



Volume 2: Natura Impact Statement

Coolshamrock 110kV Substation SID

22/09/2023



Disclaimer

Neo Environmental Limited shall have no liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Copyright © 2023

The material presented in this report is confidential. This report has been prepared for the exclusive use of Renewable Energy Systems (RES) Ltd. The report shall not be distributed or made available to any other company or person without the knowledge and written consent of Renewable Energy Systems (RES) Ltd. or Neo Environmental Ltd.

Neo Environmental Ltd	
<p>Head Office - Glasgow: Wright Business Centre, 1 Lonmay Road, Glasgow. G33 4EL T 0141 773 6262 E: info@neo-environmental.co.uk</p>	
<p>Warrington Office: Cinnamon House, Crab Lane, Warrington, WA2 0XP. T: 01925 661 716 E: info@neo-environmental.co.uk</p>	<p>Rugby Office: Valiant Suites, Lumonics House, Valley Drive, Swift Valley, Rugby, Warwickshire, CV21 1TQ. T: 01788 297012 E: info@neo-environmental.co.uk</p>
<p>Ireland Office: Johnstown Business Centre, Johnstown House, Naas, Co. Kildare. T: 00 353 (0)45 844250 E: info@neo-environmental.ie</p>	<p>Northern Ireland Office: 83-85 Bridge Street, Ballymena, County Antrim, BT43 5EN, T: 02890 517 092 E: info@neo-environmental.co.uk</p>



Prepared For:


Renewable Energy Systems (RES) Ltd.



Prepared By:

Dylan Donoghue BSc (Hons)



	Name	Date
Edited By:	Dylan Donoghue	22/09/2023
Checked By:	Dara Dunlop & Colleen Patterson	22/09/2023
	Name	Signature
Approved By	Paul Neary	



Contents

Executive Summary	5
Introduction	6
Legislation	8
Assessment Methodology	10
Baseline	14
Impact Assessment.....	23
Design, Best Practice and Mitigation Measures	41
Consideration of Cumulative Effects	48
Conclusion	56
Appendices.....	58



EXECUTIVE SUMMARY

- 1.1. A Stage 2 Natura Impact Statement (NIS) has been undertaken for a proposed substation and 110kV loop in infrastructure (the “Proposed Development”) in the townland of Coolshamroge, Ennis, Co. Clare (the “Application Site”) to assess the potential impacts from the Proposed Development on local ecology. Baseline information within the ecological assessment comprises of an initial desk-based assessment and a Fossitt habitat survey, which was extended to identify the presence or likely absence of protected species, which have been outlined within the relevant sections of this report.
- 1.2. Within the 15km zone of influence (ZOI) surrounding the Application Site there are 21 Natura 2000 Designated Sites. There are three Special Protection Areas (SPAs); the River Shannon and River Fergus Estuaries SPA, Ballyallia Lough SPA and Slieve Augthy Mountains SPA. There are eighteen Special Areas of Conservation (SACs); Lower River Shannon SAC, Old Domestic Building (Keevagh) SAC, Poulmagordon Cave (Quin) SAC, Lough Gash Turlough SAC, Ballyallia Lake SAC, Newhall and Edenvale Complex SAC, Newgrove House SAC, Old Domestic Buildings, Rylane SAC, Kilkishen House SAC, Pouladatig Cave SAC, Ratty River Cave SAC, Dromore Woods and Loughs SAC, Knockanira House SAC, Toonagh Estate SAC, Danes Hole, Poulnalecka SAC, Old Farm Buildings, Ballymacrogan SAC, Moyree River System SAC and Ballycullinan and Old Domestic Building SAC.
- 1.3. Hydrological and ornithological connectivity exists between the Application Site and the River Shannon and River Fergus Estuaries SPA and hydrological and ecological connectivity exists between the Application Site and the Lower River Shannon SAC, providing a pathway for potential impacts. It has also been concluded that ecological connectivity exists between Old Domestic Building (Keevagh) SAC and Poulmagordon Cave (Quin) SAC for lesser horseshoe. The main qualifying features of these four sites have been outlined and assessed in full in this report. To determine potential effects on the qualifying bird species of the River Shannon and River Fergus Estuaries SPA. Wintering bird surveys (WBS) were also conducted as part of Coolshamrock Solar Farm and Grid Route (**Planning Ref 22586**)¹. The proposed substation and associated loop in infrastructure is located entirely within the solar farm application site boundary.
- 1.4. As no connectivity (pathway for impacts) exists between the Application Site and the remaining Natura 2000 designated sites within the study area, these have been ‘scoped out’ from further assessment.
- 1.5. With the implementation of integral design measures, mitigation and best practice construction methods, it can be concluded that there will be **no significant effects** for all Natura 2000 designated sites within the ZOI.

¹ Clare County Council- planning Ref 22586, Appendix B - Wintering Bird Survey of Coolshamrock Solar Farm and Grid Route Application

INTRODUCTION

Background

- 1.6. Neo Environmental Ltd have been commissioned by Renewable Energy Systems (RES) Ltd (“the Applicant”) to undertake a Planning and Environmental Statement for a Strategic Infrastructure Development (“SID”) Application for a new 110kV Substation (“the Proposed Development”) to feed into the existing Drumline-Ennis 110kV overhead line (OHL) circuit. The Substation and 110kV loop in infrastructure is situated within the townland of Coolshamroge, Ennis, Co. Clare (“the Application Site”). The Substation is to facilitate the Manusmore Solar Farm (PA Ref: 20562) and the Manusmore Solar Farm Extension (PA Ref: 21915) and the Coolshamrock Solar Farm (PA Ref: 22586).
- 1.7. Please see **Figure 3, Volume 2** for the layout of the Proposed Development.

Development Description

- 1.8. Coolshamrock and Manusmore Solar Farms will feed into a new 110kV substation. The method of connection to the national grid for the new substation will be a looped connection into the existing Drumline – Ennis 110kV Circuit. 2 No. new OHL end towers will be constructed to facilitate connection to the existing OHL (see **Figure 3 and 11, Volume 2**). The application site will comprise of a 110/33kV substation which consists of 2 No. control buildings, a transformer compound, a high voltage (HV) switchgear compound, a customer MV compound and associated cabling. There is also 2. No underground 110kV cables, a cable access track and 2 No. overhead line towers.
- 1.9. The control buildings will consist of foundation works, block work, roofing, low voltage electrical fit out, medium voltage switchgear, cladding and building finishing works.
- 1.10. A power transformer, HV electrical equipment (4bays), lightning protection masts, communication mast, structural steel works, circuit breakers, current transformers, voltage transformers, busbars, surge arresters, cable sealing ends, disconnectors/earth switches, surge arrestors and post insulators will be installed in the Eirgrid HV Substation Compound.
- 1.11. The Customer MV Compound will consist of 2 No. capacitor banks, 1 No. reactor banks and associated circuit breakers (capacitor and reactor), 1 no. harmonic filter, resistor, pre-insertion resistor and 1 No. auxiliary transformer.
- 1.12. Palisade and concrete post and rail fencing will be erected around the compound for security/protection.
- 1.13. The 110kV loop in connection will connect the Drumline-Ennis 110kV overhead line (OHL) circuit to 2. Overhead line towers and 2. No associated 110kV underground cables and into

the HV compound infrastructure. There is a cable access which branches from the consent solar tracks (P22568) to provide access to the cables and towers.

Site Description

- 1.14. The proposed Substation and 110kV loop in infrastructure is located within the townland of Coolshamroge, Ennis, Co. Clare. The proposed site is approximately 7km southeast of Ennis, 4.2km east of Clarecastle and 1.5km west of the smaller settlement Quin.
- 1.15. The Application Site in which the substation is proposed to be located comprises of 3 fields of relatively flat agricultural land. The Application site lies at an elevation of c. 26-29m AOD and covers a total area of c. 3.78 acres. The approximate Irish Grid Reference points (ITM) of the proposed substation are X 539777 and Y 674345. The proposed substation will be enclosed by palisade fencing. Access to the proposed substation will be from a private lane off an unnamed local road to the south which is the same entrance point from the Coolshamrock Solar Farm (PA Ref:22586).

Statement of Authority

- 1.16. The assessment has been conducted by experienced ecologists. All work has been carried out in line with the relevant professional guidance; CIEEM's Guidelines for Report Writing², the Environment, Heritage and Local Government's Guidance on Appropriate Assessments³ and the European Commission Notice "Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC"⁴.
- 1.17. Dylan Donoghue is an Ecologist in the process of applying for membership with CIEEM. Dylan has 2 years' experience in the ecology sector, including working for an ecological consultancy, undertaking bird and bat surveys.
- 1.18. Dara Dunlop is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) with circa 4 years' experience in the ecology sector. This includes working for an ecological consultancy, undertaking a range of protected species surveys and extended phase 1 habitat surveys for residential schemes and land management of designated sites. Dara has authored a number of reports for various developments including Ecological Impact Assessments and Protected Species Reports.

² CIEEM, 2017. Guidelines for Report Writing. Available at www.cieem.net

³ Environment, Heritage and Local Government, 2009. Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities. Available at www.npws.ie

⁴ Managing Natura 2000 Sites, The provisions of Article 6 of the Habitats Directive 92/43/EEC (European Commission, 2018). Available at: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/Provisions_Art_.nov_2018_endocx.pdf

LEGISLATION

Requirement for Appropriate Assessment

- 1.19. The requirement for Appropriate Assessment (AA) of plans or projects originates from Article 6 (3) and (4) of European Union (EU) Habitats Directive. This is implemented in Ireland through the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (as amended).
- 1.20. The wording of Article 6 (3) of the Directive is as follows:
- “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.”*
- 1.21. As outlined in the European Commission document ‘Assessment of plans and projects significantly affecting Natura 2000 sites’⁵, any project that is not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect upon it, either individually or cumulatively will be subject to Appropriate Assessment. Furthermore, the European Commission’s most recent guidance on Article 6: "Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC"⁶ has also been considered.
- 1.22. Where significant effects are uncertain or unknown at the screening stage an AA will be required, due to the need to apply the precautionary principle. Conversely, if a project will have impacts on a site, but these impacts will clearly not affect or undermine those conservation objectives, it is not considered that it will have a significant effect on the site concerned.
- 1.23. The aim of Stage 2, ‘Natura Impact Statement’ is to inform the assessment of the impacts of the Proposed Development on the integrity of the Natura 2000 site, considering the conservation objectives of the site and its ecological structure and function. This is done by considering the type of development and the conservation objectives of any Natura 2000 sites

⁵ European Commission (2001) *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*. Available at: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

⁶ Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat’s Directive 92/43/EEC (European Commission, 2018)

which may be impacted. The NIS will assess connectivity between the development and the Natura 2000 sites and their qualifying interests.

- 1.24. In addition, s177(T)1(b) and (2) of the Planning and Development Act 2000 (as amended) sets out the requirements for an NIS and states:

“s177(T) (1)(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one F722 [European site], in view of the conservation objectives of the site or sites.

