* [];

- The recommendations included within National Roads Authority ('NRA') Guidelines for the crossing of watercourses []; and,
- NRA, 'Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads' [].

The following measures will be incorporated and adhered to in order to ensure that the proposed works do not result in any contravention of wildlife legislation:

- All activities will comply with all relevant legislation and best practice to reduce any potential environmental impacts. The measures detailed within this report will be fully adhered to;
- In advance of works, all Site personnel will receive an induction which will include reference to measures in relation to protected species and measures to prevent the spread of invasive species;
- Should construction works be required outside of daylight hours, the appointed project Ecological Clerk of Works ('ECoW') will be consulted as required; and,
- If protected or notable species are encountered during operations at the proposed development, the ECoW will be contacted for advice.

3.5.1 UGC Construction Methodology

The UGC ducts will be installed and the trench reinstated in accordance with the local roads authority within Carlow County Council, where installed on public roads and reinstated in accordance with the landowner's requirements where installed on private lands. The installation of the electrical cabling / fibre cable will be pulled through in some sections. Construction methodologies to be implemented and materials to be used will ensure that the UGC is installed in accordance with the requirements of the Council and private landowners.

Please refer to the outline construction methodology prepared by TLI and submitted as part of the overall submission.

3.5.1.1 Joint Bays and Associated Chambers

Joints Bays are to be provided approximately every 750-850 m along the UGC routes to facilitate the jointing of two lengths of UGC. 110kV Joint Bays are typically 6m x 2.5m x 2.05m pre-cast concrete structures installed below the finished ground level. Joint Bays will be located in the non-wheel bearing strip of roadways; however, given the narrow profile of local roads, this may not always be possible.

In association with Joint Bays, Communication Chambers are required at every joint bay location to facilitate communication links between the Proposed Development and the existing 220kV substation at Kellistown, Co. Carlow. Communication Chambers are located close to Joint Bays and will typically be pre-cast concrete structures with an access cover at the finished surface level.

Please refer to the outline construction methodology prepared by TLI and submitted as part of the overall submission for full details regarding Join Bay and Associated Chambers construction and installation methodology.

3.5.2 Trenching Methodology

Trenches need to be excavated to install the uPVC power cable duct, communications cable duct and an earth continuity cable.

According to the TLI Group Outline Construction Methodology Report, the methodology for trenching will be as follows:

- *The Contractor, and their appointed Site Manager, will prepare a targeted Method Statement concisely outlining the construction methodology and incorporating all mitigation and control measures included within the planning application and accompanying reports and as required by conditions where relevant.*
- *All existing underground services shall be identified on site prior to the commencement of construction works.*
- *At watercourse crossings, the contractor will be required to adhere to the environmental control measures outlined within the planning application and accompanying reports, the detailed Construction Environmental Management Plan (CEMP);*
- *Where the cable route intersects with culverts, the culvert will remain in place (where possible) and the ducting will be installed either above or below the culvert to provide minimum separation distances in accordance with ESB and Irish Water specifications.;*
- *Traffic management measures will be implemented in accordance with those included in the Traffic Management Report, and a detailed Traffic Management Plan;*
- *The excavated trench will be a minimum width of 325mm and approximately 1315mm deep both within the public road network and within private lands;*
- *• Excavated material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2m in height. Stockpiles will be located a minimum of 50m from surface water features. All stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECoW);*
- *• Excavated material shall be employed to backfill the trench where appropriate and any surplus material will be transported off site and disposed at a fully authorised soil recovery site;*
- *Any earthen (sod) banks to be excavated will be carefully opened with the surface sods being stored separately and maintained for use during reinstatement.*
- *The excavated trench will be dewatered if required, from a sump installed within the low section 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;*
- *Where required, grass will be reinstated by either seeding or by replacing with grass turves;*
- *No more than a 100-metre section of trench will be opened at any one time. The second 100 metres will only be excavated once most reinstatement has been completed on the first;*
- *The excavation, installation and reinstatement process will take on average of 1 no. day to complete a 100m section;*
- *Where the cable is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together;*
- *Works will only be conducted in normal working hours of Monday to Friday 08:00 to 20:00 and Saturday 08:00 to 18:00, with no works on Sundays or Bank Holidays except in exceptional circumstances or in the event of an emergency; and,*

- *Following the installation of ducting, pulling the cable will take approximately 1 no. day between each joint bay, with the jointing of cables taking approximately 1 week per joint bay location.*

3.5.3 Horizontal Directional Drilling

The proposed cable route will require three Horizontal Directional Drilling ('HDD') crossings for Bridges 1,2,3. Where the cable route intersects with existing watercourses, a detailed construction method statement will be prepared by the Contractor before the commencement of construction and is to be approved by the relevant environmental agency.

No in-river works will be required during the construction of the Proposed Development. As part of the UGC, the Aghalona River, Roscat River and Burren River will be crossed by the Proposed Development. The crossing will be carried out using HDD. This method will drill beneath the watercourses and will avoid any disturbance to these streams. The methods used for the HDD will involve:

- *A works area of circa 40m^2 for the HDD entry side, and circa 20m^2 on the HDD exit side, will be required for the HDD equipment and vehicles. These areas will be fenced off during the HDD implementation;*
- *The drilling rig and fluid handling units will be located on the entry side and will be appropriately bunded using sandbags, which will contain any fluid spills and stormwater runoff;*
- *Entry and exit pits (approximately 2m (w) x 3m (L) x 1m deep) will be excavated using an excavator, and the excavated material will be temporarily stored within the works area and used for reinstatement or disposed of to a licensed facility;*
- *The HDD pilot bore will be undertaken using a wireline guidance system. Assembly will be set up by the drilling team and steering engineer;*
- *The pilot bore will be drilled to the pre-determined profile and alignment under the watercourse crossings;*
- *The steering engineer and drill team will monitor the drilling works to ensure that modelled stresses and pressures are not exceeded;*
- *The drilled cuttings will be flushed back by drilling fluid to the entry and exit pits and re-cycled for reuse;*
- *Once the first pilot hole has been completed a hole-opener or back reamer will be fitted in the exit side which will then be pulled back to the entry side as part of the pre-reaming / hole opening process to enlarge the hole to the correct size;*
- *When the pre-reaming / hole opening / hole cleaning has been completed, a reamer of a slightly smaller diameter than the final cut will be installed on the drill string to which the ducts will be attached for installation;*
- *The drilling fluid will be disposed of at a licensed facility;*
- *The ducts will be cleaned and proven and their installed location surveyed;*
- *The entry and exit pits will be reinstated to the specification of ESB Networks and any requirements of Carlow County Council; and,*
- *A joint bay / transition chamber / transition coupler will be installed on either side of the road following the horizontal directional drilling as per ESB requirements.*

3.5.4 Culvert Crossings

All crossings will be culverted, and it has been confirmed that there is sufficient cover within the local road to accommodate the UGC ducting. The installation will be at a minimum depth cover of 450mm to accommodate the cable ducts, as per the ESBN specifications. The ESB code of practice for crossing bridges will be followed during trenching and cabling works. Also, the permanent reinstatement of the road will be carried out to the specifications of the Local Authority.

3.5.5 Hours of Work

Working hours will generally be restricted to between 08:00 until 20:00 hours Monday to Friday inclusive and between 08:00 and 18:00 hours on Saturdays. Construction work will not be permitted on Sundays, public holidays or at night-time except where safety concerns necessitate it or if agreed in advance with the Planning Authority.

3.5.6 Temporary Construction Compound

Given the overall Development will be constructed as a single construction project, the secure construction compound will be set up in the existing farmyard at Grangeford as part of the Permitted Development. This was approved by Carlow County Council as part of the Permitted Development.

All materials for the construction of the Proposed Development will be deployed and stored within the temporary construction compound located in the Nolan farmyard. Equipment and machinery will be stored in an existing lockable agricultural shed, and bunded fuel stores will also be available.

Nolan's Farming Tillage Business provides a concreted area with a wide sweep, and it will make an ideal delivery area where materials for the construction of the solar development can be deployed and stored.

All equipment and materials unloaded in the construction compound will be distributed throughout the site using smaller machines, such as bobcats, via a network of pre-existing hardcore tracks extending to all areas of the Site that will serve to provide internal access.

The Proposed Site Compound and Welfare area will be erected on existing hardstanding only and it will be located within the existing farmyard that is currently utilised for Nolan Farming. No earthworks or sub-surface disturbance will occur as part of these proposed facilities.

3.5.7 Waste Management – Construction

- All excavated materials within the Site will be reused onsite, where possible. Excavated material from the grid route along the public road shall be employed to backfill the trench where appropriate and any surplus material will be transported off-site and disposed of at a fully authorised soil recovery site;
- Waste materials will be collected and stored in suitable receptacles before they are taken offsite;
- Waste materials will not be allowed to accumulate because of the fire / vermin risk; and,
- All wastes will be appropriately segregated with the objective of maximising the level of recycling.

To ensure the efficient management of the construction works, a Temporary Construction Compound will be set up for the duration of the construction works. Sewage will be chemically treated and removed off-site by a licensed contractor to a licensed disposal facility.

3.5.8 Monitoring Works.

An ECoW will inspect the Site in advance of works commencing and will undertake Site inspections as required during the works to ensure that they are completed in line with the measures detailed within this NIS, along with the ER and CEMP, and all wildlife legislation.

