Report for the purposes of Appropriate Assessment Screening

Project Coolpowra Alternative Construction Access Road

Prepared by: Moore Group – Environmental Services

25 November 2025

On behalf of Coolpowra Flexgen Ltd.

Project Proponent	Coolpowra Flexgen Ltd.
Project	Project Coolpowra Alternative Construction Access Road
Title	Report for the purposes of Appropriate Assessment Screening Project Coolpowra Alternative Construction Access Road

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Abbreviations

AA	Appropriate Assessment
ACP	An Coimisiún Pleanála
CEMP	Construction Environmental Management Plan
EEC	European Economic Community
EPA	Environmental Protection Agency
EU	European Union
FWPM	Freshwater Pearl Mussel
GIS	Geographical Information System
LAP	Local Area Plan
NHA	Natural Heritage Area
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
OSI	Ordnance Survey Ireland
pNHA	proposed Natural Heritage Area
SAC	Special Area of Conservation
SPA	Special Protection Area
SuDS	Sustainable Drainage System
UÉ	Uisce Éireann
WFD	Water Framework Directive

1. Introduction

1.1. General Introduction

This report for the purposes of Appropriate Assessment (AA) Screening contains information required for the competent authority to make a determination on screening for Appropriate Assessment (AA) in respect of the construction and operation of a new temporary access road to the Proposed Reserve Gas-Fired Power Generator, GIS Electrical Substation and Energy Storage System at Coolpowra, Ballynaheskeragh, Cooldorragha, Gortlusky and Sheeaunrush, Co. Galway (hereafter referred to as the Proposed Development) to determine whether it is likely individually or in combination with other plans or projects to have a significant effect on any European sites, in light of best scientific knowledge.

Having regard to the provisions of the Planning and Development Act 2000, as amended (the "Planning Acts") (section 177U), the purpose of a screening exercise under section 177U of the PDA 2000 is to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with other plans or projects is likely to have a significant effect on a European site.

If it cannot be *excluded* on the basis of objective information that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site then it is necessary to carry out a Stage 2 appropriate assessment under section 177V of the Planning Acts.

When screening the project, there are two possible outcomes:

- the project poses no potential for the possibility of a significant effect and as such requires no Stage 2 assessment; or
- the project has potential to have a significant effect (or this is uncertain and therefore cannot be excluded) and therefore a Stage 2 Appropriate Assessment of the project is necessary.

This report has been prepared by Moore Group - Environmental Services to enable the competent authority to make a determination on AA screening in relation to the Proposed Development. The report was compiled by Ger O'Donohoe B.Sc. Applied Aquatic Sciences (ATU Galway, 1993) & M.Sc. Environmental Sciences (TCD, 1999) who has over 30 years' experience in environmental impact assessment and has completed numerous Appropriate Assessment Screening Reports and Natura Impact Statements on terrestrial and aquatic habitats for various development types.

1.2. Legislative Background - The Habitats and Birds Directives

Article 6(3) and 6(4) of the Habitats Directive are transposed into Irish Law inter alia by the Part XAB of the Planning Acts (in particular section 177U and 177V) which governs the requirement to carry out appropriate assessment screening and appropriate assessment, where required, per Section 1.1 above.

The Habitats Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the European Union (EU). Under the Habitats Directive, Member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a EU context.

The Birds Directive (Council Directive 2009/147/EC on the conservation of wild birds), transposed into Irish law by the Bird and Natural Habitats Regulations 2011 as amended, and the Wildlife Act 1976, as amended, is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Birds Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

SACs designated under the Habitats Directive and SPAs, designated under the Birds Directive, form a pan-European network of protected sites known as Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs. These sites are also referred to as European sites.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to have a significant effect on Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out an appropriate assessment if required (Appropriate Assessment (AA)).

> ***Article 6(3):*** *"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 subjected to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the 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."*

Article 6(4) establishes requirements in cases of imperative reasons of overriding public interest.

2. Methodology

The Commission's methodological guidance (EC, 2002, 2018, 2021 see Section 2.1 below) promotes a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1 and 2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: This stage examines the likely effects of a project either alone or in combination with other plans and projects upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant. In order to screen out a project, it must be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site.

Stage 2 Appropriate Assessment: This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement, i.e. the report of a targeted professional scientific examination of the plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in combination effects.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the sites will be necessary.

To ensure that the Proposed Development complies fully with the requirements of Article 6 of the Habitats Directive and all relevant Irish transposing legislation, Moore Group compiled this report to enable the competent authority to make a determination on AA screening in relation to the Proposed Development to determine whether it can be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site(s).

2.1. Guidance

This report has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC, 2018).
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021).
- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021).
- Office of the Planning Regulator (OPR) Practice Note PN01 Appropriate Assessment Screening for Development Management (OPR, 2021).
- Natura Impact Statement Sustainable Residential Development and Compact Settlement Guidelines for Planning Authorities (NPWS, 2024).

2.2. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites, and the environment within which they are located, are listed below:

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
    - National Parks & Wildlife (NPWS) protected site boundary data;
    - Ordnance Survey of Ireland (OSI) mapping and aerial photography;
    - OSI/Environmental Protection Agency (EPA) rivers and streams, and catchments;
    - Digital Elevation Model over Europe (EU-DEM);
    - Google Earth and Bing aerial photography 1995-2025;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
    - Natura 2000 - Standard Data Form;
    - Conservation Objectives;
    - Site Synopses;
- National Biodiversity Data Centre records;
    - Online database of rare, threatened and protected species;
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019); and
- Relevant Development Plans;
    - Galway County Development Plan 2022-2028

3. Description of the Proposed Development

The Proposed Development involves the construction of a new alternative construction access road to allow for construction of the three Coolpowra Energy Projects – Reserve Gas Fired Generator, GIS and ESS. Please note that all three planning applications are with An Coimisiún Pleanála; Ref. 320095 (Reserve Gas Fired Generator), 320094 (GIS) and 320916 (ESS).

The proposed N65 Access Junction scheme has been designed in accordance with the documents below.

- TII Document Ref: DN-GEO-03031 - Rural Road Link Design - design speed of 100km/hr
- TII Document Ref: DN-GEO-03060 - Geometric Design of Junctions
- DOT Traffic Signs Manual

The main design components include:

- Provision of a new priority T-junction onto the N65 National Road for new access road serving the development
- Provision of junction radii appropriate for the vehicle types utilising the access junction
- Partial removal of existing boundary bushes and trees to provide junction visibility
- Provision of traffic signs and road markings for the new N65 junction
- Staggered junction design where the new roads meet and cross the local road (L8763).

The proposed development (an alternative construction access road) will route through lands under the control of the applicant. It is proposed to construct a temporary road from the N65 which will provide vehicular access to the main development site (south of the L8763). The road will be used for the construction stages of the projects. The proposed road will route from a new junction along the N65 and traverse three undulating grassed fields. The access route will cross the L8763 by staggered junction and extend from here into the main development lands, before connecting to the proposed access lane which will serve the site during operation (i.e. that which was originally applied for).

The proposed access junction at the N65 is located on a straight section of the National Road. Approximately 380m to the north of the proposed access junction the N65 bends slightly to the east and approximately 270m to the south of the proposed access junction the N65 bends slightly to the west. At the proposed access junction location, the N65 National Road has a relatively gentle downhill gradient to the south. Approximately 130m to the north of the proposed access junction the N65 has a slight crest and approximately 120m to the south of the proposed access junction the N65 has a slight sag. The existing cross section of the N65 National Road in the vicinity of the proposed access junction is a single carriageway road with no hard shoulders of 5.8-6.0m. There is a maintained verge bounding the road to the east and verge with a mix of bushes and trees bounding the road to the west.

At the N65, the proposal will involve minor widening (300-350mm) of the N65 National Road to the north to provide a 6m carriageway in the vicinity of the proposed access junction. No amendments are proposed to be carried out to the vertical alignment of the N65 National Road to accommodate the proposed access junction. The existing gradient on the N65 National Road in the vicinity of the proposed access junction is approximate 1.3%. The access road incorporates a 1 in 200 (0.5%) approach gradient for more than 15m on the approach to the new access junction with the N65 National Road. No widening of the N65 National Road is proposed as part of the access junction provision. The access road is proposed to be 7.0m wide. No change proposed to the existing cross fall on the N65 National Road. 2.5% cross fall is proposed to be provided on the access road complaint with the crossfall recommendations of Section 3.1 of TII Publication DN-GEO-03031 to assist with drainage. Visibility splays extents of 215m are provided in both directions as recommended in Section 5.6.2.2 & Table 5.5 of TII Publication DN-GEO-03060 for a 100 km/h design speed. Visibility splays are taken at a setback of 3.0m as recommended in Section 5.6.2.2 & Table 5.4 TII Publication DN-GEO-03060. The proposed access road pavement construction is detailed below:

- Surface/Wearing Course - 25mm compacted dense bitumen macadam wearing course (10mm nominal size aggregate) to BS4987 & Table 9/3 of the DOE Specification
- Binder Course - 40mm thickness (compacted) dense bitumen macadam basecourse (20mm nominal size aggregate) to BS4987 & Table 9/1 of the DOE Specification
- Road Base - single course 150 mm thickness (compacted) dense bitumen macadam basecourse
- Sub-Base – 150mm thickness (compacted) granular material type b
- Capping Layer – If Required

Figure 1 shows the Proposed Development location and Figure 2 shows a detailed view of the Proposed Development boundary on recent aerial photography. Figure 3 shows the layout of the Proposed Development.