(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one F722 [European site] in view of the conservation objectives of the site or sites.”

Mitigation

- 1.25. The European Commission (EC 2001) states that mitigation should not be considered during the AA (i.e. Stage 1) Screening stage. On 12th April 2018, the Courts of Justice of the EU (CJEU) ruled in case C-323/17 (*People over Wind v Coillte*) that measures intended to avoid or reduce a proposed plan or project's harmful effects on a European site ('mitigation measures') cannot be considered during the Screening for AA stage.
- 1.26. Therefore, unless it can be shown that the proposed plan or project would not have a significant effect on the conservation objectives of the relevant European site in the absence of mitigation, it is necessary to carry out a Stage 2 AA. Mitigation measures should be considered at Stage 2, when a 'full and precise analysis' can be carried out. This is contrary to the previous guidance whereby inherent mitigation at the screening stage could be considered.

The Precautionary Principal

- 1.27. The Precautionary Principle, is referenced in Article 191 of the Treaty on the Functioning of the EU, is defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as:

When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis.

- 1.28. The reasoned employment of the 'Precautionary Principle' is fundamental to every AA.



ASSESSMENT METHODOLOGY

Stages of Appropriate Assessment

- 1.29. The AA process comprises of four stages in order to identify whether proposals have the potential to significantly impact upon Natura 2000 designations. The stages are as follows:
- **Stage 1 Screening:** To determine the likelihood of significant impacts.
 - **Stage 2 Natura Impact Statement:** To assess the impact of proposals on the integrity of the Natura 2000 site, considering the conservation objectives of the site and its ecological structure and function.
 - **Stage 3 Assessment of alternatives:** Where significant impacts are anticipated despite mitigation measures, the proposal should progress to Stage 3 and consider alternatives or no longer proceed.
 - **Stage 4 Assessment where no alternative exists and where adverse impacts remain:** The final stage involves examining whether there are imperative reasons of overriding public interest for allowing the proposal to adversely impact upon a Natura 2000 site.

Source – Pathway - Receptor Model

- 1.30. The ‘source-pathway-receptor’ conceptual model is a tool used for environmental assessment. In order for an effect to occur, all elements of this model must be linked. The removal or absence of one of the elements of the model results in there being no likelihood for the effect in question to occur. For example:
- Source(s), e.g., blasting;
 - Pathway(s) e.g., vibration and noise; and,
 - Receptor(s) e.g., disturbance of nesting birds.
- 1.31. For an NIS, this model is focused solely on the selection features of Natura 2000 sites as defined by National Parks and Wildlife Services (NPWS), and referenced within this report.
- 1.32. The Proposed Development may have the potential to result in a number of impacts, which could potentially affect the selection features of Natura 2000 sites. The analysis of these effects, using scientific knowledge and professional judgement, leads to the identification of a “zone of influence” for each effect (i.e., the distance at which the impact of the proposed

development could have potential effects, using professional judgement and published guidance).

Study Zone Identification

1.33. The ‘Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities’⁷ states that the NIS should include the following:

- *“Any Natura 2000 sites within or adjacent to the plan or project area.*
- *Any Natura 2000 sites within the likely zone of impact of the plan or project.*
- *A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et. al., 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects. In some instances, connectivity may go beyond 15k and will also need to be considered.*
- *Natura 2000 sites that are more than 15km from the plan or project area depending on the likely impacts of the plan or project, and the sensitivities of the ecological receptors, bearing in mind the precautionary principle. In the case of sites with water dependent habitats or species, and a plan or project that could affect water quality or quantity, for example, it may be necessary to consider the full extent of the upstream and/or downstream catchment.”*

1.34. However, this distance is a guidance only and a zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on a European site, having regard to its Qualifying Interests and Site Conservation Objectives. In accordance with the OPR Practice Note, PN01, the Zone of Influence (ZoI) should be established on a case-by-case basis using the Source- Pathway Receptor framework and not by arbitrary distances (such as 15km).

1.35. The Zone of Influence may be determined by considering the Proposed Development’s potential connectivity with European sites, in terms of:

- Nature, scale, timing and duration of works and possible impacts, nature and size of excavations, storage of materials, flat/sloping sites;

⁷ Department for Environment, Heritage and Local Government (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Available at: http://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

- Distance and nature of pathways (dilution and dispersion; intervening ‘buffer’ lands, roads etc.); and
- Sensitivity and location of ecological features

1.36. The potential for source pathway receptor connectivity is firstly identified through GIS interrogation and detailed information is then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Proposed Development are listed in **Table 1-1** below and presented in **Figure 1 (Appendix A)**. Spatial boundary data on the Natura 2000 network were extracted from the NPWS website (www.npws.ie). This data was interrogated using GIS analysis to provide mapping, distances, locations and pathways to all sites of conservation concern including European sites.

Desk Study

- 1.37. Sources of material that were consulted as part of the desk study for the purposes of the assessment are as follows:
- NPWS natural heritage database for Natura 2000 sites within the 15km ZOI of the Application Site⁸;
 - NPWS site synopses, Natura 2000 Data Form and conservation objectives relating to each site and aerial images;
 - Environmental Protection Agency (EPA) interactive maps⁹.

Impact Assessment Process

- 1.38. The assessment process involves:
- Identifying and characterising Natura 2000 sites identified within the 15km zone of influence surrounding the Application Site and their qualifying features and addressing whether any of these designated sites have any connectivity with the Proposed Development. If any site is found to have no connectivity, then these designated sites will be ‘scoped out’ or not considered further;

⁸ Environment, Heritage and Local Government (2009) Appropriate Assessment of Plan and Projects in Ireland. Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

⁹ Available at: <https://gis.epa.ie/EPAMaps/>

- Using the Source-Pathway-Receptor model, assess whether there will be any significant impacts to any of the Natura 2000 site, in regard to changes that result from the construction, operation and decommissioning phases of a project. Qualifying features of a Natura 2000 site that lie outside of the ZOI and not subject to any impacts from the Proposed Development then these will be 'scoped out' or not considered further;
- Identify any significant impacts on the integrity of the Natura 2000 site from the development and 'in combination' with any other development within 5km;
- Identify the need for the Appropriate Assessment process to move to Stage 3: 'Assessment of alternatives' or, if there are no impacts from the development, the competent authority may allow the development to proceed, subject to other requirements being satisfied.



BASELINE

- 1.39. In accordance with NPWS guidance, this stage of the AA has identified all Natura 2000 sites located within 15km of the Application Site and potential impacts associated with the Proposed Development have been identified. Those Natura 2000 sites which will not be significantly impacted upon will be ruled out of any further assessment.
- 1.40. Potential impacts can depend more on the nature of impacts, sensitivity of receptors and causal linkage, rather than actual distances. The assessment below considers connectivity, either ecological or hydrological, that may exist between the Proposed Development and the designated sites.

Identification of Natura 2000 Sites

- 1.41. There are three SPAs and eighteen SACs located within 15km of the Application Site. The designated features of each have been outlined within **Table 1-1** below. **Figure 1, Appendix A** of this report details the location of these sites in relation to the Proposed Development.

Table 1-1: Natura 2000 sites within 15km

Site Code	Site Name	Qualifying Features	Distance (km)	Potential Connectivity with the Proposed Development Site
SPA				
004077	River Shannon and River Fergus Esturies SPA	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Whooper Swan (<i>Cygnus cygnus</i>) [A038] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Wigeon (<i>Anas penelope</i>) [A050] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054]	2.95km South	Ornithological and hydrological

		<p>Shoveler (<i>Anas clypeata</i>) [A056]</p> <p>Scaup (<i>Aythya marila</i>) [A062]</p> <p>Ringed Plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</p> <p>Grey Plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Lapwing (<i>Vanellus vanellus</i>) [A142]</p> <p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p> <p>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</p> <p>Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Curlew (<i>Numenius arquata</i>) [A160]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Greenshank (<i>Tringa nebularia</i>) [A164]</p> <p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Wetland and Waterbirds [A999]</p>		
004041	Ballyallia Lough SPA	<p>Wigeon (<i>Anas penelope</i>) [A050]</p> <p>Gadwall (<i>Anas strepera</i>) [A051]</p> <p>Teal (<i>Anas crecca</i>) [A052]</p> <p>Mallard (<i>Anas platyrhynchos</i>) [A053]</p> <p>Shoveler (<i>Anas clypeata</i>) [A056]</p>	8.01km Northwest	None

		Coot (<i>Fulica atra</i>) [A125] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Wetland and Waterbirds [A999]		
004168	Slieve Aughty Mountains SPA	Hen Harrier (<i>Circus cyaneus</i>) [A082] Merlin (<i>Falco columbarius</i>) [A098]	8.31km Northeast	None
SAC				
002165	Lower River Shannon SAC	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and	2.05km South	Hydrological and ecological

		<p><i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <p><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</p> <p><i>Petromyzon marinus</i> (Sea Lamprey) [1095]</p> <p><i>Lampetra planeri</i> (Brook Lamprey) [1096]</p> <p><i>Lampetra fluviatilis</i> (River Lamprey) [1099]</p> <p><i>Salmo salar</i> (Salmon) [1106]</p> <p><i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]</p> <p><i>Lutra lutra</i> (Otter) [1355]</p>		
002010	Old Domestic Building (Keevagh) SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat)	1.50km North	Ecological
000064	Poulnagordon Cave (Quin) SAC	Caves not open to the public [8310] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	2.41km West	Ecological
000051	Lough Gash Turlough SAC	Turloughs [3180] Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidention</i> p.p. vegetation	6.07km Southeast	None

000014	Ballyallia Lake SAC	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation [3150]	7.11km Northwest	None
002091	Newhall and Edenvale Complex SAC	Caves not open to the public [8310] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	7.13km West	None
002157	Newgrove House SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	7.36km Northeast	None
002314	Old Domestic Buildings, Rylane SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	8.60km Northeast	None
002319	Kilkishen House SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat)	9.09km East	None
000037	Pouladatig Cave SAC	Caves not open to the public [8310] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	9.45km west	None
002316	Ratty River Cave SAC	Caves not open to the public [8310] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	9.89km Southeast	None
000032	Dromore Woods and Loughs SAC	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation [3150] <i>Hydrophilous</i> tall herb fringe communities of plains and of the montane to alpine levels [6430] Limestone pavements [8240]	10.50km Northwest	None

		<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] <i>Lutra lutra</i> (Otter) [1355]		
002319	Knockanira House SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	11.31km Southwest	None
002247	Toonagh Estate SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	11.82km Northwest	None
000030	Danes Hole, Poulnalecka SAC	Caves not open to the public [8310] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	13.18km East	None
002245	Old Farm Buildings, Ballymacrogan SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]	14.08km Northwest	None
000057	Moyree River System SAC	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] Alkaline fens [7230] Limestone pavements [8240] Caves not open to the public [8310] <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] <i>Lutra lutra</i> (Otter) [1355]	14.44km Northwest	None

