APPROPRIATE ASSESSMENT SCREENING REPORT AND NATURA IMPACT STATEMENT

Pinewoods Wind Farm Substation & Grid Connection

Prepared for: Pinewood Wind Limited

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BASIS OF REPORT

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1.0 Introduction

SLR Consulting Ireland Ltd. (SLR) was commissioned by Galetech Energy Services, on behalf of Pinewood Wind Ltd, to prepare an Appropriate Assessment (AA) Screening Report and Natura Impact Statement (NIS) for the proposed Pinewoods Wind Farm Substation in Knockardagur, Co. Laois.

1.1 Background

In respect of the permitted wind farm development, An Bord Pleanála completed an appropriate assessment of the entire then-proposed development. The planning application, which was accompanied by an Appropriate Assessment Screening Report and Natura Impact Statement, found that the River Barrow and River Nore Special Area of Conservation (SAC) 002162 was the only European site for which there is a likelihood of significant effects. A comprehensive suite of surface water protection measures was proposed to eliminate the likelihood of adverse effects on the integrity of the Natura 2000 site. An Bord Pleanála was satisfied that the development of the wind farm would not adversely affect the integrity of the River Barrow and River Nore SAC 002162 in view of the site's conservation objectives.

1.2 General Description of the Site

The proposed development site ("the Site") is located in the townland of Knockardagur, Co. Laois, approximately 4 km north-east of Ballinakill, 8 km south-east of Abbyleix and 8 km north-west of Castlecomer. The Site is centred at approximate Irish Transverse Mercator (ITM) Grid Reference 650427, 682395.

The topography of the landscape surrounding the Site is dominated by an upland area known as the Castlecomer Plateau, characterised by undulating hills and steep escarpments at its fringes. Dissecting the lowlands on either side of the plateau are the rivers Barrow and Nore, which lie to the east and west respectively. The lowlands are a mixture of pasture and tillage with fields bordered by mature broadleaf tree lines and hedgerows. Agricultural land-uses extend into the upland areas in the form of marginal grazing with scrubby hedgerow field boundaries. Conifer plantations are frequent on the slopes of the plateau along with occasional small areas of demesne woodland.

The Knockardagur stream, flows in a westerly direction from the Site to join the Owenbeg (Owveg) River approximately 1.4 km east. The Owenbeg (Owveg) River discharges to the River Nore approximately 10.8 km downstream of the Site. The Knockardagur rises from a small spring approximately 10 m south of the footprint of the proposed substation. Water levels in the Knockardagur stream are highly dependent on prevailing weather conditions and the stream is only likely to contain flow following rainfall events.

1.3 Brief Description of the Project

In summary, the main components of the proposed development are as follows:-

- 1 no. 110 kV 'loop-in/loop-out' air-insulated switchroom (AIS) substation including control buildings, transformers and all ancillary electrical equipment; and
- All associated site development, access and reinstatement works.

Due to the sloping nature of the proposed development site, and in order to minimise the volume of material to be excavated to provide the substation footing; the design of the proposed development has incorporated a split-level approach.

The entirety of the proposed development is located within the administrative area of County Laois; while the overall project (Pinewoods Wind Farm) is partly located within County Laois and County Kilkenny. Candidate quarries that may supply construction materials are located within County Kilkenny and County Carlow.

A full description of the proposed development is presented in **Chapter 3** of the EIAR and a more detailed description is also provided at Section 4 of this document.

1.4 Aim of the Report

This aim of this report is to provide supporting information to assist the competent authority, in this case An Bord Pleanála, to carry out screening for appropriate assessment and, if required, appropriate assessment of the proposed development.

1.5 Objectives of Appropriate Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the Appropriate Assessment (AA) process as follows:

- Firstly, a plan / project should aim to avoid any negative impacts on Natura 2000 sites by identifying possible impacts early and designing the project / plan to avoid such impacts;
- Secondly, mitigation measures should be applied during the appropriate assessment (after Stage 1 screening stage) process to the point where no adverse effects on the site(s) remain;
- Thirdly a plan / project may have to undergo an assessment of alternative solutions. Under this stage of the assessment, compensatory measures are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the plan / project is required for imperative reasons of overriding public interest (the 'IROPI test'). European case law highlights that consideration must be given to alternatives outside the plan / project boundary area in carrying out the IROPI test.

1.6 Evidence of Technical Competence and Experience

Dr Úna Nealon prepared this report and the technical review of the report was carried out by Elaine Dromey MCIEEM.

Úna Nealon holds a BSc (Hons) Environmental Science from NUI Galway and a PhD in Ecology from University College Dublin. Úna has prepared ecological reports, including Biodiversity chapters, Ecological Impact Assessments, Appropriate Assessment Screening Reports and Natura Impact Statements, for a range of projects in the residential, commercial, renewable energy and public infrastructure sectors.

Elaine Dromey holds a BSc in Earth Science from University College Cork and an MSc in Vegetation Survey and Assessment from the University of Reading, UK. She is a full member of the Chartered Institute of Ecology and Environmental Management.

2.0 Relevant Legislation

2.1 European Nature Directives (Habitats and Birds)

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). Collectively, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are referred to as the Natura 2000 network. In general terms, they are considered to be of exceptional importance for rare, endangered or vulnerable habitats and species within the European Community.