The ECoW will also either deliver or provide the resident engineer with sufficient environmental information to deliver a Site induction to all personnel working onsite.

3.6 Operational Procedures

Once operational, significant maintenance works will not be required. The Proposed Development will be an unmanned facility, which will be remotely monitored by way of CCTV. Any fault flagged on the control system will be inspected by maintenance personnel or dealt with remotely if possible. All systems onsite will be automated, with remote access provided to the control building.

The Proposed Development will require as low as one maintenance visit per year to undertake routine, non-intrusive maintenance tasks such as Site inspection, cable and power plant checks and servicing, cleaning of panels, hedgerow maintenance, etc. Only small vans / jeeps will be used to access the Site.

The transformer units will contain oil that will be bunded. Under normal operation, this oil is maintained within the system, and no emissions will occur. To prevent unforeseen impact on the environment, the transformer and step-up transformer units will be monitored and maintained.

3.6.1 Waste Management

There will be no operational waste associated with the Proposed Development with the exception of the foul wastewater that will need to be removed periodically from the storage tank by a licensed contractor. The decommissioning plan prepared as part of the overall planning application addresses all aspects of waste management during the operational phase.

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4 IDENTIFICATION OF EUROPEAN SITES

In accordance with the European Commission Methodological Guidance [4] a list of European sites that can be potentially affected by the Proposed Development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government [5] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely significant effects of the project. The key variables determining whether or not a particular European site is likely to be significantly affected by a project are:

- The physical distance from the project to the European site;
- The presence of impact pathways;
- The sensitivities of the ecological receptors; and,
- The potential for in-combination effects.

All SPAs and SACs within 15km have been considered to assess their ecological pathways and functional links. As acknowledged in the OPR guidelines [1], few projects have a zone of influence this large. However, the identification of European sites within 15km has become widely accepted as the starting point for the screening process. For this reason, all SPAs and SACs in 15km have been identified for consideration as part of the screening.

There are four European sites located within 15km of the Site - these are identified in Figure 4-1 and Table 4-1.

Figure 4-1: Site Location and European Sites within 15km

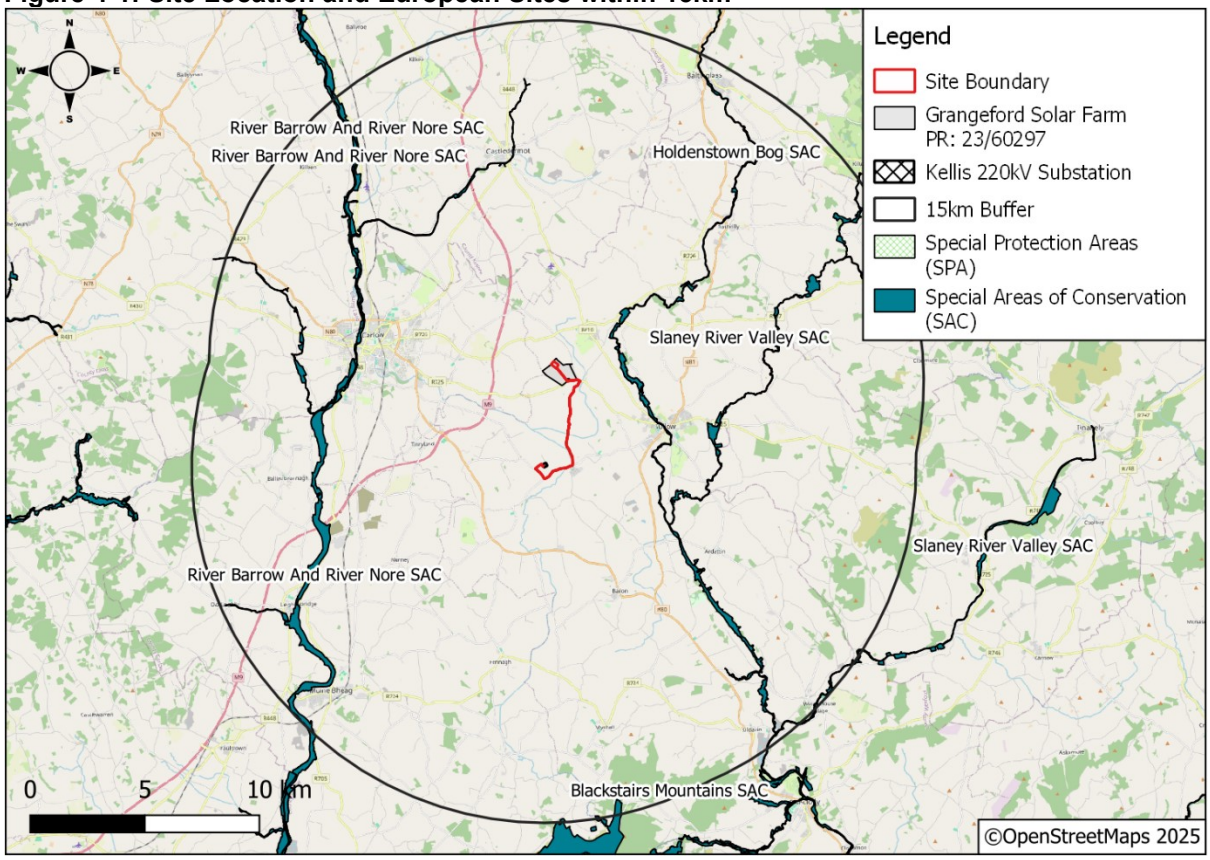


Table 4-1: European Designated Sites within 15km of the Site

Site Name	Code	Distance (km)	Direction from the Site
Special Areas of Conservation ('SAC')			
River Barrow and River Nore SAC	002162	ca. 8.4km	W
Slaney River Valley SAC	000781	ca. 2.0km	E
Holdenstown Bog SAC	001757	ca. 12.6km	NE
Blackstairs Mountains SAC	000779	ca. 14.3km	S

4.1 Identification of European Sites within ZoI

The Zone of Influence ('ZoI') comprises the area in which the Proposed Development may potentially affect the conservation objectives (or qualifying interests) of a European site. The definition of ZoI for the proposed project works evaluated multiple factors as outlined in Section 2.1 and discussed below. Please note that the extent of ZoI differs for different environmental aspects, e.g. air, water, etc.

4.1.1 Habitat Loss / Degradation

The Site is not located in or directly adjacent to any European Designated sites. The Site is located within an area of agricultural land and existing road infrastructure only. No designated habitats were identified within the Site.

No impacts associated with direct designated habitat loss / degradation as a result of the Proposed Development given the distance separating the Site from the European Designated sites.

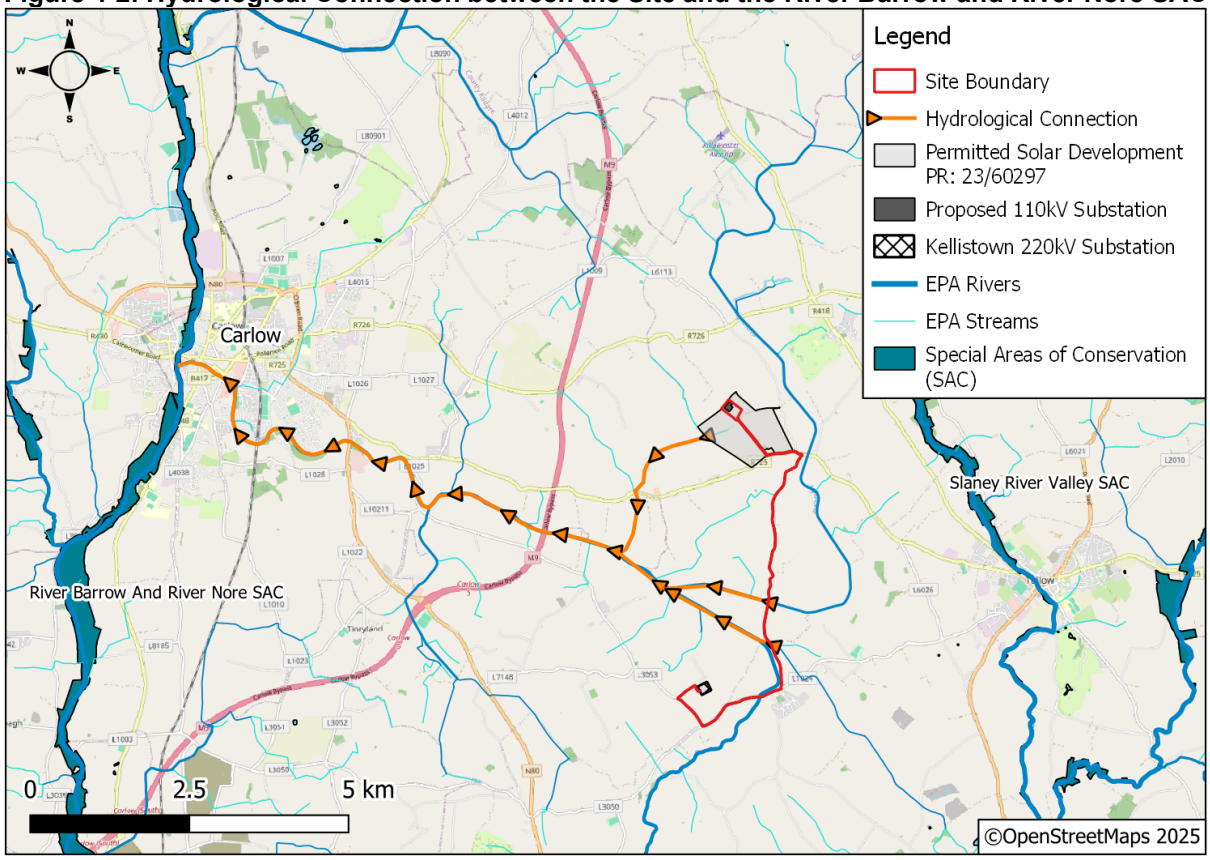
4.1.2 Water Quality Impairment

Potential water quality impacts would typically be associated with the release of sediment and other pollutants to surface water during the construction phase of the Proposed Development, therefore the ZoI would be considered to include the receiving waterbodies adjacent to and downstream of the Site during the construction and operational phase.