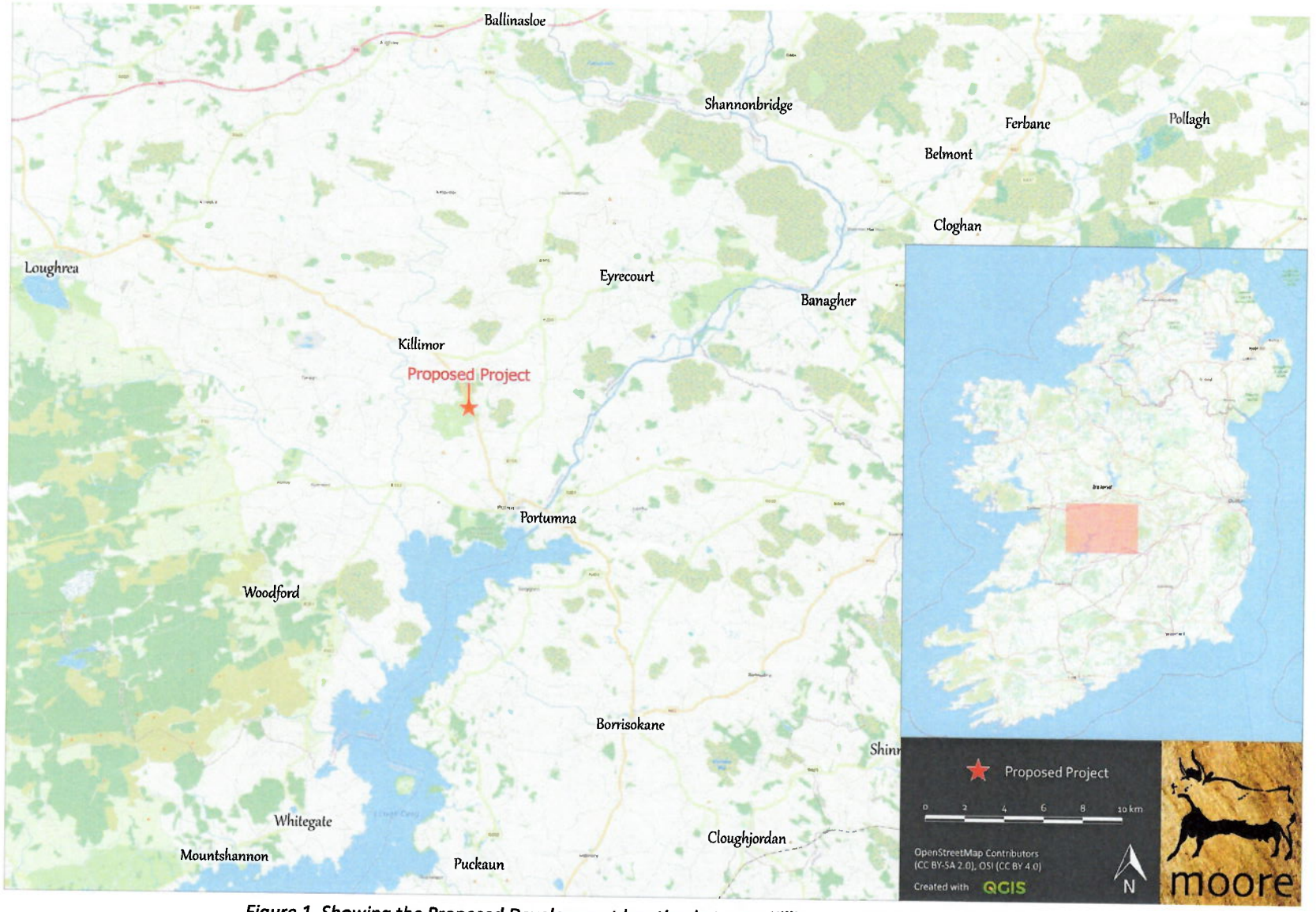

Figure 1. Showing the Proposed Development location between Killimor and Portumna, Co. Galway.

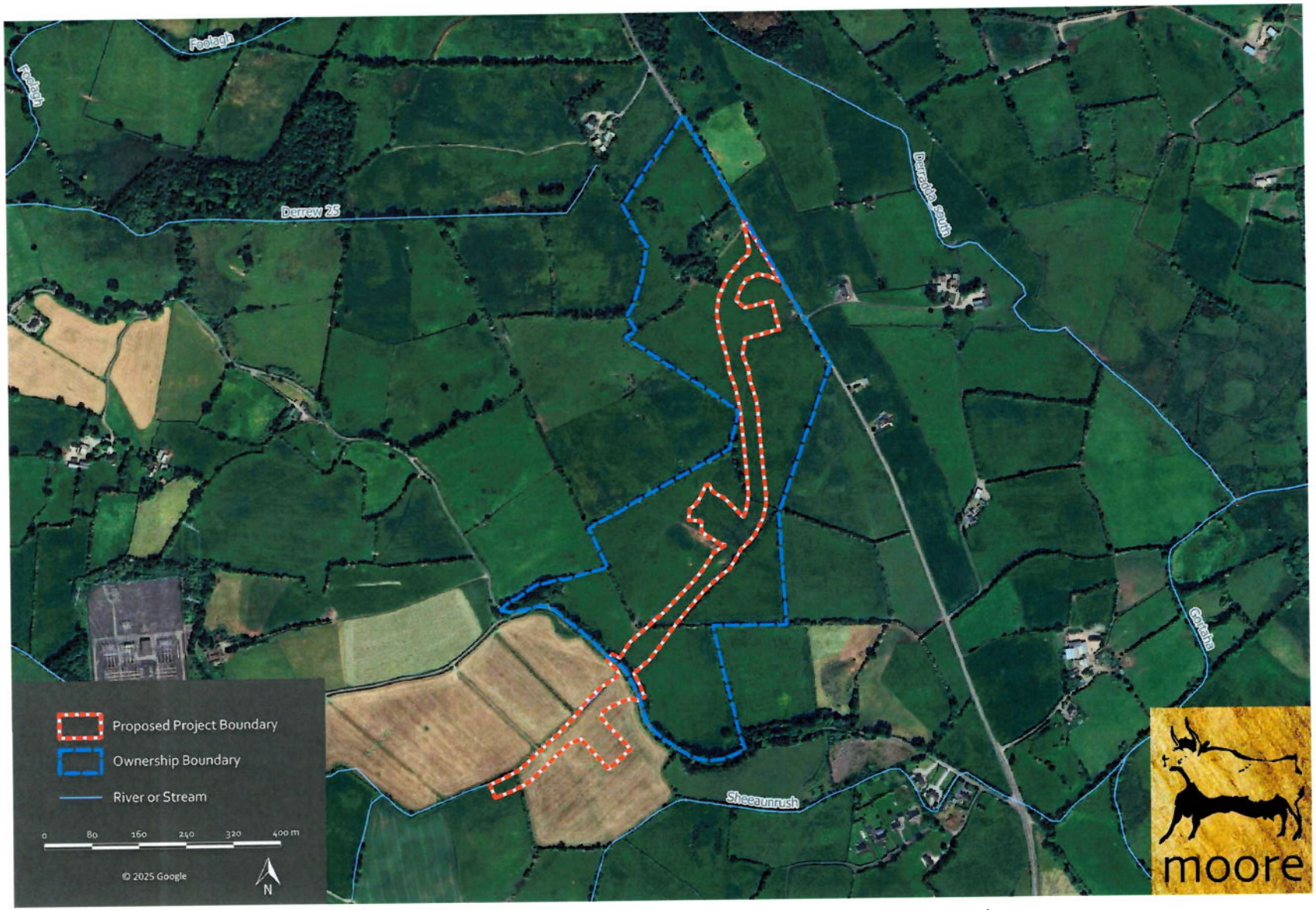

Figure 2. Showing the Proposed Development boundary on recent aerial photography.