Under Article 6(3) of the Habitats Directive an Appropriate Assessment must be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An Appropriate Assessment is an evaluation of the potential impacts of a plan or project on the conservation objectives of a Natura 2000 site, and the development, where necessary, of mitigation or avoidance measures to preclude negative effects.

Article 6, paragraph 3 of the EC Habitats Directive 92/43/EEC ("the Habitats Directive") states that:

> "*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications 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".*

2.2 EC (Birds and Natural Habitats) Regulations 2011 - 2015

Part 5 of the EC (Birds and Natural Habitats) Regulations 2011 – 2015 sets out the circumstances under which an 'appropriate assessment' is required. Section 42(1) requires that '*a screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.*'

Section 42(2) expands on this, stipulating that a public authority must carry out a screening for Appropriate Assessment before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken. To assist a public authority to discharge its duty in this respect, Section 42(3)(a) gives them the authority to direct a third party to provide a Natura Impact Statement and Section 42(3)(b) allows them to request any additional information that is considered necessary for the purposes of undertaking a screening assessment. A Natura Impact Statement has to include such information or data as the public authority considers necessary to enable it to ascertain if the plan or project will affect the integrity of a Natura 2000 site. Where appropriate, a Natura Impact Statement also needs to include:

I. the alternative solutions that have been considered and the reasons why they have not been adopted,

II. the imperative reasons of overriding public interest that are being relied upon to indicate that the plan or project should proceed notwithstanding that it may adversely affect the integrity of a European site,

III. the compensatory measures that are being proposed.

Section 42(6) requires that '*the public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site'*.

3.0 Methods

3.1 Desk Study

A desk study was carried out to support the preparation of this AA screening report and NIS. The Site and the surrounding area were viewed using existing available satellite imagery using Google maps[1] and Bing maps[2] . The National Parks and Wildlife Service (NPWS)[3] and the National Biodiversity Data Centre (NBDC)[4] online resources were accessed for information on Natura 2000 sites. Environmental Protection Agency (EPA) Maps[5] was accessed for other environmental information, such as surface water features, relevant to the preparation of this report.

Laois County Council's website[6] was accessed for information on relevant planning policy. The Laois planning portal[7] was accessed for information on other proposed or permitted developments within the Site and immediate surrounding area.

The proposed development design drawings and the project description, as provided within Chapter 3 of the associated EIAR, were also reviewed as part of the desk study, in addition to technical reports including Chapter 7 of the EIAR (Water), preliminary Construction & Environmental Management Plan (CEMP) (Pinewoods Wind Ltd, 2017) and SWMP.

3.1.1 Potential Zone of Influence

The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of activities associated with the project (CIEEM, 2018). This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

The zone of influence for the proposed development was identified through a review of the nature, size and location of the project, the sensitivities of the ecological receptors and the potential for in-combination effects (DoEHLG, 2010). The zone of influence of the proposed development is discussed in Section 5.1 of this report.

3.2 Appropriate Assessment Screening Report

The approach to preparing the AA screening report is as follows:

- Identify Natura 2000 sites, within the potential zone of influence of the project;
- Identify the features of interest of the Natura 2000 sites and review their conservation objectives;
- Review whether there is potential for the features of interest to be affected by the project based on information such as the conservation objectives and vulnerabilities of the Natura 2000 site, proximity to the Site and the scale and nature of the proposed development;
- Consider the likelihood of significant impacts occurring based on the information collated and professional judgement;

[1] https://www.google.ie/maps (last accessed 3 June 2020)
[2] https://www.bing.com/maps (last accessed 3 June 2020)
[3] https://www.npws.ie/ (last accessed 3 June 202 0)
[4] https://maps.biodiversityireland.ie/ (last accessed 3 June 2020)
[5] http://gis.epa.ie/ (last accessed 3 June 2020)
[6] https://laois.ie/ (last accessed 3 June 2020)
[7] http://www.eplanning.ie/LaoisCC/searchtypes (last accessed 3 June 2020)

- Consider the likelihood of cumulative effects arising from the project in-combination with other plans and projects;
- Identify the likelihood of significant effects on Natura 2000 sites occurring because of the project.

3.3 Natura Impact Statement

The approach to preparing the Natura Impact Statement (NIS) is summarised as follows:

- Describe the elements of the plan that are likely to give rise to significant effects on the Natura 2000 Sites;
- Set out the conservation objectives of the Natura 2000 sites;
- Describe how the project will affect the key species and key habitats of the Natura 2000 sites;
- Describe how the integrity of Natura 2000 sites is likely to be affected by the project;
- Describe what mitigation measures are to be introduced to avoid, reduce or remedy the adverse effects on the integrity of the Natura 2000 site;
- Consider findings and determine if potential for adverse effects on Natura 2000 sites remains after mitigation has been implemented.

The approach taken in preparing the AA screening report and NIS is based on standard methods and guidance, as listed in the references section of this report.

4.0 Detailed Description of the Development

The proposed development will consist of a 110kV electricity substation, including all associated development works to accommodate its construction, operation, maintenance and the export of electrical power generated by the permitted Pinewoods Wind Farm to the national grid. The description of the project and construction sequence provided below has been adapted from descriptions provided within Chapter 3 of the EIAR.

In summary, the proposed development will comprise the following main elements:-

- 1 no. 110kV 'loop-in/loop-out' air-insulated switchroom (AIS) substation including control buildings, transformers and all associated electrical equipment, security fencing and lighting;
- 2 no. lattice-type strain towers with a maximum height of up to 21 m;
- c. 100 m of 110kV overhead electricity lines to facilitate connection of the proposed substation to the permitted Laois-Kilkenny Grid Reinforcement Project;
- c. 0.65 km of on-site access track with associated site entrance from local public road; and
- All associated site development, landscaping and reinstatement works including provision of drainage infrastructure.