002246	Ballycullinan, Old Domestic Building SAC	<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat)	14.89km Northwest	None
--------	--	---	-------------------	------

- 1.42. As shown in **Table 1-1**, the Application Site is not located within or directly adjacent to any Natura 2000 site. The River Shannon & River Fergus Estuaries SPA has hydrological and ornithological connectivity with the Application Site and the Lower River Shannon SAC has ecological and hydrological with the Application Site. In addition, both the Old Domestic Building (Keevagh) SAC and Poulmagordon Cave (Quin) SAC have ecological connectivity with the Application Site.
- 1.43. Surface water from the Application Site connects to a drainage ditch (approximately, 200m) outside of the ESA. The drainage ditch flows along the northwest boundary of the proposed Coolshamrock solar farm and joins the Carrowmeer stream before converging with the Manusmore stream. The Manusmore stream joins the Rine river and discharges into the River Shannon & River Fergus Estuaries SPA and the Lower River Shannon SAC. The River Shannon & River Fergus Estuaries SPA is approximately 5.01km downstream of the Application Site. The Lower River Shannon SAC is approximately 3.92km downstream of the Application Site
- 1.44. The River Shannon & River Fergus Estuaries SPA is also ornithologically connected, given the proximity of the SPA to the Site Boundary and the habitats present, it is considered that the twenty-one qualifying species of bird have the potential to utilise the habitats within the Application Site.
- 1.45. The Proposed Development has potential ecological connectivity for otter associated with the Lower River Shannon SAC. Habitats on site are considered only suitable to support commuting otter.
- 1.46. The SAC is also designated for both salmon, brook lamprey, sea lamprey, river lamprey, freshwater pearl mussel and bottlenose dolphin. As the SAC is downstream of the Application Site these qualifying species may be affected through contamination of waterways.
- 1.47. The Proposed Development has ecological connectivity for lesser horseshoe bat associated with both the Old Domestic Building (Keevagh) SAC and Poulmagordon Cave (Quin) SAC. Given the proximity of both SACs to the Site Boundary, it is considered that Lesser Horseshoe Bat could potentially utilise the habitats within the Application Site for foraging.
- 1.48. As connectivity exists between the Application Site River Shannon & River Fergus Estuaries SPA, the Lower River Shannon SAC, Old Domestic Building (Keevagh) SAC and Poulmagordon Cave, these Natura 2000 sites have been considered further in this assessment.
- 1.49. The remaining Natura 2000 designated sites within the 15km ZOI study area do not have connectivity with the Application Site. Where connectivity does not exist, there are no

pathways for likely impacts, therefore the Natura 2000 sites within the study area that do not have connectivity with the Application Site **will not be considered further** within this assessment.



Wintering Bird Surveys

- 1.50. Due to the close proximity of the Application Site to the River Shannon & River Fergus Estuaries SPA, wintering bird surveys (WBS) were completed as part of the Coolshamrock Solar Farm (**Planning Ref 22586**)¹⁰. The proposed substation and associated loop in infrastructure is located entirely within the solar farm application site boundary. The WBS were completed over three days towards the end of the winter season 14th January 2022, 4th and 28th of February 2022. To provide a current baseline for bird activity of the qualifying species associated with the SPA.
- 1.51. Transect surveys identified common passerine and corvid species utilising the main habitats of improved grassland, woodland, treeline and hedgerow associated with the study area. Special Conservation Interest species of the River Shannon and River Fergus Estuaries SPA were not identified as using the fields for foraging, feeding or roosting during the surveys.
- 1.52. One Snipe was recorded flying out of the wet grassland area due to ornithologists following a survey transect. Snipe are Red listed due to their declining breeding population in Ireland. However, the Proposed Development does not involve the removal of wet grassland. It's therefore considered that the Proposed Development is unlikely have negative effect on local Snipe populations.
- 1.53. Given the proposed sites proximity to the estuary it is possible that the site could be utilised on an intermittent or occasional basis by over-wintering avifauna as a transit route, commuting corridor or as feeding grounds.
- 1.54. **No potential for significant adverse effects** have been identified in connection with the qualifying bird species for which the River Shannon and River Fergus Estuaries SPA is designated. Safeguards will be implemented to ensure any disturbance of such species is kept to a minimum.

¹⁰ Clare County Council- planning Ref 22586, Appendix B - Wintering Bird Survey of Coolshamrock Solar Farm and Grid Route Application

IMPACT ASSESSMENT

1.55. Standard best practice pollution prevention measures will be adhered, which will reduce the potential for impacts on ecology during the construction stage. As these are standard requirements, they are separate to mitigation measures which are outlined later in this report.

1.56. Relevant measures include but are not limited to:

Pollution Prevention

- Hydrocarbons, greases and hydraulic fluids will be stored in a secure compound area;
- All plant machinery will be properly serviced and maintained thereby reducing risk of spillage or leakage;
- All waste produced from construction will be collected in skips with the construction site kept tidy at all times;
- Excavated soil will be stored on site or removed by a licensed waste disposal unit;
- All materials and substances used for construction will be stored in a secure compound and all chemicals to be stored in secure containers to avoid potential contamination; and
- Location of spill kit to be known by all construction workers and implemented in the event of spillage or leakage.

Waste management

- Skips are to be used for site waste/debris at all times and collected regularly or when full;
- All hydrocarbons and fluids are to be collected in leak-proof containers and removed from site for disposal or recycling; and
- All waste from construction is to be stored within the site confines and removed to a permitted waste facility.



Environmental monitoring

- Contractor to nominate member of staff as the environmental officer with the responsibility to ensure best practice measures are implemented and adhered to, with any incidents or non-compliance issues being reported to the project team.

Assessment of Impacts

- 1.57. This section discusses and evaluates the likely impacts of the Proposed Development affecting the River Shannon & River Fergus Estuaries SPA, the Lower River Shannon SAC, Old Domestic Building (Keevagh) SAC and Poulmagordon Cave (Quin) SAC, which are the only Natura 2000 designated sites with connectivity to the Application Site within the ZOI. As outlined previously the Application Site does not have connectivity with the remaining Natura 2000 designated sites within the study area, and have therefore been 'scoped out' of this assessment.
- 1.58. Potential impacts for ecological features associated with a Natura 2000 designated site from the construction, operation and decommissioning of a substation may occur from the contamination of surface and/or ground waters. Those features (species) which are ecologically connected to a development site, and are mobile, may be impacted upon through disturbance as well as loss of habitat through contamination of surface waters.
- 1.59. Aquatic systems and the species/habitats which are dependent on these systems are sensitive to pollution/contamination of surface waters. Pollution can result from any of the following entering a body of surface or groundwater:
- Poisonous, noxious or polluting matter;
 - Waste matter (including silt, cement, concrete, oil, petroleum spirit, chemicals, solvents, sewage and other polluting matter);
 - Other harmful activities detrimentally affecting the status of a waterbody.
- 1.60. The status of a waterbody can be affected not only by chemical pollution, but also by activities directly or indirectly affecting ecology, including changes in physio-chemical parameters such as temperature and turbidity or physical modification to the hydrology of a waterbody.
- 1.61. **Table 1-2** below details common water pollutants and their effect on the aquatic environment (Table extracted from Ciria guidance¹¹).

¹¹ Ciria (2015) Environmental good practice on site guide, fourth edition

Table 1-2: Common water pollutants and their effects on the aquatic environment

Common Water Pollutants	Adverse effect on aquatic environment
Silt	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, leads to degradation of habitat including that of juvenile freshwater pearl mussels
Bentonite (very fine silt)	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, leads to degradation of habitat including that of juvenile freshwater pearl mussels
Cement or concrete wash water (highly alkaline)	Changes the chemical balance, is toxic to fish and other wildlife. This can lead to direct impacts for aquatic species (including otter), or indirect through loss of prey resources
Detergent	Removes dissolved oxygen, can be toxic to fish and other wildlife present within the aquatic environment
Hydrocarbons (e.g. oil, diesel)	Suffocates aquatic life, damaging to the wildlife (e.g. birds), and to water supplies including industrial abstractions
Sewage	Reduces water quality, is toxic to aquatic wildlife including otter, and damages water supplies

- 1.62. An integral part of the Proposed Development design involves methods for controlling the movement of surface water within the Application Site. Movement of surface water will be managed by a Sustainable Drainage System (SuDS) following best practice guidelines on the use of SuDS¹².

¹² Ciria (2007) The SuDS Manual. Available at: <https://www.ciria.org/>

- 1.63. The proposed drainage strategy (see **Technical Appendix 4: Flood Risk and Drainage Impact Assessment** for further details) to construct a soakway pit and rainwater harvesting tank within the Application Site. The locations of the schemes have been chosen on the downward slope or near to existing watercourses or drainage features.
- 1.64. These measures will **significantly reduce the potential** for contaminated surface waters entering the aquatic environment.

River Shannon & River Fergus Estuaries SPA

- 1.65. The River Shannon & River Fergus Estuaries SPA is designated for its importance for the following ornithological species:
- Cormorant (*Phalacrocorax carbo*) [A017]
 - Whooper swan (*Cygnus cygnus*) [A038]
 - Light-bellied brent goose (*Branta bernicla hrota*) [A046]
 - Shelduck (*Tadorna tadorna*) [A048]
 - Wigeon (*Anas penelope*) [A050]
 - Teal (*Anas crecca*) [A052]
 - Pintail (*Anas acuta*) [A054]
 - Shoveler (*Anas clypeata*) [A056]
 - Scaup (*Aythya marila*) [A062]
 - Ringed plover (*Charadrius hiaticula*) [A137]
 - Golden plover (*Pluvialis apricaria*) [A140]
 - Grey plover (*Pluvialis squatarola*) [A141]
 - Lapwing (*Vanellus vanellus*) [A142]
 - Knot (*Calidris canutus*) [A143]
 - Dunlin (*Calidris alpina*) [A149]
 - Black-tailed godwit (*Limosa limosa*) [A156]
 - Bar-tailed godwit (*Limosa lapponica*) [A157]

- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Greenshank (*Tringa nebularia*) [A164]
- Black-headed gull (*Chroicocephalus ridibundus*) [A179]
- Wetland and Waterbirds [A999]

Conservation Objectives for River Shannon & River Fergus Estuaries SPA

1.66. The main conservation objectives¹³ of the River Shannon & River Fergus Estuaries SPA are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

Character of the Qualifying Interests of River Shannon & River Fergus Estuaries SPA

1.67. **Table 1-3** below identifies the percentage of the extent of various habitat types within the SPA.

Table 1-3: Qualifying Habitats of the River Shannon & River Fergus Estuaries SPA and their extent within the site

Code	Qualifying Habitats	Extent and Character (%)
N02	Tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins)	96
N05	Shingle, sea cliffs islets	1
N03	Saltmarshes, salt pastures, salt steppes	1
N09	Dry grassland	1
N07	Bogs, marshes, water fringed vegetation, fens	1
Total Habitat Cover		100

Threats and Pressures on River Shannon & River Fergus Estuaries SPA

1.68. **Table 1-4** lists the threats, pressures and activities impacting the River Shannon & River Fergus Estuaries SPA.