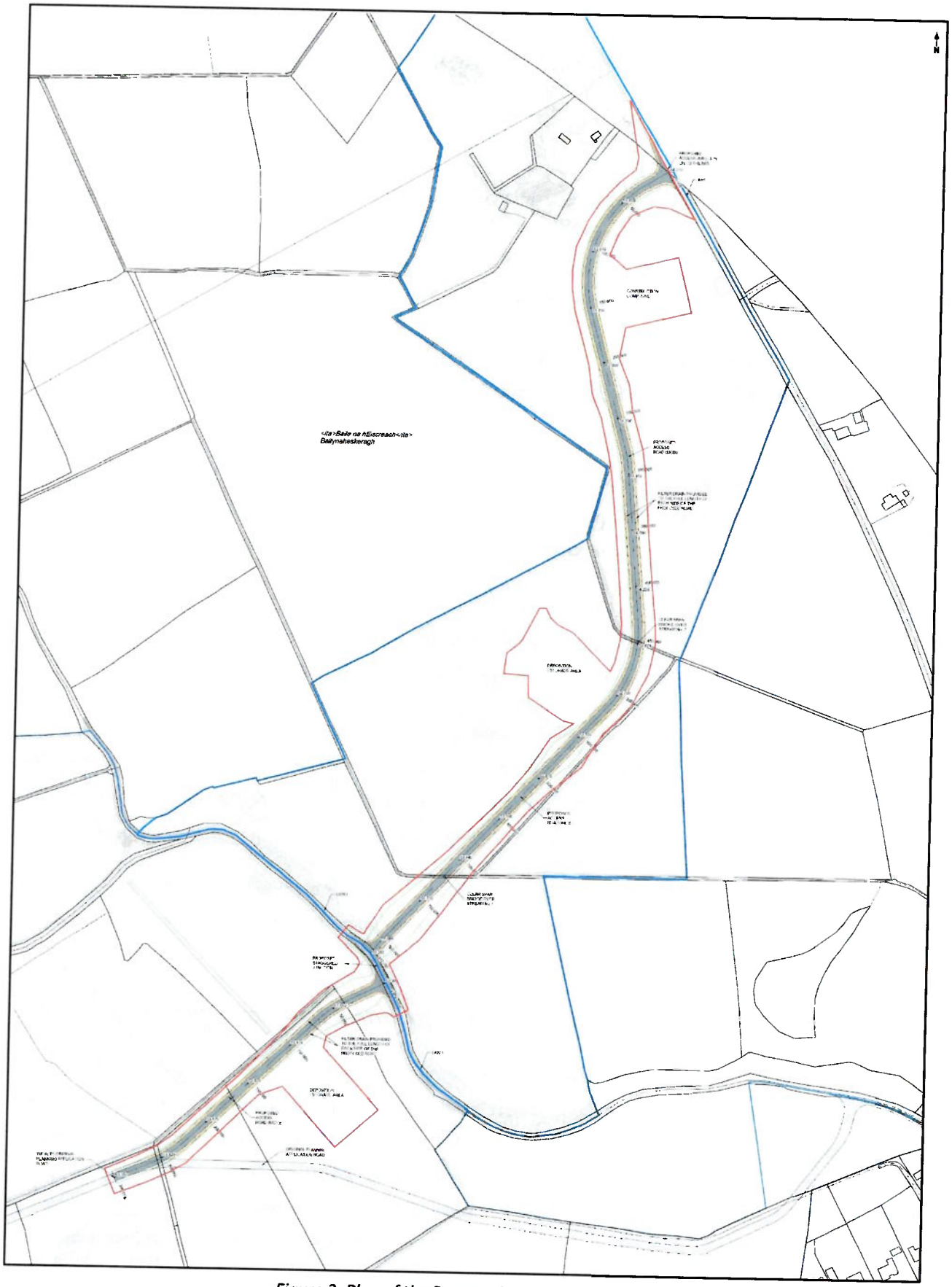

Figure 3. Plan of the Proposed Development.

4. Identification of Natura 2000 Sites

4.1. Description of Natura Sites Potentially Significantly Affected

A Zone of Influence (ZoI) of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. In accordance with the OPR Practice Note (2021), PN01, the ZoI should be established on a case-by-case basis using the Source- Pathway-Receptor framework.

The European Commission's "*Assessment of plans and projects in relation to Natura 2000 sites guidance on Article 6(3) and (4) of the Methodological Habitats Directive 92/43/EEC*" published 28 September 2021 states at section 3.1.3, that:

"Identifying the Natura 2000 sites that may be affected should be done by taking into consideration all aspects of the plan or project that could have potential effects on any Natura 2000 sites located within the zone of influence of the plan or project. This should take into account all of the designating features (species, habitat types) that are significantly present on the sites and their conservation objectives. In particular, it should identify:

- *any Natura 2000 sites geographically overlapping with any of the actions or aspects of the plan or project in any of its phases, or adjacent to them;*
- *any Natura 2000 sites within the likely zone of influence of the plan or project Natura 2000 sites located in the surroundings of the plan or project (or at some distance) that could still be indirectly affected by aspects of the project, including as regards the use of natural resources (e.g. water) and various types of waste, discharge or emissions of substances or energy;*
- *Natura 2000 sites in the surroundings of the plan or project (or at some distance) which host fauna that can move to the project area and then suffer mortality or other impacts (e.g. loss of feeding areas, reduction of home range);*
- *Natura 2000 sites whose connectivity or ecological continuity can be affected by the plan or project".*

The range of Natura 2000 sites to be assessed, i.e. the zone in which impacts from the plan or project may arise, will depend on the nature of the plan or project and the distance at which effects may occur. For Natura 2000 sites located downstream along rivers or wetlands fed by aquifers, it may be that a plan or project can affect water flows, fish migration and so forth, even at a great distance. Emissions of pollutants may also have effects over a long distance. Some projects or plans that do not directly affect Natura 2000 sites may still have a significant impact on them if they cause a barrier effect or prevent ecological linkages. This may happen, for example, when plans affect features of the landscape that connect Natura 2000 sites or that may obstruct the

movements of species or disrupt the continuity of a fluvial or woodland ecosystem. To determine the possible effects of the plan or project on Natura 2000 sites, it is necessary to identify not only the relevant sites but also the habitats and species that are significantly present within them, as well as the site objectives.

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

- Nature, scale, timing and duration of all aspects of the proposed works and possible impacts, including the nature and size of excavations, storage of materials, flat/sloping sites;
- Distance and nature of potential pathways (dilution and dispersion; intervening 'buffer' lands, roads etc.); and
- Location of ecological features and their sensitivity to the possible impacts.

The potential for source pathway receptor connectivity is firstly identified through GIS interrogation and detailed information is then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Proposed Development are listed in Table 1 and presented in Figures 4 and 5, below. Spatial boundary data on the Natura 2000 network was extracted from the NPWS website (www.npws.ie) on 25 November 2025. This data was interrogated using GIS analysis to provide mapping, distances, locations and pathways to all sites of conservation concern including pNHAs, NHA and European sites.

Table 1 European Sites located within the potential Zone of Influence[1] of the Proposed Development.

Site Code	Site name	Distance (km)[2]
000231	Barroughter Bog SAC	6.12
002241	Lough Derg, North-east Shore SAC	5.63
000216	River Shannon Callows SAC	5.14
004058	Lough Derg (Shannon) SPA	5.63
004096	Middle Shannon Callows SPA	5.16
004168	Slieve Aughty Mountains SPA	8.33

The Proposed Development is located predominantly in the townland of Ballynaheskeragh, between Killimor and Portumna, in southeast Co. Galway. It is drained by field boundary ditches which lead to a conjoined water course identified by the EPA and the Ballynaheskeragh Stream and the Sheeaunrush Stream. However, the topography of this area has been altered over the last 20 years and the Ballynaheskeragh Stream does not exist at the base of the esker road leading to the Coolpowra site. The Sheeaunrush Stream was observed to be a dry ditch originating from the south in the vicinity of recently developed dwelling in that area. After rainfall, it flows east toward the N65 and joins the Gortaha River which lows south to the River Shannon 6.5 river km downstream and thus has connectivity with the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows

[1] All European sites potentially connected irrespective of the nature or scale of the Proposed Development.
[2] Distances indicated are the closest geographical distance between the Proposed Development and the European site boundary, as made available by the NPWS.

SPA (Site Code 004096) along with the Lough Derg, North-east Shore SAC (Site Code 002241) and the Lough Derg (Shannon) SPA (Site Code 004058) both over 10 river km downstream in Lough Derg.

The western portion of the lands within the redline boundary is drained by large deep cut drainage ditches which convey water to the Treananearla Stream, which runs northwest from the site, and enters the Kilcrow River. The Kilcrow flows generally south, discharging into Lough Derg at Stonyisland Bay. The Treananearla Stream has connectivity to two European sites at Lough Derg, the Lough Derg, North-east Shore SAC (Site Code 002241), and the Lough Derg (Shannon) SPA (Site Code 004058).

Barroughter Bog SAC (Site Code 000231) also lies close to the Kilcrow River, 6.1km to the southwest. The Kilcrow River runs along the eastern edge of the SAC boundary before it outfalls into Lough Derg.

However, given the location of the SAC in relation to the Proposed Development and the nature of the qualifying interests for which it is designated (terrestrial habitats) no viable source pathway receptor links are identified and therefore no potential for significant effects to this European site, and it is screened out.

The Slieve Aughty Mountains SPA (Site Code 004168) lies 7.4km to the southwest. The footprint of the Proposed Development has not been identified as an *ex-situ* foraging, roosting or breeding area for any SCI species, and it is screened out.

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the Zone of influence of the Proposed Development are provided in Table 2 below.

