Habitats Directive Appraisals: Appropriate Assessment and Natura Impact Statement

GORTNALUG 110KV SUBSTATION ANDGRID CONNECTION

24/03/2026

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EXECUTIVE SUMMARY

1.1. Neo Environmental Ltd has been appointed by Renewable Energy Systems on behalf of Ballydonagh Solar Limited (the "Applicant") to undertake an Appropriate Assessment Screening and Natura Impact Statement for a new 110kV Air insulated substation (AIS) and grid connection with associated infrastructure to facilitate the connection of Ballydonagh (PA Ref: 23/61049, as amended under Ref 25/61903) and Ballydonagh Extension (PA Ref: 24/61749, as amended under 26/60009) solar farms to national grid (the "Development") on lands at Ballydonagh, Kiltormer, Co. Galway, Ireland (the "Application Site").

1.2. This document is intended to provide the competent authority, in this case An Coimisiún Pleanála, as a public authority under the European Communities (Birds and Natural Habitats) Regulations 2011, as amended ("the 2011 Regulations"), with the necessary information to assist in fulfilling their obligations under Regulation 42 of the 2011 Regulations and the underpinning European legislation (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, 'the Habitats Directive').

1.3. There are four Special Areas of Conservation ("SACs") and three Special Protections Areas ("SPAs") within a 15m ZoI of the Proposed Development; River Shannon Callows SAC, Redwood Bog SAC, Ardgraigue Bog SAC, Glenloughaun Esker SAC, River Suck Callows SPA, Middle Shannon Callows SPA, and River Little Brosna Callows SPA. None of these European Designated Sites were located within or directly adjacent to the Application Site.

1.4. All of the above European Designated Sites were screened for potential impacts using an Appropriate Assessment Screening. This screening examined the likelihood of negative impacts to occur on these European Designated Sites as a result of the Proposed Development, utilising the source-pathway-receptor model. The existence of connectivity indicates a possible pathway for impacts, which can lead to adverse effects on the integrity of European Designated Sites and their qualifying interests.

1.5. Of the above European Designated Sites, three were identified as having potential connectivity with the Application Site; River Shannon Callows SAC, River Suck Callows SPA, Middle Shannon Callows SPA and River Little Brosna Callows SPA . River Shannon Callows SAC was identified as having potential ecological connectivity, while the River Suck Callows SPA, River Little Brosna Callows SPA and Middle Shannon Callows SPA were identified as having potential ornithological connectivity, and required further assessment. No hydrological connectivity was identified between the Application Site and the above European Designated Sites. All other European Designated Sites were screened out for further assessment due to lack of connectivity.

1.6. Upon further assessment, both individually and cumulatively alongside other plans and projects, it was considered that in the absence of mitigation, potential adverse ex-situ effects could not be entirely ruled out. Due to this, mitigation measures were proposed which will prevent and mitigate any negative effects which may occur as a result of the Proposed

Development. With the proper implementation of these mitigation measures, it is considered unlikely that any European Designated Site will be adversely affected by the Proposed Development during the construction, operational and decommissioning phases.

1.7. Subject to the implementation of these mitigation measures, the Proposed Development will **not adversely affect** the integrity of any European Designated Site, when considered alone or in combination with other plans or projects.

INTRODUCTION

Background

1.8. Neo Environmental Ltd has been appointed by Renewable Energy Systems on behalf of Ballydonagh Solar Limited (the "Applicant") to undertake a Natura Impact Statement (NIS) and Appropriate Assessment (AA) for a new 110k V Air insulated substation (AIS) and grid connection with associated infrastructure(the "Development") on lands at Ballydonagh, Kiltormer, Co. Galway, Ireland (the "Application Site").

1.9. The method of connection to the national grid will be a new 110 kV AIS Loop-in station (Gortnalug) with a 'Loop-in/Loop out' connection into the existing Ennis -Agannygal-Shannonbridge 110kV circuit. Ballydonagh Solar Limited accepted the Eirgrid Connection Offer (P602-CA-OL) in December 2025.

1.10. The Proposed Development comprises a 110kV AIS and associated grid connection infrastructure to facilitate the connection of the permitted Ballydonagh Solar Farm under Ref 2361049, as amended under Ref 25/61903 and Ballydonagh Solar Farm Extension under Ref 2461749, as amended under 26/60009, to the national grid. The applicant is seeking a ten-year permission from the date of consent of the 110kV Substation.

1.11. Please see **Figure 300101338-DR-100 Overall Site Layout, Volume 2** for the layout of the proposed Development.

Development Description

1.12. The Proposed Development comprises a 110kV Air Insulated Substation and associated grid connection infrastructure to facilitate the connection of the permitted Ballydonagh Solar Farm under Ref 2361049, as amended under Ref 25/61903 and Ballydonagh Extension Solar Farm under Ref 2461749 , as amended under 26/60009, to the national grid, which revised the approved solar layout to accommodate the Gortnalug substation and grid connection infrastructure.

1.13. The Proposed Development comprises a 110kV Air Insulated loop in/ loop out electricity substation (11,300m2) consisting of EirGrid control building (25m x 18m), customer control building (23.1m x 10.8m),110kV bay arrangement, busbar infrastructure foundations, transformer, lightening masts, telecoms pole, CCTV, lighting columns, capacitor bank, reactor bank, harmonic filter, rural supply kiosk, house transformer, neutral earth resistor, resistor, stand by generator, compound roads, drainage, parking and hardstanding, palisade fence and gates.

1.14. The grid connection will consist of the removal of c.248m of the existing overhead line and poles from Ennis- Agannygal-Shannonbridge 110kV circuit and the erection of two new

towers (16m height) and c.975m of double 110kV underground circuit and tracks into the proposed substation.

1.15. Remaining associated infrastructure consists of entrance; perimeter fencing, access tracks (1907m) (upgraded and localised widening) with water crossings, deposition areas (4,300m2), temporary construction compound; and all associated and ancillary site development, excavation, construction, landscaping and reinstatement works and the provision of site drainage.

Site Description

1.16. The area of the proposed Development (the "Application Site") lies at an elevation of approximately 76.51 – 96.56m AOD and covers a total area of c. 34.8 hectares. It is centred at approximate Irish National Grid Reference (NGR) E 183907 N 220547 and is located in lands north of the L4301.

1.17. Comprising of a 13 field parcels of agricultural land, the site is currently being used for pastural farming. The Application Site is bound by a mixture of trees, hedgerows and post-and-wire fencing. Access will be gained from the south gate entrance from a private lane to an unnamed local road off the L4301 to the southeast of the site.

1.18. The surrounding context is predominately agriculture with pockets of forestry and peatland and punctuated by individual properties, farmsteads and ribbon development associated with the minor and regional road network. Fields are typically small to medium in scale and similar in character to the Application Site lands.

Scope of the Assessment

1.19. This Screening for AA and NIS have considered the potential impacts of the Proposed Development on European (or Natura 2000) Sites[1] within the Zone of Influence (ZoI) of the project. The ZoI has been defined as the area over which potential effects upon designated sites may arise as a result of the Proposed Development. Further consideration has been given to sites which are located at a greater distance where there is potential for hydrological connectivity with the Application Site or potential functional linkage for SPA bird populations.

Statement of Authority

1.20. The assessment has been conducted by suitably qualified and experienced ecologists, and this work has been carried out in line with the relevant professional guidance, which is cited, where relevant, throughout this report.

1.21. Rhona Coghlan is a Junior Ecologist with over 1 year experience in the ecology and conservation industry. Rhona has been awarded a 1:1 BSc in Environmental Science from the

[1] Sites designated as Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

National University of Galway and is currently working toward qualifying membership with the Chartered Institute for Ecology and Environmental Management. Rhona has conducted Fossitt Habitat surveys, Breeding and Wintering Bird surveys, Bat surveys and aquatic invertebrate surveys. Rhona has authored Natura Impact Statements, Ecological Impact Assessment, Biodiversity Management Plans, Q-value reports, Wintering Bird reports and more. Rhona is appointed ECoW for a wind farm development and has experience with client-facing consultations and survey reports. Rhona has taken part in several training events organised by CIEEM, The British Trust for Ornithology and Birdwatch Ireland.

1.22. Eiméar Rose Cunningham is a Senior Ecologist at Neo Environmental and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over 5 years' experience in the environmental/planning sector. She has experience of conducting habitat surveys as well as protected species surveys, including bats, birds and otter. In previous roles Eiméar Rose has experience of GIS map interpretation for large scale infrastructure projects. Furthermore, Eiméar Rose has experience in the completion of ecological report writing having authored and co-authored a number of reports including Ecological Appraisals, Natura Impact Statements, Biodiversity Management Plans and Net Gain Reports, in addition to contributing to Biodiversity Chapters for EIA Developments. Furthermore, Eiméar Rose is a qualified tree climber and aerial rescuer, certified by LANTRA and utilises this qualification for bat survey work.

LEGISLATION

Requirement for Appropriate Assessment

1.23. The requirement for Appropriate Assessment (AA) of plans or projects originates from Article 6 (3) and (4) of European Union (EU) Habitats Directive of the European Union (EU) Council Directive 92/43/EEC of 21 May 1992 (the 'Habitats Directive') and Council Directive 2009/147/EC on the conservation of wild birds (Codified version) (the 'Birds Directive'). This is implemented in Ireland through the European Communities (Natural Habitats) Regulations of 1997, and the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (as amended).

1.24. In relation to the planning consent process, Part XAB of the Planning and Development Act 2000 – 2015 (as amended) Section 177U sets out the requirements for Screening for AA while Section 177V sets out requirements for undertaking the AA.

1.25. The wording of Article 6 (3) of the Directive is as follows:

1.26. "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."

1.27. As outlined in the European Commission document 'Assessment of plans and projects significantly affecting Natura 2000 sites'[2], 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"[3] has also been considered.

1.28. Where significant effects are uncertain or unknown at the screening stage an AA will be required, due to the requirement for adherence to the precautionary principle. The purpose of the Stage 1 Screening is to determine, on the basis of a preliminary assessment and

[2] European Commission (2021) *Assessment of plans and projects in relation to Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats directive 92/43/EEC*. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021XC1028%2802%29

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

objective criteria, whether a plan or project, alone or in-combination with other plans or projects, could give rise to likely significant effects on a European site in view of the site's conservation objectives.

1.29. There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. This AA Screening document has been submitted to the competent authority to assist them in reaching this determination. 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 likely significant effect on the site concerned.

1.30. The aim of Stage 2, 'Natura Impact Statement' (NIS) 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 which may be impacted. The NIS will further assess connectivity between the development and the Natura 2000 sites and their qualifying interests.

1.31. 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."

1.32. In line with relevant case law, conclusions within the NIS which exclude the potential for adverse effects in site integrity must be drawn in the absence of reasonable scientific doubt.

Consideration of Mitigation Measures

1.33. 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 Designated Site ('mitigation measures') cannot be considered during the Screening for AA stage.

1.34. Therefore, unless it can be shown that the proposed plan or project is not likely to give rise to a significant effect on the conservation objectives of the relevant European Designated Site, or if reasonable uncertainty remains as to the absence of such effects, it is necessary to

proceed to 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.

1.35. Several subsequent judgements in both the Irish High Court and CJEU (IEHC 468 and C-721/21 'Eco-Advocacy') have since determined that measures for environmental protection which are included at the design phase, and which would be included irrespective of whether the project was determined to give rise to potential adverse effects upon a European Designated Site(s), may be considered at the screening stage. Where this is the case, such measures would be required to be sufficiently effective, based on practical experience, to offer no reasonable scientific doubt as to their effectiveness. These judgements are considered to offer reasonable precedent in respect of the specific measures relevant to those cases, namely the use of Sustainable Urban Drainage Systems (SUDs) to alleviate site run-off rates and associated water quality.

1.36. However, in line with relevant case law and adopting a robust and precautionary approach the Screening for Appropriate Assessment, set out within this document, does not include consideration of mitigation measures.

The Precautionary Principle

1.37. The Precautionary Principle, 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.

1.38. The reasoned employment of the 'Precautionary Principle' is fundamental to every AA. The Precautionary Principle, is referenced in Article 191 of the Treaty on the Functioning of the EU, is defined by the European Commission, 20004 as, in practice:

Where preliminary objective scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen for the Community.

The Precautionary Principle should be considered within a structured approach to the analysis of risk which comprises of three elements: risk assessment, risk management, risk communication. The precautionary principle is particularly relevant to the management of risk.

1.39. The reasoned employment of the 'Precautionary Principle' is fundamental to every AA. The need to apply the precautionary principle in making any key decisions in relation to the tests

[4] ec.europa.eu/commission/presscorner/detail/en/ip_00_96

of Appropriate Assessment (AA) has been confirmed by the case law of the Court of Justice of the European Union (CJEU)[5]. At Stage 1 Screening, plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether a Stage 2 AA must be undertaken by the competent authority on the implications of the proposed development for the conservation objectives of a European site. Therefore, where significant effects are likely, uncertain or unknown at Stage 1 Screening, a Stage 2 AA will be required.

1.40. Case law has established that in order for a Stage 2 AA, to be lawfully conducted, it:

(i) must identify, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in-combination with other plans or projects, affect the conservation objectives of the European Designated site;

(ii) must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and

(iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European Designated site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to the next stages where alternative sites, imperative reasons of overriding public interest, and compensatory measures are considered.

Consideration of Ex-Situ Effects

1.41. Member states are advised, within the European Commission's 2018 Notice[6], that the stipulations set out at Article 6(3) of the Habitats Directive should be applied to all types of development or other activities including where such proposals arise outside of European sites.

1.42. Case law[7] has established that in line with the requirements of Article 6(3) the Appropriate Assessment process must involve the cataloguing of all habitats and species for which the site is designated and furthermore identify and examine the implications of the plan or project for non-qualifying habitats or species or habitats within the site or outside of the site, where the impacts to such habitats or species are liable to affect the conservation objectives of the qualifying interests of the site in question.

[5] Case C-258/11 CJEU 11 April 2013

[6] European Commission Notice C 33/01 (2019) Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC

[7] Case C-461/17 ("Brian Holohan and Others v An Bord Pleanala")

1.43. In light of this, consideration has been given in the Habitats Directive Appraisals, to the potential of the Proposed Development to give rise to adverse effects to non-qualifying species and habitats present within or outside of the European sites, where such effects would have potential to affect the relevant qualifying features of the sites.

METHODOLOGY

Relevant Guidance

1.44. A range of relevant guidance has been published by statutory bodies in respect of the methodology used in the completion of the Habitats Directive Appraisals. The following guidance documents have informed the approach taken to assessment within the Habitats Directive appraisals including definitions, assessment criteria and the application of relevant legal 'tests':

- European Commission Notice C 437/01 (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission Notice C 33/01 (2019) Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC.
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory measures, Overall coherence, Opinion of the Commission. (2007/2012).
- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg (EC, 2000).
- Interpretation manual of European Union Habitats. Version EUR 28. Publications Office of the European Union, Luxembourg (EC, 2018).
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a).
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010);

Stages of Appropriate Assessment

1.45. Appropriate Assessment is a staged procedure, necessitating four possible sequential stages. The guidelines of this assessment are presented in the publication 'Assessment of plans and projects significantly affecting Natura 2000 sites' (EC, November 2021)[8].

1.46. The stages are as follows:

- Stage 1 Screening: To first determine whether the plan or project is directly or indirectly connected to or necessary for the management of a European Site and subsequently (where it is not) to assess, in light of objective criteria, whether the plan or project, alone or in-combination with other plans or projects, is likely to give rise to significant effects on a European site in view of the relevant site's conservation objectives.

- Stage 2 Natura Impact Statement: Where likely significant effects upon European sites could not be excluded at the previous stage, Stage 2 will assess the potential of the plan or project to give rise to adverse effects upon the integrity of the European site(s). This assessment must be undertaken in view of the site-specific conservation objectives of the relevant European site and, where reasonable scientific doubt remains, the application of the precautionary principle, as discussed above. Where possible, the NIS will identify and describe appropriate mitigation to remove the potential for adverse effects on any European site(s).

- Stage 3 Consideration of Alternative Solutions: Where adverse effects on the integrity of any European site(s) are anticipated or cannot be excluded in the absence of reasonable scientific doubt despite the application of mitigation measures, the proposal should progress to Stage 3 and consideration of alternative solutions. Case law has established that such an assessment should not include considerations of cost. Furthermore, if alternative solutions are available which would not give rise to an adverse effect on the integrity of a European site(s) or would have a less damaging effect on such sites then this alternative option should necessarily be adopted by the competent authority.

- Stage 4 Consideration of IROPI: The final stage, following a determination that no less damaging alternatives are available, involves an examination of whether the plan or

8 Assessment of plans and projects significantly affecting Natura 2000 sites' EC (October 2021). Available at: Commission notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC 2021/C 437/01 - Publications Office of the EU

project is proposed for imperative reasons of overriding public interest (IROPI). In such circumstances the proposal may be consented in spite of associated adverse effects upon a European Site(s), where no less damaging solution exists. In such circumstances, the Member State must take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected.