¹³ NPWS (2012) Conservation Objectives: River Shannon and River Fergus Estuaries SPA 004077. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Table 1-4: Threats, pressures and activities impacting River Shannon & River Fergus Estuaries SPA (Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both & +/- = Positive/Negative Impact)

Code	Threats and Pressures	Rank	+/-	Inside/Outside
E02	Industrial or commercial areas	H	-	O
G01.01	Nautical sports	M	-	I
E03	Discharges	H	-	I
D03.02	Shipping lanes	M	-	I
A08	Fertilisation	H	-	O
F01	Marine and Freshwater Aquaculture	M	-	I
E01	Urbanisation, human habitation	H	-	O
F01	Marine and Freshwater Aquaculture	M	+	I
D03.02	Shipping lanes	M	+	I
G01.01	Nautical sports	M	+	I

Assessment of Likely Impacts Affecting the River Shannon & River Fergus Estuaries SPA

- 1.69. The River Shannon & River Fergus Estuaries SPA is located approximately 2.95km south of the Application Site and has been designated for a number of important bird species of the E.U. Habitats Directive, which are detailed within **Table 1-1** above.
- 1.70. The River Shannon & River Fergus Estuaries SPA forms the largest estuarine complex in Ireland and supports wetland and waterbirds associated with saltmarshes and intertidal sand/mudflats.
- 1.71. A wintering bird survey (WBS) was conducted covering lands of both the proposed substation and associated loop in infrastructure and Coolshamrock solar farm¹⁴. The WBS were completed over three days towards the end of the winter season: 14th January 2022, 4th and 28th of February 2022. The WBS consisted of ornithologists walking along linear features/transects in order to visually assess what species of bird were present at the time of the survey. Findings from the transect surveys indicate that no qualifying bird species of the River Shannon and River Fergus Estuaries SPA were using the fields for foraging, feeding or roosting during the surveys.
- 1.72. **No potential for significant adverse effects** have been identified in connection with the qualifying bird species for which the River Shannon and River Fergus Estuaries SPA is designated. Safeguards will be implemented to ensure any disturbance of such species is kept to a minimum.
- 1.73. Given that the Application Site is hydrologically connected with the SPA, there is potential for habitats within the SPA which are associated with supporting the ornithological qualifying species to be degraded if contamination of the aquatic environment were to occur.
- 1.74. As part of the Proposed Development design all surface water will flow into an on-site storm attenuation tank with a silt and petrol Interceptor. The treated surface water will then be pumped into a drainage ditch outside of the Application Site located along the proposed solar farm northwest boundary. The drainage ditch flows into the Carrowmeer stream before converging with the Manusmore stream. The Manusmore stream joins the Rine river and discharges into the River Shannon & River Fergus Estuaries SPA. It's considered that the treated surface water will have negligible habitats within the SPA associated with supporting the ornithological qualifying species.
- 1.75. An Outline Construction Environmental Management Plan (OCEMP) has been produced in support of this application and this report outlines design and best practice measures for protecting the local environment, including terrestrial and aquatic habitats.
- 1.76. Measures have been included within the Proposed Development Design to prevent pollution entering the aquatic environment. These are outlined below:

¹⁴ Clare County Council- planning Ref 22586, Appendix B - Wintering Bird Survey of Coolshamrock Solar Farm and Grid Route Application

- Silt/Bentonite
 - During the construction and decommissioning phase, ground disturbance is limited to the Application Site. As part of the Proposed Development design, Sustainable Drainage Systems (SuDS) will be implemented to control surface water movement and prevent silt/bentonite entering the aquatic environment. These have been incorporated into the design of the Proposed Development and are required due to relevant regional drainage policies in light of the objectives of the Water Framework Directive and associated water quality Directives and Regulations.
- Cement or concrete wash water
 - Best practice pollution prevention measures will be followed during the use of these materials during the construction phase, which will ensure cement/concrete wash water does not enter the aquatic environment.
- Detergent
 - This material will not be used within the Application Site.
- Hydrocarbons (e.g. oil, diesel)
 - During the construction phase, all work will be undertaken following best practice pollution prevention measures, which include suitable storage of oil/fuels and correct refuelling processes. This will prevent hydrocarbons entering the aquatic system.
- Sewage
 - The only potential sewage produced within the Application Site will be from the welfare facilities provided for staff during the construction phase. These facilities shall include an appropriate storage facility for sewage, which shall be collected regularly by a licensed waste contractor. Therefore, sewage will not enter the local environment, including aquatic habitats.

- 1.77. Further details on the drainage arrangements and waste management during the construction phase are outlined in the **Mitigation Measures** section below.
- 1.78. There was no evidence of qualifying bird species of the River Shannon and River Fergus Estuaries SPA present within the Application Site during the time of the Fossitt survey and during the wintering bird surveys. Therefore, there is no evidence to suggest that the habitats within the Application Site support significant numbers of qualifying species for River Shannon and River Fergus Estuaries SPA.
- 1.79. Given the level of suitable habitat within the wider landscape, it is considered that the potential noise disturbance from the construction and post-construction phases will not be significant for qualifying species associated with the SPA.
- 1.80. No significant loss of suitable habitat (direct or indirect) is anticipated for these species through the construction of the Proposed Development.
- 1.81. With the implementation of best practice and design measures, the Proposed Development **will not result in significant adverse effects** to the integrity of the River Shannon and River Fergus Estuaries SPA.

Lower River Shannon SAC

- 1.82. The Lower River Shannon SAC is designated for the Annex I habitats and Annex II species outlined in **Table 1-1**.

Conservation Objectives for the Lower River Shannon SAC

- 1.83. The SAC's conservation objectives are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which it has been selected.
- 1.84. The details of these objectives for the Lower River Shannon are outlined in the Conservation Objectives (2012) document¹⁵

Character of the Qualifying Interests of the Lower River Shannon SAC

- 1.85. **Table 1-5** below identifies the percentage of the extent of various habitat types within the SAC.

¹⁵ NPWS (2012) Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Table 1-5: Qualifying Habitats of the Lower River Shannon SAC and their extent within the site

Code	Qualifying Habitats	Extent and Character (%)
N02	Tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins)	44
N05	Shingle, sea cliffs islets	1
N03	Saltmarshes, salt pastures, salt steppes	2
N09	Dry grassland	1
N07	Bogs, marshes, water fringed vegetation, fens	1
N16	Broad-leaved deciduous woodland	1
N20	Artificial forest monoculture (e.g. Plantations of poplar or Exotic trees)	1
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	2
N01	Marine areas, Sea inlets	39
N14	Improved grassland	3
N04	Coastal sand dunes, Sand beaches, Machair	1
N10	Humid grassland, Mesophile grassland	2
N06	Inland water bodies (Standing water, Running water)	2
Total Habitat Cover		100

Threats and Pressures on the Lower River Shannon SAC

1.67. Table 1- 6 lists the threats, pressures and activities impacting Lower River Shannon SAC.

Table 1-6: Threats, pressures and activities impacting the Lower River Shannon SAC (Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both & +/- = Positive/Negative Impact)

Code	Threats and Pressures	Rank	+/-	Inside/Outside
F03.01	Conversion from other land uses to commercial / industrial areas (excluding drainage and	L	-	i

	modification of coastline, estuary and coastal conditions)			
B	Forestry	L	-	i
A08	Mowing or cutting of grasslands	M	-	o
A04	Changes in terrain and surface of agricultural areas	M	-	i
H04	Vandalism or arson	M	-	O
E01	Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels)	M	-	o
G01.01	Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species	L	-	i
E03	Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging)	M	-	i
J02.01.02	Mixed source marine water pollution (marine and coastal)	M	-	o
C01.03.01	Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell)	L	-	i
J02.10	Mixed source marine water pollution (marine and coastal)	L	-	i
I01	Invasive alien species of Union concern	L	-	i
J02.12.01	Mixed source marine water pollution (marine and coastal)	L	-	i
A08	Mowing or cutting of grasslands	M	-	i
K02.03	Drainage	M	-	o
F01	Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions)	L	-	i
E03	Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging)	M	-	o
D01.01	Wind, wave and tidal power, including infrastructure	L	-	i

C01.01.02	Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell)	L	-	i
J02.01.01	Mixed source marine water pollution (marine and coastal)	M	-	i
F02.03	Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas	L	+	i
G01.01	Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species	L	+	i
F01	Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions)	L	+	i
D01.01	Wind, wave and tidal power, including infrastructure	L	+	i

Assessment of Likely Impacts Affecting the Lower River Shannon SAC

- 1.86. As outlined in **Table 1-1**, the Lower River Shannon SAC has hydrological and ecological connectivity with the Application Site and has been designated for a number of ecological qualifying features.
- 1.87. Each of the potential contaminants outlined in **Table 1-2** above have been considered and assessed for their potential occurrence during the phases of the Proposed Development. Potential contaminants are capable of undermining water quality and the conservation objectives for each qualifying species and habitats occurring within the Zol of the Proposed Development.
- 1.88. As previously discussed, the Application Site is hydrologically connected with the SAC through a drainage ditch located approximately 200m outside of the ESA.
- 1.89. Given that the Application Site is hydrologically connected with the SAC, there is potential for qualifying species that are mobile within the aquatic environment to be present on site.
- 1.90. Suitable habitat for bottlenose dolphin or freshwater pearl mussel is not present within the Application Site. The distribution of suitable habitat for these two species is illustrated in the conservation objectives document. According to the conservation objectives document for the Lower River Shannon SAC, freshwater pearl mussel populations reside in a different catchment along the northern section of the Shannon estuary. Therefore, there is no potential for significant effects as a result of the Proposed Development.

- 1.91. The Application Site does not provide suitable habitat to support brook lamprey, sea lamprey, salmon and river lamprey.
- 1.92. Otter (*Lutra lutra*) are a highly mobile species and can hold territories from 2km to 40km. No holt and/or resting places, or any other field signs of otter were identified during the habitat survey. Otter can travel on land while foraging for food, it is considered likely that otter may commute within close proximity to the proposed Development while moving between suitable foraging habitats. Disturbance from the construction phase of the proposed Development is therefore considered likely to have an impact upon this species. However, since the majority of the Application Site is composed of Improved Agricultural Grassland (GA1) there is no opportunities of otter holt building .
- 1.93. During the construction phase there is potential for contaminants from the Application Site to enter the aquatic system. Freshwater pearl mussel, sea lamprey, brook lamprey, river lamprey, salmon, common bottlenose dolphin and otter could be impacted if contaminants enter the aquatic system. Qualifying habitats downstream of the Application Site could also be impacted by contamination.
- 1.94. As part of the Proposed Development design all surface water will flow into an on-site storm attenuation tank with a silt and petrol Interceptor. The treated surface water will then be pumped into a drainage ditch located outside of the Application Site along the proposed solar northwest boundary. The drainage ditch flows into the Carrowmeer stream before converging with the Manusmore stream. The Manusmore stream joins the Rine river and discharges into the Lower River Shannon SAC. It's considered that the treated surface water will have negligible effects of the qualifying habitats and species of the SAC.
- 1.95. Given that the Application Site is hydrologically connected with the SAC, there is potential for habitats within the SAC associated with supporting the aquatic and semi-aquatic qualifying species to be degraded if contamination of the aquatic environment were to occur. An **Outline Construction Environmental Management Plan (OCEMP)** has been produced in support of this application, and this report outlines design and best practice measures for protecting the local environment, including terrestrial and aquatic habitats.
- 1.96. Measures have been included within the Proposed Development Design to prevent pollution entering the aquatic environment. These are outlined below:
- Silt/Bentonite
 - During the construction and decommissioning phase, ground disturbance is limited to the Application Site. As part of the Proposed Development design, Sustainable Drainage Systems (SuDS) will be implemented to control surface water movement and prevent silt/bentonite entering the aquatic environment. These have been

incorporated into the design of the Proposed Development and are required due to relevant regional drainage policies in light of the objectives of the Water Framework Directive and associated water quality Directives and Regulations.