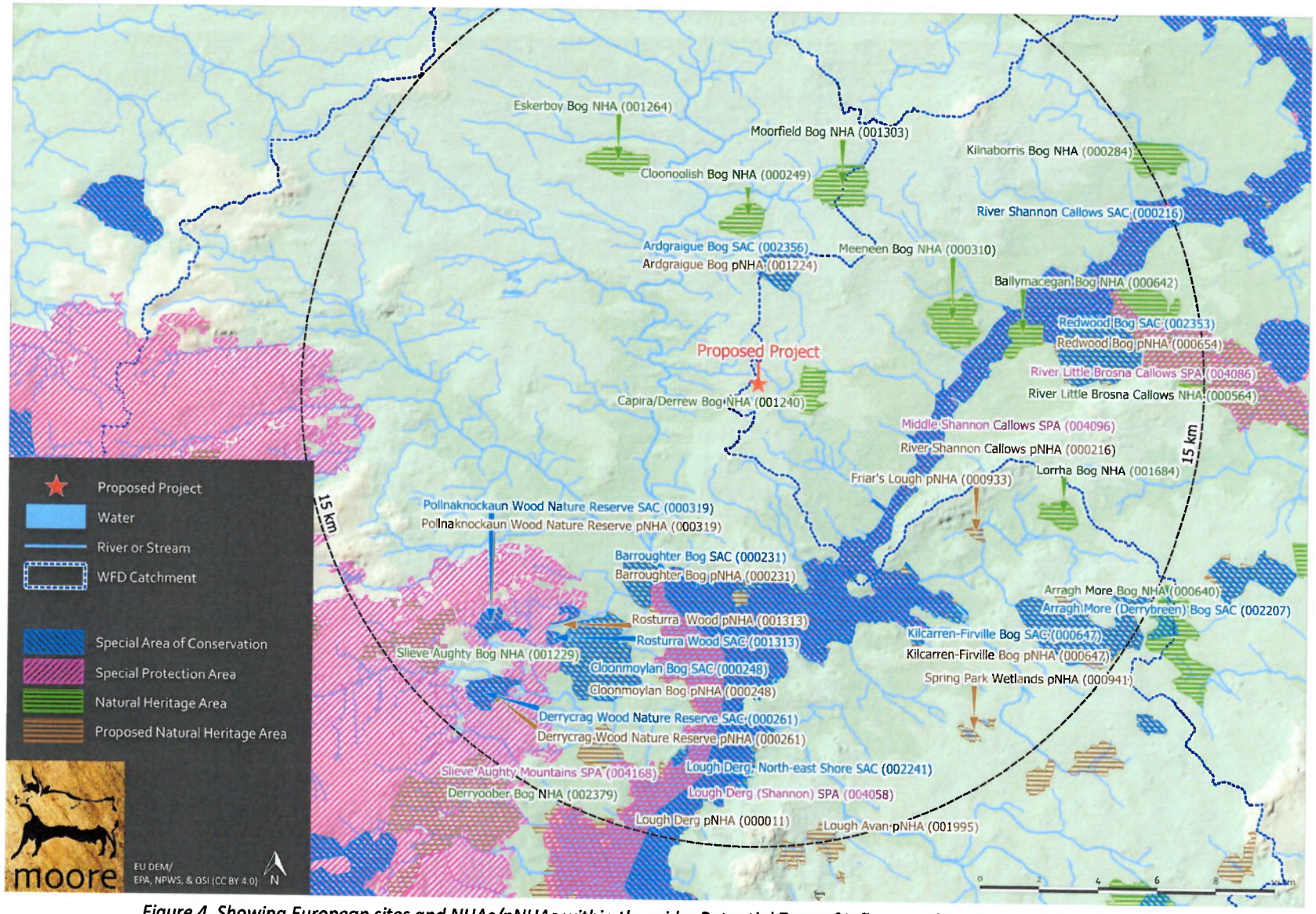

Figure 4. Showing European sites and NHAs/pNHAs within the wider Potential Zone of Influence of the Proposed Development.

Figure 5. Detailed view of European sites in the nearer Potential Zone of Influence of the Proposed Development.

*Table 2 Identification of relevant European sites using Source-Pathway-Receptor model and compilation of information on QIs and conservation objectives. *Priority Habitats*

European Site name, Site code and Conservation Objectives	**Location Relative to the Proposed Development Site**	**Connectivity – Source-Pathway-Receptor**	**Considered further in Screening – Y/N**
Lough Derg Northeast Shore SAC (002241) The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest: 5130 *Juniperus communis* formations on heaths or calcareous grasslands 7210 Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae 7230 Alkaline fens 8240 Limestone pavements 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) 91J0 *Taxus baccata* woods of the British Isles NPWS (2019) Conservation Objectives: Lough Derg, North-east Shore SAC 002241. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	10km downstream of the Proposed Development	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at over 10 river km and with a high degree of dilution in the River Shannon and Lough Derg.	Yes, see Table 3 below.
River Shannon Callows SAC (000216) The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest: 1355 Otter *Lutra lutra* 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) 7230 Alkaline fens 8240 Limestone pavements* 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) NPWS (2022) Conservation Objectives: River Shannon Callows SAC 000216. Version 1. National	6.5km downstream of the Proposed Development	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at 6.5 river km and with a high degree of dilution in the River Shannon.	Yes, see Table 3 below.

European Site name, Site code and Conservation Objectives	Location Relative to the Proposed Development Site	Connectivity – Source-Pathway-Receptor	Considered further in Screening – Y/N
Parks and Wildlife Service, Department of Housing, Local Government and Heritage.			
Lough Derg (Shannon) SPA (004058) The overall aim of the Birds Directive is to maintain or restore the favourable conservation status of habitats and species of community interest: A017 Cormorant *Phalacrocorax carbo* A061 Tufted Duck *Aythya fuligula* A067 Goldeneye *Bucephala clangula* A193 Common Tern *Sterna hirundo* A999 Wetlands NPWS (2022) Conservation objectives for Lough Derg (Shannon) SPA [004058]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.	>10km downstream of the Proposed Development	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at over 10 river km and with a high degree of dilution in the River Shannon and Lough Derg.	Yes, see Table 3 below.
Middle Shannon Callows SPA (004096) The overall aim of the Birds Directive is to maintain or restore the favourable conservation status of habitats and species of community interest: A038 Whooper Swan *Cygnus cygnus* A050 Wigeon *Anas penelope* A122 Corncrake *Crex crex* A140 Golden Plover *Pluvialis apricaria* A142 Lapwing *Vanellus vanellus* A156 Black-tailed Godwit *Limosa limosa* A179 Black-headed Gull *Chroicocephalus ridibundus* A999 Wetlands NPWS (2022) Conservation Objectives: Middle Shannon Callows SPA 004096. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	6.5km downstream of the Proposed Development	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at 6.5 river km and with a high degree of dilution in the River Shannon.	Yes, see Table 3 below.

4.2. Ecological Network Supporting Natura 2000 Sites

A concurrent GIS analysis of the proposed Natural Heritage Areas (pNHA) and designated Natural Heritage Areas (NHA) in terms of their role in supporting the species using Natura 2000 sites was undertaken along with GIS investigation of European sites. These supporting roles mainly relate to mobile fauna such as mammals and birds which may use pNHAs and NHAs as ecological corridors or "stepping stones" between Natura 2000 sites.

Article 10 of the Habitats Directive and the Habitats Regulations 2011 place a high degree of importance on such non-Natura 2000 areas as features that connect the Natura 2000 network. Features such as ponds, woodlands and important hedgerows were taken into account in the decision process and during the preparation of this AA Screening report.

There are two NHAs located within 5km of the Proposed Development; Cloonoolish Bog NHA and Capira/Derrew Bog NHA, however, there are no pathways or connectivity to these NHAs. The pNHAs identified in Figure 4 associated with Lough Derg and the River Shannon; Lough Derg pNHA [000011] and River Shannon Callows pNHA [000216] are considered under the higher status as European sites. There is no connectivity to any other pNHAs including Barroughter Bog pNHA [000231].

There are no areas of supporting habitat that will be impacted by the Proposed Development.

5. Identification of Potential Impacts & Assessment of Significance

The Proposed Development is not directly connected with or necessary to the management of the sites considered in the assessment and therefore potential impacts must be identified and considered.

5.1. Assessment of Likely Significant Effects

The consideration of all potential direct and indirect impacts that may result in significant effects on the conservation objectives of a European site, taking into account the size and scale of the Proposed Development are presented in Table 3.

Table 3 Assessment of Likely Significant Effects.

Identification of all potential direct and indirect impacts that may result in significant effects on the conservation objectives of a European site, taking into account the size and scale of the project.	
Impacts:	**Significance of Impacts:**
Construction phase e.g. Vegetation clearance Demolition Surface water runoff from soil excavation/infill/landscaping (including borrow pits) Dust, noise, vibration Lighting disturbance Impact on groundwater/dewatering Storage of excavated/construction materials Access to site Pests	In the absence of mitigation measures during construction to control potential pollution of surface water, the potential effects water quality in the Gortaha River leading to Lough Derg and on the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows SPA (Site Code 004096), the Lough Derg North-east Shore SAC (Site Code 002241), and the Lough Derg (Shannon) SPA (Site Code 004058) is uncertain. It cannot be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site.
Operational phase e.g. Direct emission to air and water Surface water runoff containing contaminant or sediment Lighting disturbance Noise/vibration Changes to water/groundwater due to drainage or abstraction Presence of people, vehicles and activities Physical presence of structures (e.g. collision risks)	All surface water runoff, once the facility is operational, will be discharged to sustainable urban drainage systems. There is no real likelihood of any significant effects on European Sites in the wider catchment area.
Describe any likely changes to the European site:	
Examples of the type of changes to give consideration to include:	The Proposed Development site is not located adjacent or within a European site, therefore there is no risk of

Reduction or fragmentation of habitat area Disturbance to QI species Habitat or species fragmentation Reduction or fragmentation in species density Changes in key indicators of conservation status value (water quality etc.) Changes to areas of sensitivity or threats to QI Interference with the key relationships that define the structure or ecological function of the site	habitat loss or fragmentation or any effects on QI habitats or species directly or ex-situ. It can be noted that the improved grassland habitats recorded during fieldwork in August 2025 and distance from the Lough Derg SPA do not present opportunities to support the bird species for which the Lough Derg (Shannon) SPA (Site Code 004058), 5.2km is designated. In the absence of mitigation measures during construction to control potential pollution of surface water, the potential effects water quality in the Gortaha River leading to Lough Derg and on the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows SPA (Site Code 004096), the Lough Derg North-east Shore SAC (Site Code 002241), and the Lough Derg (Shannon) SPA (Site Code 004058) is uncertain.

5.2. Assessment of Potential In-Combination Effects

Cumulative effects are described by the EPA as *the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects*. In combination effects are considered in the appropriate assessment process as an assessment of the potential adverse effects of a plan or project in combination with other plans or projects. The underlying intention of the in-combination provision is to take account of cumulative effects.

As part of the Screening for an Appropriate Assessment, in addition to the Proposed Development, other relevant plans and projects in the area must also be considered at this stage. This step aims to identify at this early stage any possible significant in-combination effects of the Proposed Development with other such plans and projects on European sites.

A review of the National Planning Application Database was undertaken. The database was then queried for developments granted planning permission within 1km of the Proposed Development within the last three years, these are presented in Table 4 below.

Table 4.Planning applications granted permission in the vicinity of the Proposed Development.

Planning Ref.	Description of development	Comments
23438	for the following development: installation of a new wastewater treatment system & percolation area to serve an existing dwelling & all associated site works	The potential for in-combination effects will be assessed at Stage 2 AA.
2360849 Parent application	for the demolition of an existing vacant farmhouse & all associated farm outbuildings (total gross floorspace of demolition works is approximately 609m2); three 400 kV single circuit angle masts (approximately 36.5m high) to facilitate the diversion of the existing Oldstreet-Woodland 400 kV overhead line into the proposed compound; three 400 kV gantry structures to allow connection of the existing 400 kV circuit to the proposed series	The potential for in-combination effects will be assessed at Stage 2 AA.