No hydrological connection was identified between the Slaney River Valley SAC, the Holdenstown Bog SAC and the Blackstairs Mountain SAC. Therefore, no impacts associated with water quality impairment as a result of the Proposed Development will occur on these European sites given the lack of impact pathways.

As outlined in Section 3.2, hydrological connections were identified between the Site and the River Barrow and River Nore SAC via the HDD crossings of the Aghalona River, Roscat River and Burren River, refer to Figure 4-2. This drilling method will drill beneath the watercourses and should avoid any disturbance to these streams. Nonetheless, these watercourses are all tributaries of the River Barrow which forms part of the River Barrow and River Nore SAC. Therefore, a precautionary approach is being undertaken and further consideration will be given to this designated Site. Furthermore, given that it is proposed that there will be one single construction project for the Proposed Development and Permitted Solar Development, a potential hydrological connection was identified between the Permitted Solar Development and the River Barrow and River Nore SAC via the Ardnehue River, a tributary of the Burren 14 River that discharges into the River Barrow downstream, which forms part of the River Barrow and River Nore SAC.

Figure 4-2: Hydrological Connection between the Site and the River Barrow and River Nore SAC



4.1.3 Air Quality Impairment

According to the Institute of Air Quality Management ('IAQM') Guidelines, the potential adverse effects from dust arising from construction to ecological receptors occurs within 50m of a construction site [24]. This is a temporary nuisance impact only.

All European sites are located >2km from the Site and therefore do not require a detailed dust assessment. It is not considered that the Proposed Development will result in any significant effects on any other European site as a result of construction dust.

4.1.4 Noise / Disturbance

Noise from the construction activity has the potential to cause disturbance to resting, foraging and commuting qualifying species of the European sites. As there will be no piling or in-river works required for the Proposed Development, there is no potential for underwater noise impacts beyond the immediate vicinity of the Site.

Individual species will provoke different behavioural responses to disturbances at different distances from the source of disturbance.

- Transport Infrastructure Ireland (formally the National Roads Authority) has produced a series of best practice planning and construction guidelines for the treatment of certain protected mammal species (i.e. otter), which indicate that disturbance to terrestrial mammals would not extend beyond 150m [25]; and,
- Studies have noted that different types of disturbance stimuli are characterized by different avifaunal reactions, however, in general a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl [26].

The ZoI for noise / disturbance is therefore established as the Site with a 300m buffer. There are no European sites located within this buffer; however, the Aghalona River, Roscat River

and Burren River are hydrologically connected to the River Barrow and River Nore SAC, which supports otter. Otter are predominantly found in aquatic habitats along rivers and estuaries and have the ability to disperse from water. Female otter territories can be up to ca. 7.5km in length and male otter territories can be up to ca. 13.2km in size [27]. Therefore, there is potential for this species to disperse outside of the SAC boundary and utilise the watercourses within proximity of the Site.

4.1.5 Invasive Species

No medium or high-impact invasive species (including those that are regulated under the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374/2024) were recorded within the Site [28].

Therefore, no impacts associated with the spread of invasive species as a result of the Proposed Development are anticipated.

4.1.6 ZoI Conclusions

The Site is not located within or directly adjacent to any European sites, however, the boundaries of four are located within 15km from the Site.

Given the short term, localised nature of the construction works, lack of impact pathways and distance separating the Site from the Slaney River Valley SAC, the Holdenstown Bog SAC or the Blackstairs Mountain SAC, it is considered that the Proposed Development will not result in adverse effects to these European sites, and they have therefore been screened out from further consideration.

However, given that the Proposed Development and Permitted Development will be one single construction project, and the potential hydrological connection identified as part of the Permitted Development screening exercise along with the HDD stream crossings of River Barrow tributaries, the following European site in Table 4-2 has been screened in for further consideration to assess potential adverse effects resulting from the Proposed Development.

Table 4-2: European Designated Sites within ZoI

Site Name	Code	Distance at closest point and source-pathway-receptor link
River Barrow and River Nore SAC	002162	The overall construction area is hydrologically connected to this Natura site via the Ardnehue River, Aghalona River and Burrne River which drain into this SAC. Therefore, potential impacts on water quality and potential noise and disturbance will be taken forward for further consideration.

The screening assessment for individual designated habitats and species for each of the screened in the European site and the potential for them to be adversely affected by the Proposed Development are presented in Section 6 below.

Further information on the screened in European site is provided below.

4.2 River Barrow and River Nore SAC (Site Code: 002162)

The River Barrow and River Nore SAC consists of the freshwater stretches of the Barrow and Nore River catchments extending from the Slieve Bloom Mountains to the estuary and tidal elements in Creadan Head, Waterford.

Species rich habitats (Annex I of the EU Habitats Directive) including estuaries, alluvial forests, petrifying springs, and intertidal mudflats and sandflats can be found within this SAC.

This SAC is of considerable conservation significance for multiple reasons:

- Ornithological importance: This SAC supports kingfisher, a nationally important bird population listed in Annex I of the EU Birds Directive, and,
- This SAC supports multiple species listed on Annex II of the EU Habitats Directive, including otter, river lamprey and salmon.

Land use within the SAC is primarily agricultural, principally grazing and silage production. Fishing is also a main tourist attraction along stretches of the main rivers and their tributaries. Other recreational activities such as boating, golfing, and walking also occur within the SAC. The main threats to the SAC and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and sewage plants, along with over-grazing, invasion of non-native species and land reclamation [29].

Table 4-3: Qualifying Annex I Habitats for the River Barrow and River Nore SAC

Qualifying Habitats (*denotes Priority Habitat)	Code	Site Specific Conservation Objective
Estuaries	1130	Maintain favourable conservation condition
Mudflats and Sandflats not covered by seawater at low tide	1140	Maintain favourable conservation condition
Salicornia and other annuals colonizing mud and sand	1310	Maintain favourable conservation condition
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	1330	Restore favourable conservation condition
Mediterranean salt meadows (*Juncetalia maritimi)*	1410	Restore favourable conservation condition
Water courses of plain to montane levels with *the Ranunculion fluitantis* and *Callitricho - Batrachion* vegetation	3260	Maintain favourable conservation condition
European dry heaths	4030	Maintain favourable conservation condition
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	6430	Maintain favourable conservation condition
Petrifying springs with tufa formation (Cratoneuron)*	7220	Maintain favourable conservation condition
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	91A0	Restore favourable conservation condition
Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)*	91E0	Restore favourable conservation condition

Table 4-4: Qualifying Annex II Species for the River Barrow and River Nore SAC

Qualifying Species	Species Name	Code
Mammals listed on Annex II of the Habitats Directive	Otter *(Lutra lutra)*	1355

Qualifying Species	Species Name	Code
Molluscs listed on Annex II of the Habitats Directive	Freshwater pearl mussel (*Margaritifera margaritifera*)	1029
	Nore Freshwater pearl mussel (*Margaritifera durrovensis*)	1990
	Desmoulin's whorl snail (*Vertigo moulinsiana)*	1016
Crustaceans listed on Annex II of the Habitats Directive	White-clawed crayfish (*Austropotamobius pallipes)*	1092
Fish listed on Annex II of the Habitats Directive	Salmon (*Salmo salar)*	1106
	Sea Lamprey (*Petromyzon marinus*)	1095
	Brook Lamprey (*Lampetra planeri*)	1096
	River Lamprey *(Lampetra fluviatilis)*	1099
	Twaite Shad *(Alosa fallax)*	1103

4.3 Conservation Objectives

European and national legislation places a collective obligation in Ireland and its citizens to maintain at favourable conservation status areas designated as Special Areas of Conservation and Special Protection Areas. The Irish Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and,
- The conservation status of its typical species is favourable as defined below.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future; and,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Conservation objectives for all identified Natura 2000 SAC Sites are as follows:

> *'To maintain or restore the favourable conservation condition of the Annex I habitat(s) and the Annex II species for which the SAC has been selected.'*

The full reports for the conservation objectives for the River Barrow and River Nore SAC[1] can be found on the NPWS website [10].

[1] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf

5 STUDY RESULTS

5.1 Desk Based Study Results

Table 5-1 provides a summary of records of legally protected or otherwise notable species protected under the River Barrow and River Nore SAC that occur within 2km of the Site [13]. The following NBDC 2km grids have been checked: S77V, S77X, S77Y, S87A, S87B, S87C, S87D.