Source – Pathway - Receptor Model

1.47. 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 potential for the effect in question to occur. For example:

- Source(s), e.g., blasting.
- Pathway(s) e.g., air (noise and vibration effects transmitted through this pathway).
- Receptor(s) e.g., nesting birds.

1.48. For an NIS, this model is focused solely on the qualifying interests (for SACs) and special conservation interests (for SPAs) of European Designated Sites, as defined by the National Parks and Wildlife Services (NPWS) and referenced within this report.

1.49. SACs are designated on account of qualifying areas of supported Annex I Habitats or populations of Annex II species, collectively referred to as Qualifying Interests (QIs). SPAs are designated on account of the supported populations of Annex I bird species and associated wetland habitats, collectively referred to as Special Conservation Interests (SCIs).

1.50. The Proposed Development may have the potential to result in a number of impacts, which could potentially affect the qualifying interests (for SACs) and special conservation interests (for SPAs) of European Designated Sites. The "zone of influence" (ZOI) for each effect is established using the Source-Pathway-Receptor framework, which helps identify potential impact pathways between the project and Natura 2000 site. Different effects have different zones of influence, for example hydrological effects may span several kilometres and air and land may span several hundred meters. The analysis of these effects, the source -pathway - receptor framework, requires scientific knowledge and professional judgement and leads to the identification of a "zone of influence" for each effect.

Study Zone Identification

1.51. The 'Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities'[9] 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 15 km 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 15km 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*."

1.52. The Zone of Influence (ZoI) for a project should be established on a case-by-case basis using the Source-Pathway-Receptor framework, as recommended by recent guidance from the Office of the Planning Regulator [10].

1.53. This approach focuses on identifying potential impact pathways between the project and European Sites, rather than relying on arbitrary distances. While earlier guidance suggested a 15km radius as a starting point for considering potential impacts, particularly for plans, the current best practice emphasizes that the ZoI can vary significantly based on the nature and scale of the project, the sensitivity of ecological receptors, and potential impact pathways. Sites further than 15km from the Proposed Development with a potential hydrological or ornithological connection have also been considered.

[9] 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

[10] Appropriate Assessment Screening for Development Management – PN01 – Available at: https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

Desk Study

1.54. 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 Site[11].
- NPWS site synopses, Natura 2000 Data Form and conservation objectives relating to each site and aerial images.
- Environmental Protection Agency (EPA) interactive maps[12]

[11] 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

[12] Available at: https://gis.epa.ie/EPAMaps/

BASELINE ENVIRONMENT

1.55. The Habitats Directive Appraisals outlined within this document are accompanied by an EcIA inclusive of a range of chapters each dealing with specific disciplines of which a number are of direct relevance to the Appropriate Assessment process.

1.56. This information has been summarised below where it is considered relevant to the Appropriate Assessment including the surveys undertaken and the findings.

BIODIVERSITY

Site Surveys

1.57. The ecological baseline for the Ballydonagh lands has been established through a series of habitat surveys undertaken between 2023 and 2025 in support of the original solar farm permission, the subsequent extension and amendment applications, and the subject application for the proposed SID.

1.58. The Application Site has been subject to habitat surveys in October 2025 by Rhona Coghlan. Previous habitat surveys were conducted in May of 2023 for a previous application. These surveys were undertaken in accordance with Fossitt habitat survey guidance, A Guide to Habitats in Ireland[13] with habitats mapped electronically on ArcGIS Field Maps software, as well as being used to record habitat categories, characteristic plant species and other ecological features and resources. These surveys incorporated searches for evidence indicating the presence of protected species.

1.59. Bat Potential Roost Feature (PRF) Surveys and Preliminary Roost Assessment (PRA) surveys were also completed in October 2025.

1.60. The Fossitt habitat survey was extended to include consideration of potential impacts upon protected species including badger, otter, birds, herptiles and other protected species groups.

Habitats

1.61. The vast majority of the Application Site is comprised of species-poor improved grassland which has been reseeded and is subject to nutrient enrichment and managed as farmland. These habitats are considered to be of low ecological value.

1.62. The Application Site and the adjacent area also supports a number of hedgerows and treelines, drainage ditches, and scrub as well as a small area of mixed broadleaved woodland and scrub within the Application Site. An area of mixed coniferous/broadleaved woodland

[13] Fossitt (2000) A Guide to Habitats in Ireland

and tilled fields are also present outside of the Development Boundary. These habitats are considered to be of variable ecological value.

1.63. No Annex I habitats were recorded within the Application Site boundary or its surrounds.

Birds

1.64. The site was recorded to support a limited range of common and widespread bird species during the extended Fossitt habitat Survey. Habitats present on site are largely limited to agricultural lands which are broadly similar to the vast majority of the surrounding landscape.

1.65. It is therefore not considered that the Application Site would have any significant potential to support Annex I bird populations.

Protected Species

1.66. No field signs indicating the presence of protected or notable species with the Application Site. This is not to say that species have not or will not interact with the Application Site in the future.

1.67. No Annex I species were recorded within the Application Site boundary. It is considered however that some Annex 1 species may utilise the Application Site, as some species, such as Lapwing (*Vanellus vanellus*), Golden Plover (*Pluvialis apricaria*) and Whooper Swan (*Cygnus cygnus*), use agricultural grasslands for foraging and breeding. Other Annex 1 terrestrial mammals and invertebrate may also use the site; however, this is dependant on the species foraging range and distance from the Application Site.

1.68. Several trees with potential to support roosting bats were identified within the Application Site. The Application Site also supports various habitats which act as foraging and commuting habitats, including treelines, hedgerows and drainage ditches.

HYDROLOGY

1.69. The assessment of the hydrology of the Application Site has been informed by a field walkover survey undertaken by Neo Environmental in October and November of 2025 with the purpose of identifying / verifying existing natural and artificial site drainage characteristics, and any other hydrological features. During the survey, any rivers, streams, ponds or lakes were recorded using ArcGIS online. No watercourses or waterbodies were identified within the Application Site during survey.

1.70. According to the Environmental Protection Agency (EPA) Map, the Application Site lies within Hydrometric Area 25 Lower Shannon (Water Framework Directive) Catchment Area. The Application Site lies within the Kilcrow_SC_10 sub-catchment 25C and Kilcrow_020 subbasin.

Local River Network

1.71. The East Loughturk Watercourse is approximately 0.2km west of the Application Site and flows in a southern and then western direction before joining the West Kiltormer Watercourse, approximately 0.4km to the west of the Application Site. This watercourse then connects with the Mountain Stream approximately 2.6km west of the Application Site, flowing in a southern direction before it eventually converges with the Kilcrow River approximately 2.9km southwest of the Application Site.

Internal Watercourses

1.72. The fields are bound by field drains which will convey all the surface water through the local drainage network to the watercourses outlined above. The local arterial drainage system connects the Application Site with the West Kiltormer River through drainage ditch C85/470/200.

GEOLOGY AND SOILS

Geology & Soil

1.73. The geological conditions of the Application Site were identified utilising the Geological Survey of Ireland ("GSI") Spatial Resources online geological mapping system[14]. The Application Site is underlain by the Lucan Formation, which consists of Visean limestone and calcareous shale.

1.74. Analysis of the GSI borehole database shows no boreholes within the vicinity of the Application Site.

Geo-Hazards

1.75. According to the GSI on-line mapping, the classification for landslide susceptibility for the Application Site is Low. There are presently no records of geo-hazards such as landslides within or in close proximity to the Application Site.

Geological Heritage

1.76. The GSI on-line mapping was reviewed to identify sites of geological heritage within the Application Site and surrounding area. No geological heritage sites are located within the immediate vicinity of the Application Site.

[14] GSI Spatial Resources Online Map., Available at http://dcenr.maps.arcgis.com/apps/MapSeries/?appid=a30af518e87a4c0ab2fbde2aaac3c228

Soil

1.77. Different soil types have different capabilities for absorbing water, the efficiency of which is dependent upon their structure and infiltration capacity. The GSI interactive map has been utilised to obtain Teagasc soil data. The Application Site is underlain mostly of till derived chiefly from limestone, with an area of calcareous bedrock at the surface. These are classed as:

- TLs - BminPD – Mineral poorly drained (Mainly basic)
- TLs - BminDW – Deep well drained mineral (Mainly basic)
- TLs - BminPDPT – Peaty poorly drained mineral (Mainly basic)
- RckCa – BminSW - Shallow well drained mineral (Mainly basic)

HYDROGEOLOGY

1.78. According to the GSI map, the Application Site lies within the Tynagh GWB[15].

1.79. There are no groundwater wells and springs located within the proximity of the Application Site, and none were noted on the site visit within the site boundary. The sensitivity of this area from impacts of contamination will be high. The Application Site is not located directly above any of these well or spring and so, negative effects and pollution are unlikely. Any risks will come from the construction stage, and an outline Construction and Environmental Management Plan (OCEMP) has been submitted alongside this application in order to reduce any potential impact on the environment during the construction and decommissioning phases of the Application Site.

1.80. According to the GSI the recharge mechanisms of this GWB are as follows:

"Diffuse recharge will occur via rainfall percolating through the subsoil. The proportion of the effective rainfall that recharges the aquifer is largely determined by the thickness and permeability of the soil and subsoil, and by the slope. In general, due to the generally low permeability of the aquifers within this GWB, a proportion of the recharge will discharge rapidly to surface watercourses via the upper layers of the aquifer, effectively reducing further the available groundwater resource in the aquifer. Where permeable gravelly subsoils cover parts of the GWB, however, they will act as a 'store' of groundwater and somewhat mitigate this rapid through-flow. A swallow hole in Upper Impure Limestones accept point recharge from surface waters, as do the turloughs in low water table conditions."

[15] Available at: https://gsi.geodata.gov.ie/downloads/Groundwater/Reports/GWB/TynaghGWB.pdf

1.81. The Application Site is located over a local important aquifer that is productive only in the local context and covers roughly 766km^2.

"The groundwater body is shaped roughly like an upside-down triangle, with the long axis oriented N-S. Elevation within the GWB ranges from 30 mAOD along the shore of Lough Derg (along the SE boundary) to 378 mAOD at Cappaghbaun Mountain in the southwest of the GWB. The topography ranges from mountainous in areas underlain by the resistant sandstones and mudstones of the Devonian Old Red Sandstones and Silurian rocks, where elevations are generally >80 mAOD, to flat-lying in areas underlain by impure limestones, where elevations are typically 40-60 mAOD. Overall, elevation decreases eastwards. River flows are predominantly southwards and eastwards, to Lough Derg and the River Shannon.

Due to the shallow groundwater flow in this aquifer the groundwater and surface waters are closely linked. The streams crossing the aquifer are gaining. Many of the springs are located close to breaks of slope where the shallow groundwater intercepts the ground surface. There are several marshes and wetlands in the area. At Shannon Callows, there is a 'petrifying stream' with associated species-rich calcareous flush. Lough Derg, as well as receiving surface water input, will be sustained by groundwater flow. At most of the raised bogs designated as NHAs, groundwater upwells at the edges or in the middle of the bogs, and flushes the areas with mineral rich water. Swallow holes and caves accept point recharge from surface waters. Specific Dry Weather Flows of rivers flowing across ORS, and Lower and Upper Impure Limestone aquifers are low (0.47, 0.15 and 0.24 l/s/km2 respectively). This indicates that aquifer storage is low and cannot sustain significant summer baseflows to the rivers."

Much of the land area of this groundwater body, in particular lands in the vicinity of the River Suck, is covered by raised bog, now being harvested for peat by Bord na Mona. As the peat is harvested for fuel the final surface level of the peat is in places lower than the winter water level in the River Suck. The land is drained by several small streams discharging to the River Suck. The peat production bogs are currently drained by a series of large electrical pumps which pump water from the lowlying bogs into the adjacent River Suck."[16]

[16] Available at: https://gsi.geodata.gov.ie/downloads/Groundwater/Reports/GWB/TynaghGWB.pdf.

STAGE 1 – SCREENING FOR APPROPRIATE ASSESSMENT

1.82. In accordance with relevant guidance, this stage of the AA has identified all International Sites located within the ZoI of the Proposed Development. These sites and their current status form the baseline against which the potential for LSEs should be assessed.

1.83. The potential impact pathways associated with the Proposed Development have been identified. Those International Sites upon which there is no possibility of significant effects will be ruled out of any further assessment.

1.84. The potential for LSEs can depend more on the nature of proposals, sensitivity of receptors and causal linkage, rather than actual distances. The assessment below considers connectivity, either ecological, ornithological or hydrological, that may exist between the Proposed Development and the European site(s).

DIRECTLY CONNECTED WITH OR NECESSARY TO THE MANAGEMENT OF THE SITE

1.85. The proposed development comprises a 110 kV loop in loop out substation connection to facilitate the grid connection of the permitted Ballydonagh and Ballydonagh extension Solar Farms.

1.86. The Proposed Development is not directly connected with or necessary to the management of any European site.

IDENTIFICATION OF EUROPEAN DESIGNATED SITES

1.87. There are four Special Areas of Conservation ("SACs") and three Special Protection Areas ("SPAs") within a 15km ZoI of the Application Site. **Table 1-1** below describes the qualifying interests ("QIs") for each European Designated Site and the distance between the Application Site and the European Designated Site.

1.88. European sites within the identified potential ZoI of the Proposed Development are illustrated in **Figure 1 – European Designations Map**.

Table 1-1: European Designated Sites within 15km ZoI of the Proposed Development.

Site Code	Site Name	Qualifying Features	Shortest Linear Distance to Proposed Development Site (km)	Potential Connectivity with the Proposed Development Site
SPA				
004097	River Suck Callows SPA	Whooper Swan (*Cygnus cygnus*) [A038] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Greenland White-fronted Goose (*Anser albifrons flavirostris)* [A395] Wigeon (*Mareca penelope*) [A855] Wetland and Waterbirds [A999]	6.9km northeast	Potential ornithological connectivity
004096	Middle Shannon Callows SPA	Whooper Swan (*Cygnus cygnus*) [A038] Corncrake (*Crex crex*) [A122] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Wigeon (*Mareca penelope*) [A855] Wetland and Waterbirds [A999]	11.02km southeast	Potential ornithological connectivity
004806	River Little Brosna Callows SPA	Whooper Swan (*Cygnus cygnus*) [A038] Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054]	13.08km southeast	Potential ornithological connectivity

Site Code	Site Name	Qualifying Features	Shortest Linear Distance to Proposed Development Site (km)	Potential Connectivity with the Proposed Development Site
		Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] Wigeon (*Mareca penelope*) [A855] Shoveler (*Spatula clypeata*) [A857] Wetland and Waterbirds [A999]		
SAC				
000216	River Shannon Callows SAC	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510] Alkaline fens [7230] Limestone pavements [8240] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] *Lutra lutra* (Otter) [1355]	11.03km southeast	Potential limited ecological connectivity
002353	Redwood Bog SAC	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120]	12.48km southeast	No connectivity

Site Code	Site Name	Qualifying Features	Shortest Linear Distance to Proposed Development Site (km)	Potential Connectivity with the Proposed Development Site
		Depressions on peat substrates of the *Rhynchosporion* [7150]		
002356	Ardgraigue Bog SAC	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion [7150]*	5.43km south	No connectivity
002213	Glenloughaun Esker SAC	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	6.07km south	No connectivity

SOURCE-PATHWAY-RECEPTOR ANALYSIS

1.89. The potential for the Proposed Development to give rise to LSEs upon the above listed European sites, in addition to any others with potential connectivity to the Application Site, is assessed on the basis of source-pathway-receptor links. As discussed above, this is defined as a link between a source of impact (such as construction phase operations giving rise to visual and noise disturbance), a pathway for such a source to act (such as through proximity to a European site) and the receptor itself (which may comprise a specific qualifying interest sensitive to such effects). Where a sufficient link is considered to exist between the source, pathway and receptor it is considered that a likely significant effect may occur.

1.90. As outlined in **Table 1-1**, the Application Site is not located within or directly adjacent to any European site. As such, it is not considered that the Proposed Development would have potential to give rise to any direct habitat loss effect to any European Designated Site.

River Suck Callows SPA

1.91. River Suck Callows SPA is located 6. 9km northeast of the Application Site and is designated for various wetland ad waterfowl species.

1.92. No watercourses or waterbodies are located within the Application Site. The closest watercourse is the East Loughturk river, a tributary for the West Kiltormer river which is located 0.41km away. The local arterial drainage system, however, is connected to the West Kiltormer River. Due to this distance and the lack of connectivity between the Application Site and any European Designated Sites, it is highly unlikely that significant effects will occur due to a contamination event as a result of the Proposed Development.