Planning Ref.	Description of development	Comments
	compensation equipment (approximately 29m high measured to top of lightning rod); three series compensation platforms comprising capacitor bank, metal oxide varistor, triggered air gap & discharge damping circuit (approximately 12m high to top of equipment on platform); a communication & protection equipment single storey control building (gross floorspace approximately 125.8m2 & 5.5m high) with 8no. parking spaces; 400 kV associated electrical equipment, including, insulators, instrument transformers, overhead conductors, lightning masts, disconnectors, circuit breakers & filter reactors; removal of two existing 400 kV overhead line towers & associated overhead cables, conductors & surge arrestors; bat roost compensatory structure (gross floorspace approximately 16m2 & height of 4.5m); & all ancillary site development works including, site preparation works, site clearance & levelling; hardstanding & internal access tracks; underground cabling & earthgrid, surface water drainage network including a soakaway & attenuation tank; palisade internal fencing & gates (approximately 2.6m high) & landscaping as required to facilitate the development	
24360	to construct a single storey extension to the rear of an existing single storey dwelling and all associated site works. Gross floor space of proposed works: 131.20 sqm(extension)	The potential for in-combination effects will be assessed at Stage 2 AA.

The Galway County Development Plan in complying with the requirements of the Habitats Directive requires that all Projects and Plans that could affect the Natura 2000 sites in the same potential Zone of Influence of the Proposed Development site would be initially screened for Appropriate Assessment and if requiring Stage 2 AA, that appropriate employable mitigation measures would be put in place to avoid, reduce or ameliorate negative impacts. In this way any, in-combination impacts with Plans or Projects for the proposed development area and surrounding townlands in which the proposed development site is located, would be avoided.

The listed developments have been granted permission in most cases with conditions relating to sustainable development by the consenting authority in compliance with the relevant Local Authority Development Plan and in compliance with the Local Authority requirement with regard to the Habitats Directive. The development cannot have received planning permission without having met the consenting authority requirement in this regard.

Any new applications for the Proposed Development area will be assessed on a case by case basis *initially* by Galway County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

The potential for in-combination effects will be assessed at Stage 2 AA.

6. Conclusion

In the absence of mitigation measures during construction to control potential pollution of surface water, the potential effects water quality in the Gortaha River leading to Lough Derg and on the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows SPA (Site Code 004096), the Lough Derg North-east Shore SAC (Site Code 002241), and the Lough Derg (Shannon) SPA (Site Code 004058) is uncertain.

It cannot be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site.

Thus, in line with Departmental Guidance and having regard to ECJ and Irish case law and the 'Precautionary Principle', Stage 2 Appropriate Assessment is required.

A final determination will be made by the competent authority in this regard.

7. References

Department of the Environment, Heritage and Local Government (2010) Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010).

European Commission (2007) 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 interests, compensatory measures, overall coherence and opinion of the Commission. European Commission, Brussels.

European Commission (2018) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Brussels 28.9.21.

European Commission (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive, Brussels 12.10.21.

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

NPWS (2025) National Parks and Wildlife Service Metadata available online at https://www.npws.ie/maps-and-data

Office-of-the-Planning-Regulator (2021) Appropriate Assessment Screening for Development Management OPR Practice Note PN01. March 2021

Natura Impact Statement

Project Coolpowra

Alternative Construction Access Road

Prepared by: Moore Group – Environmental Services

25 November 2025

On behalf of Coolpowra Flexgen Ltd

Project Proponent	Coolpowra Flexgen Ltd
Project	Project Coolpowra Alternative Construction Access Road
Title	Natura Impact Statement Appropriate Assessment Project Coolpowra Alternative Construction Access

Project Number	24004	**Document Ref**	24004 Proj Coolpowra Access Rd NIS Rev0	
Revision	**Description**	**Author**		**Date**
Rev0	Issued for client review	G. O'Donohoe		25 November 2025
Moore Archaeological and Environmental Services Limited				

Abbreviations

AA	Appropriate Assessment
ACP	An Coimisiún Pleanála
CEMP	Construction Environmental Management Plan
EEC	European Economic Community
EPA	Environmental Protection Agency
EU	European Union
FWPM	Freshwater Pearl Mussel
GIS	Geographical Information System
LAP	Local Area Plan
NHA	Natural Heritage Area
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
OSI	Ordnance Survey Ireland
pNHA	proposed Natural Heritage Area
SAC	Special Area of Conservation
SPA	Special Protection Area
SuDS	Sustainable Drainage System
UÉ	Uisce Éireann
WFD	Water Framework Directive

Contents

1. Introduction

1.1. General Introduction

This Natura Impact Statement (NIS) has been prepared by Moore Group – Environmental Services on behalf of Coolpowra Flexgen Ltd. This NIS report contains information to assist the competent authority in carrying out an Appropriate Assessment (AA) for the purposes of Article 6(3) of the Habitats Directive and section 177V of the Planning and Development Act 2000, as amended, (the "Planning Acts") in respect of the of an Alternative Construction Access Road to the Proposed Reserve Gas-Fired Power Generator, GIS Electrical Substation and Energy Storage System at Coolpowra, Ballynaheskeragh, Cooldorragha, Gortlusky and Sheeaunrush Co. Galway (hereafter referred to as the Proposed Development).

This NIS informs the Appropriate Assessment process in the determination of any adverse effects on the integrity of European sites, having regard to their conservation objectives and in light of best scientific knowledge. It is necessary that the Proposed Development has complies with Article 6(3) of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (referred to as the Habitats Directive). For the purposes of the Proposed Development, this is transposed into Irish Law by Part XAB of the Planning and Development Act 2000 as amended[1]. The focus of the assessment is on objectively assessing by reference to the evidence as to whether the Proposed Development will adversely affect the integrity of the European sites in light of their conservation objectives.

1.2. Legislative Background - The Habitats and Birds Directives

Articles 6(3) and 6(4) of the Habitats Directive are transposed into Irish Law inter alia by the Part XAB of the Planning Acts (section 177U and 177V) governing the requirement to carry out appropriate assessment screening and appropriate assessment, where required, per Section 1.1 above.

The Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the European Union (EU). Under Article 3 of the Habitats Directive,

[1]The European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) as amended (referred to as the Habitats Regulations) transposes the Habitats Directive for the purposes of proposed projects subject to legislation other than the Planning and Development Act 2000, as amended.

Member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a EU context.

The Birds Directive (Council Directive 2009/147/EC) on the conservation of wild birds), transposed into Irish law by the Habitats Regulations 2011, as amended, and the Wildlife Act 1976, as amended, is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Birds Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

SACs designated under the Habitats Directive and SPAs, designated under the Birds Directive, form a pan-European network of protected sites known as Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs. These sites are also referred to in Irish legislation as 'European sites'.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to have a significant effect on Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out an appropriate assessment if required (Appropriate Assessment (AA)). Article 6(4) establishes requirements in cases of imperative reasons of overriding public interest:

> ***Article 6(3):*** *"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 subjected to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the 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."*

These obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended, and in particular Section 177T thereof.

Section 177T(1)(b) and (2) state as follows with regard to a Natura Impact Statement:

> *"(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 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 European site in view of the conservation objectives of the site or sites."

The EU Water Framework Directive[2] (WFD) is an important piece of environmental legislation which aims to improve our water quality. It applies to rivers, lakes, groundwater, estuaries and coastal waters. The Water Framework Directive was agreed by all individual EU member states in 2000, and its first cycle ran from 2009 – 2015. The Directive runs in 6-year cycles, so the second cycle runs from 2016 – 2021 and the third cycle runs form 2022-2027. It focuses on protection of surface water and groundwater and the consideration of the WFD has been addressed in this NIS where the assessment of potential impacts on European sites was considered in this AA.

1.3. Methodology

The Commission's methodological guidance (EC, 2002, 2018, 2021 see Section 1.4 below) promotes a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1 and 2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant. In order to screen out a project, it must be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site.

Stage 2 Appropriate Assessment: This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement, i.e. the report of a targeted professional scientific examination of the plan or project and the relevant Natura 2000

[2] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in combination effects.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the sites will be necessary.

1.4. Guidance

The NIS has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.)(soon to be superseded by EC Guidance in prep.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC, 2018).
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021).
- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021).
- Office of the Planning Regulator (OPR) Practice Note PN01 Appropriate Assessment Screening for Development Management (OPR, 2021).
- Natura Impact Statement Sustainable Residential Development and Compact Settlement Guidelines for Planning Authorities (NPWS, 2024).

1.5. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites, and the environment within which they are located, are listed below:

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
    - National Parks & Wildlife (NPWS) protected site boundary data;

  - Ordnance Survey of Ireland (OSI) mapping and aerial photography;
  - OSI/Environmental Protection Agency (EPA) rivers and streams, and catchments;
  - Open Street Maps;
  - Digital Elevation Model over Europe (EU-DEM);
  - Google Earth and Bing aerial photography 1995-2025;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
  - Natura 2000 - Standard Data Form;
  - Conservation Objectives;
  - Site Synopses;
- National Biodiversity Data Centre records;
  - Online database of rare, threatened and protected species;
  - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019); and
- Relevant Development Plans in neighbouring areas;
  - Galway County Development Plan 2022 - 2028

1.6. Statement of Authority

This report was compiled by Ger O'Donohoe (B.Sc. Applied Aquatic Sciences (ATU Galway , 1993) & M.Sc. Environmental Sciences (TCD, 1999)) who has over 30 years' experience in environmental impact assessment and has completed numerous reports for Appropriate Assessment Screening and Natura Impact Statements in terrestrial and aquatic habitats.

Engineering and technical data was supplied by Halston Environmental and Planning Ltd. for the Proposed Development.

1.7. Description of the Proposed Development

The Proposed Development involves the construction of a new alternative construction access route to allow for construction of the three Coolpowra Energy Projects – Reserve Gas Fired Generator, GIS and ESS. Please note that all three planning applications are with An Coimisiún Pleanála; Ref. 320095 (Reserve Gas Fired Generator), 320094 (GIS) and 320916 (ESS).