- This includes the use of silt traps at drainage ditches throughout the site.
 - Cement or concrete wash water
 - Best practice pollution prevention measures will be followed during the use of these materials during the construction phase, which will ensure cement/concrete wash water does not enter the aquatic environment.
 - Detergent
 - This material will not be used within the Application Site.
 - Hydrocarbons (e.g. oil, diesel)
 - During the construction phase, all work will be undertaken following best practice pollution prevention measures, which include suitable storage of oil/fuels and correct refuelling processes. This will prevent hydrocarbons entering the aquatic system.
 - Sewage
 - The only potential sewage produced within the Application Site will be from the welfare facilities provided for staff during the construction phase. These facilities shall include an appropriate storage facility for sewage, which shall be collected regularly by a licensed waste contractor. Therefore, sewage will not enter the local environment, including aquatic habitats.
- 1.97. Further details on the drainage arrangements and waste management during the construction phase are outlined in the **Mitigation Measures** section below.
- 1.98. Despite the presence of these design and best practice measures, there is potential that the Proposed Development will significantly affect the integrity of the Lower River Shannon SAC due to the potential for otter to be present within the Application Site.

- 1.99. Otter is a highly mobile mammal with large territories between 2km and 40km, using land to commute to suitable foraging areas.
- 1.100. As part of the Proposed Development design, security fencing is to have mammal gates or 10cm gaps to allow free movement of otter through the site. All excavations during the construction and decommissioning phase of the Proposed Development will be securely covered. Where this is not possible, a means of escape (for example a ramp) and daily checks must be included to allow safe exit from the excavation. This will therefore prevent the accidental trapping of this species.
- 1.101. It is considered that due to the adopted design principles, best practice and mitigation measures the Proposed Development **will not result in significant adverse effects** for otter.
- 1.102. With the implementation of best practice and design measures, the Proposed Development **will not result in significant adverse effects** to the integrity of the Lower River Shannon SAC.

Old Domestic Building (Keevagh) SAC

- 1.103. The Old Domestic Building (Keevagh) SAC is designated for lesser horseshoe bat.
- 1.104. The SAC's conservation objectives are to restore the favourable conservation condition of lesser horseshoe.
- 1.105. The details of these objectives for the Old Domestic Building (Keevagh) SAC are outlined in the Conservation Objectives (2018) document¹⁶.

Character of the Qualifying Interests of the Old Domestic Building (Keevagh) SAC

- 1.106. **Table 1-7** below identifies the percentage of the extent of various habitat types within the SAC.

Table 1-7: Qualifying Habitats of the Old Domestic Building (Keevagh) SAC and their extent within the site

Code	Qualifying Habitats	Extent and Character (%)
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	100
Total Habitat Cover		100

¹⁶ NPWS (2018) Conservation Objectives: Old Domestic Building (Keevagh) SAC 002010. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Threats and Pressures on the Old Domestic Building (Keevagh) SAC

1.107. **Table 1-8** lists the threats, pressures and activities impacting the Old Domestic Building (Keevagh) SAC.

Table 1-8: Threats, pressures and activities impacting Old Domestic Building (Keevagh) SAC (Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both & +/- = Positive/Negative Impact)

Code	Threats and Pressures	Rank	+/-	Inside/Outside
E06.01	Reconstruction, renovation of buildings	H	-	i
M02.03	Decline or extinction of species	H	-	i
A10.01	Removal of hedges and copses or scrub	M	-	o
E01.03	Dispersed habitation	M	-	o
K03.06	Antagonism with domestic animals	M	-	i
A04	Grazing	M	+	o
E06.02	reconstruction, renovation of buildings	M	+	o

Assessment of Likely Impacts Affecting the Old Domestic Building (Keevagh) SAC

- 1.108. As outlined in **Table 1-1**, the Old Domestic Building (Keevagh) SAC has ecological connectivity with the Application Site and has been designated for Lesser horseshoe bat.
- 1.109. Due to the close proximity of the Application Site to the SAC. It's considered, that during the spring and summer months lesser horseshoe bat may commute from the SAC to forage. The oak- Ash woodland (WN2) (see **Figure 2, Appendix A**) within the western section of the 50m buffer zone and the adjacent solar farm Application Site is illustrated in the SAC conservation objectives document¹⁷ as a potential foraging area for lesser horseshoe bat. The Proposed

¹⁷ NPWS (2018) Conservation Objectives: Old Domestic Building (Keevagh) SAC 002010. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Development will not involve the removal of this woodland and will have negligible effects on lesser horseshoe bat foraging within this area. Lesser horseshoe bat may forage on flying insects such as noctuid moths, crane flies, caddis flies, midges and lacewings found in grassland within the Application Site boundary. Thus, lesser horseshoe bat may be subject to short term habitat displacement during construction of the proposed substation and associated infrastructure. However, the surroundings of the Application Site mainly comprise of grassland, thus providing similar habitat for these species to be displaced to. It can be concluded that potential for significant adverse effects are considered unlikely on these species as a result of the proposed development.

Poulnagordon Cave (Quin) SAC

- 1.110. The Poulnagordon Cave (Quin) SAC is designated for lesser horseshoe bat.
- 1.111. The SAC's conservation objectives are to restore the favourable conservation condition of lesser horseshoe.
- 1.112. The details of these objectives for the Poulnagordon Cave (Quin) SAC are outlined in the Conservation Objectives (2018) document¹⁸

Character of the Qualifying Interests of Poulnagordon Cave (Quin) SAC

- 1.113. **Table 1-9** below identifies the percentage of the extent of various habitat types within the SAC.

Table 1-9: Qualifying Habitats of the Poulnagordon Cave (Quin) SAC and their extent within the site

Code	Qualifying Habitats	Extent and Character (%)
N22	Inland rocks, Scree, Sands, Permanent Snow and ice	100
Total Habitat Cover		100

Table 1-10: Threats, pressures and activities impacting the Poulnagordon Cave (Quin) SAC (Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both & +/- = Positive/Negative Impact)

¹⁸ NPWS (2018) Conservation Objectives: Poulnagordon Cave (Quin) SAC 000064. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Code	Threats and Pressures	Rank	+/-	Inside/Outside
A10.01	Removal of hedges and copses or scrub	H	-	o
G01.04.03	Recreational cave visits	L	-	i
G05.04	Vandalism	L	-	i
E01	Urbanised areas, human habitation	M	-	o
A04	Grazing	M	+	o

Assessment of Likely Impacts Affecting Poulmagordon Cave (Quin) SAC

- 1.114. As outlined in **Table 1-1**, the Poulmagordon Cave (Quin) SAC has ecological connectivity with the Application Site and has been designated for lesser horseshoe bat.
- 1.115. The Application Site is not illustrated as a potential foraging area for lesser horseshoe bat within the SAC conservation objectives document¹⁹. However, due to the close proximity of the Application Site to the SAC. It's considered, that during the spring and summer months lesser horseshoe bat may commute from the SAC to forage on flying insects such as noctuid moths, crane flies, caddis flies, midges and lacewings found in grassland within the Application Site. As previously discussed, foraging lesser horseshoe bat may be subject to short term habitat displacement during construction of the proposed substation and loop in infrastructure. However, the surroundings of the Application Site mainly comprise of grassland, thus providing similar habitat for these species to be displaced to. It can be concluded that potential for **significant adverse effects are considered unlikely** on these species as a result of the proposed development.

Summary of Potential Impacts on Natura Sites within 15km

- 1.116. From the findings of the above assessment, it is considered that the Proposed Development will not adversely affect the integrity of the Natura 2000 sites within the study area. This is relevant for the construction, operation and decommissioning stages.

¹⁹ NPWS (2018) Conservation Objectives: Poulmagordon Cave (Quin) SAC 000064. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

DESIGN, BEST PRACTICE AND MITIGATION MEASURES

- 1.117. Mitigation measures have been outlined to limit potential impacts for the qualifying features of Natura 2000 sites. These are outlined in **Table 1-11**:

Table -1-11: Design, best practice and mitigation measures

FEATURE	POTENTIAL IMPACT	PHASE OF DEVELOPMENT	MEASURES IMPLEMENTED
INTEGRAL DESIGN MEASURES			
Otter	Exclusion from foraging habitat	Construction	Security fencing to have mammal gates or a 10cm gap at base to allow free movement of otter through the site.
STANDARD BEST PRACTICE MEASURES			
Aquatic environment	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment (outlined below).

			Best practice biosecurity measures to be implemented throughout the construction phase.
Salmon	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment. Best practice biosecurity measures to be implemented throughout the construction phase
Sea, brook and river Lamprey	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment. Best practice biosecurity measures to be implemented throughout the construction phase
Otter	Accidental trapping within excavations	Construction	All excavations should be securely covered, or a suitable means of escape provided at the end of each working day.
MITIGATION MEASURES			

Otter	Disturbance	Pre-construction	Pre-commencement survey (Measures dependant on survey findings).
Bats	Destruction of roosts	Construction	Pre-construction potential roost inspection surveys on any trees to be removed (Measures dependant on survey findings).

1.118. The measures outlined above will implemented prior to or during the construction phase of the development. The pre-construction otter survey must be undertaken within 48 hours of construction start. Otter surveys can be carried out at any time of year but should be avoided following periods of prolonged heavy rainfall when spraints and other signs of otter may be washed away.