1.93. The Wigeon (*Mareca penelope*), which is a qualifying interest for this SPA, relies upon coastal habitats and large waterbodies for foraging, feeding on aquatic vegetation. They are often seen using grasslands and cereal crops when foraging from September to April.[17] While there is suitable foraging habitat within the Application Site, the foraging distance for the Wigeon is 2.8km. As the Application Site is 6.52km from the River Suck Callows, it is unlikely that the Wigeon will utilise the Application Site.[18]

1.94. The Whooper Swan (*Cygnus cygnus*) is a winter visitor that largely feed on aquatic vegetation but also forage on spilled grain and potatoes in agricultural grasslands.[19] The Application Site is largely comprised of agricultural grassland and so, would be suitable habitat for Whooper Swan. The core foraging range for this species is less than 5km, which is outside the species core foraging range. While it is unlikely that this species will utilise the Application Site due to his, interaction may still occur in the event that resources within the species' regular foraging range have depleted.[20]

1.95. The Greenland White-fronted Goose (*Anser albifrons flavirostris*) is a waterfowl species that is often seen foraging in agricultural grasslands. This species winters in Ireland and Scotland, with a diet consists of tubers, roots, shoots and leaves, as well as crops like potatoes, wheat and spilt grain.[21] The Application Site does support agricultural grassland, however, it is not managed for arable crops and so, is unlikely to be suitable for this species unless land management changes and is grazed less intensively.

1.96. Lapwings are also a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken

[17] Available at: https://birdwatchireland.ie/birds/wigeon/.
[18] Johnson, W.P., Schmidt, P.m. and Taylor, D.P. (2014). Foraging flight distances of wintering ducks and geese: A review. Available at: https://www.researchgate.net/publication/266023568_Foraging_flight_distances_of_wintering_ducks_and_geese_A_review.
[19] Available at: https://birdwatchireland.ie/birds/whooper-swan/.
[20] NatureScot (2016). Assessing Connectivity with Special Protection Areas. Available at: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf.
[21] Available at: https://birdwatchireland.ie/birds/greenland-white-fronted-goose/.

from freshly tilled land. **Error! Bookmark not defined.**,[77],[76] No definitive core foraging range is available for this QI and so, could not be used to assess impacts. The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When considering the availability of alternative habitat, distance between the SPA and the Application Site, as well as the lack of definitive core foraging ranges, in the absence of mitigation, it is considered unlikely that adverse effects will occur; however, this cannot be entirely ruled out.

1.97. Golden Plover (*Pluvialis apricaria*) is a wader species that is strongly associated with agricultural landscapes, foraging on seeds, grasses and berries alongside Lapwing. The core foraging range for Golden Plover is thought to about 3km during breeding season.[20] The Application Site is located 6.49km from this SPA, which well outside of golden plover's' normal foraging range which will discourage interaction.

1.98. It is concluded that the potential for likely significant effects cannot be entirely ruled out, and so further assessment is required.

Middle Shannon Callows SPA

1.99. Middle Shannon Callows SPA is located approximately 11.02km from the Application Site and is not hydrologically connected to the Application Site. This SPA is designate for various wader and waterfowl species.

1.100. The Whooper Swan is a qualifying interest for this SPA and is known to forage in agricultural grassland on potatoes and spilled grain.[19] The Application Site is primarily comprised of agricultural grassland, although it is managed for pasture of cattle. The core forage range for the Whooper Swan is less than 5km, which means that the Application Site is significantly outside of this species' core foraging range. It is therefore unlikely that this population of Whooper Swan will venture to and interact with the Application Site.

1.101. The Corncrake (*Crex crex*) is a summer visitor to Ireland and was once very common within agricultural grasslands throughout the country. They are ground-nesting birds which building within grass tufts in non-intensively managed grasslands., with a preference for hayfields. The agricultural grasslands are intensive managed, primarily for pasture and so, sward height is very low with no tufts. This would make it unsuitable for breeding corncrake. Taking into account the distance between this SPA and the Application Site, it is considered unlikely that the Corncrake will utilise the Application for breeding or foraging.

1.102. Golden Plover (*Pluvialis apricaria*) is a wader species that is strongly associated with agricultural landscapes, foraging on seeds, grasses and berries alongside Lapwing. Lapwing (*Vanellus vanellus*) is another wader species which is also heavily associated with agricultural landscapes, utilising grasslands as breeding and foraging habitats.**Error! Bookmark not defined.** The core foraging range for Golden Plover is thought to about 3km during breeding season.[20] The Application Site is located 11.02km from this SPA, which well outside this species' normal foraging range and is likely to discourage interaction. No definitive core

foraging range could be found for Lapwing and could not be used to assess impacts. The Application Site is located a significant distance from this SPA and plenty of alternative habitat exists which is closer to this population, it is highly unlikely that Lapwing will travel this distance.

1.103. Black-tailed Godwit (*Limosa limosa*) is a wader that feeds mostly on invertebrates, bivalves and crustaceans in coastal habitats. They have however been recorded feeding on grain in stubble fields.[22] It should be considered that the Application Site is largely managed for pasture and so, does not consistently support arable crops needed for Black-tailed Godwit.

1.104. Black-headed gulls (*Larus ridibundus*) are a coastal bird that usually breeds in wetland areas, building their nests on the ground. They are often seen feeding on insects in arable fields and will also scavenge domestic waste if the opportunity arises.[23]The Application supports mostly agricultural grassland, making it suitable as a foraging ground for this species. The core foraging range for this species is estimated to be roughly 12km.[24] The Application Site is located 11.02km form the SPA, which within the Black-headed Gull's core foraging range, making interaction not impossible; therefore, potential effects cannot be entirely ruled.

1.105. The Wigeon (*Mareca penelope*), which is a qualifying interest for this SPA, relies upon coastal habitats and large waterbodies for foraging, feeding on aquatic vegetation. They are often seen using grasslands and cereal crops when foraging from September to April.[17] While there is suitable foraging habitat within the Application Site, the foraging distance for the Wigeon is 2.8km. As the Application Site is 11.02km from the Middle Shannon Callows SPA, it is unlikely that the Wigeon will utilise the Application Site.[18]

1.106. This site is designated for various wetland and waterfowl, many of which are unlikely to use the Application Site due to a lack of watercourses and waterbodies.

1.107. Due to the above assessment, likely significant effects cannot be entirely ruled out for all species of the SPA and further assessment is required.

River Little Brosna Callows SPA

1.108. This SPA is designated for several wetland and waterfowl species.

1.109. The following species were all assessed individually and were found to have similar ecology; Teal (*Anas crecca*), Pintail (*Anas acuta*), Wigeon and Shoveler (*Spatula clypeata*).[25],[26],[27],[28]

[22] Available at: https://birdwatchireland.ie/birds/black-tailed-godwit/.
[23] Available at: https://birdwatchireland.ie/birds/black-headed-gull/.
[24] Jakubas, D., Indykiewicz, P., Kowalski, J., Iciek, T. & Minias, P. (2020). Intercolony variation in foraging flight characteristics of black-headed gulls *Chroicocephalus ridibundus* during the incubation period. Available at: https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.6291.
[25] Available at: https://birdwatchireland.ie/birds/teal/.
[26] Available at: https://birdwatchireland.ie/birds/pintail/.
[27] Available at: https://birdwatchireland.ie/birds/wigeon/.
[28] Available at: https://birdwatchireland.ie/birds/shoveler/.

These species are largely coastal, breeding and wintering in coastal lagoons and bays. They will also utilise large inland waterbodies, like rivers, lakes and turloughs and may also forage on arable crops if it is in close proximity to a large waterbody. As there are no large lakes or rivers within the Application Site, it is highly unlikely that these species will interact with the Application Site.

1.110. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes. While the Application Site does support agricultural grasslands, these areas are intensively managed for grazing cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km. In the absence of mitigation, it is considered unlikely that adverse effects will occur for this species.

1.111. Golden Plover (*Pluvialis apricaria)* is a wader species that is strongly associated with agricultural landscapes, foraging on seeds, grasses and berries alongside Lapwing. Lapwing (*Vanellus vanellus*) is another wader species which is also heavily associated with agricultural landscapes, utilising grasslands as breeding and foraging habitats.**Error! Bookmark not defined.** The core foraging range for Lapwing and Golden Plover is thought to be about 3km during breeding season, however, a definitive core foraging range could not be found for Lapwing.[20] The Application Site is located 13.03km from this SPA, which well outside of golden plovers' normal foraging range and is likely to discourage interaction. Lapwing is also unlikely to travel this distance when alternative foraging habitat is available closer to this SAC, suggesting that negative effects are unlikely but cannot be entirely ruled out.

1.112. Lapwing (*Vanellus vanellus*) are a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land. The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When also considering the supply of alternative habitat between the Application Site and the SPA, in the absence of mitigation, it is considered unlikely that adverse effects will occur.

1.113. Black-tailed Godwit (*Limosa limosa*) is a wader that feeds mostly on invertebrates, bivalves and crustaceans in coastal habitats. They have however been recorded feeding on grain in stubble fields.[22] It should be considered that the Application Site is largely managed for pasture and so, does not consistently support arable crops needed for Black-tailed Godwit.

1.114. Black-headed gulls (*Larus ridibundus*) are a coastal bird that usually breeds in wetland areas, building their nests on the ground. They are often seen feeding on insects in arable fields and will also scavenge domestic waste if the opportunity arises.[23] The Application supports mostly agricultural grassland, making it suitable as a foraging ground for this species. The core foraging range for this species is estimated to be roughly 12km. The Application Site is located 13.08km form the SPA, which just slightly outside of the Black-headed Gull's core foraging range. In the event that resources have depleted within their core foraging range, this species may travel slightly further, making interaction unlikely but not impossible.

1.115. The Greenland White-fronted Goose (*Anser albifrons flavirostris)* is a waterfowl species that is often seen foraging in agricultural grasslands. This species winters in Ireland and Scotland, with a diet consists of tubers, roots, shoots and leaves, as well as crops like potatoes, wheat and spilt grain.[21] The Application Site does support agricultural grassland, however, it is not managed for arable crops and so, is unlikely to be suitable for this species unless land management changes and is grazed less intensively.

1.116. Significant negative effects cannot be entirely ruled out as a result of the Proposed Development and so, further assessment is required.

River Shannon Callows SAC

1.117. River Shannon Callows SAC is designated for the following qualifying interests: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510], Alkaline fens [7230], Limestone pavements [8240], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0], *Lutra lutra* (Otter) [1355].

1.118. *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] are found on wet, nutrient-poor soils. These habitats are largely dominated by Purple moor-grass (*Molinia)* and accompanied by rushes and sedges which are common in wet habitats.[29],[30] These habitats are nutrient-poor and so, any form of nutrient enrichment would significantly and negatively affect the integrity of this habitat, causing alteration of the pH and/or eutrophication. Eutrophication occurs when the nutrient load within a waterbody or watercourse increases to extreme levels, which promotes overgrowth of algae and other plant life. This depletes the oxygen levels within the waterbody, which leads a mass die-off of fish and other aquatic life.[31] As no hydrological connectivity exists between these two sites, there is no pathway for contaminants or sedimentation.

1.119. Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510] are species-rich meadows with slightly fertilised soil. Species like Red Fescue (*Festuca rubra*), Crested Dog's-tail (*Cynosurus cristatus*) are common in these habitats, with some rarer plant species, like Snake's Head Fritillary (*Fritillaria meleagris*), also present within these habitats.[32],[33] This habitat is considered to be slightly nutrient-rich and so, is less intolerant of an increased nutrient load. It is important, however, that the nutrient level does not surpass a certain threshold as this will facilitate the domination vigorous, tussock-like grasses which can greatly alter species-richness, sward height and density. If a contamination event were to occur which increased the nutrient level above this threshold, the potential effects would incredibly

[29] Available at: https://eunis.eea.europa.eu/habitats/10131.
[30] Available at: https://sac.jncc.gov.uk/habitat/H6410/.
[31] Available at: https://www.ecos.ie/water-pollution-in-ireland-eutrophication/.
[32] Available at: https://eunis.eea.europa.eu/habitats/10137.
[33] Available at: https://sac.jncc.gov.uk/habitat/H6510/.

adverse. As there is not hydrological connectivity between this European Designated Site and the Application Site, however, this is unlikely to arise.

1.120. Alkaline fens [7230] are wetland consisting of peat -producing sedges and extensive moss communities that have developed on and maintain a consistently waterlogged soil with a very high-water table. These habitats are alkaline or basic in pH and are characterised largely by their moss community which hold water and allow the habitat to remain waterlogged year-round.[34],[35] This habitat requires a basic pH is order to support it's vegetative profile and moss community. In the event that contaminants enter this habitat and later the pH, it would have an incredibly negative impact, adverse affecting the habitat itself and it vegetative community. As hydrological connectivity does not exist between this European Designated Site and the Application Site, this is unlikely to occur.

1.121. Limestone pavements [8240] are a rock formation formed from sedimentary rock that was created through the collection and compression of animal remain over a long period of geological time. This habitat is made up primarily of clints and grikes, with clints being the 'pavement-'like formations and grikes the spaces between each clint. This habitat has little to no overlying soil, creating a bare expanse of rocky pavements. Despite its bare appearance, these habitats support a specialised vegetative community of vascular plants, calcareous woodland, heath scrub and more. These habitats are incredibly important for various rare orchid species like the Bee Orchid (*Ophrys apifera*).[36],[37],[38] This habitat, and the species that depend on it, have adapted to the specific ecological conditions created by this rock formation. If contaminants enter this habitat as a result of a contamination event, it could potentially and greatly alter the pH and nutrient load of the habitat, promoting the growth of certain species which outcompete native species of orchid and wildflower. This is considered unlikely to occur as a result of the Proposed Development due to a lack hydrological connectivity and therefore, a pathway for impacts.

1.122. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] are riparian forests centred around large watercourses dominated by willow and alder. This habitat is largely found on basic, eutrophic soils which are periodically waterlogged and host various scrub, wetland and wildflower species, including common nettle (*Urtica dioica*), meadowsweet (*Filipendula ulmaria*), and common reed (*Phragmites australis*).[39],[40] As said above, this habitat requires a basic pH which, if altered, will negatively impact the habitat. Inorganic pollutants arising from construction developments can acidify pH and so, must be considered. No hydrological connectivity exists between this European Designated Site and the Application Site, there is not pathway for impacts and so, negative effects are unlikely to arise.

[34] Available at: https://eunis.eea.europa.eu/habitats/10151.
[35] Available at: https://sac.jncc.gov.uk/habitat/H7230/.
[36] Available at: https://eunis.eea.europa.eu/habitats/10168.
[37] Available at: https://sac.jncc.gov.uk/habitat/H8240/.
[38] Available at: https://www.irishorchidsociety.org/ireland/.
[39] Available at: https://eunis.eea.europa.eu/habitats/10198.
[40] Available at: https://sac.jncc.gov.uk/habitat/H91E0/.

1.123. The Otter is an aquatic mammal that has a very large foraging, 22km for females and 30km for males.[41] Otter breed and forage in large rivers and lakes where there is plenty of fish. They can also use drainage ditches as migratory corridors. The Application Site is located 11.03km from this SAC, which is within the foraging range for otter. The Application Site does support a drainage ditch, which is seasonally wet, making it suitable as a migratory corridor for otter.

1.124. While it is unlikely that otter will travel this distance when other suitable habitats are closer and more accessible, likely significant effects cannot be entirely ruled out and so, further assessment is required.

Redwood Bog SAC

1.125. Redwood Bog SAC is designated for the following qualifying interests: Active raised bogs [7110], Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the *Rhynchosporion* [7150].

1.126. All qualifying interests are immobile and so, hydrological is required to establish a pathway for impacts. As there is no direct or indirect hydrological connectivity between the Application Site and this SAC according to EPA Map[42], no likely significant adverse effects will occur as a result of the Proposed Development and so further assessment is not required.

Ardgraigue Bog SAC

1.127. Ardgraigue Bog SAC is designated for the following qualifying interests: Active raised bogs [7110], Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the *Rhynchosporion* [7150].

1.128. As all qualifying interests for this SAC are immobile, hydrological connectivity is required to create a pathway for impacts to occur. As there is no direct or indirect hydrological connectivity between the Application Site and this SAC[42], no significant adverse effects will occur as a result of the Proposed Development and so, further assessment is not considered necessary.

Glenloughaun Esker SAC

1.129. Glenloughaun Esker SAC is designated for the following qualifying interest: Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210].

1.130. This site is important for orchid species, come of which are Annex 1 species. Because this qualifying interest is immobile, as with other European Designated sites, hydrological

[41] NatureScot (2024) Otter. Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter

[42] Available at: https://gis.epa.ie/EPAMaps/.

connectivity must be present to establish a viable pathway for impacts to occur. As the Application Site does not support any rivers or lakes and the closest watercourse, East Loughturk,, is located 0.2km away.[42] As the Application Site does not have direct or indirect hydrological connectivity with this SAC, it is considered that no significant adverse effects will as a result of the Proposed Development are unlikely and so further assessment is not required.