The proposed N65 Access Junction scheme has been designed in accordance with the documents below.

- TII Document Ref: DN-GEO-03031 - Rural Road Link Design - design speed of 100km/hr

- TII Document Ref: DN-GEO-03060 - Geometric Design of Junctions
- DOT Traffic Signs Manual

The main design components include:

- Provision of a new priority T-junction onto the N65 National Road for new access road serving the development
- Provision of junction radii appropriate for the vehicle types utilising the access junction
- Partial removal of existing boundary bushes and trees to provide junction visibility
- Provision of traffic signs and road markings for the new N65 junction
- Staggered junction design where the new roads meet and cross the local road (L8763).

The proposed development (an alternative construction access road) will route through lands under the control of the applicant. It is proposed to construct a temporary road from the N65 which will provide vehicular access to the main development site (south of the L8763). The road will be used for the construction stages of the projects. The proposed road will route from a new junction along the N65 and traverse three undulating grassed fields. The access route will cross the L8763 by staggered junction and extend from here into the main development lands, before connecting to the proposed access lane which will serve the site during operation (i.e. that which was originally applied for).

The proposed access junction at the N65 is located on a straight section of the National Road. Approximately 380m to the north of the proposed access junction the N65 bends slightly to the east and approximately 270m to the south of the proposed access junction the N65 bends slightly to the west. At the proposed access junction location, the N65 National Road has a relatively gentle downhill gradient to the south. Approximately 130m to the north of the proposed access junction the N65 has a slight crest and approximately 120m to the south of the proposed access junction the N65 has a slight sag. The existing cross section of the N65 National Road in the vicinity of the proposed access junction is a single carriageway road with no hard shoulders of 5.8-6.0m. There is a maintained verge bounding the road to the east and verge with a mix of bushes and trees bounding the road to the west.

At the N65, the proposal will involve minor widening (300-350mm) of the N65 National Road to the north to provide a 6m carriageway in the vicinity of the proposed access junction. No amendments are proposed to be carried out to the vertical alignment of the N65 National Road to accommodate the proposed access junction. The existing gradient on the N65 National Road in

the vicinity of the proposed access junction is approximate 1.3%. The access road incorporates a 1 in 200 (0.5%) approach gradient for more than 15m on the approach to the new access junction with the N65 National Road. No widening of the N65 National Road is proposed as part of the access junction provision. The access road is proposed to be 7.0m wide. No change proposed to the existing cross fall on the N65 National Road. 2.5% cross fall is proposed to be provided on the access road complaint with the crossfall recommendations of Section 3.1 of TII Publication DN-GEO-03031 to assist with drainage. Visibility splays extents of 215m are provided in both directions as recommended in Section 5.6.2.2 & Table 5.5 of TII Publication DN-GEO-03060 for a 100 km/h design speed. Visibility splays are taken at a setback of 3.0m as recommended in Section 5.6.2.2 & Table 5.4 TII Publication DN-GEO-03060. The proposed access road pavement construction is detailed below:

- Surface/Wearing Course - 25mm compacted dense bitumen macadam wearing course (10mm nominal size aggregate) to BS4987 & Table 9/3 of the DOE Specification
- Binder Course - 40mm thickness (compacted) dense bitumen macadam basecourse (20mm nominal size aggregate) to BS4987 & Table 9/1 of the DOE Specification
- Road Base - single course 150 mm thickness (compacted) dense bitumen macadam basecourse
- Sub-Base – 150mm thickness (compacted) granular material type b
- Capping Layer – If Required

1.8. Description of the Existing Environment

The Proposed Development consists of two areas of agricultural grassland (GA1), as well as the road separating these areas. One section of grassland lies to the southwest of the L8763 local road, with the larger section extending from this road to the N65 national road.

The existing road is classed as Buildings and Artificial structures (BL3). There are no records of rare plants in the 1km squares in which the Project site is located (M8209 & M8309).

There were no invasive species recorded at the proposed development site

There are no rare or protected habitats recorded in the study area inside the site boundary. The site may be considered of Low to Moderate Ecological Value at a Local level.

1.9. Construction Management

A Construction Environmental Management Plan (CEMP) has been prepared to manage the impacts of construction activities associated with the Proposed Development.

The CEMP sets out the principles to be adhered to and outlines measures that will be implemented during the construction of the development to ensure that potential environmental impacts and disturbance will be minimised or eliminated.

It will be the responsibility of the project proponent and contractor employed to update and add (where required) specific control measures relevant to the environmental management plan and procedures, taking into account any conditions imposed on any planning permissions granted. The control measures will be amended by improvement with regards to environmental protection and will take cognisance of additional environmental commitments arising from planning conditions.

The project proponent will oversee the process through appointment of the contractor with input from the project engineer and oversight from the planning and project team. The contractor will be contractually obliged to comply with the CEMP.

Figure 1 shows the Proposed Development location and Figure 2 shows a detailed view of the Proposed Development boundary on recent aerial photography. Figure 3 presents a plan of the Proposed Development.

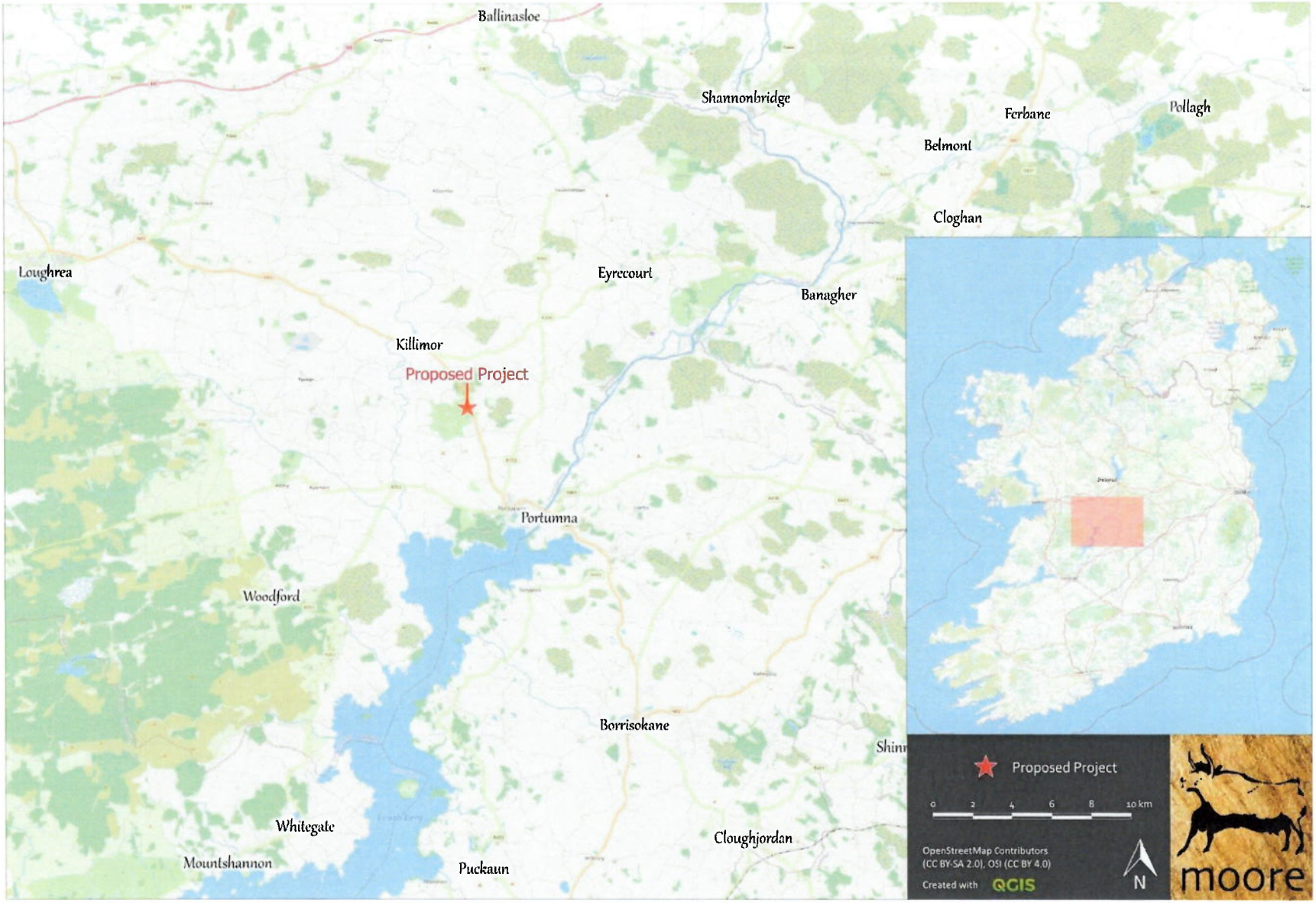

Figure 1. Showing the Proposed Development location between Killimor and Portumna, Co. Galway.