Pollution Prevention

- 1.119. Suitable protection for watercourses potentially affected by the works will be installed prior to relevant works proceeding. These measures will be in-line with Environmental Protection Agency (EPA) Pollution Prevention Guidelines. Protection measures will include:
- Plant and equipment will be stored on dedicated hardstandings within the construction compound (Part of the Consented Development). This will minimise the risk of pollution caused by leakages occurring out of hours. Drip trays will be used where appropriate;
 - All plant and equipment will utilise biodegradable hydraulic oil;
 - Spill kits will be readily available to all personnel. The spill kits will be of an appropriate size and type for the materials held on site;
 - Diesel fuel will be stored in a bunded diesel bowser which will be located within a fenced off area in the construction compound which is situated within the Consented Solar Development;
 - Refuelling and maintenance of vehicles and plant will take place in designated areas of hardstanding;
 - All other chemicals will be stored within a storage contained with an accompanying COSHH Datasheet;
 - Wastewater from the temporary staff toilets and washing facilities will be discharged to sealed containment systems and disposed via licensed contractors; and
- 1.120. All staff on site will be made aware of the pollution prevention measures being implemented throughout the construction and decommissioning phases using appropriate toolbox talks and the site induction.

Drainage Management Plan

- 1.121. The measures described in this section will be adopted during the construction phase in order to manage on-site drainage in accordance with current best practice and legislation.

Monitoring Records and Emergency Spill Response

Monitoring

- 1.122. To ensure compliance with the detailed Drainage Management Plan (“DMP”), drainage management works will be supervised by the site engineer.

Emergency Spill or Pollution Response

- 1.123. In the event of a liquid spill occurring on a construction site, the Contractor shall cease work immediately in the vicinity. Contractor's trained personnel shall do an appropriate PPE and as follows:
- Locate the source of the pollution and stop/contain any further flow if possible;
 - If spillage is flammable, extinguish all ignition sources;
 - Immediately deploy the spill kit in accordance with the manufacturer's instructions;
 - Clean up the spill; and
 - All used spill kit materials should be disposed of in the proper manner as outlined in spill summary procedures.
- 1.124. The Site Manager shall contact:
- The Client;
 - Environmental Protection Agency (“EPA”) 24-hour emergency incident line 1890 33 55 99; and
 - Inland Fisheries 24-hour pollution line 1890 34 74 24. The pollution hotline number shall be referenced in the construction site rules and displayed in the Site Office and in the Emergency preparedness & response plan.
- 1.125. Each Contractor working with controlled substances shall supply appropriate spill kits which shall be kept on site. The spill kits shall be made accessible at all times to all site personnel.

- 1.126. In the event of a fire, all personnel must evacuate the site and assemble at the site entrance. The Site Manager is responsible for calling the Fire Service, who will handle the emergency.

Operational Drainage Arrangements

- 1.127. An integral part of the Proposed Development design involves methods for controlling the movement of surface water within the Application Site. Movement of surface water will be managed by a Sustainable Drainage System (SuDS) following best practice guidelines on the use of SuDS²⁰.
- 1.128. The proposed drainage strategy (see **Technical Appendix 4: Flood Risk and Drainage Impact Assessment** of original application for further details) to construct a network of rainwater harvesting tanks and a soakaway pit within the Application Site. The idea is to capture flow in the SuDS device before infiltrating into the surrounding soils.
- 1.129. The underground piped system connect the Eirgrid building and IPP switchroom to rainwater harvesting tanks, which overflow into a soakaway pit. As the transformer will hold a volume of oil, the system will include a class 1 full retention separator. The soakaway pit and rainwater harvesting tanks will be designed to hold a total volume of 21m³ with the detailed design of the structure being submitted to the council for review prior to the construction period.
- 1.130. A permanent toilet is proposed within the Eirgrid building and IPP switchroom and will be utilised by maintenance staff of substation. Each toilet will be off grid toilet with a foul holding tank which will be emptied when required by an approved contractor.
- 1.131. These measures will **significantly reduce the potential** for contaminated surface waters entering the aquatic environment.

Additional Drainage Measures

- 1.132. Additional drainage measures to be implemented on-site include the following:
- Access Tracks: access tracks are to be unpaved and constructed from local stone. Temporary swales or similar shall be utilised to collect runoff from access tracks with discharge to ground through percolation areas. Where swales are utilised, frequent checks of dams formed from gravels and other excavated material should be undertaken.

²⁰ Ciria (2007) The SuDS Manual. Available at: <https://www.ciria.org/>

Construction Phase Drainage Arrangements

- 1.133. The construction phase will utilise the construction compound on the adjacent solar farm development.

Drainage Mitigation

Clean Water Diversion

- 1.134. Where feasible, clean water (e.g. water that has yet to come into contact with any disturbed construction or working areas), will be kept separate from the watershed or intercepted by the solar farm construction drainage.
- 1.135. Clean runoff that has been diverted around an area of working should be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques.
- 1.136. Sediment control measures, such as silt traps, gravel, sand bags, anchored straw bales or silt fencing might be required at the discharge point to prevent erosion at the outlet and aid dispersion of the diverted water.

Silt Control

- 1.137. Silt-laden runoff should be expected from any areas of recently exposed soil or rock. There is also potential for pollution to occur from machinery used in the solar farm construction.
- 1.138. Any introduced or artificial materials required (e.g. silt fencing, straw bales, sand bags etc.) that might need to be deployed onsite, will be removed on completion of the works.
- 1.139. Discharge from the silt control measures will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into the existing drainage network within the Application Site.

CONSIDERATION OF CUMULATIVE EFFECTS

- 1.140. As well as singular effects, cumulative effects also need to be considered. Article 6 of the EU Habitats Directive and Regulation 15 of the European Communities (Natural Habitats) Regulations state that any plan or project that may, either alone or in combination with other plans or projects, significantly affects a Natura 2000 site, should be the subject of an AA.
- 1.141. Cumulative impacts can be an issue when proposals have a small impact on Natura 2000 sites. If other proposals have a small impact, the combined result can have a significant impact on the Natura 2000 site.
- 1.142. The European Commission Habitats Directive and the Habitats Regulations 2011 require that the impacts on European sites be assessed from the plan or project in question and also in the presence of other plans and projects that could affect the same Natura 2000 sites.
- 1.143. This Stage 2 AA screening has identified other plans and projects that could act in combination with the Proposed Development and its associated future elements, to identify if they pose likely significant effects on European sites.
- 1.144. It concludes that if these other Plans and Projects have undergone an AA themselves and have either been adopted or consented following an AA then it cannot pose likely significant adverse effects on European sites.

Plans

- 1.145. A review of the following plans was undertaken;

National Planning Framework 2040

- 1.146. The National Planning Framework (NPF) 2040 is a high-level, national vision and provides the strategic framework and principles to manage future population and economic growth in Ireland over the next 20 years. It informs the parameters for the preparation of Regional Spatial and Economic Strategies (RSEs) by each of the three Regional Assemblies, established under the Local Government Reform Act 2014.
- 1.147. In order to comply with the requirements of Article 6(3) of the EU Habitats Directive an AA screening was undertaken at an early stage in the drafting of the National Planning Framework (NPF).
- 1.148. Adopting the precautionary principle, it was concluded that a NIS should be prepared. An NIS was prepared by RPS on behalf of the Minister for Housing, Planning and Local Government. The NIS considered the potential for the NPF to adversely affect the integrity of any Natura 2000 site(s); with regard to their qualifying interests, associated conservation status, the

structure/function of the site(s) and the overall site(s) integrity. This was done in a two-stage process, initially assessing the draft NPF and subsequently assessing the changes made post consultation for the NPF.

- 1.149. The Minister of Housing, Planning and Local Government, having considered the AA and its conclusions determined that;

“the adoption and publication of the NPF as a replacement of the National Spatial Strategy for the purposes of section 2 of the Planning Development Act 2000 will not individually or in combination with any other plan or project adversely affect the integrity of any European Site (as defined).”

- 1.150. Thus, the in-combination impacts from the NPF, with the Proposed Development are **not predicted to result in any Likely Significant Effects** to any European site(s).

Regional Spatial and Economic Strategy for the Southern Region

- 1.151. In order to comply with the requirements of Article 6 (3) of the EU Habitats Directive and Part XAB of the Planning and Development Act 2000 (as amended), the process of Screening for Appropriate Assessment (AA) was undertaken at an early stage in the drafting of the Regional Spatial and Economic Strategy (RSES).

- 1.152. The AA Screening undertaken by ecologists at RPS on behalf of the Southern Regional Assembly, assessed whether the RSES was likely to have significant effects on any European Sites within the Natura 2000 network, either alone or in combination with other plans and projects.

- 1.153. The screening concluded that an Appropriate Assessment of the RSES was required, as the Plan is not directly connected with or necessary to the management of the sites as European sites and as it cannot be excluded, on the basis of objective information, that the Plan, individually or in combination with other plans or projects, would have a significant effect on a European site.

- 1.154. Therefore, adopting the precautionary principle, it was concluded that a NIR should be prepared. The NIR (prepared by RPS on behalf of the Southern Regional Assembly) considered the potential for the Regional Spatial and Economic Strategy to adversely affect the integrity of any Natura 2000 site(s), with regard to their qualifying interests, associated conservation status, the structure/function of the site(s) and the overall site(s) integrity.

- 1.155. The Assembly determined that pursuant to Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act 2000-2018, that the adoption and publication of the RSES as a replacement for the “Regional Planning Guidelines” for the purposes of Section 24 (4) of the Planning and Development Act 2000 (as amended) would not either individually or in combination with any other plan or project adversely affect the integrity of any European Site.

Clare County Development Plan 2023-2029²¹

1.156. Clare County Council Development Plan (CDP) was produced to provide direction and focus for planning and sustainable development of the county. It includes the following objectives with relevant ecological aims;

“CDP15.1: Development Plan Objective: Biodiversity

- *It is an objective of Clare County Council:*
 - A) *To implement the National Biodiversity Action Plan 2017- 2021, the All Ireland Pollinator Plan 2021-2025, the EU A Farm to Fork Strategy 2020, the County Clare Heritage Plan 2017-2023 and the County Clare Biodiversity Plan 2017- 2023, or any subsequent plans, in partnership with all relevant stakeholders;*
 - B) *To review the Clare County Heritage Plan 2017-2023 and to prepare a new plan, which will be set within the context of the National Heritage Plan "Heritage Ireland 2030", upon the expiry of the existing adopted Plan;*
 - C) *To support National Biodiversity Week and events such as Bioblitz in order to increase awareness of biodiversity and its benefits to the community;*
 - D) *To ensure that features of importance to local biodiversity are retained as part of developments and projects being undertaken in the County;*
 - E) *To identify ecological buffer spaces/zones, where appropriate, in the Plan area.*
 - F) *To support current and future projects with the aim of restoration/rehabilitation of natural habitats and species.*

CDP15.2: Development Plan Objective: Natural Heritage, Biodiversity and Built Heritage Assets

- *It is an objective of Clare County Council:*
 - A) *To support initiatives that enhance and protect County Clare's unique natural heritage, biodiversity and built heritage assets, recognising the contribution which education and outreach can play in developing understanding of biodiversity and heritage in our communities. Such initiatives should secure funding to support projects in the region in line with the National Biodiversity Action Plan.*

21 <https://clarecdp2023-2029.clarecoco.ie/stage3-amendments/adoption/volume-1-written-statement-clare-county-development-plan-2023-2029-51406.pdf>