European Designated Sites with No Connectivity

1.131. No direct hydrological, ecological or ornithological connectivity exists between the Application Site and the following European Designated sites, which means there is no potential for these qualifying interests (QIs) to be impacted; Redwood Bog SAC, Ardgraigue Bog SAC, and Glenloughaun Esker SAC.

1.132. Rodwood Bog SAC, Ardgraigue Bog SAC and Glenloughan Esker SAC are designated for at of habitats, which are immobile and fixed in area. Because of this, hydrological connectivity would be required to establish a pathway for impacts. As no such connectivity exists, no pathway is present, suggesting that impacts as a result of the Proposed Development are unlikely.

1.133. Where connectivity does not exist, there are no pathways for likely impacts associated with the Proposed Development and therefore, these European Designated Sites have been scoped out and will not be considered in the next stage of this assessment.

CUMULATIVE EFFECTS

1.134. As well as unique impact effects potentially possible from this Proposed Development, cumulative impact effects also need to be considered. Cumulative impacts can be an issue when the Proposed Development has a small impact on international sites or other sensitive ecological receptors. If other proposals also have a small impact, the combined result can have a significant impact on these features.

1.135. A search was conducted of relevant planning applications within the vicinity of the Application Site, relevant to Galway County Council. These are listed in Table 1-18. Applications over fifteen years old (approximately) were not considered to be relevant.

1.136. The European Commission Habitats Directive and the Habitats Regulations 2011 require that the impacts on European Designated (formerly 'Natura 2000') 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 European sites.

1.137. This AA Screening has identified other plans and projects that could act, in combination with this Proposed Development, and has assessed whether or not those plans or projects pose likely significant effects on European Designated sites.

1.138. The main aim of this process is to assess if these other plans and projects have undergone Appropriate Assessment Screening themselves and have either been adopted or consented following an AA Screening, then they cannot pose likely significant adverse effects on European sites.

Plans

1.139. A review of the following plans was undertaken;

National Planning Framework 2040

1.140. 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 ("RSESs") by each of the three Regional Assemblies, established under the Local Government Reform Act 2014.

1.141. 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").

1.142. 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 European Designated 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.

1.143. The Minster 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)."

1.144. 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 Northern and Western Region

1.145. The Regional Spatial and Economic Strategy ("RSES") for the Northern and Western Region provides a framework for the implementation of the National Planning Framework ("NPF") for a period of 12 years. The strategy will also promote and implement the UN Sustainable Development Goals ("SDG"). The strategy will range over various sectors, including tourism, education, sustainable and environmentally-conscious development etc.

1.146. To comply with the requirements of Article 6 (3) of the EU Habitats Directive which was transposed into Part XAB of the Planning and Development Act 2000 (as amended), the process of Screening for AA was undertaken at an early stage in the drafting of the RSES.

1.147. The AA Screening undertaken by ecologists at RPS on behalf of the Northern and Western Assembly, assessed whether the RSES was likely to have significant effects on any European Designated Sites within the European network, either alone or in combination with other plans and projects.

1.148. The screening concluded that an AA 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.

1.149. Therefore, adopting the precautionary principle, it was concluded that a NIR should be prepared. The NIR (prepared by RPS on behalf of the Eastern and Midland Regional Assembly) considered the potential for the RSES 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.

1.150. 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.

Galway County Development Plan 2022-2028[43]

- The main aim of this development plan is to provides framework with which to guide further development sustainably and in the most environmentally sensitive manner.
- Chapter 10 of the plan refers directly to natural heritage, biodiversity and green/blue infrastructure, with section 10.2 outlining strategic aims that will increase awareness and

[43] Galway County Council (2021) Galway County Development Plan 2022-2028. Available at: https://consult.galway.ie/en/consultation/adopted-galway-county-development-plan-2022-2028/chapter/chapter-1-introduction.

enjoyment of natural heritage and biodiversity in Galway, as well as promoting participation in its conservation, management and protection. These aims are as follows:

- *"Conserve, manage, protect and enhance the special character of the County as defined by its natural heritage, biodiversity and green infrastructure;*
- *To ensure compliance with the requirements of relevant International, European Directives and National Legislation in relation to Natural Heritage, Biodiversity, Green/Blue Infrastructure and Climate Change;*
- *Ensure climate change considerations are taken into account in the Natural Heritage, Biodiversity and Green/Blue Infrastructure;*
- *Continue to implement actions of the National Heritage Plan and the National Biodiversity Plan and the current Galway County Heritage and Biodiversity Plan 2017-2022 in partnership with all relevant stakeholders and any successor to these documents;*
- *To promote the creation of an integrated and coherent green infrastructure network throughout County Galway in order to enhance connectivity, social inclusion, sense of place and the creation of wildlife corridors."*

Agriculture

1.151. The vast majority of the areas surrounding the Application Site are comprised of agricultural lands which are farmed at a variable degree of intensity, with a large proportion being intensively managed pasture.

1.152. Adverse effects may on drainage ditches within the Application Site as a result of contaminated surface water run-off from agricultural activities including the application of organic material (slurry) and chemical fertilisers in addition to sedimentation through routine agricultural operations such as drain clearance and ploughing. Potential effects associated with such inputs would be a general deterioration of water quality within these microhabitats through sedimentation and eutrophication.

1.153. It is considered that the Proposed Development, in the absence of mitigation, would have potential to act in-combination with agricultural activities occurring throughout the surface water catchment in which the Application Site is located.

Projects

1.154. There is no standard prescriptive method for assessing in-combination effects of nearby proposed or consented developments subject to planning applications within a given area. Planning applications considered within this assessment have been screened by distance, scale and nature, and further determined by comparing potentially overlapping Zones of Influence from other projects in regard to species, habitats and designated sites.

1.155. Current guidance[44]from CIEEM states:

"The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change."

1.156. A search of the Galway County Council planning portal was undertaken in January 2026 to identify key planning applications (projects) beyond the vicinity of the Proposed Development.

1.157. There are a number of smaller projects in the wider area. It is not considered that these projects would result in significant in-combination effects on any European designated sites. It can be concluded that if a Project has been adopted following an AA then it cannot pose likely significant adverse effects on any European sites.

1.158. The search included key developments preceding the date of issue of this report and excluded retention applications and incomplete, withdrawn or refused applications. The relevant projects with the potential for in-combination likely significant effects on European sites are detailed in Table 1-2.

Table 1-2: Planning Applications within 5km of the Proposed Development

Planning Reference	Project Type	Planning Status	Distance and Direction
2360827	to include development of a 240MWh battery energy storage systems facility within a total site area of up to 3.02 hectares, the site will include 1no. 38KV substation compound including 1no. single storey electrical substation building with an area of 69m2 & associated switchgear, 12no. electrical inverters & 6no. electrical transformer, 31no. containerised battery storage modules on concrete plinths, access tracks & new site entrance, associated electrical cabling & ducting, security gates,	Granted - Conditional	3.120km north

[44]CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3 Available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf

	perimeter security fencing, CCTV security monitoring & lighting system, landscaping works & all associated ancillary infrastructure		
2361049	for the development that will consist of a planning permission for a period of 10 years to construct & complete a Solar PV Energy development with a total site area of circa 81.9 hectares, to include, solar PV panels ground mounted on support structures, electrical transformer & inverter station modules, a substation, temporary construction compounds, internal access tracks, watercourse crossing infrastructure, security fencing, electrical cabling & ducting, interconnection cabling, CCTV & other ancillary infrastructure, drainage, additional landscaping & habitat enhancement as required & associated site development works. The solar farm would be operational for 35 years. A Natura Impact Statement will be submitted with this application	Granted - Conditional	Within Application Site
2561903	for several minor amendments to the previously consented development under Planning Reference 2361049. The amendments comprise the following; re alignment of the main entrance and access gate; re alignment and widening of internal access tracks; alteration of the boundary fence; removal of the consented 38kV	Granted- Conditional	Within Application Site

	substation in Field 22; combined central inverters and MV transformers are replaced by separate string inverters and central MV transformers; reduction in the size of related hardstanding areas; updated table layout including a reduction in PV table numbers from 3209 to 3120; reduction of the of new overhead line separation areas arising from the removal of a section of the 110 kV overhead line; inclusion of an additional badger sett buffer and amendment of condition 3a to extend the operational lifetime of the solar farm from 35 years to 40 years. An updated Natura Impact Statement has been submitted with this application. A separate application to obtain permission for a 110kV grid connection and 110kV substation to facilitate the export of power from the solar farm, will be submitted to An Coimisiún Pleanála. This development is covered by the provisions of the Renewable Energy Directive III (Directive (EU) 2023/2413) and it is important to note that the planning application may be subject to section 34D of the Planning and Development Act 2000, as amended. When a notice issues in accordance with section 34D(b), the provisions of article 26A of the Planning and Development Regulations 2001 to 2025 shall apply		

2461749	to construct and complete a Solar PV Energy development with a total site area of circa 56.2 hectares across four sections of land to include, solar PV panels ground mounted on metal support structures, electrical transformer and inverter substation modules, temporary construction compounds, internal access tracks (existing, upgrading and new), site accesses, watercourse crossing infrastructure, security fencing, electrical cabling and ducting, interconnection cabling, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works. The solar farm would be operational for 35 years. A Natura Impact Statement will be submitted with this application	Granted – Conditional	Within Application Site
2660009	for several minor amendments to the previously consented development under Planning Reference 2461749 (by Galway County Council). The amendments comprise the following; Combined central inverters and MV transformers are replaced by separate string inverters and central MV transformers which results in a reduction in the extent of associated hardstanding areas; alteration to Condition 3(a) to extend the operational lifetime of the solar farm from 35 years	Granted-Conditional	Within the Application Site

	to 40 years; addition of tables in the former central inverter locations. An updated Natura Impact Statement has been submitted with this application. This development is covered by the provisions of the Renewable Energy Directive III (Directive (EU) 2023/2413) and it is important to note that the planning application may be subject to section 34D of the Planning and Development Act 2000, as amended. When a notice issues in accordance with section 34D(b), the provisions of article 26A of the Planning and Development Regulations 2001 to 2025 shall apply		
074030	to build a 38kvline from existing Somerset 110kv Station to a point on the existing 38 kv line at Glenloughaun passing through or in the vicinity of the following townlands: somerset, Barnpark, Lakefield, Chapelpark, Glenaun, Gortnahorna (Clanricarde) G	Granted - Conditional	3.250km north
151571	for a ten-year permission to construct a wind farm. The proposed underground cable connection to the national grid will run under the existing road network through the townlands of Coolcarta West, Caltragh, Fynagh, Moneenaheeltia, Killevny, Ballyhoose, O	Granted - Conditional	1.220km north
0932	for ESB Somerset 110KV station which consists of alterations to the existing 110 KV station comprising of one no. sealing	Granted - Conditional	3.240km north

	end structure, 4.59m high and associated site works		

1.159. Planning Application 2360827 consists of a BESS site and ancillary works. An AA Screening Report was produced for the development which concluded that the development would not have a negative effect on any surrounding European Designated Sites. A cumulative assessment was included within the document, stating the development would not, alone or in combination with other projects, contribute to a negative cumulative effect. An AA and NIS was produced for the Proposed Development which stated that no negative impacts would occur which would give rise to adverse effects on the integrity of any European Designated site with the implementation of mitigation and best practice. A cumulative assessment was also included within the document which stated the Proposed Development would not alone or in combination with other developments, contribute to a significant cumulative effect. It can therefore be concluded that, with the implementation of mitigation measures and best practice, the **Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect.**

1.160. Planning Application 2361049 consists of a solar farm and ancillary works, which will be powered by the substation included within the Proposed Development. Planning Application 2561903 consists of amendments to this planning application. As these applications concern the same development, both were assessed in conjunction with each other. An NIS was produced for this development which stated that the development would not have an adverse effect on any surrounding European Designated Sites. A cumulative assessment was conducted which found that the development, alone or in combination with other developments., will not contribute to a cumulative effect. An NIS was also produced for the Proposed Development which found that the Proposed Development would not give rise to negative impacts which would adverse effect any surrounding European Designated Sites. A cumulative assessment was also conducted which found that the Proposed Development, alone or in combination with other developments, would not contribute to a significant cumulative effect. It can therefore be determined that with the implementation of mitigation measures and best practice, the **Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect**.

1.161. Planning Application 2461749 consists of a solar farm and ancillary work which will be powered by the substation seen within the Proposed Development. Planning Application 266009 proposed amendments to this planning application. As these developments are located in the same area. They were assessed in conjunction with each other. An NIS was produced for this development which stated that the development would not have an adverse effect on any surrounding European Designated Sites. A cumulative assessment was conducted which found that the development, alone or in combination with other developments, will not contribute to a cumulative effect. An NIS was also produced for the Proposed Development which found that the Proposed Development would not give rise to negative impacts which would adverse effect any surrounding European Designated Sites. A

cumulative assessment was also conducted which found that the Proposed Development, alone or in combination with other developments, would not contribute to a significant cumulative effect. It can therefore be determined that with the implementation of mitigation measures and best practice, **the Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect.**

1.162. Planning Application 151571 consists of a wind farm development and ancillary works. An NIS was produced for this development which stated that the development would not have an adverse effect on any surrounding European Designated Sites. A cumulative assessment was conducted which found that the development, alone or in combination with other developments, will not contribute to a cumulative effect. An NIS was also produced for the Proposed Development which found that the Proposed Development would not give rise to negative impacts which would adverse effect any surrounding European Designated Sites. A cumulative assessment was also conducted which found that the Proposed Development, alone or in combination with other developments, would not contribute to a significant cumulative effect. It can therefore be determined that with the implementation of mitigation measures and best practice, **the Proposed Development, alone or in combination with this development, will not contribute to a significant cumulative effect.**

1.163. Planning Application 074030 consists of a substation and ancillary works. The application assessed the likelihood of negative on European Designated Sites. It was concluded that the Application Site would not give rise to negative effects on surrounding European Designated Sites and their integrity. An NIS was produced for the Proposed Development which concluded that the Proposed Development would not give rise to negative effects on surrounding European Designated sites and their integrity. A cumulative assessment was also conducted which found that the Proposed Development, alone or in combination with other developments, would not contribute to a significant cumulative effect. It can therefore be determined that **the Proposed Development, alone or in combination with this development, will not contribute to have a significant cumulative effect.**

1.164. Planning Application 0932 consists of a substation and ancillary works. The application assessed the likelihood of negative on European Designated Sites. It was concluded that the Application Site would not give rise to negative effects on surrounding European Designated Sites and their integrity. An NIS was produced for the Proposed Development which concluded that the Proposed Development would not give rise to negative effects on surrounding European Designated sites and their integrity. A cumulative assessment was also conducted which found that the Proposed Development, alone or in combination with other developments, would not contribute to a significant cumulative effect. It can therefore be determined that **the Proposed Development, alone or in combination with this development, will not contribute to have a significant cumulative effect.**

Summary of Cumulative Effects

1.165. With respect to the developments, plans and projects assessed above, it can be concluded that while the potential for the Proposed Development to contribute to a negative cumulative

effect is unlikely, it cannot be entirely ruled out. This is because certain activities occurring outside of the Application Site which do not originate from a development may interact with the Proposed Development, which can contribute to an adverse cumulative effect. These activities include:

- Agricultural practices pertaining to water quality and habitat deterioration.
- Individual agricultural projects such as poultry, meat, and dairy production.

1.166. Two of the above applications also did not include cumulative assessments within their assessment. This means that the development's likelihood of contributing to a cumulative effect cannot be fully assessed. This suggests that further assessment is required.

1.167. As set out above it is considered that further analysis, and the implementation of mitigation measures is required to ensure that adverse effects do not occur.

Screening Assessment Summary

1.168. Screening for Appropriate Assessment has been undertaken in accordance with the relevant national policy and guidance. This assessment has identified the extent of likely significant effects to European sites arising as a result of the Proposed Development using a source-pathway-receptor analysis and excluded such potential where insufficient connectivity between a source and sensitive receptor is supported.

1.169. The screening for appropriate assessment has identified the possibility of likely significant effects upon seven European Designated Sites. These LSEs have been identified in the absence of consideration of mitigation measures and without having to consider the Proposed Development in-combination with other plans or projects.

1.170. The possibility of likely significant effects arising through construction and decommissioning phases of the Proposed Development, cannot be discounted for the following European Designated Sites in the absence of further analysis or the application of mitigation measures:

- River Shannon Callows SAC
    - Lutra lutra (*Otter*) [1355]
- River Suck Callows SPA
    - Lapwing (*Vanellus vanellus*) [A142]
- Middle Shannon Callows SPA
    - Black-headed Gull (*Chroicocephalus ridibundus*) [A179]

1.171. Upon assessing the above European Designated Sites, it was determined that, without mitigation, there is potential for adverse impacts to arise as a result of the Proposed

development which will negatively affect the above European Designated Sites and possibly contribute to cumulative effect. It is therefore determined that further assessment in the form of an NIS is required. This will examine the likelihood of significant effects with respect to the European Designated Site's conservation objectives, qualifying interests, and relevant data.