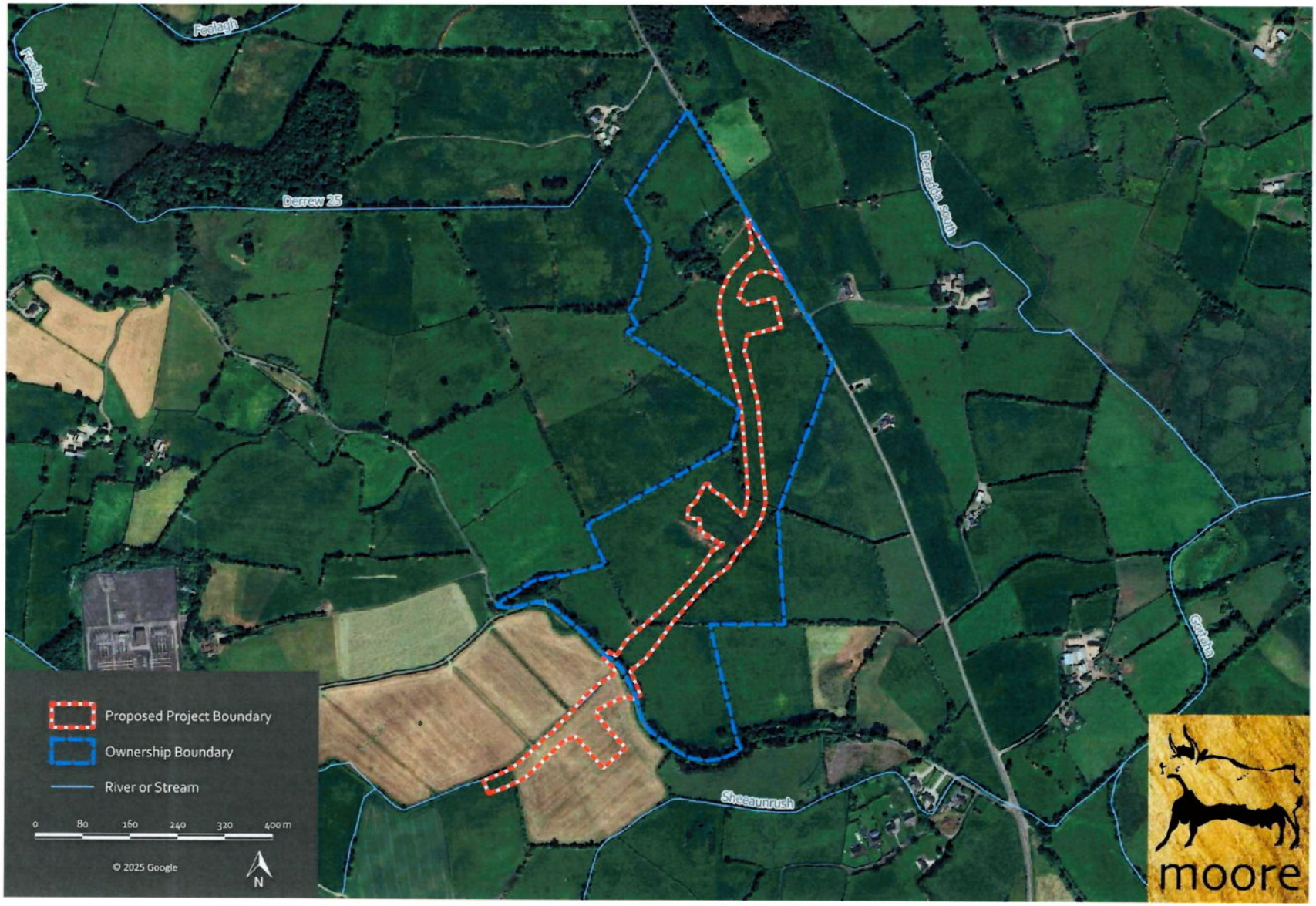

Figure 2. Showing the Proposed Development site on recent aerial photography.

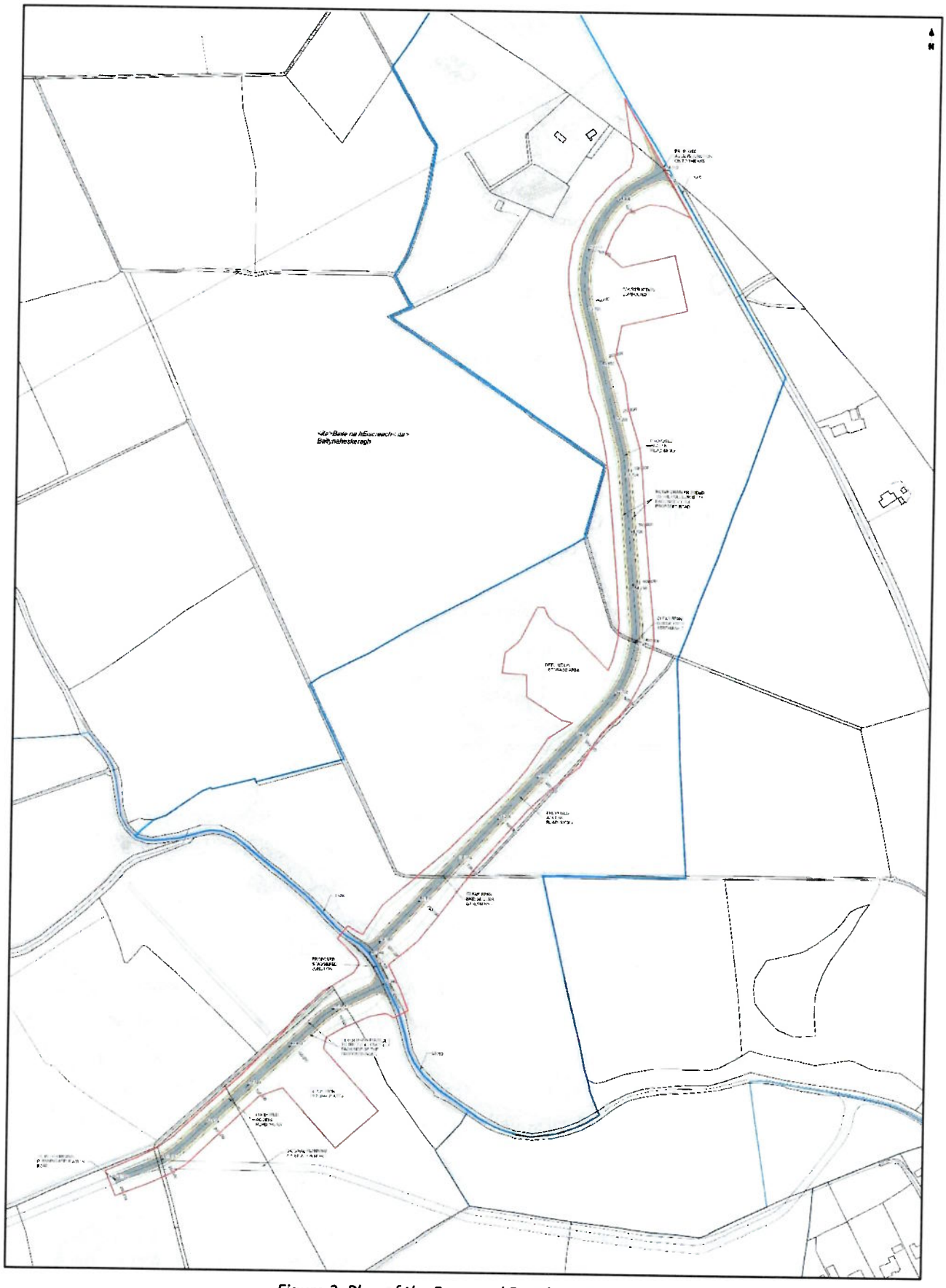

Figure 3. Plan of the Proposed Development.

2. Stage 1 – Screening for Appropriate Assessment

A Report for AA Screening was compiled and is presented as a stand-alone document in the planning application. The following is a summary of the Screening process.

The potential for source pathway receptor connectivity was firstly identified through GIS interrogation and detailed information was then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Overall Development are listed in Table 1 and presented in Figures 4 and 5, below. Spatial boundary data on the Natura 2000 network was extracted from the NPWS website (www.npws.ie) on 25 November 2025. This data was interrogated using GIS analysis to provide mapping, distances, locations and pathways to all sites of conservation concern including pNHAs, NHAs and European sites.

Table 1 European Sites located within the potential Zone of Influence[3] of the Proposed Development.

Site Code	Site name	Distance (km)[4]
000231	Barroughter Bog SAC	6.12
002241	Lough Derg, North-east Shore SAC	5.63
000216	River Shannon Callows SAC	5.14
004058	Lough Derg (Shannon) SPA	5.63
004096	Middle Shannon Callows SPA	5.16
004168	Slieve Aughty Mountains SPA	8.33

The Proposed Development is located predominantly in the townland of Ballynaheskeragh, between Killimor and Portumna, in southeast Co. Galway. It is drained by field boundary ditches which lead to a conjoined water course identified by the EPA and the Ballynaheskeragh Stream and the Sheeaunrush Stream. However, the topography of this area has been altered over the last 20 years and the Ballynaheskeragh Stream does not exist at the base of the esker road leading to the Coolpowra site. The Sheeaunrush Stream was observed to be a dry ditch originating from the south in the vicinity of recently developed dwelling in that area. After rainfall, it flows east toward the N65 and joins the Gortaha River which lows south to the River Shannon 6.5 river km downstream and thus has connectivity with the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows SPA

[3] All European sites potentially connected irrespective of the nature or scale of the Proposed Development.

[4] Distances indicated are the closest geographical distance between the Proposed Development and the European site boundary, as made available by the NPWS.

(Site Code 004096) along with the Lough Derg, North-east Shore SAC (Site Code 002241) and the Lough Derg (Shannon) SPA (Site Code 004058) both over 10 river km downstream in Lough Derg.

The western portion of the lands within the redline boundary is drained by large deep cut drainage ditches which convey water to the Treananearla Stream, which runs northwest from the site, and enters the Kilcrow River. The Kilcrow flows generally south, discharging into Lough Derg at Stonyisland Bay. The Treananearla Stream has connectivity to two European sites at Lough Derg, the Lough Derg, North-east Shore SAC (Site Code 002241), and the Lough Derg (Shannon) SPA (Site Code 004058).

Barroughter Bog SAC (Site Code 000231) also lies close to the Kilcrow River, 6.1km to the southwest. The Kilcrow River runs along the eastern edge of the SAC boundary before it outfalls into Lough Derg.