Construction Phase

The following works will be undertaken to construct the proposed electricity substation and necessary infrastructure:

- Initial surface water protection measures, including the provision of silt fencing along the western boundary of the proposed development site and up-gradient of the Knockardagur stream. It should be noted that construction activities will not commence until siltation/water quality protection measures are installed to the satisfaction of the Ecological Clerk of Works (ECoW)[8] and Environmental Manager (EM)[9];
- The construction of the site entrance, ensuring that requisite traffic visibility splays are provided;
- Progressive installation of surface water protection measures and construction of on-site access track and permanent drainage infrastructure;
- Site preparatory and groundworks associated with the split-level substation compound footprint including control building foundations, cable trenching (and installation of ducting) and strain tower foundations;
- Construction of the control buildings;
- Construction of bases or plinths for electrical apparatus;
- Installation of internal and external electrical apparatus in control buildings and within compound area;
- Erection of strain towers;
- Erection of palisade fencing around substation;
- Commissioning and testing of electrical apparatus;
- Stringing of the 110 kV OHL and connection to the Laois-Kilkenny Grid Reinforcement Project;

[8] The ECoW will be employed by Pinewood Wind Limited to monitoring the construction phase and will ensure that construction activities are completed in accordance with relevant legislation and best practice as it relates to ecological matters, and will also ensure that all ecological/biodiversity measures are appropriately implemented.
[9] The EM will be employed by the civil contractor will be responsible for overseeing the construction of the proposed development having regard to best practice methodologies and the implementation of environmental protection measures including *inter alia* in respect of surface water protection, temporary spoil storage and dust minimisation.

- Progressive site reinstatement, restoration and landscaping including the installation of post-and-wire fencing along the access tracks and at the site entrance and erection of gates.

A preliminary Construction & Environmental Management Plan (CEMP) was prepared in respect of the entire Pinewoods Wind Farm as part of its planning application (Pinewoods Wind Ltd, 2017). A detailed CEMP will be prepared in advance of all construction activities and will incorporate all mitigation measures proposed and will incorporate targeted Construction Method Statements (CMSs) prepared by the appointed Contractor in respect of each element of the proposed development. The preparation, application and documentation of this CEMP will enable all parties – including contractors, designers and competent authorities – to learn from the systematic implementation and assessment of best practice, particularly through the recording of summary information on performance outcomes.

The construction phase will be supervised by a range of environmental and engineering specialist personnel including a Project Supervisor for the Construction Stage (PSCS), Ecological Clerk of Works (ECoW) and Environmental Manager (EM), among others.

Operational Phase

During the operational phase, other than routine maintenance and monitoring, there will be no other activities associated with the proposed development. On average, the site will be serviced once or twice a week by a light commercial vehicle for maintenance purposes. In exceptional circumstances, there may be a requirement to replace an electrical component which may require more substantial works.

Toilet and handwashing facilities will be available in the substation control buildings via a rainwater harvesting system. Potable water will be delivered to site by an approved local provider. Wastewater will be stored in a sealed tank and will be tankered off-site as required by a local licensed waste collector.

The substation compound and access track will be surfaced with free-draining crushed stone such that rainwater can percolate to ground. Stormwater, arising from car park areas and the transformer, will be discharged to ground via an oil interceptor and soakaways. Stormwater discharge will be limited to greenfield runoff rates and no untreated water will be discharged.

Decommissioning Phase

The proposed substation will become a node on the national electricity network, largely operated and maintained by EirGrid. As set out in more detail at Chapter 3 (Sections 3.2 and 3.8) of the EIAR decommissioning of the substation is not proposed.

5.0 Appropriate Assessment Screening

This section identifies the potential zone of influence for the proposed development, provides information on the Natura 2000 sites within the potential zone of influence, sets out the potential impacts and effects and considers if significant effects are likely as a result of the project.

5.1 Identification of Natura 2000 Sites

The first step in the identification of Natura 2000 sites is to determine the potential zone of influence of the project. When the potential zone of influence of the project has been determined, information on the relevant Natura 2000 sites within that zone can be collated. The zone of influence for a project can be identified through a review of the nature of the project, known impacts likely to arise as a result of the type of project, distance from Natura 2000 sites and their features of interest and any landscape[10] or ecological connectivity[11] between the Site and Natura 2000 sites. The zone of influence of the proposed project for Natura 2000 sites was determined to be 2 km (Figure 1).

The construction of the proposed substation, installation of overhead electricity line, provision of on-site access tracks and ancillary works is localised in nature and will be confined to the proposed development site. During the operational phase, other than routine maintenance and monitoring, there will be no other activities associated with the proposed substation. The potential for impacts and effects is limited to a relatively small distance from the Site due to the nature of the project and the activities associated with its construction and operation.

The Site drains, via the Knockardagur stream, to the Owenbeg (Owveg) River which forms part of the River Barrow and River Nore SAC 002162 located ca. 1.4 km from the Site. Notwithstanding that the presence of water within the Knockardagur stream is considered to be seasonal (see EIAR Volume I, Chapter 5), the Site is considered to be connected to this Natura 2000 site via surface water pathways. The River Barrow and River Nore SAC 002162 is within 2 km of the Site (See Figure 1) and is included for detailed assessment due to its proximity and the discharge of surface water from the Site to the Knockardagur stream.