STAGE 2: NATURA IMPACT STATEMENT

1.172. This section provides discussion and evaluation of the potential for the Proposed Development to give rise to significant adverse effects on the integrity of the relevant European sites, for which LSEs could not be excluded at the screening stage.

1.173. Where relevant, the appropriate assessment has referenced the most recent conservation objectives documents for the relevant European sites, as published by NPWS.

1.174. The potential adverse effects arising as a result of the Proposed Development on each relevant European site considered are discussed within the relevant sections below. This relates to two pathways for effects identified within the Stage 1 Screening Assessment, namely the potential for operational phase collision risk and water quality and habitat deterioration arising through construction and decommissioning phase sedimentation or pollution of surface waterbodies.

CONCLUSION OF THE STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

1.175. The Stage 1 Screening for Appropriate Assessment established that the Proposed Development is not directly connected with or necessary to the management of any European Designated Site.

1.176. The potential for likely significant effects to arise to European Designated Sites was assessed using a source-pathway-receptor analysis. Potential source-pathway-receptor links were established in respect of a single potential effect, namely water quality and habitat deterioration arising through construction and decommissioning phase sedimentation or pollution of surface waterbodies.

1.177. In considering these potential pathways for LSEs, in light of the nature of the conservation objectives of the sites, the nature of the Proposed Development, the location of the Application Site and in light of the precautionary principle, it was concluded that a Natura Impact Statement was required, to assess the implications of the Proposed Development on a number of European Designated Sites.

1.178. These sites, their selection features and their location relative to the Proposed Development are set out at **Table 1-1** and illustrated in **Figure 1-1. Table 1-3** also provides a summary of the Screening for Appropriate Assessment, in respect of the potential for the Proposed Development, via the identified impact pathways, to give rise to LSEs on the various SCI (for SPAs) features of the European sites for which LSEs could not be excluded when the project was considered alone or in combination with other relevant plans or projects.

Table 1-3: Stage 1 Screening for Appropriate Assessment Summary

European Site	QI / SCI	LSEs Excluded at the Screening Stage?	Potential In-Combination Effects?
River Shannon Callows SAC	*Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]*	Yes	No
	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]	Yes	No
	Alkaline fens [7230]	Yes	No
	Limestone pavements [8240]	Yes	No
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	Yes	No
	Lutra lutra (Otter) [1355]	No	Yes
River Suck Callows SPA	*Whooper Swan (Cygnus cygnus) [A038]*	Yes	No
	Golden Plover (Pluvialis apricaria) [A140]	Yes	No
	Lapwing (Vanellus vanellus) [A142]	No	Yes

European Site	QI / SCI	LSEs Excluded at the Screening Stage?	Potential In-Combination Effects?
	Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]	Yes	No
	Wigeon (Mareca penelope) [A855]	Yes	No
	Wetland and Waterbirds [A999]	No	No
Middle Shannon Callows SPA	*Whooper Swan (Cygnus cygnus) [A038]*	Yes	No
	Corncrake (Crex crex) [A122]	Yes	No
	Golden Plover (Pluvialis apricaria) [A140]	Yes	No
	Lapwing (Vanellus vanellus) [A142]	Yes	No
	Black-tailed Godwit (Limosa limosa) [A156]	Yes	No
	Black-headed Gull (Chroicocephalus ridibundus) [A179]	No	Yes
	Wigeon (Mareca penelope) [A855]	Yes	No
	Wetland and Waterbirds [A999]	Yes	No

European Site	QI / SCI	LSEs Excluded at the Screening Stage?	Potential In-Combination Effects?
River Little Brosna Callows SPA	*Whooper Swan (Cygnus cygnus) [A038]*	Yes	No
	Teal (Anas crecca) [A052]	Yes	No
	Pintail (Anas acuta) [A054]	Yes	No
	Golden Plover (Pluvialis apricaria) [A140]	Yes	No
	Lapwing (Vanellus vanellus) [A142]	No	Yes
	Black-tailed Godwit (Limosa limosa) [A156]	Yes	No
	Black-headed Gull (Chroicocephalus ridibundus) [A179]	No	Yes
	Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]	Yes	No
	Wigeon (Mareca penelope) [A855]	Yes	No
	Shoveler (Spatula clypeata) [A857]	Yes	No
	Wetland and Waterbirds [A999]	Yes	No

EUROPEAN DESIGNATED SITES

1.179. The Habitats Directive and associated case law, as discussed above, require that Appropriate Assessment be undertaken in light of the site's conservation objectives. To this end, European sites for which LSEs could not be excluded at the screening stage, have been set out below with consideration of the site-specific conservation objectives published by NPWS and any associated threats or pressures which have been identified.

1.180. Table 1-1 sets out the distance and direction for each of these European Sites from the Application Site.

River Shannon Callows SAC

1.181. The River Shannon Callows is an internationally important site due to the rare and protected and habitats and species it supports, alongside other small but notable and ecologically valuable habitats like dry grassland and freshwater marshes.

"The River Shannon Callows is mainly composed of lowland wet grassland. Different plant communities occur, depending on elevation, and therefore flooding patterns. Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the site – Molinia meadows and lowland hay meadows. The former is characterised by the presence of the Meadow Thistle (Cirsium dissectum) and Purple Moor-grass (Molinia caerulea), while typical species in the latter include Meadow Fescue (Festuca pratensis), Rough Meadow-grass (Poa trivialis), Downy Oat-grass (Avenula pubescens), Common Knapweed (Centaurea nigra), Ribwort Plantain (Plantago lanceolata) and Common Sorrel (Rumex acetosa). In places these two habitats grade into one another."[45]

Conservation Objectives for River Shannon Callows SAC[46]

1.182. The conservation objectives for this SAC are discussed below.

1.183. The conservation objective for the Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] is to "To restore the favourable conservation condition of

[45] NPWS (2020). Site Synopsis: River Sannon Callows SAC. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000216.pdf

[46] NPWS(2022). Conservation Objectives: River Shannon Callows SAC 000216. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000216.pdf.

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) in River Shannon Callows SAC"

1.184. This conservation objective is defined by the following attributes and targets:

- Habitat area – Area stable or increasing, subject to natural processes
- Habitat distribution – No decline, subject to natural processes
- Vegetation composition: positive indicator species – at least 7 positive indicator species present in monitoring stop
- Vegetation composition: negative indicator species – negative indocator species not more than 20% cover
- Vegetation composition: non-native species – cover of non-native species not more than 1%
- Vegetation composition: moss species – Hair mosses (*Polytrichum* spp.) not more than 25% cover
- Vegetation composition: woody species and bracken – Cover of woody species and bracken (*Pteridium aquilinum*) not more than 5% cover
- Vegetation structure: broadleaf herb: grass ratio – Broadleaf herb component of vegetation between 40% and 90%
- Vegetation structure: sward height – at least 30% of sward between 10cm and 80cm
- Vegetation structure: litter – Litter cover not more than 25%
- Physical structure: bare ground – not more than 10% of bare ground
- Physical structure: grazing or disturbance – Area of the habitat showing signs of serious grazing or disturbance less than 20m^2

1.185. The conservation objective for Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) is to "*to restore the favourable conservation condition of Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) in River Shannon Callows SAC*"

1.186. This is defined by the following attributes and targets:

- Habitat area – Area stable or increasing, subject to natural processes
- Habitat distribution – No decline, subject to natural processes

- Vegetation composition: positive indicator species – at least 7 positive indicator species present in monitoring stop
- Vegetation composition: negative indicator species – negative indocator species not more than 20% cover
- Vegetation composition: non-native species – cover of non-native species not more than 1%
- Vegetation composition: moss species – Hair mosses (*Polytrichum* spp.) not more than 25% cover
- Vegetation composition: woody species and bracken – Cover of woody species and bracken (*Pteridium aquilinum*) not more than 5% cover
- Vegetation structure: broadleaf herb: grass ratio – Broadleaf herb component of vegetation between 40% and 90%
- Vegetation structure: sward height – at least 30% of sward between 10cm and 80cm
- Vegetation structure: litter – Litter cover not more than 25%
- Physical structure: bare ground – not more than 10% of bare ground
- Physical structure: grazing or disturbance – Area of the habitat showing signs of serious grazing or disturbance less than 20m^2

1.187. The conservation objective for Alkaline fens [7230] is to *"to maintain the favourable conservation condition of Alkaline fens in River Shannon Callows SAC".*

1.188. Thid is defined by the following attributes and targets:

- Habitat area – Area stable or increasing, subject to natural processes
- Habitat distribution – No decline, subject to natural processes
- Ecosystem function: soil nutrients – maintain soil pH and nutrient status within natural ranges
- Ecosystem function: peat formation – Percentage cover of peat forming vegetation and water table levels
- Ecosystem function: hydrology – groundwater levels – Maintain or restore where necessary, appropriate natural hydrological; regimes necessary to support the natural structure and functioning of the habitat

- Ecosystem function: hydrology – surface water flow – maintain or restore where necessary, as close as possible to natural or semi-natural drainage
- Ecosystem function: water quality – maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat
- Vegetation composition: community diversity – Maintain variety of vegetation communities, subject to natural processes
- Vegetation composition: typical brown mosses – maintain adequate cover of typical vascular plant species
- Vegetation composition: native negative indicator species – Cover of native negative indicator species at insignificant levels
- Vegetation of non-native species- Cover of non-native species less than 1%
- Vegetation composition: native trees and shrubs – cover of scattered native trees and shrubs less than 10%
- Vegetation composition: algal cover – Cover of algal less than 2%
- Vegetation structure: vegetation height – At least 50% of the live leaves/flowering shoots are more than with 5cm or 15cm above ground surface depending on community type
- Physical structure: disturbed bare ground – cover of disturbed ground not more than 10%
- Physical structure: tufa formations – Disturbed proportion of vegetation cover where tufa is present is less than 1%
- Indicators of distinctiveness – no decline in distribution or population sizes of rare, threatened, or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes
- Transitional areas between fen and adjacent habitats – maintain adequate transitional areas to support/protect the alkaline fen habitat and the services it provides

1.189. The conservation objectives for Limestone pavements [8240] is to “maintain the favourable conservation condition of Limestone pavements in River Shannon Callows SAC”.

1.190. This is defined by the following attributes and targets:

- Habitat area – Area stable or increasing, subject to natural processes
- Habitat distribution – No decline, subject to natural processes
- Vegetation composition: positive indicator species – at least 7 positive indicator species present
- Vegetation composition: bryophyte layer- Bryophyte cover at least 50% on wooded pavement
- Vegetation composition: negative indicator species – collective cover of negative indicator species on exposed pavement not more than 10% with no regeneration
- Vegetation composition: non-native species – cover of non-native not more than 1% on exposed pavement or on wooded pavement
- Vegetation composition: scrub – scrub cover no more than 25% of exposed pavement
- Vegetation composition: bracken cover – Bracken (*Pteridium aquilinum*) cover no more than 10% on exposed pavement
- Vegetation structure: woodland canopy – Canopy cover on wooded pavement at least 30%
- Vegetation structure: dead wood – Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms
- Physical structure: disturbance – occurrence in a representative number of monitoring stops
- Indicators of local distinctiveness – No decline in distribution or population zize of rare, threatened or scarce species associated with the habitat: maintain features of local distinctiveness, subject to natural processes.

1.191. The conservation objectives for Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] is to "*to maintain the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in River Shannon Callows SAC,".*

1.192. This is defined by the following attributes and targets:

- Habitat area – Area stable or increasing, subject to natural processes

- Habitat distribution – No decline, subject to natural processes
- Woodland size – Area stable or increasing, Where topography possible, large woods at least 25ha in size and small woods at least 3 ha in size
- Woodland structure: cover and height – Total canopy cover at least 30%; median canopy height at least 7m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%
- Woodland structure; community diversity and extent – Maintain diversity and extent of community types
- Woodland structure: natural regeneration – Seedlings, saplings and pole age-classes of target species for 91E0* woodlands and other native tree species occur in adequate proportions to ensure survival of woodland canopy
- Hydrological regime: flooding depth/height of water table - Appropriate hydrological regime necessary for maintenance of alluvial vegetation
- Woodland structure: dead wood – at least 19 stems/ha of deadwood at least 20cm diameter
- Woodland structure: veteran trees – No decline
- Woodland structure: indicators of local distinctiveness – No decline in distribution and, in case of red listed and other rare or localised species, population size
- Woodland structure: Indicators of overgrazing – all five indicators of overgrazing absent
- Vegetation composition: native tree cover – No decline, native tree cover at least 90% of canopy; target species cover at least 50% of canopy
- Vegetation composition: negative indicator species – Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent
- Vegetation composition: problematic native species – Cover of common nettle (*Urtica dioica*)

1.193. The conservation objective for the Otter is to *"to maintain the favourable conservation condition of Otter (Lutra lutra) in River Shannon Callows SAC"*

1.194. This is defined by the following attributes and targets:

- Distribution – No significant decline
- Extent of terrestrial habitat – No significant decline
- Extent of freshwater (river) habitat – No significant decline
- Couching sites and holts – no significant decline
- Fish biomass available – No significant decline
- Barriers to connectivity – No significant increase

Character of the River Shannon Callows SAC[47]

1.195. **Table 1-4**, below, identifies the percentage of the extent of various habitat types within the SAC boundary.

Table 1-4: Habitats within the River Shannon Callows SAC

Habitat Code	Habitats of the River Boyne and River Blackwater SPA	Extent and Character (%)
N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	1
N14	Improved Grassland	1
N16	Broad-leaved deciduous woodland	1
N09	Dry grassland, steppes	1
N07	Bogs, Marshes, Water-fringed vegetation, fens	3
N06	Inland waterbodies (standing water, running water)	13
N10	Humid grassland, mesophile grassland	80

1.196. The **Natura 2000 form** for the River Shannon Callows SAC outlines the following pressures and activities impacting the SAC:

Table 1-5: Threats, pressures and activities impacting the River Shannon Callows SAC.

Code	Threats and Pressures	Rank	+/-	Inside/Outside/Both
A03.03	Abandonment, lack of mowing	H	-	i

[47] Available at: https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0000216&release=62.

A04.03	Abandonment of pastoral systems, lack of grazing	H	-	i
A07	Use of biocides, hormones and chemicals	H	-	i
J02.04.01	Floodings	H	-	i
A04.02.05	Non-intensive mixed animal grazing	L	-	i
A10.01	Removal of hedges and corpses or scrub	L	-	i
B06	Grazing in forests/woodland	L	-	i
C01.03.02	Mechanical removal of peat	L	-	i
D01.01	Paths, tracks, cycling tracks	L	-	i
F03.01	Hunting	L	-	b
G01	Outdoor sports and leisure activities, recreational activities	L	-	i
G05.01	Trampling, overuse	L	-	i
J02.01	Landfill, land reclamation and drying out, general	L	-	i
J02.05	Modification of hydrographic functioning, general	L	-/+	i
A04.01	Intensive grazing	M	-	i
A08	Fertilisation	M	-	i
B02.02	Forestry clearance	M	-	i
J02.05.02	Modifying structures of inland watercourses	M	-	i
J02.11	Siltation rate changes, dumping, depositing of dredged deposits	M	-	i
K03.04	Predation	M	-	b
A03	Mowing/cutting of grassland	H	+	i

(Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both &+/- = Positive/Negative Impact)

River Suck Callows SPA

1.197. The River Suck Callows is an important site for wintering waterfowl, with an internationally important population of Greenland White-fronted Goose (*Anser albifrons flavirostris*). This is one of the largest flocks in the country outside of the Wexford Slobs.

"The River Suck Callows SPA is a linear, sinuous site comprising a section of the River Suck from Castlecoote, Co. Roscommon to its confluence with the River Shannon close to Shannonbridge, a distance of approximately 70 km along the course of the river. The river forms part of the boundary between Counties Galway and Roscommon. The site includes the River Suck itself and the adjacent areas of seasonally-flooded semi-natural lowland wet callow grassland. The River Suck is the largest tributary of the River Shannon."[48]

Conservation Objectives for the River Suck Callows SPA[49]

1.198. The overall conservation objectives for each relevant SCI of the SPA are set out below.

1.199. For golden plover the conservation objective is "To maintain the favourable conservation condition of golden plover in River Nanny Estuary and Shore SPA".

1.200. This objective is defined by the following attributes and targets:

- Population trend – long term population trend is stable or increasing.
- Distribution: There should be no significant decrease in the range, timing or intensity of use of areas by golden plover other than that occurring from natural variation.

1.201. For the Whooper Swan, the conservation objective is "To maintain the favourable conservation condition of whooper swan in River Suck Callows SPA, which is defined by the following list of attributes and targets"

1.202. This objective is defined by the following attributes and targets:

- Population Trend - Percentage change in number of individuals is stable or increasing
- Spatial Distribution – Number of locations, are and availability to support the population

[48] NPWS (2014). Site Synopsis: River Suck Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004097.pdf.
[49] NPWS (2022) Conservation Objective: River Suck Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004097.pdf.