CDP15.3: Development Plan Objective: European Sites

- *It is an objective of Clare County Council:*
 - A) *To afford the highest level of protection to all designated European sites in accordance with the relevant Directives and legislation on such matters;*
 - B) *To require all planning applications for development that may have (or cannot rule out) likely significant effects on European sites in view of the site's Conservation Objectives, either in isolation or in combination with other plans or projects, to submit a Natura Impact Statement in accordance with the requirements of the EU Habitats Directive and the Planning and Development Act, 2000 (as amended);*
 - C) *To recognise and afford appropriate protection to any new or modified SPAs or SACs that are identified during the lifetime of this Plan, having regard to the fact that proposals for development outside of a European site may also have an indirect effect.*

CPD15.4: Development Plan Objective: Habitat Protection

- *It is an objective of Clare County Council:*
 - A) *To implement Article 6(3) and where necessary 6(4) of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s); and*
 - B) *To have regard to Appropriate Assessment of Plans and Projects in Ireland – Guidelines for Planning Authorities 2009 or any updated version.*

CDP 15.5: Development Plan Objective: Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs)

- *It is an objective of Clare County Council:*
 - A) *To actively promote the conservation and protection of areas designated as an NHA (including proposed sites) and to only consider proposals for development within or affecting an NHA where it can be clearly demonstrated that the proposed development will not have a significant adverse effect on the NHA or pNHA;*
 - B) *To identify and afford appropriate protection to any new, proposed or modified NHAs identified during the lifetime of this Plan.”*

Flood Risk Management Plan (Shannon Upper & Lower)

1.157. The Flood Risk Management Plan for the Shannon Upper & Lower River Basin proposes national level, non-structural, governance and policy measures with no specific location or size, these measures generally aim to prevent development within flood zones.



- 1.158. As part of the development of Flood Risk Management Plan, an AA Screening was carried out to determine the potential benefits and impacts of the Plans on the environment, and to identify mitigation and monitoring measures necessary to avoid or minimise such impacts.
- 1.159. It was concluded that in the absence of mitigation the Plan for the Shannon Upper and Lower River Basin, in-combination with other plans or projects, could have likely significant effects on the Qualifying Interests of European sites within the catchment.
- 1.160. Therefore, a stage 2 NIS was required. The NIS for the Plan for the Shannon Upper and Lower River Basin concluded that, with mitigation in place, the Plan would have **no adverse effects on the integrity** of any European sites.
- 1.161. As the above plans **are not predicted to result in any significant effects** to any Natura 2000 sites, and there will be **no effects on Natura 2000 sites from the Proposed Development** it has therefore been concluded from the above assessments that there will be no in combination effect on the reviewed plans with the Proposed Development and associated future elements.

Projects

- 1.162. A search of the Clare County Council online planning portal revealed that currently there is one solar farm developments granted or pending within 5km of the Application Site. Other, similar sized developments within the 5km study area can be found in **Table 1-12** below.

Table 1-12: Developments within 5km of the Proposed Development

Planning Reference	Project Type	Distance and Direction	Planning Status	Date Granted
16925	For retention (Ref. No. P11-170) of an existing development which consists of an existing 24 metre high telecommunications support structure, antennas, equipment container and associated equipment within a fenced compound and access track. The development forms part of Vodafone Ireland Limited's existing GSM and 3G Broadband	4.44km southwest	Granted	27/02/2017
17617	to retain an existing 30 metres high telecommunications support structure (previously granted permission under reference P11-830) carrying antennas and link dishes together with	4.56km southwest	Granted	04/11/2017

	associated equipment units and security fencing			
19180	The development will consist of a ten year permission for a solar farm on a site of approximately 12.0 hectares consisting of the following; up to 57,250sq.m of solar photovoltaic panels on ground mounted steel frames; electrical substation with electrical control building and associated compound with palisade fence; inverter/transformer stations; underground power and communication cables and ducts; boundary security fencing; new internal access tracks and associated drainage infrastructure; new site entrance to the public road which connects to the R352road; CCTV camera's and all associated site services and works	5.00km Northwest	Granted	17/08/2019
20562	The development will consist of a planning permission for a period of 5 years to construct and complete a Solar PV Energy development with a total site area of 99.2 hectares, to include a single storey electrical substation building, electrical transformer and inverter station modules, solar PV panels ground mounted on support structures, internal access tracks, security fencing, electrical cabling and ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works including works relating to the access to the site. The Solar farm will be operational for 35 years. A Natura	2.77km Southwest	Granted	12/11/2020

	Impact Statement has been prepared in respect of this planning application.			
21915	The development will consist of planning PERMISSION for a period of five years to construct and complete a Solar PV Energy development with a total site area of 16.08 hectares, to include inverter station modules, solar PV panels ground mounted on support structures, internal access tracks, watercourse crossing, security fencing, electrical cabling and ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works including works relating to the access to the site. The solar farm would be operational for 35 years. A Natura Impact Statement has been prepared in respect of this planning application	3.05km southwest	Granted	30/11/2021
22586	For development at this site in the townlands of Ballyvonnaum TD, Coolshamroge TD, Cloonmore TD, Deerpark TD, and Manusmore TD, Ennis, Co Clare. The development will consist of planning permission for a period of 10 years to construct and complete a Solar PV Energy development with a total site area of 27.34 hectares, to include inverter station modules, solar PV panels ground mounted on support structures, internal access tracks, security fencing, electrical cabling and ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works	Adjacent to Application Site Boundary	Granted	14/04/2023

	including works relating to the access to the site. The solar farm would be operational for 35 years. A Natura Impact Statement has been prepared in respect to the application for planning permission.			
--	--	--	--	--

- 1.163. The need for an Appropriate Assessment Screening was considered for both Planning applications **16925** and **17617**. However, the planner's reports for both applications outline that Appropriate Assessment Screening is not deemed necessary due to lack of connectivity with nearby Natura 2000 sites.
- 1.164. A Stage 1 AA Screening Report was submitted for the consented solar farm at Knockanoura, Cranagher & Cahershaughnessy Co. Clare (PA Ref: **19180**). The AA concluded that due to the lack of ecological connectivity there will be no direct, indirect or cumulative significant impacts will occur to European sites within 15km.
- 1.165. An Environmental Impact Statement and AA Screening report were produced in securing Manusmore Solar Farm (PA Ref: **20562**). The AA concluded that the development would have no impact upon European sites.
- 1.166. Manusmore Solar Farm **21915** is a granted solar farm within 2.77km of the Application Site boundary. An Ecological Impact Assessment, Natura Impact Statement (NIS) and Winter Bird Survey report was submitted with the Application. The NIS concluded that with the implementation of integral design measures, mitigation and best practice construction methods, there will be no significant effects for all Natura 2000 designated sites within 15km.
- 1.167. Solar Farm **22586** was granted by CCC on 14th April 2023. The solar farm lies adjacent to the Application Site. An Ecological Impact Assessment, Natura Impact Statement and Winter Bird Survey report was submitted with the Application. The NIS concluded that with the implementation of integral design measures, mitigation and best practice construction methods, there will be no significant effects for all Natura 2000 designated sites within 15km.
- 1.168. Having assessed all aspects of the development project, it has been concluded that the Proposed Development will not have any significant direct or indirect cumulative impact on ecological features. This is due to the nature of the development, and the ecological conclusions reached in granting each cumulative development. **No likely significant cumulative effects** on ecological features are therefore predicted in combination with other proposed developments.

CONCLUSION

- 1.170. Within the 15km zone of influence (ZOI) surrounding the Application Site there are 21 Natura 2000 Designated Sites. Three Special Protection Areas (SPAs); the River Shannon and River Fergus Estuaries SPA, Ballyallia Lough SPA and Slieve Augthy Mountains SPA. Eighteen Special areas of conservation (SACs); Lower River Shannon SAC, Old Domestic Building (Keevagh) SAC, Poulmagordon Cave (Quin) SAC, Lough Gash Turlough SAC, Ballyallia Lake SAC, Newhall and Edenvale Complex SAC, Newgrove House SAC, Old Domestic Buildings, Rylane SAC, Kilkishen House SAC, Pouladatig Cave SAC, Ratty River Cave SAC, Dromore Woods and Loughs SAC, Knockanira House SAC, Toonagh Estate SAC, Danes Hole, Poulnalecka SAC, Old Farm Buildings, Ballymacrogan SAC, Moyree River System SAC and Ballycullinan and Old Domestic Building SAC.
- 1.171. Hydrological and ornithological connectivity exists between the Application Site and the River Shannon and River Fergus Estuaries SPA and hydrological and ecological connectivity exists between the Application Site and the Lower River Shannon SAC, providing a pathway for potential impacts. It has also been concluded that ecological connectivity exists between Old Domestic Building (Keevagh) SAC and Poulmagordon Cave (Quin) SAC for lesser horseshoe. The main qualifying features of these four sites have been outlined and assessed in full in this report. Wintering bird surveys were also conducted to determine potential effects on the qualifying bird species of both the River Shannon and River Fergus Estuaries SPA.
- 1.172. As no connectivity (pathway for impacts) exists between the Application Site and the remaining Natura 2000 designated sites within the study area, these have been 'scoped out' from further assessment.
- 1.173. To minimise potential impacts on Natura 2000 designated sites, design measures have been incorporated into the Proposed Development as part of the iterative design process.
- 1.174. Standard best practice pollution prevention measures for the construction stage have also been outlined and considered as part of the impact assessment stage.
- 1.175. Recommended survey work as part of the relevant mitigation measures has been provided within this report (**Table 1-7**).
- 1.176. The results of the wintering bird surveys (see, **planning Ref 22/586, Appendix B - Wintering Bird Survey of Coolshamrock Solar Farm and Grid Route Application**), indicate there will be **no significant effects** for the qualifying bird species for which the River Shannon and River Fergus Estuaries SPA are designated.
- 1.177. With the implementation of these measures, along with ongoing monitoring to ensure compliance, it is considered that the Proposed Development **will not have a significant effect upon any qualifying features, and therefore the integrity, of the Natura 2000 sites** connected with the Application Site.

- 1.178. It is therefore considered that the next stage (Stage 3; Assessment of Alternatives) of the Appropriate Assessment is not required.