The next closest SAC is Lisbigney Bog SAC (000869), located ca. 5.9 km south-west of the Site. Potential effects on this SAC are not considered likely given its distance from the Site, the features for which the SAC is designated and the lack of landscape/ecological connectivity.

The closest SPA is the River Nore SPA 004233 located c. 5.7 km from the Site. This SPA includes the lower reaches of the Owenbeg (Owveg) River downstream of the Site. The SPA is classified for Kingfisher *Alcedo atthis*. The Knockardagur stream does not offer suitable habitat for this species. Potential effects on the SPA are not considered likely considering the nature and scale of the proposed development, and the distance between the Site and the SPA.

All other Natura 2000 sites are greater than 2 km from the Site and are not considered likely to be affected by the proposed development due to the nature and scale of the proposed development, the distance from the Natura 2000 sites to the Site, the lack of any landscape or ecological connectivity and the features for which the Natura 2000 sites are designated as sites for nature conservation. The River Barrow and River Nore SAC 002162 is therefore the only Natura 2000 site considered to be within the zone of influence of the proposed development and is examined further in this report.

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[10] Landscape connectivity is a combined product of structural and functional connectivity, i.e. the effect of physical landscape structure and the actual species use of the landscape (Kettunen *et al*. 2007)

[11] *Connectivity is defined as a measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts and foraging areas or the corridors of appropriate habitat needed by some slow colonising species if they are to spread* (CIEEM, 2018).

5.2 Description of European (Natura 2000) Sites

The following Natura 2000 site description is summarised from information available on the NPWS website[12].

River Barrow and River Nore SAC 02162

> *"This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.*
>
> *Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore, it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site"*

5.2.1 Features of Interest and Conservation Objectives

Species and habitat types for which Natura 2000 sites are selected are referred to as Features of Interest (sometimes referred to as Qualifying Interests) on the NPWS website. The features of interest and conservation objectives for the River Barrow and River Nore SAC are listed within Table 1 below. This information was obtained from the resources available on the NPWS website.

[12] https://www.npws.ie/protected-sites/sac/002162 (last accessed 3 June 2020)

Table 1: Features of Interests and Conservation Objectives of the River Barrow and River Nore SAC

Natura 2000 site	Distance[13] from Site boundary	Features of Interest	Conservation objectives
River Barrow and River Nore SAC 002162	1.4 km	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (*Cratoneurion*) [7220] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Petromyzon marinus* (Sea Lamprey) [1095]	Detailed conservation objectives of this Natura 2000 site are set out in full on the NPWS website at this link: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf In summary, the conservation objective for the SAC is to maintain or restore the favourable conservation condition of the habitats and species for which the SAC has been selected.

[13] When measured in a straight line at the closest points between the Site boundary and Natura 2000 site boundary.

Natura 2000 site	Distance[13] from Site boundary	Features of Interest	Conservation objectives
		Lampetra planeri (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] *Trichomanes speciosum* (Killarney Fern) [1421] *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]	

5.3 Identification of Potential Impacts on Natura 2000 Sites

The potential impacts and effects of the proposed development on the River Barrow and River Nore SAC 002162 is discussed in this section. The significance of the identified effects is also considered in this section.

NPWS (2010) guidance for planning authorities states "*If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact*."

A significant effect is defined in paragraph 49 of the Waddenzee Case C-127/02[14] as follows "….. *pursuant to the first sentence of Article 6(3) of the Habitats Directive, where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project.*"

5.3.1 Potential Impacts and Effects

The proposed development is not located within the River Barrow and River Nore SAC and will not directly impact on this Natura 2000 site. The River Barrow and River Nore SAC 02162, is located 1.4 km from the Site[15]. The presence of water within the Knockardagur stream is seasonal, the Site is considered to be connected to this Natura 2000 site via surface water pathways. The proposed surface water drainage infrastructure, as described in the Surface Water Management Plan, has been designed to mimic greenfield runoff rates and volumes. The surface water drainage system is sufficient to accommodate a 1-in-100 year rainfall event. Therefore, no changes to the flow regime are anticipated and potential effects from hydrological changes are not considered likely.

The discharge of water from the proposed development to the Knockardagur stream has the potential to indirectly affect the SAC. The proposed development is not likely to result in any other impacts that could cause effects beyond the Site boundary.

Discharge of Water

Surface water run-off during construction and operation of the proposed development will be discharged to the Knockardagur stream. The discharge of surface water has potential to affect water quality within the SAC via the discharge of surface water to Knockardagur stream. This in turn could affect aquatic species listed as features of interest of the SAC.

5.3.2 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a project results in individually insignificant impacts that, when considered in-combination with

[14] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62002CJ0127
[15] Measured in a straight line

impacts of other proposed or permitted plans and projects, can result in significant effects (CIEEM, 2018).

The following plans and projects were reviewed for their potential to act in-combination with the project:

- Pinewoods Wind Farm;
- Laois-Kilkenny Grid Reinforcement Project;
- Laois County Development Plan 2017-2023; and
- Laois County Council planning portal was accessed to examine planning applications in the vicinity of the Site;

Pinewoods Wind Farm

The permitted Pinewoods Wind Farm development was reviewed for potential to result in cumulative effects on the River Barrow and River Nore SAC. The construction, operation and decommissioning of the Pinewoods Wind Farm was subject to AA and was not assessed by An Bord Pleanála as likely to result in any adverse effects on the River Barrow and River Nore SAC.