- Disturbance – Intensity, frequency, timing and duration of disturbance is not significant and does not impact the population
- Barriers to connectivity – Number, location, shape and area of barriers do not significantly impact the wintering populations access to the SPA
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Roost spatial distribution and extent - Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Supporting habitat: area and quality – Sufficient area of usable habitat available in important areas outside the SPA

1.203. For the Wigeon, the conservation objective is to "*To restore the favourable conservation condition of wigeon in River Suck Callows SPA, which is defined by the following list of attributes and targets*"

1.204. The objective is defined by the following targets and attributes:

- Population trend – Percentage change in number of individuals is stable or increasing
- Spatial distribution – Sufficient number of locations, area and availability of suitable habitat to support the population
- Disturbance – Intensity, frequency, timing and duration of disturbance is not significant and does not impact the population
- Barriers to connectivity – Number, location, shape and area of barriers do not significantly impact the wintering populations access to the SPA
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Roost spatial distribution and extent - Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Supporting habitat: area and quality – Sufficient area of usable habitat available in important areas outside the SPA

1.205. For the Lapwing, the conservation objective is to "*To restore the favourable conservation condition of lapwing in River Suck Callows SPA, which is defined by the following list of attributes and targets*"

1.206. The objective is defined by the following targets and attributes:

- Population trend – Percentage change in number of individuals is stable or increasing
- Spatial distribution – Sufficient number of locations, area and availability of suitable habitat to support the population
- Disturbance – Intensity, frequency, timing and duration of disturbance is not significant and does not impact the population
- Barriers to connectivity – Number, location, shape and area of barriers do not significantly impact the wintering populations access to the SPA
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Roost spatial distribution and extent - Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Supporting habitat: area and quality – Sufficient area of usable habitat available in important areas outside the SPA

1.207. For the Greenland White-fronted Goose, the conservation objective is to "To restore the favourable conservation condition of Greenland white-fronted goose in River Suck Callows SPA, which is defined by the following list of attributes and targets"

1.208. The objective is defined by the following targets and attributes:

- Population trend – Percentage change in number of individuals is stable or increasing
- Spatial distribution – Sufficient number of locations, area and availability of suitable habitat to support the population
- Disturbance – Intensity, frequency, timing and duration of disturbance is not significant and does not impact the population
- Barriers to connectivity – Number, location, shape and area of barriers do not significantly impact the wintering populations access to the SPA
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population
- Roost spatial distribution and extent - Sufficient number of locations, area of suitable habitat and available foraging habitat to support the population

- Supporting habitat: area and quality – Sufficient area of usable habitat available in important areas outside the SPA

1.209. For the wetlands, the conservation objective is to "maintain the wetland habitats at River Suck Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise these areas, which is defined by the following list of attributes and targets"

1.210. The objective is defined by the following targets and attributes:

- Wetland habitat areas – no significant loss to wetland habitat within the SPA, other than which occurs naturally
- Wetland habitat quality and functioning – no significant impact on quality or functioning of the wetland habitat within the SPA, other than that which works naturally

Character of the River Suck Callows SPA.

1.211. Table 1-6 below identifies the percentage of the extent of various habitat types within the SPA boundary.

Table 1-6: habitats within the River Suck Callows SPA.

CODE	QUALIFYING HABITATS	EXTENT AND CHARACTER (%)
N07	Bogs, Marshes, Water fringed vegetation, Fens	10
N06	Inland waterbodies (standing water, running water)	20
N10	Humid Grassland, Mesophile grassland	30
N14	Improved grassland	40
Total Habitat Cover		100

Threats and Pressures on the River Suck Callows SPA.

1.212. The Natura 2000 form[50] for the Middle Shannon Callows SPA outlines the following pressures and activities impacting the SPA:

[50] Available at: https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0004097&release=62.

Table 1-7: Threats, pressures and activities impacting the River Suck Callows SPA.

CODE	THREATS AND PRESSURES	RANK	POSITIVE/ NEGATIVE EFFECT	INSIDE/OUTSIDE/BOTH
A04	Grazing	H	-/+	o
A08	Fertilisation	M/H	-	b
B	Sylviculture, forestry	L	-	o
F02.03	Leisure fishing	L	-/+	i
F03.01	Hunting	L	-	i
A03	Mowing/cutting of grassland	M	-/+	i
A04	Grazing	M	-/+	i
E01.03	Dispersed habitation	LM	-/+	o
G01.01	Nautical sports	M	-/+	i

(Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both &+/- = Positive/Negative Impact)

Middle Shannon Callows SPA

1.213. The Middle Shannon Callows SPA is considered a site of international importance as it supports over 20,000 wintering waterbirds.[51]

"The Middle Shannon Callows SPA is a long and diverse site which extends for approximately 50 km from the town of Athlone to the town of Portumna; it lies within Counties Galway, Roscommon, Westmeath, Offaly and Tipperary. The site averages about 0.75 km in width though in places is up to 1.5 km wide. Water levels on the site are greatly influenced by the very small fall between Athlone and Portumna and by the weir at Meelick. The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. The callows are mainly too soft for intensive farming but are used for hay or silage or for summer grazing. Other habitats of smaller area which occur alongside the river include

[51] NPWS (2012). Site Synopsis: Middle Shannon Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004096.pdf.

lowland dry grassland, freshwater marshes, reedbeds and wet woodland. The diversity of semi-natural habitats present and the sheer size of the site attract an excellent diversity of bird species, including significant populations of several."

Conservation Objectives of the Middle Shannon Callows SPA[52]

1.214. The conservation objectives for each QI of the SPA are set out below.

1.215. For the Whooper Swan, the conservation objective is *"to maintain the favourable conservation condition of whooper swan in Middle Shannon Callows SPA,"*.

1.216. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.217. The conservation objective for the Wigeon is to *"restore the favourable conservation condition of wigeon in Middle Shannon Callows SPA,"*.

1.218. This conservation objective is defined by the following attributes and targets:

[52] NPWS (2022) Conservation Objectives: Middle Shannon Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004096.pdf.

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.219. The conservation objective for the Golden Plover is to *"maintain the favourable conservation condition of golden plover in Middle Shannon Callows SPA".*

1.220. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites

- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.221. The conservation objective for the Lapwing is to *"To restore the favourable conservation condition of lapwing in Middle Shannon Callows SPA".*

1.222. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.223. The conservation objective for the Black-tailed Godwit is to *"To restore the favourable conservation condition of Black-tailed godwit in Middle Shannon Callows SPA"*

1.224. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing

- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.225. The conservation objective for the Black-headed Gull is to *"restore the favourable conservation condition of black-headed gull in Middle Shannon Callows SPA,".*

1.226. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target

- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.227. The conservation objective for the wetlands is to *"maintain the favourable conservation condition of wetlands in Middle Shannon Callows SPA,".*

1.228. This defined by the following attributes and targets:

- Wetland habitat area – No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation
- Wetland habitat quality and functioning – No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from the natural patterns of variation

Character of the Middle Shannon Callows SPA

1.229. **Table 1-8** below identifies the percentage of the extent of various habitat types within the SPA boundary.

Table 1-8: habitats within the Middle Shannon Callows SPA.

CODE	QUALIFYING HABITATS	EXTENT AND CHARACTER (%)
N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	1
N09	Dry grassland, steppes	1
N16	Broadleaved Deciduous Woodland	1
N07	Bogs, marshes, water fringed vegetation, fens	5
N06	Inland waterbodies (standing water, running water)	15
N14	Improved Grassland	27
N10	Humid grassland, mesophile grassland	50
Total Habitat Cover		**100**

Threats and Pressures on the Middle Shannon Callows SPA

1.230. The Natura 2000 form[53] for the Middle Shannon Callows SPA outlines the following pressures and activities impacting the SPA:

Table 1-9: Threats, pressures and activities impacting the Middle Shannon Callows SPA.

CODE	THREATS AND PRESSURES	RANK	POSITIVE/ NEGATIVE EFFECT	INSIDE/OUTSIDE/BOTH
A04	Grazing	H	-	i
D01.05	Bridge, viaduct	H	-/+	i
E01	Urbanised areas, human habitation	H	-	o
G01.01	Nautical sports	H	-/+	i
A04.03	Abandonment of pastural systems, lack of grazing	L	-/+	i
A08	Fertilisation	M/L	-	b
D01.01	Paths, tracks, cycling tracks	L	-/+	i
F03.01	Hunting	L	-/+	i
F02.03	Leisure fishing	M	-/+	i
G01.02	Walking, horse-riding and non-motorised vehicles	M	-/+	i
A03	Mowing/cutting of grassland	H	+	i
A04	Grazing	H	+	i

(Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both &+/- = Positive/Negative Impact)

River Little Brosna Callows SPA

1.231. The River Little Brosna Callows SPA is considered a site of international importance as it supports over 20,000 wintering waterbirds.[54]

"The River Little Brosna Callows is an internationally important site for wintering waterfowl, being notable both for numbers and diversity of species. Of particular

[53] Available at: https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0004096&release=62.
[54] NPWS (2012). Site Synopsis: Little River Brosna Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004086.pdf.

note is the internationally important Greenland White-fronted Goose flock (527) that is based along the Brosna - mean peak count for the five winters 1994/95 to 1998/99. The populations of Golden Plover (10,577 – 3 year mean peak from aerial surveys between 1995/96 and 1999/2000) and Black-tailed Godwit (2,900 - 4 year mean peak between 1995/96 and 1999/2000) are also of international importance. The River Little Brosna Callows is an important spring passage site and the Black-tailed Godwit flock, which is the largest in the country, exceeds over 4,000 birds on some occasions. A further seven species have populations of national importance, i.e. Whooper Swan (122), Wigeon (8,116), Teal (2,683), Pintail (130), Shoveler (164), Lapwing (6,552) and Black-headed Gull (1,939) – all figures are 4 year mean peaks between 1995/96 and 1999/2000 except Lapwing (3 year mean peak from aerial surveys between 1995/96 and 1999/2000) and Black-headed Gull (2 year mean peak for 1999/2000 and 2000/01). The populations of Wigeon, Teal and Golden Plover are consistently among the largest in the country. Other species which occur include Mute Swan (79), Mallard (334), Pochard (38), Dunlin (434) and Curlew (194); the population of Dunlin is of particular note as it comprises the largest inland population in the country."

Conservation objectives of the River Little Brosna Callows SPA[55]

1.232. The conservation objectives for each QI of the SPA are set out below.

1.233. For the Whooper Swan, the conservation objective is *"maintain the Favourable conservation condition of Whooper Swan in the River Little Brosna Callows SPA".*

1.234. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing

[55] NPWS (2022) Conservation Objectives: River Little Brosna Callows SPA. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004086.pdf.

- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.235. The conservation objective for the Wigeon is to *restore the Favourable conservation condition of Wigeon at the River Little Brosna Callows SPA".*

1.236. This conservation objective is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target

- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.237. The conservation objectives for Teal are to "maintain the Favourable conservation condition of Teal at the River Little Brosna Callows SPA".

1.238. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.239. The conservation objectives for the Pintail is to "maintain the Favourable conservation condition of Pintail at the River Little Brosna Callows SPA".

1.240. This is defined by the following attributes and targets:

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target

- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA

1.241. The conservation objectives for the Shoveler is "maintain the Favourable conservation condition of Shoveler at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA

1.242. The conservation objectives for the Golden Plover "maintain the Favourable conservation condition of Golden Plover at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing

- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.243. The conservation objectives for the Lapwing are to "maintain the Favourable conservation condition of Lapwing at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target

- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.244. The conservation objectives for the Black-tailed Godwit are to "maintain the Favourable conservation condition of Black-tailed Godwit at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.245. The conservation objectives for the Black-headed Gull are to "maintain the Favourable conservation condition of Black-headed Gull at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target

- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA
- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.246. The conservation objectives for the Greenland White-fronted Goose are to "restore the Favourable conservation condition of Greenland White-fronted Goose at the River Little Brosna Callows SPA".

- Winter population trend – Long term winter population trend is stable or increasing
- Winter spatial distribution – Sufficient of suitable number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target
- Disturbance at wintering site – the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution
- Barriers to connectivity and site use – the number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites
- Forage spatial distribution, extent and abundance – Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target
- Roost spatial distribution and extent – Sufficient area of usable habitat available in ecological important sites outside of SPA

- Supporting habitat: area and quality – Sufficient area of usable habitat available in ecologically important sites outside of the SPA

1.247. The conservation objectives for the wetland habitats are to "maintain the wetland habitats at the River Little Brosna Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise these areas".

- Wetland habitat area – No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation.
- Wetland habitat quality and functioning – No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation.

Character of the Little River Brosna Callows SPA

1.248. Table 1-9 below identifies the percentage of the extent of various habitat types within the SPA boundary.

Table 1-9: Habitats within the Little River Brosna Callows SPA.

CODE	QUALIFYING HABITATS	EXTENT AND CHARACTER (%)
N06	Inland water bodies (Standing water, Running water)	10
N07	Bogs, Marshes, Water fringed vegetation, Fens	10
N14	Improved Grassland	30
N10	Humid Grassland, Mesophile Grassland	50
Total Habitat Cover		100

Threats and Pressures on the Little River Brosna Callows SPA

1.249. The Natura 2000 form[56] for Little River Brosna Callows SPA outlines the following pressures and activities impacting the SPA:

Table 1-9: Threats, pressures and activities impacting the Little River Brosna Callows SPA.

CODE	THREATS AND PRESSURES	RANK	POSITIVE/ NEGATIVE EFFECT	INSIDE/OUTSIDE/BOTH
A08	Fertilisation	L	-	b

[56] Available at: https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0004086&release=62.

D01.01	Paths, tracks, cycling tracks	L	-/+	o
E01.03	Dispersed habitation	L	-/+	o
F02.03	Leisure fishing	L	-/+	i
A03	Mowing/cutting of grassland	M	-/+	i
A04	Grazing	M	-/+	i
F03.01	Hunting	M	-	i
F02.03	Leisure fishing	M	-/+	i
G01.02	Walking, horse-riding and non-motorised vehicles	M	-/+	i
A03	Mowing/cutting of grassland	H	+	i
A04	Grazing	H	+	i

(Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both &+/- = Positive/Negative Impact)

Likely Significant Effects Identified at Screening for Appropriate Assessment

River Shannon Callows SAC

1.250. The River Shannon Callows SAC is designated for a variety of terrestrial habitats and the Otter (*Lutra lutra*). The conservation objectives for this SAC are to maintain the favourable condition of the qualifying species and habitats of interest and any habitats or sensitive receptors necessary for maintenance.[57] The site synopsis also notes the importance of this SAC for over 20,000 wintering waterfowl and include rare and endangered species like the Corncrake (*Crex crex*).[58]

1.251. The ecology of the following QIs were assessed separately: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510], Alkaline fens [7230], Limestone pavements [8240], and Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0].

[57] NPWS (2022). Conservation Objectives: River Shannon Callows SAC 000216. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000216.pdf.

[58] NPWS (2022). Site Synopsis: River Shannon Callows SAC 000216. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000216.pdf.

1.252. *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] are found on wet, nutrient-poor soils. These habitats are largely dominated by Purple moor-grass (*Molinia)* and accompanied by rushes and sedges which are common in wet habitats.[59],[60] These habitats are nutrient-poor and so, any form of nutrient enrichment would significantly and negatively effect the integrity of this habitat, causing alteration of the pH and/or eutrophication. Eutrophication occurs when the nutrient load within a waterbody or watercourse increases to extreme levels, which promotes overgrowth of algae and other plant life. This depletes the oxygen levels within the waterbody, which leads a mass die-off of fish and other aquatic life.[61] As no hydrological connectivity exists between these two sites, there is no pathway for contaminants or sedimentation.

1.253. Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510] are species-rich meadows with slightly fertilised soil. Species like Red Fescue (*Festuca rubra*), Crested Dog's-tail (*Cynosurus cristatus*) are common in these habitats, with some rarer plant species, like Snake's Head Fritillary (*Fritillaria meleagris*), also present within these habitats.[62],[63] This habitat is considered to be slightly nutrient-rich and so, is less intolerant of an increased nutrient load. It is important, however, that the nutrient level does not surpass a certain threshold as this will facilitate the domination vigorous, tussock-like grasses which can greatly alter species-richness, sward height and density. If a contamination event were to occur which increased the nutrient level above this threshold, the potential effects would incredibly adverse. As there is not hydrological connectivity between this European Designated Site and the Application Site, however, this is unlikely to arise.

1.254. Alkaline fens [7230] are wetland consisting of peat -producing sedges and extensive moss communities that have developed on and maintain a consistently waterlogged soil with a very high-water table. These habitats are alkaline or basic in pH and are characterised largely by their moss community which hold water and allow the habitat to remain waterlogged year-round.[64],[65] This habitat requires a basic pH is order to support it's vegetative profile and moss community. In the event that contaminants enter this habitat and later the pH, it would have an incredibly negative impact, adverse affecting the habitat itself and its vegetative community. As hydrological connectivity does not exist between this European Designated Site and the Application Site, this is unlikely to occur.