Only species recorded within the past 10 years were included in Table 4-3. The parameter of 10 years was chosen on the basis of habitat adaption and modification, it is considered that any records over 10 years old are not representative of the current distribution of species populations

Table 5-1: NBDC Records of Notable / Protected Species within a 2km of the Proposed Development (Grid Codes: S77V, S77X, S77Y, S87A, S87B, S87C, S87D)

Common Name	*Scientific Name*	Date of last record	Designation
Freshwater White-clawed Crayfish	*Austropotamobius pallipes*	22/08/2017	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II and Annex V species

5.2 Field Based Study Results

The following section provides details of the field-based assessments that were undertaken at the Site on the 17th May 2024. The distribution of the habitats and target notes identifying the location of features of interested are shown in Figure 5-1.

5.2.1 Habitat Assessment

Buildings and Artificial Surfaces (BL3)

The majority of the Site is located with the existing road infrastructure, as such there is limited botanical diversity. No notable species were identified.

Arable Crops (BC1)

The proposed 110kV substation and a portion of the proposed UGC route is located within agricultural fields that are currently cultivated and managed for the production of arable crops.

At the time of the survey, the majority of these areas had been heavily cultivated and managed, resulting in the area being species poor. The arable margins were noted to be narrow and dominated by perennial rye grass (*Lolium perenne*), docks (*Rumex spp.),* ragwort (*Senecio jacobea*), hogweed (*Heracleum sphondylium*), and nettles (*Rubus cockburnianus*).

Drainage Ditch (FW4)

No drainage ditches were located within the Site. However, a drainage ditch was identified to the northeast of the Site within the Permitted Development Site Boundary, ca. 50m from the Proposed Substation Development. A slow flow was noted within this drainage ditch which supported limited plant diversity wetland vegetation.

The majority of the banksides adjacent to the drainage ditch was dominated by broadleaved herbs, grass, and tall ruderals, including large patches of gorse, nettles, and brambles (*Rubus spp.)* providing a suitable habitat for multiple species of flora and fauna.

Hedgerows (WL1) / Treelines (WL2)

The northern portion of the proposed 110kV substation location is located adjacent to hedgerow treeline. In addition, hedgerow / treelines made up the principle field boundaries

within the vicinity of the Site. The quality of the hedgerow / treelines varies from well-structured and diverse to patchy and sparse.

The hedge / tree lines located across the Site are mostly dominated by ash (*Fraxinus excelsior*), beech (*Fagus spp*.), sycamore (*Acer pseudoplatanus*), hawthorn (*Crataegus monogyna*), blackthorn (Prunus spinosa) with other tree and shrub species represented including alder (Alnus glutinosa), elder (*Sambucus nigra*), Yew (*Taxus baccata*) and gorse.

Brambles and nettles are frequent in the understorey layer throughout. Ivy is common both in the trees and in the ground layers.

A typical array of herbaceous species were recorded in the ground layer of the hedgerows, including ground ivy (*Glechoma hederacea),* cleavers (*Galium aparine)*, creeping thistle (*Cirsium arvense),* broad-leaved dock (*Rumex obtusifolius*)*,* ragwort, Wild privet (*Ligustrum vulgare)*, hemlock (*Conium maculatum)*, lesser burdock (*Arctium minus)*, redshank (*Persicaria maculosa)*, chickweed *(Stellaria media)* and cow parsley (*Anthriscus sylvatica).* Additional small plant species recorded within the hedgerow include shield fern, harts-tongue fern, bracken *(Pteridium spp.),* and herb Robert (*Geranium robertianum).*

Figure 5-1: Habitat Map Grid Connection

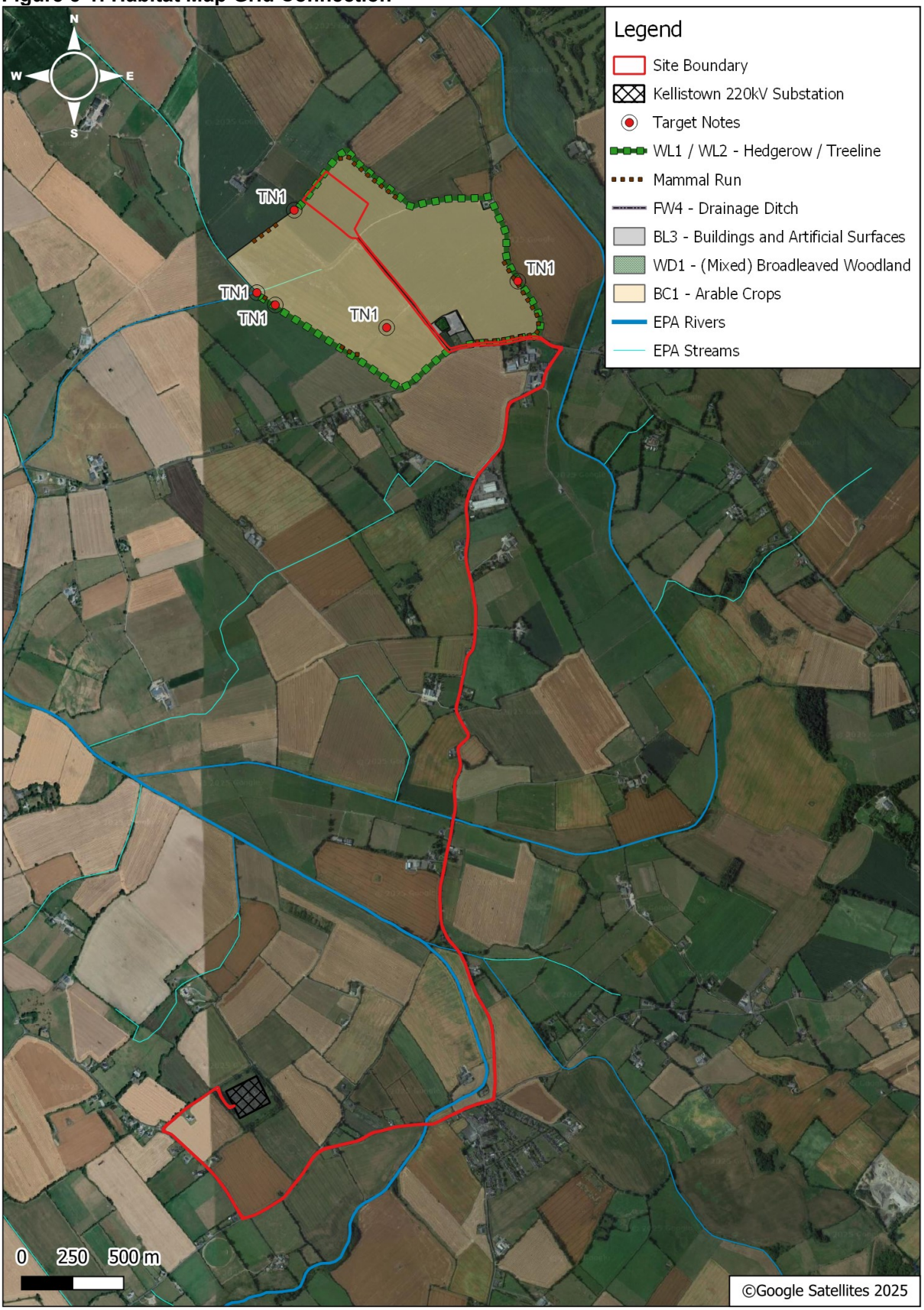


Figure 5-2: Habitats Proposed Substation Site

5.2.2 Otter Survey

Specific evaluation was undertaken as part of this assessment on otters.

Otter Habitat Preference

Otters are predominantly found in aquatic habitats along rivers, estuaries, canals and in still water bodies such as lakes. An individual otter usually maintains multiple holts and couches within its territory, which can extend up to 15km. Holts are located underground and can take many forms, they use natural crevices, associated with the roots of trees that grow along the river and lake banks or use burrows previously made from other animals. A holt will typically have multiple entrances which will allow otters the opportunity to escape when disturbed. Couches are resting places above ground.

Otter can breed year-round but primarily give birth in the spring and summer months with broods consisting of 2-3 cubs.

Otters are nocturnal animals and can be described as crepuscular. At night and in dark / silty water, the otter relies on their highly sensitive whiskers which detect their prey. In clear waters they utilise their strong eyesight to locate prey usually along the bottom of the waterbodies. Otters are described as opportunistic predators with a broad varied diet, such as salmonids, eel, small fish species and invertebrate.

Otter Survey Results

No evidence of otter activity was identified within the Site or along the sections of the nearby Ardnehue River. Furthermore, no evidence of otter activity was noted along any sections of the drainage ditches within the Permitted Solar Development site.

In addition, it should be noted, that due to limited landowner access the Aghalona River, Roscat River and Burren River was restricted to the areas visible from the local road network. No evidence of otter activity was noted in these areas.

Habitat Suitability

The NBDC holds no records for otter within 2km of the Site [30].

The Ardnehue River located ca. 560m west to the Site boundary was not considered to be of any significant value to otter. Furthermore, the drainage ditches located within close proximity to the Site were not considered to be of significant value to otter given that they are largely devoid of vegetation and suitable cover, and the fact that no suitable prey species were noted during the Site surveys.