Laois-Kilkenny Grid Reinforcement Project

The permitted Laois-Kilkenny Grid Reinforcement Project will reinforce the electricity network in the Laois-Kilkenny region through the development of a new transmission line (among other infrastructure) between the two counties. The project was reviewed for potential to result in cumulative effects on the River Barrow and River Nore SAC. The EIA for the project concluded that, with appropriate mitigation and good practice, ecological impacts of the project are likely to be imperceptible. In addition, the NIS determined the project would not adversely affect the integrity of the River Barrow and River Nore SAC, in view of the site's conservation objectives.

Laois County Development Plan 2017-2023

There are no strategies or objectives in the County Development Plan that are likely to result in significant effects when considered in-combination with the proposed substation and grid connection development.

Projects listed on Laois County Council Planning Portal

Planning applications for projects within 2 km of the Site consist of single rural dwellings, extensions to dwellings and small agricultural developments.

The proposed development has the potential to affect the River Barrow and River Nore SAC through accidental discharge of surface water to the Knockardagur stream. It is therefore considered that the there is proposed development in-combination with the permitted wind farm has the potential to affect the SAC through accidental discharge of surface water to the receiving waters on or adjacent to the Site. The significance of such cumulative effects is uncertain in the absence of mitigation.

5.4 Likelihood of Significant Effects on Natura 2000 Sites

There is potential for effects on the water quality of the River Barrow and River Nore SAC due to discharge of surface water runoff from the proposed development both alone and in – combination with other plans and projects although the significance of such effects is uncertain. Therefore, in line with the recommendations of guidance and case law it is considered that the proposed development should progress to the next stage of the process to determine if it will adversely affect the integrity of the River Barrow and River Nore SAC.

6.0 Natura Impact Statement

The headings within the appropriate assessment report template provided in the European Commission guidance document '*Assessment of plans and projects significantly affecting Natura 2000 sites*'[16] have been used to provide a framework to examine the potential impacts of the proposed project on the River Barrow and River Nore SAC.

6.1 Assessment of the effects of the project or plan on the integrity of Natura 2000 Sites

This section of the report sets out the potential effects of the proposed development (either alone or in combination with other projects or plans) on the integrity the River Barrow and River Nore SAC with respect to the conservation objectives of the site and to its structure and function. The focus is on demonstrating, with supporting evidence and the implementation of mitigation measures, that there will be no adverse effects on the integrity of the SAC. Where this is not the case, adverse effects must be assumed.

6.1.1 Describe the elements of the project or plan (alone or in combination with other projects or plans) that are likely to give rise to significant effects on the environment.

The elements of the proposed development identified as having potential to affect the River Barrow and River Nore SAC is the discharge of surface water to the Knockardagur stream during the construction and operation phases.

6.1.2 Set out the conservation objectives of the site

The conservation objectives for the River Barrow and River Nore SAC and the list of specific attributes and targets defining the conservation objectives for each feature of interest (likely to be affected) is listed within the supporting information available online on the NPWS website[17]. These were reviewed and considered for the relevant features of interest when preparing this report.

The conservation objective for the features of interest within the SAC likely to be affected by the proposed development can be broadly summarised as follows:

- To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC
- To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC.
- To restore the favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC.
- To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC.
- To restore the favourable conservation condition of River lamprey in the River Barrow and River Nore SAC.

[16] http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf
[17] https://www.npws.ie/protected-sites/sac/002162

- To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC.
- The status of the freshwater pearl mussel (*Margaritifera margaritifera*) as a qualifying Annex II species for the River Barrow and River Nore SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species. The current condition, which informs the 'integrity' of a qualifying freshwater pearl mussel population can be considered to consist of the condition of the species' habitat and the condition of the population itself[18].

6.1.3 Describe how the project or plan will affect key species and key habitats. Acknowledge uncertainties and gaps in information

The key features of interest, habitats and species, likely to be affected by the deterioration in water quality as a result of the proposed development are set out below.

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260];
- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Alosa fallax* (Twaite Shad) [1103]
- *Salmo salar* (Salmon) [1106]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]

Only features of interest with potential to be affected by the proposed development are considered as other features of interest are sufficiently distant and / or unconnected to the proposed development and thus not likely to be affected.

Working in close proximity to the stream channel has the potential to release suspended solids to the river. The release of suspended solids could result in deposition of silt in downstream gravel areas that may be used as spawning grounds by salmon. Similarly, the deposition of these materials in areas used by spawning lamprey may reduce the suitability of the habitats for spawning. Salmon require very good water quality (Hendry & Cragg-Hine, 2003), which may be reduced by the release of suspended solids.

Freshwater pearl-mussels, including the Nore pearl mussel, rely on the presence of salmonids within the river system during their larval stages. As a result, a reduction in the abundance of salmonids within a river system can cause an effect on pearl mussels. Furthermore, increased siltation can impact pearl mussels by suffocating young mussels (Skinner *et al.,* 2003).

The potential increase in suspended solids as a result of the proposed development could affect these species downstream.