1.255. Limestone pavements [8240] are a rock formation formed from sedimentary rock that was created through the collection and compression of animal remain over a long period of geological time. This habitat is made up primarily of clints and grikes, with clints being the 'pavement-'like formations and grikes the spaces between each clint. This habitat has little to no overlying soil, creating a bare expanse of rocky pavements. Despite its bare appearance,

[59] Available at: https://eunis.eea.europa.eu/habitats/10131.
[60] Available at: https://sac.jncc.gov.uk/habitat/H6410/.
[61] Available at: https://www.ecos.ie/water-pollution-in-ireland-eutrophication/.
[62] Available at: https://eunis.eea.europa.eu/habitats/10137.
[63] Available at: https://sac.jncc.gov.uk/habitat/H6510/.
[64] Available at: https://eunis.eea.europa.eu/habitats/10151.
[65] Available at: https://sac.jncc.gov.uk/habitat/H7230/.

these habitats support a specialised vegetative community of vascular plants, calcareous woodland, heath scrub and more. These habitats are incredibly important for various rare orchid species like the Bee Orchid (*Ophrys apifera*).[66],[67],[68] This habitat, and the species that depend on it, have adapted to the specific ecological conditions created by this rock formation. If contaminants enter this habitat as a result of a contamination event, it could potentially and greatly alter the pH and nutrient load of the habitat, promoting the growth of certain species which outcompete native species of orchid and wildflower. This is considered unlikely to occur as a result of the Proposed Development due to a lack hydrological connectivity and therefore, a pathway for impacts.

1.256. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] are riparian forests centred around large watercourses dominated by willow and alder. This habitat is largely found on basic, eutrophic soils which are periodically waterlogged and host various scrub, wetland and wildflower species, including common nettle (*Urtica dioica*), meadowsweet (*Filipendula ulmaria*), and common reed (*Phragmites australis*).[69],[70] As said above, this habitat requires a basic pH which, if altered, will negatively impact the habitat. Inorganic pollutants arising from construction developments can acidify pH and so, must be considered. No hydrological connectivity exists between this European Designated Site and the Application Site, there is not pathway for impacts and so, negative effects are unlikely to arise.

1.257. No hydrological connectivity was identified between the Application Site and this European Designated Site, with the closest waterbody being the East Loughturk river, located 0.2km away. Otters have a large foraging range, with females travelling up to 22km and males travelling up to 32km and so, I is possible that Otter may utilise the Application Site in the event that they utilise the East Loughturk and West Kiltormer river.[71] When foraging and breeding, Otters will utilise large rivers and streams which support a significant fish population. They will sometimes use drainage ditches and small streams when migrating between areas, however, these would ideally be connected in some way to appropriate foraging and breeding habitat. While the Application Site does support a seasonally wet drainage ditch along the southern border, it is not connected to a watercourse or waterbody with potential to pollute this SAC and so, is unlikely to be utilised by the Otter population within this SAC. The possibility, however, cannot be entirely ruled out.

1.258. The Application Site is located 11.03km for this SAC which is within the foraging range for Otter. Considering the lack of connectivity and the abundance of alternative habitats between the Application Site and this SAC, however, it is considered unlikely that Otter originating from the River Shannon Callows SAC will interact with the Application Site. Due to this, potential

[66] Available at: https://eunis.eea.europa.eu/habitats/10168.
[67] Available at: https://sac.jncc.gov.uk/habitat/H8240/.
[68] Available at: https://www.irishorchidsociety.org/ireland/.
[69] Available at: https://eunis.eea.europa.eu/habitats/10198.
[70] Available at: https://sac.jncc.gov.uk/habitat/H91E0/.
[71] Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter.

significant effects are unlikely to occur on this European Designated Site's qualifying species but cannot entirely be ruled out in the absence of mitigation.

River Suck Callows SPA

1.259. The Application Site is located 6.49km from the River Suck Callows SPA. This SPA is important for wetland and waterbirds due to wetland habitats which make up part of this European Designated Site.[72] The conservation objectives for this SPA are to restore the favourable conservation conditions for qualifying species of interest, as well as to restore and maintain the favourable condition of important wetland habitat.[73]

1.260. This SPA is designated for the following species; Whooper Swan (*Cygnus cygnus*), Golden Plover (*Pluvialis apricara*), Lapwing (*Vanellus vanellus*), Greenland White-fronted Goose (*Anser albifrons flavirostris*), Wigeon (*Mereca penelope*) and other wetland species.

1.261. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes.[74] While the Application Site does support agricultural grasslands, these areas are managed for grazing of cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km.[79] It is therefore unlikely that, in the absence of mitigation, significant effects will occur which negatively effect this qualifying interest.

1.262. The Golden Plover is a wintering species that is common on agricultural grasslands, feeding on invertebrates and plant material, and breeding in cutover bogs.[75],[76] The Application Site does support agricultural grassland, which is suitable foraging habitat for this species, however; there is an abundance of alternative habitat surrounding the Application Site so it is unlikely this species will be negatively affected. The Application Site is also outside the core foraging range of this species, which is 3km. In the absence of mitigation, it is unlikely that adverse effects on this qualifying interest and its conservation objectives will occur.

1.263. Lapwings are also a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land.[77],[77] The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. No definitive

[72] NPWS (2014). Site Synopsis: River Suck Callows SPA 004097. Available at: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004097.pdf.
[73] NPWS (2022). Conservation Objectives: River Suck Callows SPA 004097. Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004097.pdf.
[74] Available at: https://birdwatchireland.ie/birds/whooper-swan/.
[75] Available at: https://birdwatchireland.ie/birds/golden-plover/.
[76] Gillings, S. & Fuller, R.J. (1999). Winter Ecology of Golden Plovers and Lapwings: A Review and Consideration of Extensive Survey Methods. Available at: https://www.bto.org/sites/default/files/shared_documents/publications/research-reports/1999/rr224.pdf.
[77] Available at: https://birdwatchireland.ie/birds/lapwing/.

core foraging range is available for this species and so, this could not be used when assessing for connectivity of this species with the Application Site. When also considering the availability of alternative habitat in the surrounding area and the lack of a definitive core foraging range, in the absence of mitigation, it is considered unlikely that adverse effects will occur but cannot be completely ruled out.

1.264. Greenland White-fronted Goose is a wintering species that breeds near lakes and rivers and forages on plant material, like roots, tubers, shoots and leaves. This species has been recorded foraging on various habitats, like peat bogs, dune grasslands, salt marshes and in more recent years, agricultural grasslands.[78] The core foraging range for this species during wintering season is 5-8km[79]. The Application Site, located 6.49km from this SPA, is therefore within this species' foraging range. There is, however, a plentiful supply of alternative habitat surrounding the Application Site which suggests that this qualifying interest and its conservation objectives will not be significantly and adversely affected by the Proposed Development. In the absence of mitigation, however, the possibility cannot be ruled out.

1.265. Wigeon is a wader species that breeds and winters on large bodies of water, feeding on aquatic vegetation.[80] The Application Site does not support suitable habitat for this species and so, in the absence of mitigation, significant effects are unlikely to occur on this qualifying interest or its conservation objectives.

1.266. This SPA is also designated for other wetland and waterbird species; however, the Application does not support appropriate habitat for these species. In the absence of mitigation, it is unlikely that this qualifying interest or its conservation objectives will be adversely affected and would be **minor adverse** in the unlikely event that significant effects occurred.

1.267. Overall, due to the habitat present within the Application Site and core foraging ranges the above qualifying interests,potential significant effects on the above qualifying interests and their conservation objectives would are unlikely but cannot be ruled out in the absence of mitigation.

Middle Shannon Callows SPA

1.268. The Middle Shannon Callows SPA is located 11.02km from the Application Site. The conservation objective for this SPA is to maintain favourable conditions for the qualifying species of interest and the habitat on which they depend.

1.269. The Middle Shannon Callows SPA is designated for the following species; Whooper Swan (*Cygnus cygnus*), Corncrake (*Crex crex*), Golden Plover (*Pluvialis apricaria*), Lapwing (*Vanellus*

[78] Available at: https://birdwatchireland.ie/birds/greenland-white-fronted-goose/.
[79] SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs). Available at: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf.
[80] Available at: https://birdwatchireland.ie/birds/wigeon/.

vanellus), Black-tailed Godwit (*Limosa limosa*), Black-headed Gull (*Chroicocephalus ridibundus*), Wigeon (*Mareca penelope*) and other wetland and waterbirds.

1.270. The Whooper Swan is a wintering waterfowl species that feeds on aquatic vegetation, but has been seen foraging in agricultural grasslands, particularly those with spilled grain and potatoes.[74] While the Application Site does support agricultural grasslands, these areas are managed for grazing of cattle and are not used for arable farming. The Application Site is also outside of the core foraging range for this species, which is 5km.[79] It is therefore unlikely that, in the absence of mitigation, significant effects will occur on this qualifying interest.

1.271. The Corncrake is a migratory species, arriving in the summer months and leaving before winter. The species was once widely distributed within agricultural grasslands throughout the country. With the modernisation of modern agriculture, which produced low species diversity, low sward fields, this species has suffered major declines in more recent years.[81] This species is heavily associated with low-intensity agricultural grassland with a relatively high and dense sward. They feed largely on invertebrates alongside plant material in the autumn and winter months.[82] This species does not have a large core foraging range, preferring to remain within their territory. The Application Site is very species-poor and is managed intensively for pastural farming. The sward height is therefore incredibly short, which makes it unsuitable for Corncrake. The Application Site is also outside this species' core foraging range. It is therefore considered that significant adverse effects on this qualifying interest and its conservation objectives are unlikely.

1.272. The Golden Plover is a wintering species that is common on agricultural grasslands, feeding on invertebrates and plant material, and breeding in peatland habitats, particularly heather-dominated areas.[75],[76] The Application Site does support agricultural grassland, which is suitable foraging habitat for this species, however; there is an abundance of alternative habitat surrounding the Application Site so it is unlikely this species will be negatively affected. The Application Site is also outside the core foraging range of this species, which is 3km.[79] In the absence of mitigation, it is unlikely that adverse effects on this qualifying interest and its conservation objectives will occur.

1.273. Lapwings are a wintering species that forages in agricultural grasslands and breeds in grasslands with areas of bare soil. Lapwings diet largely comprises of plant material taken from freshly tilled land.[77] The Application Site does support agricultural grassland, however; it is not managed for arable use and is usually occupied and grazed by cattle. When considering the distance between this SAC, and the Application Site, and the abundance of alternative habitat present between these two areas, in the absence of mitigation, it is considered unlikely that adverse effects will occur.

[81] NPWS (2018). The Corncrake Conservation Project: Annual Report 2018. Available at: https://www.npws.ie/sites/default/files/general/corncrake-report-2018.pdf.
[82] Available at: https://birdwatchireland.ie/birds/corncrake/.

1.274. Black-tailed Godwit is a coastal species that feeds on invertebrates, such as bivalves, polychaete worms and crabs.[83] They will also forage on coastal and wet grasslands with a short sward height in close proximity to the shore.[84] The Application Site supports intensively managed agricultural grassland with a low sward height, which is not a suitable habitat for this species. This species is therefore highly unlikely to utilise the Application Site. In the absence of mitigation, it is unlikely that adverse effects will occur.

1.275. The Black-headed Gull is a resident species that is commonly found foraging on agricultural landscapes. They feed largely on insects but will exploit man-made sources, like domestic and fisheries waste.[85] The Application Site supports agricultural grassland which is suitable habitat for this species. The Black-headed Gull has a core foraging range of maximum 12km.[86] The Application is within this species' core foraging range; however, it is unlikely that Black-headed Gulls from this SPA will travel this distance when alternative habitats are available closer to this SPA. In the absence of mitigation, adverse effects on this qualifying interest and its conservation objective as a result of the Proposed Development are unlikely but they cannot be entirely ruled out.

1.276. Wigeon is a wader species that breeds and winters on large bodies of water, feeding on aquatic vegetation.[80] The Application Site does not support suitable habitat for this species and so, in the absence of mitigation, negative effects are unlikely to occur on this qualifying interest or its conservation objectives.

1.277. This SPA is also important for various other wetland species. The Application Site does not support wetlands or large bodies of water needed for these species. It can therefore be determined that the Proposed Development will not have an adverse effect on these species or their conservation objectives.

1.278. Overall the Proposed Development is unlikely to have any significant, long-term, adverse effects on the qualifying interests of this SPA and their conservation objectives will occur but, in the absence of mitigation, it cannot be entirely be ruled out.

Little River Brosna Callows SPA

1.279. This SPA is designated for several wetland and waterfowl species.

1.280. The following species were all assessed individually and were found to have similar ecology; Teal (*Anas crecca*), Pintail (*Anas acuta*), Wigeon (*Mareca penelope*), and Shoveler (*Spatula*

[83] Available at: https://birdwatchireland.ie/birds/black-tailed-godwit/.

[84] Batey, C., Burgess, M., Donaldson, L., Lee, R. &Smart, J. (2023). Ecology and conservation of breeding Black-tailed Godwits in the UK. Available at: https://projectgodwit.org.uk/wp-content/uploads/2023/12/BWM34_4-01-Article-Godwits.pdf.

[85] Available at: https://birdwatchireland.ie/birds/black-headed-gull/.

[86] Jakubas, D., Indykiewicz, P., Kowalski, J., Iciek, T. & Minias, P. (2020). Intercolony variation in foragfing flight characteristics of black-headed gulls *Chroicocephalus ridibundus* during the incubation period. Available at: https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.6291.

clypeata).[87],[88],[89],[90] These species are all largely dependent on aquatic habitats for foraging and breeding. As there are no large lakes or rivers within the Application Site, it is highly unlikely that these species will interact with the Application Site.

1.281. Golden Plover (*Pluvialis apricaria)* is a wader species that is strongly associated with agricultural landscapes, foraging on seeds, grasses and berries alongside Lapwing. Lapwing (*Vanellus vanellus*) is another wader species which is also heavily associated with agricultural landscapes, utilising grasslands as breeding and foraging habitats.**Error! Bookmark not defined.** The core foraging range for Lapwing and Golden Plover is thought to about 3km during breeding season, however, a definitive core foraging range could not be found for Lapwing.[20] The Application Site is located 13.03km from this SPA, which well outside of golden plover's' normal foraging range and is likely to discourage interaction. Lapwing is also unlikely to travel this distance when alternative foraging habitat is available closer to this SAC, suggesting that negative effects are unlikely but cannot be entirely ruled out. Neither species, lapwing or golden plover, were found within the Application Site during Wintering Bird Surveys in 2026.

1.282. Black-tailed Godwit (*Limosa limosa*) is a wader that feeds mostly on invertebrates, bivalves and crustaceans in coastal habitats. They have however been recorded feeding on grain in stubble fields.[22] It should be considered that the Application Site is largely managed for pasture and so, does not consistently support arable crops needed for Black-tailed Godwit.

1.283. Black-headed gulls (*Larus ridibundus*) are a coastal bird that usually breeds in wetland areas, building their nests on the ground. They are often seen feeding on insects in arable fields and will also scavenge domestic waste if the opportunity arises.[23] The Application supports mostly agricultural grassland, making it suitable as a foraging ground for this species. The core foraging range for this species is estimated to be roughly 12km. The Application Site is located 13.08km form the SPA, which just slightly outside of the Black-headed Gull's core foraging range. No black-headed Gull were recorded within the Application Site during the 2026 Wintering Bird surveys. In the event that resources have depleted within their core foraging range, this species may travel slightly further, making interaction unlikely but not impossible.

1.284. The Greenland White-fronted Goose (*Anser albifrons flavirostris)* is a waterfowl species that is often seen foraging in agricultural grasslands. This species winters in Ireland and Scotland, with a diet consists of tubers, roots, shoots and leaves, as well as crops like potatoes, wheat and spilt grain.[21] The Application Site does support agricultural grassland, however, it is not managed for arable crops and so, is unlikely to be suitable for this species unless land management changes and is grazed less intensively.

[87] Available at: https://birdwatchireland.ie/birds/teal/.
[88] Available at: https://birdwatchireland.ie/birds/pintail/.
[89] Available at: https://birdwatchireland.ie/birds/wigeon/.
[90] Available at: https://birdwatchireland.ie/birds/shoveler/.

1.285. Overall, it is considered unlikely that significant effects will occur which impact the above QIs and their conservation objectives but, in the absence of mitigation, cannot be entirely ruled out.

In-Combination Assessment

1.286. The potential for the Proposed Development to give rise to significant adverse effects on the integrity of a number of relevant European sites identified as being vulnerable to potential LSEs at the screening stage, when the project has been considered alone, is set out above.

1.287. In line with the requirements of the Habitats Directive and associated domestic legislation, the Proposed Development is to be assessed in regard to potential in-combination effects which may occur when the project is considered alongside other plans and projects.