APPENDICES

Appendix A

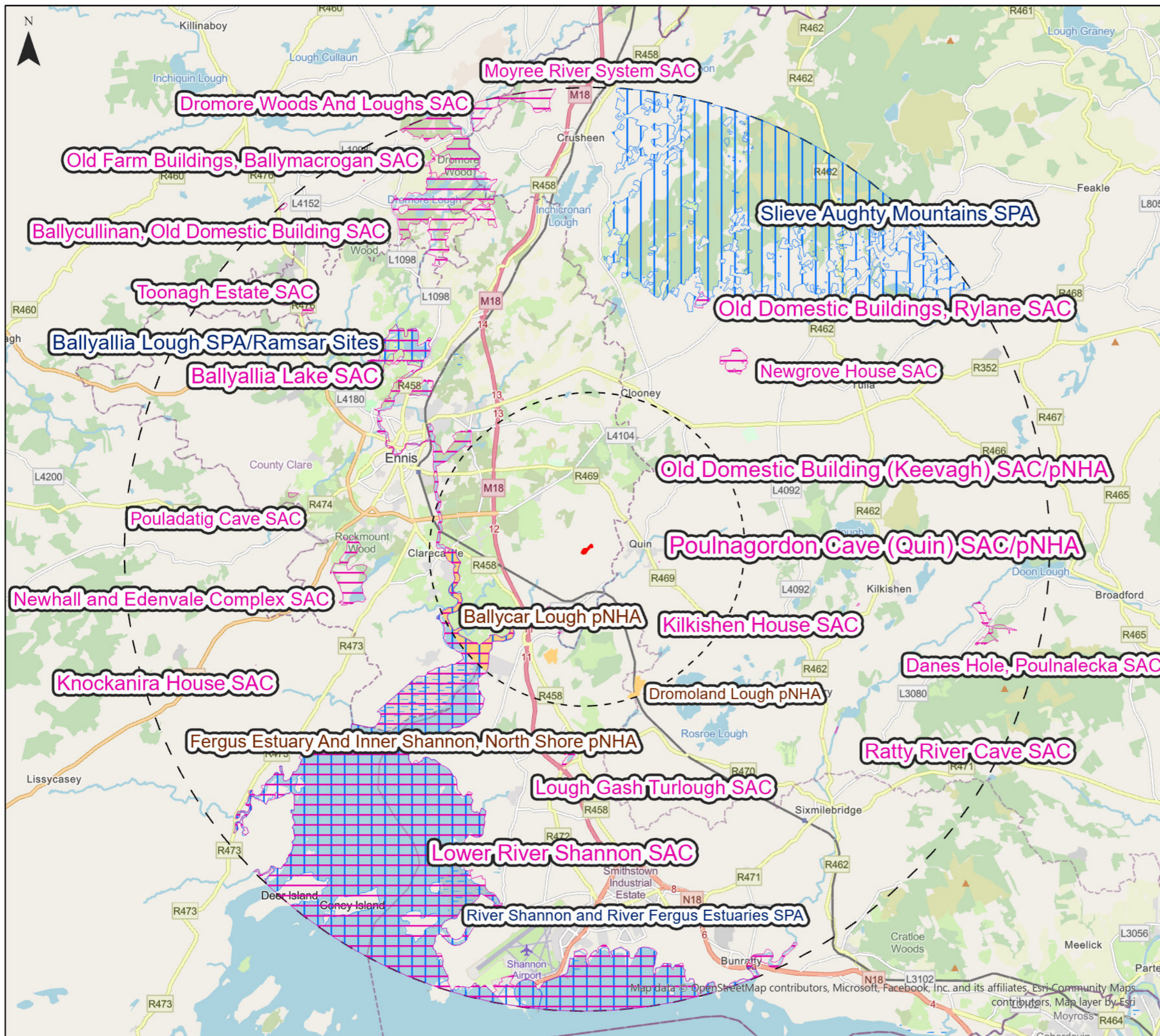
- Figure 1– Natura 2000 Designated Sites
- Figure 2-Habitat Map



Appendix A

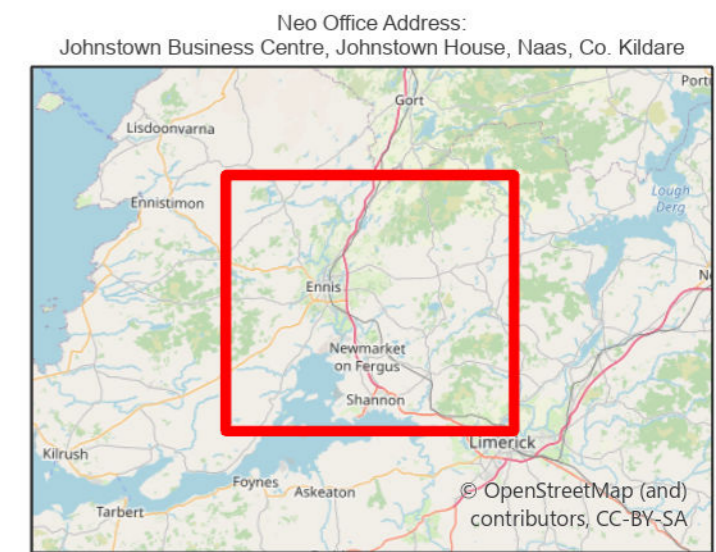


Coolshamrock Substation Designated Sites Figure 1

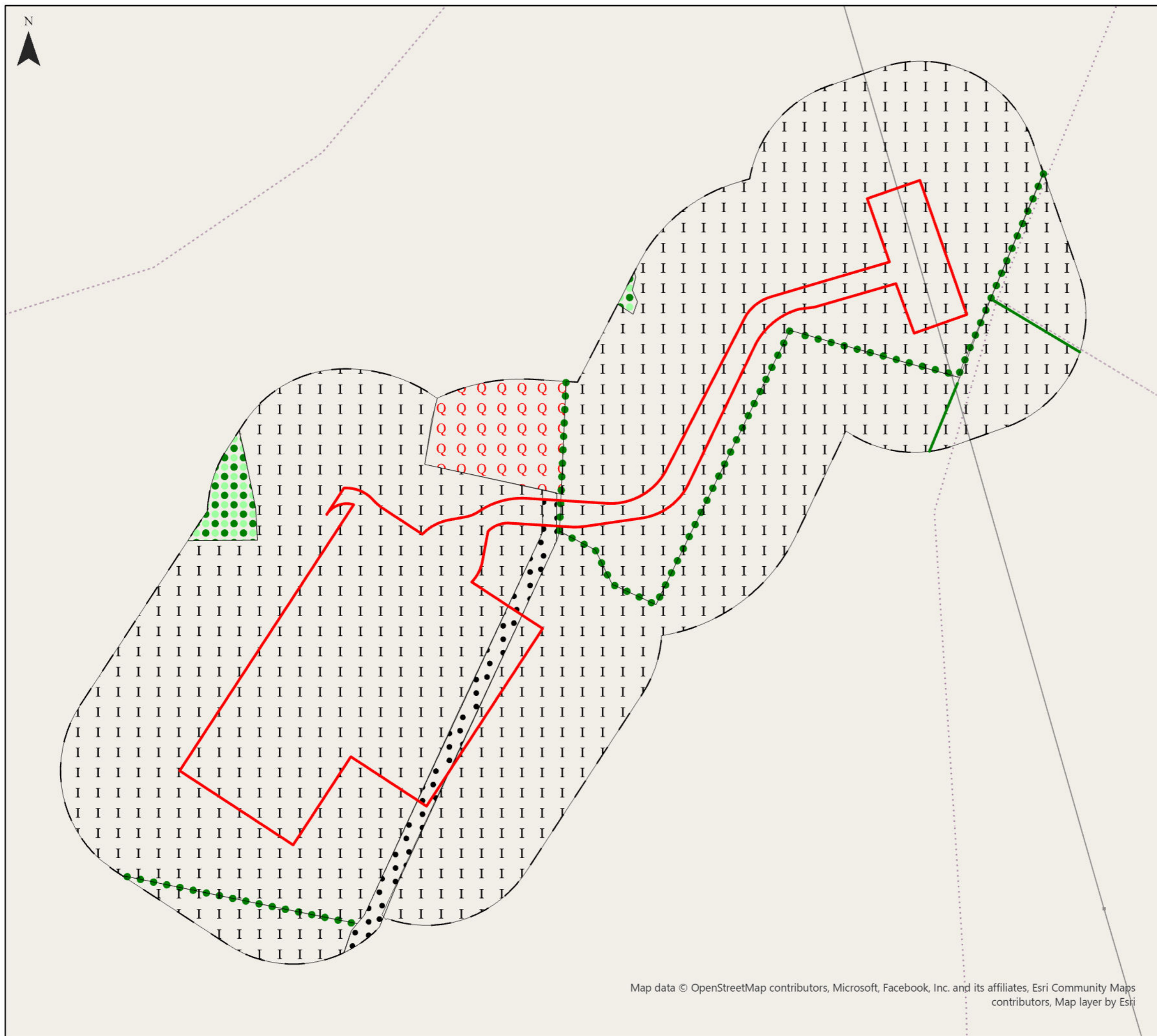


Key









-  Application Site
-  15km Study Area
-  5km Study Area
-  Special Protection Areas (SPAs)
-  Special Areas of Conservation (SACs)
-  proposed Natural Heritage Areas (pNHAs)

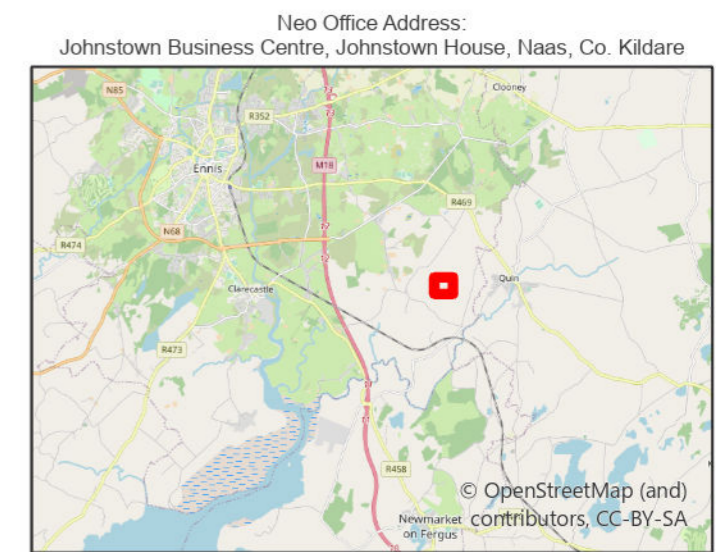


Coolshamrock Substation Habitat Map Figure 2



Key

-  Application Site
-  50m Ecological Survey Area
-  Improved Agricultural Grassland (GA1)
-  Oak-Ash-Hazel Woodland (WN2)
-  Spoil and Bare Ground (ED2)
-  Active Quarries and Mines (ED4)
-  Hedgerow (WL1)
-  Treeline (WL2)



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

Date: 23/01/2023
 Drawn By: Dara Dunlop
 Scale (A3): 1:1,600
 Drawing No: NEO00848/0011/A



0 25 50 100 Meters



GLASGOW - HEAD OFFICE

Wright Business Centre, 1 Lonmay Road, Glasgow G33 4EL
T: 0141 773 6262
www.neo-environmental.co.uk

N. IRELAND OFFICE

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

IRELAND OFFICE

Johnstown Business Centre
Johnstown House, Naas
Co. Kildare
T: 00 353 (0)45 844250
E: info@neo-environmental.ie

RUGBY OFFICE

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

WARRINGTON OFFICE

Cinnamon House, Cinnamon Park
Crab Lane, Fearnhead
Warrington
Cheshire
T: 01925 661 716