The proposed development has potential to release contaminated surface water during the construction and operation phases. The release of contaminated surface water is most likely to arise

[18] Taken from information on AA and Freshwater Pearl Mussels available on the NPWS website at: https://www.npws.ie/research-projects/animal-species/invertebrates/freshwater-pearl-mussel/appropriate-assessment-and

during the construction phase as a result of excavations associated with the split-level substation compound. The contaminants may enter the Owenbeg (Owveg) River, via the Knockardagur stream. The discharge of contaminated surface water to the existing surface water network has the potential to cause negative effects on aquatic species and habitats associated with the SAC, through the deterioration of water quality, increases in siltation or suspended solids, changes in water chemistry and reduction in habitat.

6.1.4 Describe how the integrity of the site (determined by structure and function and conservation objectives) is likely to be affected by the project or plan (e.g. loss of habitat, disturbance, disruption, chemical changes, hydrological changes and geological changes, etc.). Acknowledge also uncertainties and any gaps in information.

The integrity of the River Barrow and River Nore SAC 002162 is likely to be affected via the Owenbeg (Owveg) River through accidental emissions of suspended solids and pollutants from the proposed development to the Knockardagur stream during construction and operation. The proposed development may therefore result in deterioration in water quality or changes in water chemistry. These effects could result in population reduction of key species through mortality or reduction in the distribution of habitat. The effects described could undermine the conservation objectives for the features of interest affected which would adversely affect the integrity of both the River Barrow and River Nore SAC.

6.1.5 Describe what mitigation measures are to be introduced to avoid, reduce or remedy the adverse effects on the integrity of the site. Acknowledge uncertainties and any gaps in information.

The mitigation measures focus on the protection of the water quality of the river as deterioration in the quality or changes in chemistry has the potential to adversely affect features of interest of the River Barrow and River Nore SAC .

Construction Phase

The Surface Water Management Plan (SWMP) and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur.

Erosion and sediment control will be put in place to protect the Knockardagur stream before commencement of any site clearance and earthworks. Exposed soil is to be kept to a minimum throughout construction to further reduce risk of sediment release during rainfall events. Vegetation cover will be re-established as soon as practical on all areas where soil has been exposed. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.

Measures to be employed during the construction phase to prevent the transport of deleterious substances to the Knockardagur stream and potentially downstream to the River Barrow and River Nore SAC are as follows:

- Surface water will pass through interception, such as silt traps, to ensure suspended solids will not reach any watercourses;

- Silt traps/settlement ponds and temporary interceptors and traps will be put in place on site prior to any site clearance/earthworks and will be used until such time as permanent facilities are constructed;
- All fuels, lubricants and hydraulic fluids will be kept in secure bunded areas, within the permitted Pinewoods Wind Farm construction compound, away from watercourses. The bunded area will accommodate 110% of the total capacity of the containers within it;
- Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place and spill kits provided with all staff properly briefed and trained;
- Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner;
- Fuelling and lubrication will not be conducted within 50 m of any surface water feature including the Knockardagur stream;
- Attenuation ponds have been designed to accommodate Greenfield runoff rates + 20% for climate change.

Measures specific to protection of water quality for freshwater pearl mussel

These measures have been included to further reduce any risk of effects on water quality during the construction phase. The specific measures are as follows:-

- The measures described in Altmüller and Dettmer (2006) to protect water quality within freshwater pearl mussel catchments have been adapted for the proposed development and are incorporated in the SWMP. It is not proposed to adopt the measures in full but, instead, to adapt and implement them in accordance with the characteristics of the Site; and
- Disturbed Sediment Entrainment Mats - SEDIMATS (see http://www.hy-tex.co.uk/ht_bio_sed.html) will be used in the Knockardagur stream. These will be installed according to the manufacturer's instructions at suitable locations along the stream.

In advance of any works taking place, the appointed contractor will be required to finalise the CEMP and provide site-specific. Method Statements detailing specific measures to protect the surface water drainage network. The final CEMP, along with the SWMP, will be submitted to and agreed with the Planning Authority.

Operation Phase

The following surface water protection measures will be implemented to avoid effects from hydrocarbon/chemical spillage:-

- All storage containers will be labelled appropriately, including hazardous markings;
- All holding tanks will be constructed of material appropriate for fuel/chemical storage and will be bunded to at least 110% of the maximum tank volume or 25% of the total capacity of all the tanks within the bund, whichever is greatest;
- Bunds will be to standard specified in CIRIA Report 163 'Construction of bunds for oil storage tanks' and CIRIA Report C535 'Above-ground proprietary prefabricated oil storage tank systems';
- Barrels and bunded containers will be stored upright and internally where appropriate and always on drip trays or sump pallets;
- Appropriate spill kits will be available at all storage locations;

- All fuel/chemical storage facilities will be subject to weekly inspection; and,
- Leaking or empty drums will be removed from the Site immediately and disposed of via a registered waste disposal contractor.

Stormwater, arising from car parking areas and the transformer within the completed development, will be discharged to ground via an oil interceptor and soakaways. Stormwater discharge will be limited to greenfield runoff rates, following attenuation through comprehensive sediment control infrastructure ensuring that no deleterious material is discharged, and no adverse water quality effects are experienced. The mimicking of greenfield runoff rates is a key part of the surface water management system and will ensure that the hydrological regime is not altered by the proposed development particularly in the context of the split-level design.

Decommissioning Phase

The proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

It is considered that with the application of these design measures and surface water protection measures, no 'dirty' water will be discharged to the surface water network and that adverse effects on the integrity of the River Barrow and River Nore SAC will be avoided during the construction and operation phases of the development.