It should be noted that during the site survey, the visible sections of the Aghalona River and Roscat River were considered to provide limited otter suitability given the dense vegetation cover. However, the visible sections of the Burren River was considered to provide potentially suitable habitat for commuting and foraging otter given the fact that the river appeared to be over 2m wide and had a good flow of water. However, the areas visually assessed did not appear to provide suitable holting habitat given the sloping nature of the banks and vegetation cover.

Taking a precautionary approach, it is considered that otter may utilise the Aghalona River, Roscat River and Burren River for commuting and foraging purposes.

5.2.3 Invasive Species

No invasive species were noted during the Site walkover.

6 STAGE 1 SCREENING: IDENTIFICATION OF POTENTIAL SIGNIFICANT IMPACTS

6.1 Potential Significant Impacts

The potential for significant effects on the River Barrow and River Nore SAC were considered further in this section. The key output of this stage of the assessment is the identification of likely significant effects of the Proposed Development alone and in combination with other plans and projects on relevant European sites without the implementation of mitigation measures.

A number of factors were examined at this stage and dismissed due to the very low risk associated with them. Table 6-1 and Table 6-2 present further details and rationale of the screening assessment undertaken for each of the European sites identified as having the potential to be significantly affected by the Proposed Development, in light of their site conservation objectives and best scientific knowledge.

Table 6-1: Screening Assessment: Annex I Habitats – River Barrow and River Nore SAC

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Estuaries	The Conservation Objectives Report show that this habitat is not present in the immediate vicinity of the Site [31]. The nearest habitat is located >50km downstream of the Site [31], which is outside the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	Decrease in water quality due to potential pollution during construction phase.	This habitat was not identified within the Site. The nearest potential occurrence of this habitat is located >50km downstream of the Site. It is considered highly unlikely that the works will have any significant direct or indirect negative effects on this habitat during either the construction or operational phase of the Proposed Development. This conclusion is based on the following: • The absence of this habitat within the Site and the distance separating this habitat from the Site; • The nature of the works which comprise of minimal and temporary ground disturbance; • No in-river works will be undertaken; • There will be no direct discharges to surface water or groundwater during the installation of the cable; and, • The HDD method being utilised for the UGC crossing will drill beneath the watercourses and will avoid any disturbance to these streams. Furthermore, due to the distance from the Site from this habitat and the combined dilution factor from the additional tributaries discharging into the river network, it is considered highly unlikely any water quality impacts will arise from the Proposed Development. It is considered highly unlikely that any potential pollutants could reach this habitat due to the fact that pollutants will either be diluted within the watercourse, or pollutants, such as sediment, will settle to the bottom of the watercourse. Nonetheless, water quality mitigation measures will be implemented as part of the proposed works to protect local water quality and therefore no likely significant effects are considered likely during either construction or operation.	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Mudflats and Sandflats not covered by seawater at low tide	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. This habitat is limited to the intertidal reaches of the River Barrow and River Nore with nearest habitat in excess of 50km southwest of the Site which is outside the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Reefs	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. The nearest recorded location of this habitat is located >70km away from the Site which is outside the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Salicornia and other annuals colonizing mud and sand	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. This habitat is limited to the lower regions of the River Barrow and River Nore SAC with nearest habitat located >50km southwest of the Site which is outside the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. This habitat is limited to the intertidal reaches of the River Barrow and River Nore. The nearest recorded location of this habitat is located >80km from the Site which is outside the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Mediterranean salt meadows (*Juncetalia maritimi)*	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31] . This habitat is limited to the intertidal reaches of the River Barrow and River Nore with nearest habitat in excess of 61km southwest of the Site which is outside the Zone of Influence for the Proposed Development. . A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Water courses of plain to montane levels with *the Ranunculion fluitantis* and *Callitricho* -	The distribution of this habitat throughout this SAC is currently unknown [31]. However, this habitat was not identified onsite or within the immediate vicinity of the Site during the habitat survey. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that	As per estuaries.	As per estuaries.	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Batrachion vegetation	this habitat is present within the 10km squares containing the Site (S77, S87) [32].			
European dry heaths	The updated designated habitat distributions according to the NPWS from 2019 show that this habitat is not present in the immediate vicinity of the Site. The nearest recorded location of this habitat is located >40km from the Site at its nearest point. Furthermore, given this is a terrestrial habitat, there is no hydrological connection and therefore is not within the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is in the current range within the 10km square containing part of the Site (S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	The distribution of this habitat within the SAC is currently unknown, however, this habitat was not identified onsite or within the immediate vicinity of the Site during the habitat survey. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is present within the 10km square containing part of the Site (S77) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Petrifying springs with tufa formation (Cratoneuron)*	The Conservation Objectives Report show that this habitat is not present in the immediate vicinity of the Site [31]. The only known occurrence of this habitat is located along the River Nore, between Thomastown and Inistioge.	As per estuaries.	As per estuaries.	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is not present within the 10km squares containing the Site (S77, S87) [32].			
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. The nearest recorded location of this habitat is located >50km from the Site at its nearest point. Furthermore, given this is a terrestrial habitat, there is no hydrological connection and therefore is not within the Zone of Influence for the Proposed Development. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is currently distributed within the 10km square containing part of the Site (S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**
Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)*	The Conservation Objectives show that this habitat is not present in the immediate vicinity of the Site [31]. The nearest recorded location of this habitat is located ca.19km downstream of Site, along the River Nore and therefore is not within the Zone of Influence for the Proposed Development. [31]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this habitat is currently distributed within the 10km squares containing the Site (S77, S87) [32].	As per estuaries.	As per estuaries.	**Screened Out**

Table 6-2: Screening Assessment: Annex II Species for the River Barrow and River Nore SAC

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Otter *(Lutra lutra)*	Large river catchments, including the River Barrow and River Nore catchment, are considered to be among the more important SACs for otter. The NBDC holds no records for otter within close proximity to the Site for this species within a 2km boundary of the Site [13]. The otter survey did not identify any evidence of otter onsite or within close proximity to the Site. However, taking a precautionary approach, it was considered that otter may utilise the Aghalona River, Roscat River and Burren River for commuting and foraging purposes. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 [32] shows that this species is currently distributed within the 10km squares containing the Site (S77, S87).	Effects associated with pollution during the construction works- Decrease in water quality – Screened In Disturbance during the construction phase – Screened Out	Otters are known to occur within the River Barrow and River Nore SAC. However, the Site is located within primarily the local road network and arable fields. Whilst the arable fields, in which the proposed substation will be located, may provide some foraging opportunities; the onsite habitats are common within the wider area and are subject to regular disturbances from agricultural practices. Furthermore, the proposed UGC is comprised of existing road infrastructure which is unsuitable for this species. Overall, the Site is not considered optimal or a site of importance for this species based on the onsite habitats and management of the Site. However, hydrological connections have been identified between the Site to the SAC via HDD drilling under the Aghalona River, Roscat River and Burren River and via the Ardnehue River based on the Overall Development. The Site is located ca. 11.6km upstream of the SAC. Therefore, it is considered highly unlikely that the works will have any significant direct or indirect negative effects on this otter within the SAC during either the construction or operational phase of the Proposed Development. This conclusion is based on the following: • The distance separating the Site from the SAC; • The nature of the works which comprise of minimal and temporary ground disturbance; • No in-river works will be undertaken;	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
			• There will be no direct discharges to surface water or groundwater during the installation of the cable; and, • The HDD method being utilised for the UGC crossing will drill beneath the watercourses and will avoid any disturbance to these streams. Furthermore, it is considered highly unlikely that any potential pollutants could reach this habitat due to the fact that pollutants will either be diluted within the watercourse, or pollutants, such as sediment, will settle to the bottom of the watercourse. However, in the event that otter move upstream into the Aghalona River, the Roscat River or the Burren River, there is potential that should potential pollutants flow from the Site into the river network, this could lead to a deterioration of local water quality and indirectly adversely affect the local food supplies for this species. Therefore, water quality mitigation measures will be implemented as part of the proposed works to protect local water quality and therefore no likely significant effects are considered likely during either construction or operation. It should be noted that during the HDD drilling, the works will be located within 150m of the watercourses and there is potential for elevated noise levels during the construction phase. However, this work will be very temporary in nature. In addition, otter are highly mobile and therefore will move away from disturbances. No suitable habitat for otter holts was identified in the visible sections of the watercourses during the walkover. Therefore, it is concluded that the Proposed Disturbance will not	