1.288. The list of plans and projects which has been assessed within this Stage 2 in-combination assessment is the same as that set out in respect of the Stage 1 screening, and includes relevant nearby planning applications and agricultural activities.

Habitat Deterioration

1.289. It has been established that the Proposed Development would, in the absence of mitigation, have potential to give rise to an adverse effect on the integrity of the following European sites and their relevant SCIs in respect of habitat loss and deterioration:

- River Shannon Callows SAC
    - *Lutra lutra* (Otter) [1355]
- River Suck Callows SPA
    - Lapwing (*Vanellus vanellus*) [A142]
- Middle Shannon Callows SPA
    - Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Little River Brosna Callows SPA
    - Lapwing (*Vanellus vanellus*) [A142]
    - Black-headed Gull (*Chroicocephalus ridibundus*) [A179]

1.290. The in-combination assessment undertaken at Stage 1: Screening for Appropriate Assessment has identified a number of projects with potential to act in-combination with the Proposed Development in respect of potential adverse habitat deterioration effects. It is considered that these potential in-combination effects remain relevant at the Appropriate Assessment stage and, in the absence of mitigation, the Proposed Development would have potential to

give rise to a significant adverse effect upon the integrity of the above listed European Designated Sites, in-combination with other plans or projects.

MITIGATION

1.291. The mitigation measures proposed for implementation during the construction phase and decommissioning phases (no decommissioning phase has been envisaged for this development) of the Proposed Development are set out below. These mitigation measures relate specifically to the only identified pathway for potential adverse effects upon the integrity of the above European Designated Sites.

Use of an Ecological Clerk of Works

1.292. An Ecological Clerks of Work (ECoW) will be present during the construction phase to identify potential ecological issues and ensure these issues are managed according to best practices. Particular emphasis will be placed by the ECoW on the protection of important linear features through the rigorous application of principles outlines below.

Pre-construction surveys

1.293. Pre-commencement surveys are also proposed within all areas on improved grassland required for excavation. These pre-commencement surveys will search for the presence of active nests within the scheduled excavation area for both ground-nesting birds and birds which nest in hedgerows and treelines. In the event that an active nest is found within a hedgerow or treeline, a disturbance buffer will be implemented immediately, and a competent and qualified ecologist will be contacted.[91] The ecologist will monitor the nesting site until all chicks have fledged, and adults have vacated the nest. Once the ecologist has determined that nest to be inactive, works may commence.

1.294. The proposed survey effort will prevent any negative impacts of the Proposed Development onto protected, ground-nesting bird species, like the Lapwing, which utilise agricultural landscapes as breeding grounds.

Guidance for Protection of Surface Waters

1.295. Mitigation measures will be implemented by the contractor and will include the requirements for best practice and adherence to the following relevant Irish guidelines and recognised international guidelines:

- Guidelines on Protection of Fisheries During Constructions Works in and Adjacent to Waters (Inland Fisheries Ireland (2016).

[91] Scottish Natural Heritage (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. Available at: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance.

- Good practice guidelines on the: Control of Water Pollution from Construction Sites: developed by the Construction Industry Research and Information Association (Technical Guidance C532 CIRIA, 2001).
- Technical Guidance C648: Control of Water Pollution from Linear Construction Projects, (CIRIA, 2006).
- Netregs Guidance for Pollution Prevention series (GPP), Pollution prevention guidelines (PPGs) in relation to a variety of activities.
- GPP2: Above Ground oil storage tanks.
- GPP3: use and design of oil separators in surface water drainage.
- GPP5: Works and maintenance in or near water.
- PPG6: Working at construction and demolition sites.
- GPP8: Safe Storage and disposal of used oils.
- GPP13: Vehicle washing and cleaning.
- GPP20: Dewatering underground ducts and chambers.
- GPP21: Pollution incident response planning.
- GPP22: Dealing with spills.

1.296. The Proposed Development throughout the construction phase and decommissioning phases will adhere to the above guidance, or relevant guidance where appropriate which may have been implemented in the interim.

Site Drainage Management and SuDS Design

1.297. The Proposed Development will adopt a surface water management plan / site drainage design using the principles of Sustainable Drainage, promoting the principles of source control, onsite retention of flows and use of vegetated riparian zones to allow filtering of runoff. A robust Sustainable Drainage System (SuDS) design which will be used to control drainage and silt management on the site.

1.298. Mitigation of drainage from the Application Site comprises management of post-development runoff from new drained surfaces to a pre-development greenfield equivalent rate, consistent with local authority requirements for new developments.

1.299. Drainage design will reduce chemical, silt and other suspended pollutant transport by providing a "treatment train" of two to three stages of pollutant removal to all surface water runoff, nominally by:

- Ensuring that drains are designed to convey flows at a low velocity by using a wide, flat-bottomed drain.
- Providing settlement and filtration features in all linear drainage swales (check dams, filtration dams) to reduce flow velocity and encourage settlement.
- Encouraging appropriate vegetation growth in the base of all linear drainage to provide additional filtration to flows.
- Providing settlement features at key discharge locations in order to provide treatment to reduced quality runoff prior to discharge.

Drainage Ditch Buffers

1.300. The Proposed Development will implement buffer zones along all drainage ditches within the Application Site. A 2m buffer will be implemented around dry ditches, while a 5m buffer will be erected around all wet drainage ditches.

Waste Management

Storage of Fuels and Chemicals

1.301. As per Best Practice Guidance (BPGCS005),[92] all fuels, oils and chemicals on site will have a secondary containment system of 110% capacity and will be located more than 20m from any drainage ditch (i.e. outside of the drainage ditch buffer).

1.302. A bunded diesel bowser will be located inside a fenced off area within the temporary construction compound. Any other chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health ("COSHH") Datasheet in accordance with health and safety regulations. If generators are used on site, these shall be bunded (the bund shall be capable of containing 110% of the fuel tank's capacity). The bund shall be kept empty of water.

1.303. Where chemicals are required on site, they must be placed in an appropriate bund to prevent ground contamination. All chemicals must be stored in a correctly marked container clearly identifying the contents. Where labels are worn off, they must have a new label placed on them or the contents transferred to a correctly marked container. All safety data sheets for

92 Best Practice Guide BPGCS005 - Oil Storage Guidelines. Available at: http://www.envirocentre.ie/includes/documents/OilStorageBPG.pdf;

all chemicals will be filed on site as part of a requirement under the provisions of the Construction Environmental Management Plan (CEMP).

1.304. Spill kits will be on site and, for ease of access, located in the site office. Contingency plans will be in place for dealing with a spillage should a spillage occur.

1.305. The Proposed Development includes a storage area for fuel, which includes transmission oil, petrochemicals etc. This storage area will include a manhole, foul water holding tank, road gulley, channel drain, rainwater downpipe, standard rainwater harvesting tank, and retention separator. The transformer will hold of total volume of 177^{m3}. The inclusion of a retention separator will also mitigate the risk of flooding which may lead to contamination of ecological receptors through run-off of sediment and pollutants. The mitigation measures proposed above, which include the use of silt fences, silt traps and check dams, will mitigate for any spillages or incidents which may occur during any re-fuelling or other activities. The above infrastructure will also assist in controlling and preventing any spillages from occurring. Please see **Volume 3 - Technical Appendix 6 – Operational Construction and Environmental Management Plan ("OCEMP")** for more information.

Refuelling

1.306. During construction, fuel and oil deliveries shall take place within the designated refuelling area within the Temporary Construction Compound only. The Contractor shall supervise site deliveries to ensure that the correct amount of material is delivered to the correct tank and the level is checked prior to refilling to avoid spillage.

1.307. Where refuelling of vehicles on site is necessary, the following guidelines will be strictly adhered to:

- Mobile plant will be filled in a designated area, on an impermeable surface well away from any drains or watercourses.
- A spill kit will be stored (and clearly marked) near refuelling areas.
- A bunded tank / bowser will be used with capacity of the bund to be 110% of the fuel storage capacity.
- Vehicles will never be left unattended during refuelling and drip trays should be located under all static plant vehicles.
- Hoses and valves will be checked regularly for signs of wear and will be turned off and securely locked when not in use.
- Vehicles will not be left running unnecessarily and low emission fuels will be used where possible; and

– Diesel pumps and similar equipment will be checked regularly and any accumulated oil removed for appropriate disposal.

Excavation and Earthworks

1.308. All excavation and earthworks will be carried out in accordance with BS6031:2009 Code of Practice for Earthworks. Soil handling, extraction and management will be undertaken with regard to best practice guidelines such as Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012.

1.309. The following practices will be followed in relation to the excavation of cable trenches, topsoil stripping and any other earthworks:

- Any excavated material will be stored and re-used to infill excavations. Where the soil is to be re-used, this will be side casted. All side casted soil to be kept a minimum of 20m from any watercourse.
- Although unlikely, if any contaminated earth is uncovered, this will be stored separately and disposed of accordingly once the contaminant has been identified.
- Efforts will be made to ensure that water does not accumulate in excavated areas.
- All topsoil and subsoil will be stored separately, and care will be given to ensure the structure and quality of the soil is not damaged.
- The amount of exposed ground and soil stockpiles will be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally.
- Earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged or very dry.
- The substation is expected to be built in line with an overage of the existing ground level across the footprint of the Proposed Development.
- Any excavated soil which is not re-used or dispersed across the site and shall be stored on the impermeable surface at the construction compound and covered to prevent silt runoff and dust creation.

Concrete

1.310. Concrete will not be allowed to enter drainage ditches on or adjacent to the site under any circumstances, and drainage from excavations in which concrete is being poured will not be

discharged into existing watercourses without appropriate treatment and consent from the relevant authority. The construction compound will be lined by an impermeable geomembrane and will have a concrete storage location. will be a small pit so that no wet concrete can flow out.

1.311. No washing out of plant associated with concrete delivery operations will be allowed on site.

Pollution Prevention

1.312. Suitable protection for drainage ditches potentially affected by the works will be installed prior to relevant works proceeding. Protection measures will include:

- Plant and equipment will be stored on dedicated hard standing within the construction compound. 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.
- 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
- Early seeding of embankments and deposition areas near watercourses would be undertaken to reduce the potential for sediment runoff.

1.313. All staff on site will be made aware of the pollution prevention measures being implemented throughout the construction and decommissioning phases (if required) using appropriate toolbox talks and the site induction.

Maintenance of Pollution Prevention Measures

1.314. All SuDS and additional pollution prevention measures installed will be subject to a regular maintenance regime for the life of the construction phase in order to maintain functionality of all features. This will comprise:

- Unblocking of drains;
- Maintenance of access road and other hard standing surfaces;
- Replacement of filtration features;
- Removal of silt build-up from settlement and filtration features; and
- Maintain the foul and surface water drainage systems.

Mitigation Summary

1.315. Subject to the implementation of the above-described mitigation measures for the protection of surface waters, it is considered that all identified potential significant adverse effects on the integrity of the following European sites will be fully mitigated:

- Glenloughaun Esker SAC;
- River Shannon Callows SAC;
- Ardgraigue Bog SAC;
- River Shannon Callows SAC;
- Redwood Bog SAC;
- River Suck Callows SPA;
- Middle Shannon Callows SPA;
- Middle Shannon Callows SPA;
- River Little Brosna Callows SPA

1.316. This conclusion is drawn when considering the Proposed Development alone or in-combination with other plans or projects.

CONCLUSION

1.317. This Appropriate Assessment undertaken in line with Article 6(3) of the Habitats Directive, has assessed the 110k V Air insulated substation (AIS) and grid connection with associated infrastructure on lands at Ballydonagh, Kiltomer, Co. Galway, Ireland (the "Application Site").

1.318. Screening for Appropriate Assessment assessed the potential of the Proposed Development to give rise to likely significant effects upon any European site.

1.319. Stage 1: Screening identified that the Proposed Development, at construction and decommissioning (unlikely to be required) would give rise to likely significant effects upon the following European sites:

- River Shannon Callows SAC;
- River Suck Callows SPA;
- Middle Shannon Callows SPA; and
- River Little Brosna Callows SPA.

1.320. Likely significant effects which could not be excluded at the screening stage are limited to the potential for habitat deterioration to SCI wetland and bird species populations of the above listed SACs and SPAs.

1.321. Appropriate Assessment of the potential of the Proposed Development to give rise to significant adverse effects upon the integrity of the relevant European sites is set out above. This assessment has been undertaken in light of the site-specific conservation objectives for these European sites.

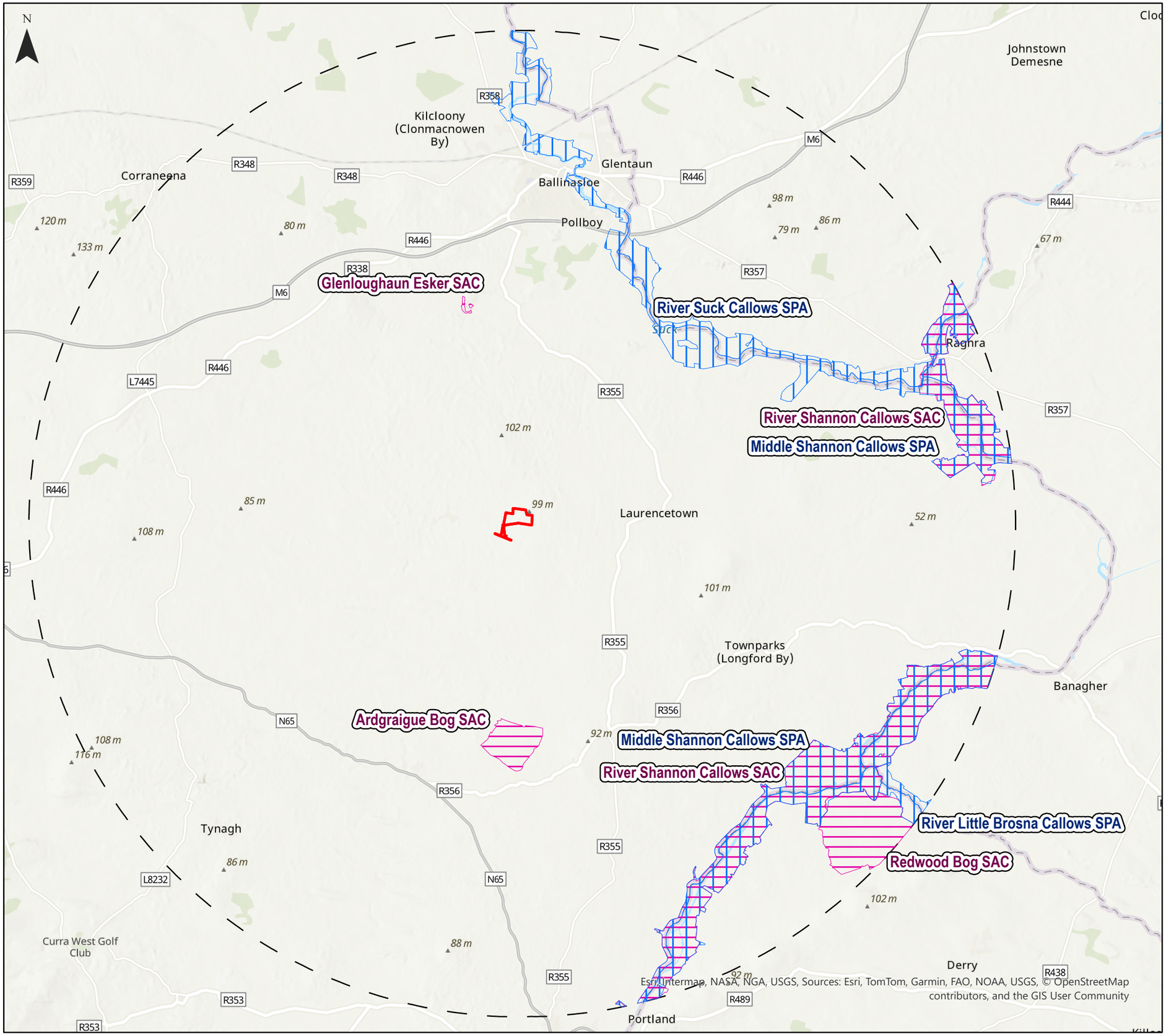
1.322. Subject to the implementation of the mitigation measures, it is not predicted that the Proposed Development will give rise to any adverse effects upon the integrity of the relevant European sites when the project is considered alone.

1.323. An in-combination assessment of the Proposed Development, alongside relevant plans and projects with potential to act cumulatively was undertaken. This assessment of a large range of plans and projects concluded that no significant adverse in-combination effects will occur as a result of the Proposed Development.

APPENDICES

- Figure 1 – European Designations Map

Gortnalug 110kV Substation and Grid Connection
European Designations Map
Figure 1



Key

- Development Boundary
- 15km Buffer
- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)

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Date: 02/03/2026
Drawn By: Rhona Coghlan
Scale (A3): 1:115,500
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