7.0 Consideration of Findings

Following implementation of the proposed mitigation measures to prevent surface water contamination throughout all stages of the proposed development, there will be no adverse effects on the integrity of the River Barrow and River Nore SAC (See Table 2).

Based on the available scientific information and project details, we submit that the competent authority has sufficient information to allow them to determine that the proposed development, individually or in combination with other plans or projects, will not have an adverse effect on the integrity of any European (Natura 2000) sites.

Table 1: Adverse Effects on the Integrity of the River Barrow and River Nore SAC 002162

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
Estuaries [1130]	N	This habitat is estuarine / marine in nature and is present in the lower reaches of the River Barrow[19]. This habitat is sufficiently distant from the Site to be unaffected by the proposed development.	n/a	n/a	n/a	N
Mudflats and sandflats not covered by seawater at low tide [1140]	N	This habitat is estuarine / marine in nature and is present in the lower reaches of the River Barrow[20]. This habitat is sufficiently distant from the Site to be unaffected by the proposed development.	n/a	n/a	n/a	N

[19] Map 2 & Map 4 of Conservation Objectives (NPWS, 2011)
[20] Map 3 & Map 4 of Conservation Objectives (NPWS, 2011)

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
Salicornia and other annuals colonising mud and sand [1310]	N	This habitat is estuarine in nature[21] and is present in the lower reaches of the River Barrow. This habitat is sufficiently distant from the Site to be unaffected by the proposed development.	n/a	n/a	n/a	N
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	N	This habitat is estuarine in nature[22] and is in the lower reaches of the River Barrow. This habitat is sufficiently distant from the Site to be unaffected by the proposed development.	n/a	n/a	n/a	N
Mediterranean salt meadows (*Juncetalia*	N	This habitat is estuarine in nature[23] and is in the lower	n/a	n/a	n/a	N

[21] Map 5 of Conservation Objectives (NPWS, 2011)
[22] Map 5 of Conservation Objectives (NPWS, 2011)
[23] Map 5 of Conservation Objectives (NPWS, 2011)

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
maritimi) [1410]		reaches of the River Barrow. This habitat is sufficiently distant from the Site to be unaffected by the proposed development.				
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	Uncertain	The full distribution of this habitat is not currently known and it may be impacted by surface water run-off from the proposed development causing a deterioration in water quality.	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.			
European dry heaths [4030]	N	This terrestrial habitat occurs on the steep, free-draining river valley sides of the River Barrow and tributaries in the foothills of the foothills of the Blackstairs mountains. Given the intervening distance and the absence of ecological connectivity, there is no potential for effects on this habitat as a result of the development.	n/a	n/a	n/a	N
Hydrophilous tall herb fringe communities of	N	This habitat is associated with riverside woodlands, unmanaged	n/a	n/a	n/a	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
plains and of the montane to alpine levels [6430]		river islands and narrow bands along the floodplain of slow-moving stretches within the SAC. It does not occur within or adjacent to the Site and will not be affected by possible emissions of surface water runoff from the Site.				
Petrifying springs with tufa formation (*Cratoneurion*) [7220]	N	Petrifying springs with tufa formation (*Cratoneurion*) are groundwater dependent ecosystems and are not present within the Site. The proposed development will not affect groundwater levels and therefore there will be no risk to groundwater dependent ecosystems.	n/a	n/a	n/a	N
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	N	This is a terrestrial habitat, located in the lower reaches of the SAC. Given the intervening distance and the absence of	n/a	n/a	n/a	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
		landscape of ecological connectivity, there is no potential for effects on this habitat as a result of the development.				
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	N	The closest downstream example of this habitat, as mapped[24] by NPWS, is located 3 km downstream of Kilkenny City. Effects on this habitat are not likely given the distance from the Site and the sensitivities of the habitat.	n/a	n/a	n/a	N
Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]	N	This species is known from upstream of the Nore-Owenbeg confluence[25] and therefore is not at risk of being affected by surface water discharge from the	n/a	n/a	n/a	N

[24] Map 6 of Conservation Objectives (NPWS, 2011)
[25] Map 7 of Conservation Objectives (NPWS, 2011)

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
		development.				
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	Uncertain	The status of the freshwater pearl mussel as a qualifying interest of the SAC is under review and no site-specific conservation objectives are provided for the species. Although the status and distribution of this species within the SAC is unknown, increases in sedimentation and reduction in water quality are known threats to the species (DoCHG, 2019) and it is carried forward for assessment on this basis.	Altmüller and Dettmer (2006) to protect water quality within freshwater pearl mussel catchments have been adapted for the proposed development and are incorporated in the SWMP to ensure the protection of this species.	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	The proposed mitigation to protect water quality for freshwater pearl mussel are adapted from recognised successful species protection measures. If the mitigation measures are applied as proposed there will be no adverse effects on the integrity of the SAC.	N
Austropotamobius pallipes	Uncertain	This species is mapped within the	The SWMP and detailed drainage design for the	The Environmental	The mitigation	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
(White-clawed Crayfish) [1092]		Owenbeg (Owveg) River and River Nore[26] and may be affected by any potential reduction in water quality due to surface water runoff.	development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur.	Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	

[26] Map 7 of Conservation Objectives (NPWS, 2011)