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
			result in any potential noise / disturbance impacts to this species. Furthermore, during the operational phase of the Proposed Development, it is considered that there will be no disturbances to this species due to the fact that all infrastructure capable of producing noise emissions will be located ca. 560m from any watercourses.	
Salmon (*Salmo salar)*	The NBDC holds no records Atlantic salmon within 2km of the Site [13]. According to EPA Maps, there are no watercourses downstream of the Site is classified as salmonoid waters under S.I. 293: European Communities (Quality of Salmonid Waters) Regulations, 1988 [14]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is currently distributed within the 10km squares containing the Site (S77, S87) [32].	Effects associated with pollution during the construction works- Decrease in water quality	The Site is comprised entirely of terrestrial habitat, therefore the onsite habitats are unsuitable for this species. Although this species has not been recorded within 2km of the Site, this species is known to occur within the River Barrow and River Nore during parts of its life cycle. Therefore, as previously discussed, hydrological connections were identified between the Site and the SAC. However, given the distance from the Site from this SAC and the combined dilution factor from the additional tributaries discharging into the river network, it is considered highly unlikely any water quality impacts will arise within the SAC from the Proposed Development. It is considered highly unlikely that any potential pollutants could reach the SAC due to the fact that pollutants will either be diluted within the watercourse, or pollutants, such as sediment, will settle to the bottom of the watercourse. Furthermore, following a review of the National Barrier Programme Dataset, there are three weirs and two ramps along the Burren River that acts as a barrier for fish attempting to move upstream from the River Barrow [33]. Therefore, it is considered unlikely that this species will move upstream to the vicinity of the Site.	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
			However, should potential pollutants from the construction works enter a watercourse and flow downstream this could lead to a deterioration of local water quality, which could indirectly affect the food supply for downstream designated species that utilise the wider River Barrow catchment. Therefore, water mitigation measures will be incorporated into the works and this species has been screened in and will require further assessment.	
Nore pearl mussel (*Margaritifera durrovensis*)	The NDBC holds no records for this species within 2km of the site [13]. According to the Conservation Objectives report, no section of the River Nore downstream of the Site has a suitable habitat for this species [31]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is currently distributed within the 10km square containing the Site (S87) [32].	As per salmon.	As per salmon.	**Screened In**
Sea Lamprey (*Petromyzon marinus*)	The NBDC holds records for sea lamprey within the River Nore catchment [13]. Although there are no records held by NBDC for the species within a 2km of the Site. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is not present within the 10km squares containing the Site (S77, S87) [32].	As per salmon.	As per salmon.	**Screened In**
Brook Lamprey (*Lampetra planeri*)	The NBDC holds records for sea lamprey within the River Nore catchment [13]. Although there are no records held by NBDC for the species within a 2km of the Site. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is	As per salmon.	As per salmon.	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	currently distributed within the 10km squares containing the Site (S77, S87) [32].			
River Lamprey *(Lampetra fluviatilis)*	The NBDC holds records for sea lamprey within the River Nore catchment [13]. Although there are no records held by NBDC for the species within a 2km of the Site. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is not present within the 10km squares containing the Site (S77, S87) [32].	As per salmon.	As per salmon.	**Screened In**
Freshwater pearl mussel (*Margaritifera margaritifera*)	The status of the freshwater pearl mussel within the River Barrow and River Nore SAC is currently under review [31] A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is currently distributed within the 10km square containing the Site (S87) [32]. The NBDC holds records for Freshwater pearl mussel within the River Nore catchment. However, there are no recent records held by NBDC for the species within a 2km boundary of the Site.	As per salmon.	As per salmon.	**Screened In**
White-clawed crayfish (*Austropotamobius pallipes)*	According to the NBDC, nearest record of White – clawed crayfish is located within the stretch of the Burren river where HDD will take place as part of the cable works [13]. This species was identified in 2017 during biomonitoring of Ireland's river network, 2007–2018 (EPA) (Grid Code S808712) [13]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is	As per salmon.	The Site is comprised entirely of terrestrial habitat, therefore the onsite habitats are unsuitable for this species. However, there are records of this species within 2km of the Site, with the nearest record located within the stretch of the Burren River where HDD works will take place as part of the cable works. This method of drilling will involve drilling beneath the watercourses and will avoid any disturbance to these streams.	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	currently distributed within the 10km squares containing the Site (S77, S87) [32].		However, should potential pollutants from the HDD construction works enter the watercourse this could lead to a deterioration of water quality and therefore reduction in habitat quality for this species or potentially change the chemical balance of a waterbody which can prove toxic to aquatic species. Therefore, water mitigation measures will be incorporated into the works and this species has been screened in and will require further assessment.	
Twaite Shad *(Alosa fallax)*	The NBDC holds records for Twaite shad within the River Barrow catchment; however, the NBDC holds no records twaite shad within 2km of the Site [13]. This species was also recorded in the Lower River Suir and River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland [39]. This species is known to spawn at St. Mullins, ca. 60km downstream of the Site [40]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is not present within the 10km squares containing the Site (S77, S87) [32].	N/A	It is considered highly unlikely that the works will have a significant direct or indirect effect on this species during either the construction or operational phase of the Proposed Development. This conclusion is based off the distance downstream separating the Site from this species' known location, ca. 60km. Therefore, it is reasonable to conclude that all potential pollutants will either dilute within the River Barrow or settle to the bottom of the river before reaching this habitat.	**Screened Out**
Killarney Fern (*Trichomanes speciosum)*	The NBDC holds no records for this species within 2km of the Site [13]. The nearest record is located over ca. 50km downstream of the Site [31]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is not present within the 10km squares containing the Site (S77, S87) [32].	N/A	As per Twaite Shad *(Alosa fallax)*	**Screened Out**
Desmoulin's whorl snail	The NBDC holds records for Desmoulin's whorl snail within 2km of the Site [13]. The optimal habitat for this	N/A	Twaite Shad *(Alosa fallax)*	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
(*Vertigo moulinsiana)*	species is calcareous wetland bordering lakes, rivers or fens. There are only two known sites where this species occurs, Borris Bridge and Boston Bridge, neither of which are within the vicinity of the Site [31]. A review of the Status of EU Protected Habitats and Species in Ireland from 2019 shows that this species is not present within the 10km squares containing the Site (S77, S87) [32].			

6.2 Stage 1 – Analysis of 'In-Combination' Effects

The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

As described above, the proposed work alone is unlikely to have any direct or indirect adverse effects on any of the European sites located with 15km of the Site.

Review of Carlow County Council Planning ePlan

A review of the Carlow County Council Planning ePlan website was undertaken in order to identify any current or previous granted plans or projects in the immediate vicinity that are considered likely in-combination with the Proposed Development to result in significant impacts on European sites [11].

The following planning applications listed in Table 6-4 are currently being, or have been, assessed by the Council within the planning system, all which are located in the immediate vicinity of the Site.

The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

Table 6-3: Active Planning Applications within the vicinity of the Site

Planning Ref.	Applicant	Year	Description	Distance from the Site	Planning Status	Document Submitted and Conclusion
16/325	Nolan PV	2017	*Permission for development of a solar PV Panel Array consisting of up to 48,800 m2 of solar panels on ground mounted steel frames, electricity control room, power inverter unit, underground cable ducts, CCTV and lighting, security fence and all associated works at Friarstown Tullow Co Carlow*	Within the proposed Site Boundary	Granted Permission expired in 2022.	N/A
2123	Summit Solar Ltd	2021	*10 Year permission for development consisting of the construction of a Solar PV development comprising photovoltaic panels laid out in arrays over a total development site area will be ca. 65.6 ha, the construction of a 38kV substation (ca 114.4m2 x 4.75 tall) a transformer unit (ca. 18m2 x 4m tall) and associated bund (ca. 55m2), along with ancillary development including; 24 Power Hubs (ca. 15.25m2 x 2.4m) which incorporate an inverter and a transformer, 1 single storey communications building (11.1m2 x 2.5m), 1 single storey client side sub-station building (15.25m2 x 2.9m), 1 single storey equipment storage building (7.5m2 x 2.7m), 10 CCTV cameras mounted on 4m high poles, perimeter security fencing, site access, site egress and all ancillary works. Permission currently exists for a PV development on part of the site (Planning Permission Ref No. 16325). A Natura Impact Statement will accompany the planning application.*	Within the Proposed Site Boundary	Refused by Carlow County Council Granted by ABP in 2021- 309987-21	An NIS was submitted as part of this development. It was concluded that the proposed development and all associated site works, alone or in-combination with other projects, will not adversely affect the integrity, and conservation status of any of the qualifying interests of the River Barrow and River Nore SAC or any other Natura 2000 sites. Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e., Assessment of Alternatives Solutions) was not considered necessary.
20/44	Johnstown Solar Farm	2020	*A 10-year permission for the erection and operation of a solar photovoltaic energy development. The Proposed Development will consist of the erection and operation of a solar photovoltaic energy development which*	Bennekerry Carlow 2.2km northwest of the Site	Granted with conditions	AA Screening Report was submitted. It was concluded that within this proposed project whether individually or in combination with other plans or projects, will have no impact upon the Natura 2000 (European) sites. The