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.			
Petromyzon marinus (Sea Lamprey) [1095]	Uncertain	This is a mobile species using different areas within the SAC for foraging and breeding. Release of suspended solids and emissions of pollutants from the proposed development could cause deterioration of water quality or changes to water chemistry. Such effects could result in population changes through mortality and / or the reduction of suitable habitat for the species.	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			include regulation of flow to prevent scouring and allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.			
Lampetra planeri (Brook Lamprey) [1096]	Uncertain	This is a mobile species using different areas within the SAC for foraging and breeding. Release of suspended solids and emissions of pollutants from the proposed development could cause deterioration of water quality or changes to water chemistry. Such effects could result in population changes through mortality and / or the reduction of suitable habitat for the species.	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.	mitigation measures during operation.		
Lampetra fluviatilis (River Lamprey) [1099]	Uncertain	This is a mobile species using different areas within the SAC for foraging and breeding. Release of suspended solids and emissions of pollutants from the proposed development could cause deterioration of water quality or changes to water chemistry. Such	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction.	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
		effects could result in population changes through mortality and / or the reduction of suitable habitat for the species.	and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.	The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	of the SAC.	
Alosa fallax (Twaite Shad) [1103]	Uncertain	This is a mobile species using different areas within the SAC for foraging and breeding. Release of	The SWMP and detailed drainage design for the development incorporates	The Environmental Manager working with the appointed	The mitigation measures are site-specific and are proven	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
		suspended solids and emissions of pollutants from the proposed development could cause deterioration of water quality or changes to water chemistry. Such effects could result in population changes through mortality and / or the reduction of suitable habitat for the species.	a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the	construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			construction phase.			
Salmo salar (Salmon) [1106]	Uncertain	This is a mobile species using different areas within the SAC for foraging and breeding. Release of suspended solids and emissions of pollutants from the proposed development could cause deterioration of water quality or changes to water chemistry. Such effects could result in population changes through mortality and / or the reduction of suitable habitat for the species.	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also include regulation of flow to prevent scouring and allow settlement of sediment to occur.	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.			
Lutra lutra (Otter) [1355]	N	There is no suitable habitat for otter within or adjacent to the Site. This is a mobile species that is likely to use the Owenbeg (Owveg) River for feeding and commuting. This species may be affected by a reduction in prey species if water quality deteriorates.	The SWMP and detailed drainage design for the development incorporates a large number of tried and tested measures that are used as standard by industry for protection of water quality. The design and mitigation measures are set out in detail in the SWMP but can be summarised as measures to prevent sediment release to surface water features during the construction phase of the development. The SWMP standard measures also	The Environmental Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	The mitigation measures are site-specific and are proven techniques that if applied as proposed will avoid any adverse effects on the integrity of the SAC.	N

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
			include regulation of flow to prevent scouring and allow settlement of sediment to occur. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.			
Trichomanes speciosum (Killarney Fern) [1421]	N	This species is known from three locations in the lower reaches of the SAC[27]. The habitat within the Site and is not suitable for this species.	n/a	n/a	n/a	N
Margaritifera durrovensis	Uncertain	This species is present	The measures described in	The Environmental	The proposed	N

[27]Map 7 of Conservation Objectives (NPWS, 2011)

Features of Interest	Likely Significant Effects (alone or in – combination) Y/N	Rationale – screened in / out	Mitigation	Responsibility for Implementation of mitigation	Effect of the proposed Mitigation Measures	Adverse effects on the integrity of the River Barrow and River Nore SAC 002162
(Nore Pearl Mussel) [1990]		downstream of the Owenbeg-Nore confluence[28]. Reduction in water quality due to sediment loading poses a threat to this species.	Altmüller and Dettmer (2006) to protect water quality within freshwater pearl mussel catchments have been adapted for the proposed development and are incorporated in the SWMP to ensure the protection of this species.	Manager working with the appointed construction contractor will implement mitigation during construction. The operator and / or wind farm owner will assume responsibility for implementation and maintenance of mitigation measures during operation.	mitigation to protect water quality for freshwater pearl mussel are adapted from recognised successful species protection measures. If the mitigation measures are applied as proposed there will be no adverse effects on the integrity of the SAC.	

[28] Map 7 of Conservation Objectives (NPWS, 2011)

8.0 References

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Laois Planning Portal	http://www.eplanning.ie/LaoisCC/searchtypes
NBDC Maps	https://maps.biodiversityireland.ie/
NPWS	https://www.npws.ie/protected-sites

FIGURES

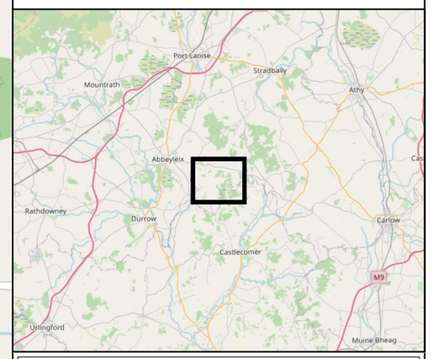
02036.00633.0001.0 Natura 2000 Map

NOTES

1. Contains data from National Parks and Wildlife Service https://www.npws.ie/maps-and-data/designated-site-data

LEGEND

- Site Boundary
- Site Boundary 2km Buffer - Zone of Influence Boundary for Natura 2000 Sites
- River Barrow and River Nore Special Area of Conservation (SAC)



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PINEWOODS SUBSTATION EIAR

ECOLOGY

NATURA 2000 MAP

FIGURE 1

Scale 1:20,000 @ A3

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