Planning Ref.	Applicant	Year	Description	Distance from the Site	Planning Status	Document Submitted and Conclusion
			includes the erection of fixed solar panels on ground mounted frames, electrical transformer and inverter units, distribution systems operator (DSO) sub-station, customer substation, underground cabling and ducting, storage containers, boundary fencing, security entrance gates, CCTV, internal acceSs road and all associated ancillary activities.			integrity of these sites will be maintained, and the habitats and species associated with these sites will not be adversely affected. It was concluded that an Appropriate Assessment under Article 6(3) of the Habitats Directive was not required.
21/38	Ardnehue Solar Farm	2022	*Permission for a development to include a solar farm on an area of approximately 17.6 hectares, comprising photovoltaic panels on ground mounted frames, 1 onsite 38kV substation, 10 no. single storey inverter/transformer stations, security fencing, a palisade double security gate, 2 storage containers, CCTV, a temporary construction stage wheel wash system and all associated ancillary development works. Elgin Energy Services Ltd. are applying for the proposed solar farm to have planning permission that is effective for 10 years (an operational period of 40 years). A Natura Impact Statement (NIS) has been prepared and will be submitted to the planning authority with the planning application*	Ardnehue And Friarstown Directly North	Granted with conditions	An NIS was completed as part of this assessment. It was concluded that Following an analysis and evaluation of the relevant information including, in particular, the nature of the proposed development, characteristics of the qualifying interests, the potential link between the proposed development and the River Barrow and River Nore SAC, no significant adverse effect on the integrity of any European sites, from the proposed development is anticipated alone or in-combination with any other plans or projects.
22/149	Friarstown Solar and Storage Park	2023	*for proposed works to include a solar and storage park on an area of approximately 68.8 hectares, comprising linear arrays of solar photovoltaic panels mounted on steel supported structures with associated cabling and ducting (including cable connection to the proposed onsite 110 kV tail fed substation), 50 inverter substations, a storage park (including 30 containers with battery cells, transformers and power conversion units), perimeter fencing, 8 palisade double security gates, 3 temporary construction compound/material storage areas,*	Friarstown Directly North	Granted with conditions	An NIS was completed as part of this assessment. It was concluded that following an analysis and evaluation of the relevant information including, in particular, the nature of the proposed development, characteristics of the qualifying interests, the potential link between the proposed development and the River Barrow and River Nore SAC, no significant adverse effect on the integrity of any European sites, from the proposed development is

Planning Ref.	Applicant	Year	Description	Distance from the Site	Planning Status	Document Submitted and Conclusion
			6 steel storage containers, 17 turning bays, CCTV, a temporary construction stage wheel wash system and all associated ancillary development works. Elgin Energy Services Ltd. are applying for the proposed development to have planning permission that is effective for 10 years (and an operational period of 40 years). A Natura Impact Statement (NIS) has been prepared and will be submitted to the planning Authority with the Planning Application.			anticipated alone or in-combination with any other plans or projects.
2392	Neoen Renewables Ireland Limited	2023	*A ten-year planning permission for a solar energy development with a total site area of 77 hectares comprising (i) photovoltaic solar panels on steel mounting frames; (ii) electrical inverters; (iii) electrical power stations; (iv) underground electrical and communications cabling; (v) containerised battery energy storage facility; (vi) the upgrade of 2 disused site entrances, decommissioning of 2 existing site entrances and development of 1 new site entrance; (vii) on-site access tracks; (viii) a temporary construction compound; (ix) security fencing and security gates; (x) pole-mounted security cameras; and (xi) all associated site and ancillary site development, landscaping and reinstatement works. The operational lifetime of the proposed development is 35-years. The planning application is accompanied by an Environmental Impact Assessment Screening Report and an Appropriate Assessment Screening Report*	Friarstown, Carlow. Adjacent to northwestern section of the Site.	Granted with Conditions	AA Screening assessment submitted. It was concluded that there would be no effects; direct, indirect, or cumulative; arising from the proposed development which would have the potential to significantly affect any of the European Sites as discussed. Progression to Stage 2 NIS was not deemed required. An Appeal has now been submitted against this project. Bord Pleanála Case reference: PL01.318475
23/60297	Prt Solar Limited	2023	*10-year permission. The development will consist of the construction of (i) a Solar PV development comprising photovoltaic panels laid out in arrays over a total development site area of ca. 91.2ha, (ii) the construction of a*	Within the Proposed Site Boundary	Granted with Conditions on the 24/09/2024	An NIS was completed as part of this assessment. It was concluded that the proposed development and all associated site works,

Planning Ref.	Applicant	Year	Description	Distance from the Site	Planning Status	Document Submitted and Conclusion
			38kV substation building ((6.1m (h) x 20.9 (l) and 7.3 (w)) and associated compound area, a transformer unit (ca. 6m x ca. 3.6m) and associated bund, (iii) 352 number Battery Energy Storage System units comprising 22 modules (ca. 21.9m x ca.5.2m) each with 16 number cabinet units within each module and (iv) all ancillary development including 15 number transformer integrated units (ca. 10.5m x ca.2.7m), 12 number inverter units (ca. 6.0m x ca.2.4m), 7 number CCTV cameras mounted on 4m high poles, a 3m high acoustic barrier, with berm and fencing, perimeter security fencing, site access, site egress and all ancillary works and services. The development will have a 40-year operational lifetime. Permission currently exists for a PV development on ca/65.6ha of the site (Planning Permission Ref No. 21/23) that will be superseded by this application if approve			alone or in-combination with other projects, will not adversely affect the integrity, and conservation status of any of the qualifying interests of the River Barrow and River Nore SAC or any other European sites. Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e., Assessment of Alternatives Solutions) was not considered necessary.

Please note that PL. Ref 16/325 has expired therefore there is no potential for in-combination effects to occur. In addition, PL. ref 21/23 has been granted with conditions, however, will be superseded should this Proposed Development be granted permission, therefore there is no potential for in-combination effects to occur.

Due to the small scale and short timeframes of both the Proposed Development and the proposed projects listed in Table 6-1, it is considered unlikely to have any cumulative impacts on any European sites in the context of the existing infrastructure and associated activities taking place at the Site.

This statement is supported by:

I. The distances separating the Site from European sites;

II. The rural setting of the local environment; and,

III. The small scale and localised nature of the proposed works.

However, as identified in Section 6.1, a number of qualifying features require further consideration and appropriate mitigation measures to ensure that the Proposed Development alone will not lead to in-combination effects with any proposed future developments.

6.3 Stage 1 – AA Screening Conclusion

A detailed assessment of the layout and nature of the Proposed Development, the construction methods to be employed and the overall activities that will occur at the Site during construction and operation has been carried out and the potential for significant effects on European sites and qualifying features of interest within a 15km radius of the Proposed Development Site has been examined in detail.

The boundaries of two designated sites, Slaney River Valley SAC and Holdenstown Bog SAC were screened out based on the distances separating the Site from these European sites and lack of impact pathways. It could be objectively concluded that the Proposed Development will not, either alone or in combination with other plans or projects, be likely to have significant effects on those sites.

Due to the potential hydrological connection between the Site the River Barrow and River Nore SAC was taken forward for further detailed consideration, Stage 2 appropriate assessment. Using professional experience, guidance and judgement, the following factors have been taken into account on identifying potential significant effects on the identified European site:

- Distance from any European Site;
- Qualifying Interests;
- Special Conservation Interests;
- Conservation Objectives;
- The nature of the onsite habitats; and,
- The location of the Site.

The screening process has examined the potential for the Proposed Development cause to significant effects on European sites and the qualifying features of interest as per the screening determination in Section 4.

Based on the above factors and taking a precautionary approach, the screening exercise has identified the following designated habitats and species as potential receptors of significant likely effects as a result of the Proposed Development, in the absence of appropriate mitigation:

Species

- Otter (*Lutra lutra*)
- Salmon (*Salmo salar)*
- Nore Freshwater Pearl Mussel
- Sea Lamprey *(Petromyzon marinus)*
- Brook Lamprey (*Lampetra planeri*)
- River Lamprey (*Lampetra fluviatilis*)
- White Clawed Crayfish (*Austropotamobius pallipes*)

These species have been brought forward for further consideration due to the potential for adverse effects, as a result of the Proposed Development, in the absence of the appropriate mitigation measures. Therefore, progression to Stage 2 of the Appropriate Assessment process is required.

Section 7 below further addresses potential issues arising from the Proposed Development and the mitigation measures required to negate any potential significant likely effects on these designated habitats and species.

7 STAGE 2 NIS

7.1 Assessment of Potential Significant Effects

This section provides recommendations for measures which will mitigate against any adverse effects on the integrity of the identified European site as a result of the Proposed Development. The following effects with the potential to adversely affect the conservation objectives of the River Barrow and River Nore SAC were considered:

- Potential impairment of water quality during the construction phase.

The screening exercise did not identify any other factors that will result in any likely significant effects.

7.1.1 Potential Impairment of Water Quality

7.1.1.1 Construction Phase

As discussed in Section 3.2 above, the Proposed Development is hydrologically connected to the River Barrow and River Nore SAC via the Ardnehue River, Aghalona River, Burren River and Roscat River.

Should pollutants from the Proposed Development enter nearby watercourse through surface water run-off it is considered highly unlikely that the works will have any significant direct or indirect negative effects on this otter within the SAC during either the construction or operational phase of the Proposed Development. This conclusion is based on the following:

- The distance separating the Site from the SAC;
- The nature of the works which comprise of minimal and temporary ground disturbance;
- No in-river works will be undertaken;
- There will be no direct discharges to surface water or groundwater during the installation of the cable; and,
- The HDD method being utilised for the UGC crossing will drill beneath the watercourses and will avoid any disturbance to these streams.

Furthermore, it is considered highly unlikely that any potential pollutants could reach this habitat due to the fact that pollutants will either be diluted within the watercourse or pollutants, such as sediment, will settle to the bottom of the watercourse.

However, it is considered that potential pollutants could adversely affect local water quality and subsequently adversely affect species protected under the River Barrow and River Nore SAC utilising the local river network. Therefore, as a precautionary principle, appropriate mitigation measures will be implemented in order to ensure no adverse effects occur to local water quality.

During the construction phase all works will comply with all relevant legislation and best practice to reduce potential environmental impacts of the works.

As a precautionary principle, the following mitigation measures will be put in place, to ensure that water quality will be protected within the vicinity of the Site and further downstream. The measures that will be put in place to remove the risk from potential contamination and emergency procedures to be implemented in the event of an accidental release or spill of potentially contaminating substances are outlined below.

These procedures will be communicated to all relevant site staff. The following best practice guidelines will be followed, which are based on Inland Fisheries Ireland [41] and National

Roads Authority ('NRA'), now known as the Transport Infrastructure Ireland ('TII'), [42] guidance documents:

- Construction stage works will be undertaken in accordance with an approved CEMP;
- All plant and machinery will be serviced before being mobilised to the Site;
- Preventative maintenance and relevant maintenance logs will be kept for all onsite plant and equipment;
- All materials shall be stored at the main contractor compound and transported to the works zone immediately prior to construction;
- Excavations will be left open for minimal periods to avoid acting as a conduit for surface water flows;
- Where drainage ditches are crossed, the release of sediment over baseline conditions will be prevented by the use of silt traps, check dams and / or bunds. These will be put in place in advance of construction works and monitored on a regular basis;
- No surface water runoff will be discharged onto public roads, foul sewers or adjacent property;
- Weather conditions will be considered when planning construction activities to minimise risk of run off from the Site;
- Provision of exclusion zones and barriers between any stockpiled materials and any surface water features to prevent sediment washing into the receiving water environment;
- Entry by plant, equipment, machinery, vehicles and construction personnel into watercourses, wet drainage ditches or the river riparian zones shall not be permitted;
- An Environmental Clerk of Works shall be engaged to periodically inspect all elements of the works for their entire duration;
- Emergency response procedures will be put in place;
- All concrete pours will be carefully planned to avoid any impacts;
- Any pouring of concrete will only be carried out in dry weather. Washout of concrete trucks will not be permitted on the Site;
- Chemicals used will be biodegradable where possible;
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening;
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete;
- Surplus concrete will be returned to batch plant or offsite concrete wash facility after completion of a pour;
- Any spillage of cementitious materials will be cleaned-up immediately; and,
- Measures will be implemented to minimise waste and ensure correct handling, storage and disposal of waste.

In addition, oil pollution is known to cause significant damage to aquatic communities and loss of bulk stored oil or oil from construction vehicles is likely to have an adverse impact, the severity of which would depend on the volumes of oil involved. Minor leaks have the potential

to have negligible impacts, whereas, larger leaks and spills could have a significant negative short-term adverse impacts if not controlled.

However, these impacts are highly unlikely to occur due to the small scale of the Proposed Development and the best practice measures will be employed to reduce these potential impacts to an absolute minimum. The proposed measures to remove the risk from potential contamination and emergency procedures to be implemented in the event of an accidental release or spill of potentially contaminating substances are outlined below.

These procedures will be communicated to all relevant site staff. At a minimum, the following measures will be in place:

- Any chemical / oils to be stored onsite will be placed within a bund on an area of hardstanding to ensure there is no seepage of pollutants into groundwater or surface water;
- All bunds will have the capacity of the largest tank volume plus 10 percent, at a minimum, with additional capacity to hold 30mm of rainfall;
- All drainage from bund areas will be directed to secure containment prior to suitable disposal;
- Fuel will be delivered onsite by a dedicated tanker or in a delivery bowser dedicated to that purpose;
- The Appointed Contactor will put in place a specific, step-by-step refuelling procedure which will be communicated to all relevant employees onsite;
- Fuels, lubricants and hydraulic fluids for equipment used in the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to current best practice;
- Vehicle or equipment maintenance work will be carried out in a designated area on the Site. In the event that refuelling is required outside this area a spill tray will be employed during the refuelling operation;
- Prior to any works commencing, all construction equipment will be checked to ensure that they are mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease;
- Adequate spill kits including absorbent booms and other absorbent material will be maintained onsite;
- All contractor workers will be appropriately trained in the use of spill kits;
- Any sediments impacted by contamination will be excavated and stored in appropriate sealed containers for disposal offsite in accordance with all relevant waste management legislation;
- Appropriate containment facilities will be provided to ensure that any spills from vehicles are contained and removed offsite. Adequate stocks of absorbent materials, such as sand or commercially available spill kits shall be available;
- The Contractor shall ensure that all personnel working onsite are trained in pollution incident control response;
- A regular review of weather forecasts of heavy rainfall is required;
- No storage of hydrocarbons or any polluting chemicals will occur within 5m of watercourses or surface water features;

- Design and installation of fuel bowsers to be in accordance with best practice guidelines;
- Drip trays and spill kits will be kept available onsite;
- Cabins, containers, workshops, plant, materials storage and storage tanks shall not be located within 5m of any watercourse;
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- Drip trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills; and,
- Only designated trained operators will be authorised to refuel plant onsite.

Additionally, an Ecological Clerk of works ('ECoW') will be appointed to the project to ensure that the mitigation and best practice measures will be implemented and will periodically inspect all elements of the works for their entire duration.

The mitigation measures outlined above will minimise the identified potential risks to water quality associated with the construction phase of the Proposed Development.

7.1.1.2 Operational Phase

As previously mentioned, the Proposed Development will be part of the Overall Development. The Overall Development will result in a change of land-use from agricultural grassland to a 110kV substation, PV solar arrays along with a BESS storage system, greatly reducing the number of fertilisers and pesticides entering into the nearby watercourses.

Throughout the operational phase of the Overall Development, monitoring and maintenance will be undertaken to ensure excess runoff does not occur.

During the operational phase, should there be any need to carry out works requiring machinery to traffic across the proposed site, an appropriate temporary construction access surface will be used depending on the ground conditions. Significant maintenance works during the operational life of the facility are not envisaged. Should any unforeseen changes in the soil management at the Proposed Development occur, they will be detected at an early stage and remedial measures will be implemented accordingly.

Therefore, it is considered that there will be no risks to water quality during the operational phase of the Proposed Development. It can, therefore, be concluded that the operational activity at the proposed battery storage site will not have any adverse effects on either the surface or groundwater quality of the watercourses in the vicinity of the proposed battery storage facility or on the protected European sites and their designated conservation interests located downstream.

7.2 Stage 2 - Analysis of 'In-Combination' Effects

Based on the mitigation measures as described in Section 7.1, the Proposed Development alone will not have any direct or indirect adverse effects on the integrity of any European Sites.

Following a review of the Carlow County Council Planning Files [11], and the Department of Housing, Local Government and Heritage's planning portal – the National Planning Application Database as listed in Table 6-4, no current or previously granted plans or projects were identified in the immediate vicinity that are considered to have the potential to have any in-combination with the Proposed Development to result in significant impacts on the integrity of European Sites.

Overall, it is considered unlikely that the Proposed Development would result in any in-combination effects with the above-mentioned developments and any other developments

within the wider area, given the fact that the Proposed Development will be subject to mitigation measures to protect against water quality impairment. Therefore, following the implementation of appropriate measures, there will be no potential for in-combination effects.

It is therefore considered that the Proposed Development is unlikely to have any significant in-combination contribution to possible significant effects on River Barrow and River Nore SAC.

This statement is supported by:

- The localised nature of the proposed works;
- The distances separating the Site from European sites;
- The dilution factor between the Site and European sites;
- The setting of the local environment;
- The mitigation measures that will be put in place; and,
- The best practice guidelines which will be implemented during the construction and operational phase of the proposed development.

Taking the above into account and given the fact that the aforementioned projects will not result in any adverse effects to European Designated sites, it can be concluded that the proposed development will not result in any in-combination contribution to adverse effects on the integrity of any European sites.

8 NIS CONCLUSIONS AND STATEMENT

A detailed assessment of the layout and nature of the Proposed Development, the construction methods to be employed and the overall activities that will occur at the Site during both the construction and operational phases has been carried out and the potential for significant effects on European sites and qualifying features of interest within the zone of influence of the Site has been examined in detail.

As detailed in section 6.3, the Stage 1 AA Screening conclusion states that the boundaries of one European site, the River Barrow and River Nore SAC, was taken forward for further consideration due to the potential hydrological connectivity via the Ardnehue River, Aghalona River, Roscat River and Burren River. No other European sites were identified within the Zone of Influence of the Proposed Development.

Avoidance, design requirements and mitigation measures are detailed within this NIS which will ensure that any impacts on the River Barrow and River Nore SAC or any other European site, having regard to their conservation objectives, will be avoided during all phases of the Proposed Development, such that there will be no adverse effects on the integrity of any European sites.

It has been objectively concluded, following an examination, analysis and evaluation of the relevant information, including the nature of the predicted impacts from the Proposed Development and all associated works, and with implementation of the proposed mitigation measures, that the Proposed Development will not, either alone or in combination with other plans or projects, adversely affect the integrity or conservation status of any of the qualifying interests of the River Barrow and Nore SAC or any other European site in light of best scientific knowledge, and no reasonable scientific doubt exists in relation to this conclusion.

Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e. Assessment of Alternatives Solutions) is not considered necessary.

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