However, given the location of the SAC in relation to the Proposed Development and the nature of the qualifying interests for which it is designated (terrestrial habitats) no viable source pathway receptor links are identified and therefore no potential for significant effects to this European site, and it is screened out.

The Slieve Aughty Mountains SPA (Site Code 004168) lies 7.4km to the southwest. The footprint of the Proposed Development has not been identified as an *ex-situ* foraging, roosting or breeding area for any SCI species, and it is screened out.

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the Zone of influence of the Proposed Development are provided in Table 2 below.

Table 2 Identification of relevant European sites using Source-Pathway-Receptor model and compilation of information QIs and conservation objectives.

Site Name	QI/SCI	Habitat Loss	Water Quality	Disturbance	Displacement	Rationale	Possibility of Significant Effects
River Shannon Callows SAC (000216)	1355 Otter *Lutra lutra*	None	Unlikely	None	Unlikely	Indirect pathway via the Gortaha River to the River Shannon downstream.	Uncertain in the absence of construction management
	6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	None	None	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
	6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	None	Unlikely	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
	7230 Alkaline fens	None	Unlikely	None	None	Indirect pathway via the Kilcrow River to Lough Derg downstream and to the lake margins in the SAC (not currently mapped)	Uncertain in the absence of construction management
	8240 Limestone pavements	None	None	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
	91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	None	None	None	None	This habitat is located outside the zone of influence of the Proposed Development	None
Lough Derg North-east Shore SAC (002241)	5130 *Juniperus communis* formations on heaths or calcareous grasslands	None	None	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
	7210 Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae	None	Unlikely	None	None	Indirect pathway via the Gortaha River to the River Shannon downstream and to the lake margins in the SAC (not currently mapped)	Uncertain in the absence of construction management
	7230 Alkaline fens	None	Unlikely	None	None	Indirect pathway via the Gortaha River to the River Shannon downstream and to the lake margins in the SAC (not currently mapped)	Uncertain in the absence of construction management
	8240 Limestone pavements	None	None	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
	91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	None	None	None	None	This habitat is located outside the zone of influence of the Proposed Development	None

	91J0 *Taxus baccata* woods of the British Isles	None	None	None	None	This terrestrial habitat is located outside the zone of influence of the Proposed Development	None
Lough Derg (Shannon) SPA (004058)	A017 Cormorant *Phalacrocorax carbo* A061 Tufted Duck *Aythya fuligula* A067 Goldeneye *Bucephala clangula* A193 Common Tern *Sterna hirundo*	None	Unlikely	None	Unlikely	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at over 10 river km and with a high degree of dilution in the River Shannon and Lough Derg.	Uncertain in the absence of construction management
	A999 Wetlands	None	Unlikely	None	Unlikely	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at over 10 river km and with a high degree of dilution in the River Shannon and Lough Derg.	Uncertain in the absence of construction management
Middle Shannon Callows SPA (004096	A038 Whooper Swan *Cygnus cygnus* A050 Wigeon *Anas penelope* A122 Corncrake *Crex crex* A140 Golden Plover *Pluvialis apricaria* A142 Lapwing *Vanellus vanellus* A156 Black-tailed Godwit *Limosa limosa* A179 Black-headed Gull *Chroicocephalus ridibundus*	None	Unlikely	None	Unlikely	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at 6.5 river km and with a high degree of dilution in the River Shannon.	Uncertain in the absence of construction management
	A999 Wetlands	None	Unlikely	None	Unlikely	There is a pathway via drainage ditches to the Gortaha River and the River Shannon albeit at 6.5 river km and with a high degree of dilution in the River Shannon.	Uncertain in the absence of construction management

The potential for significant adverse effects on the River Shannon Callows SAC (Site Code 000216), the Middle Shannon Callows SPA (Site Code 004096), the Lough Derg, North-east Shore SAC (Site Code 002241) and the Lough Derg (Shannon) SPA (Site Code 004058) is uncertain in the absence of control of potential pollution of surface water during construction. The Project will require the implementation of management measures to avoid potential adverse effects on the Lough Derg North-east Shore SAC and the Lough Derg (Shannon) SPA and as such Stage 2 AA is required.

Adopting the precautionary approach, in line with current guidance and in consideration of proposed SuDS measures and Construction Management, a Stage 2 Appropriate Assessment of the project has been prepared as follows.

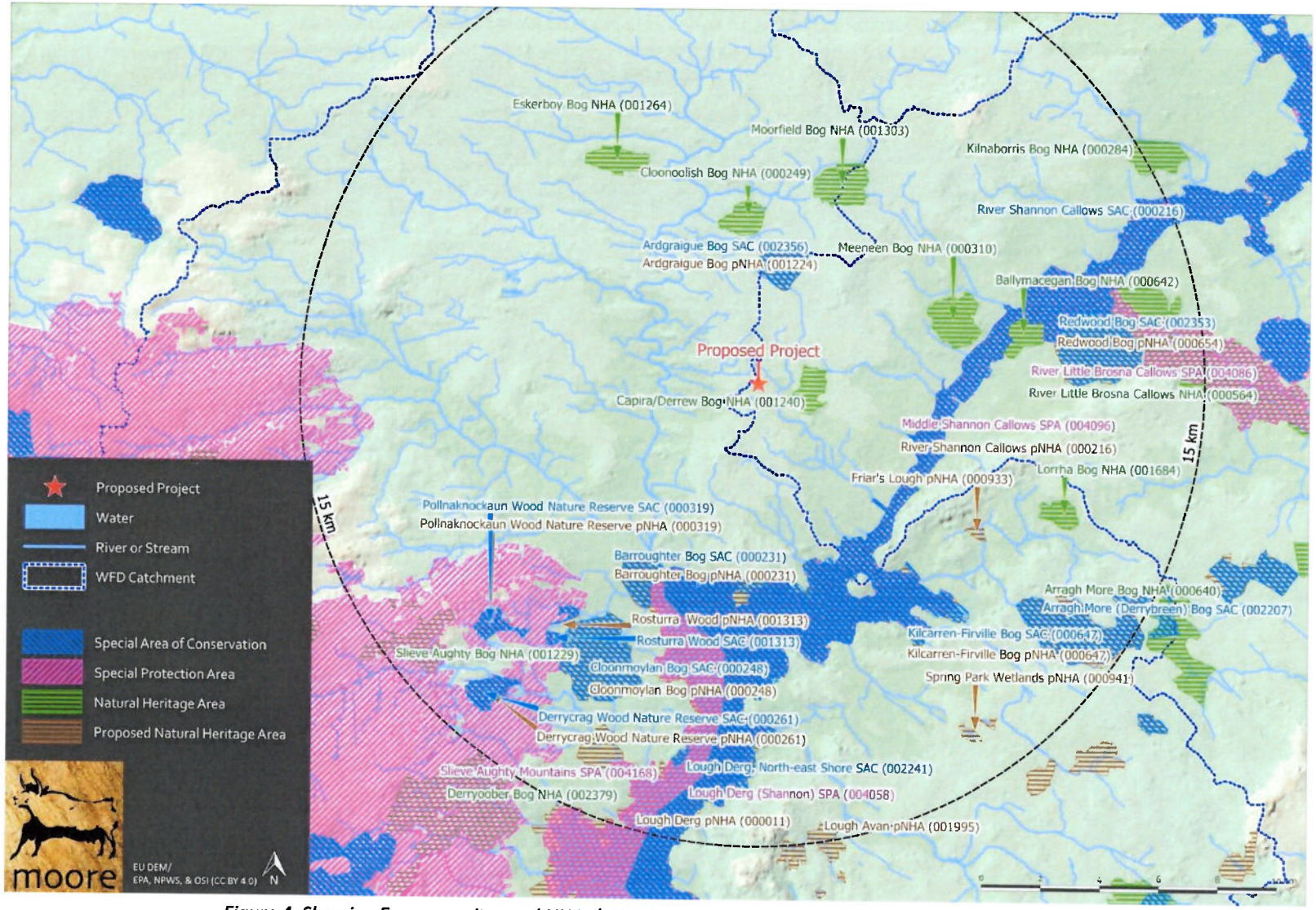

Figure 4. Showing European sites and NHAs/pNHAs in the wider vicinity of the Proposed Development.

Figure 5. Detailed view of European sites in the nearer vicinity of the Proposed Development.

3. Stage 2 – Appropriate Assessment

This stage considers whether the Proposed Development, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The Stage 2 Appropriate Assessment comprises a scientific examination of the plan / project and the relevant European site; to identify and characterise any possible implications for the site in view of the site's conservation objectives, structure and function; taking account of in combination effects.

3.1. Description of European Sites Potentially Affected

Potential impacts on the following European sites have been identified:

3.1.1. River Shannon Callows SAC [000216]

The NPWS provides the following Site Synopsis in relation to the River Shannon Callows SAC Version 000216_rev20.docx date 22.10.2020.

The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about 0.75 km wide (reaching 1.5 km wide in places). Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills. The soils grade from silty alluvial to peat. This site has a common boundary, and is closely associated, with two other sites with similar habitats, River Suck Callows and Little Brosna Callows. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (= priority; numbers in brackets are Natura 2000 codes):*

[6410] Molinia Meadows

[6510] Lowland Hay Meadows

[7230] Alkaline Fens

*[8240] Limestone Pavement**

*[91E0] Alluvial Forests**

[1355] Otter (Lutra lutra)

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.

Low-lying areas of the callows with more prolonged flooding are characterised by Floating Sweet-grass (Glyceria fluitans), Marsh Foxtail (Alopecurus geniculatus) and wetland herbs such as Yellow-cress (Rorippa spp.), Water Forget-me-not (Myosotis scorpioides) and Common Spike-rush (Eleocharis palustris). Most of the callows consist of a plant community characterised by Creeping Bent (Agrostis stolonifera), Brown Sedge (Carex disticha), Common Sedge (Carex nigra), and herbs such as Marsh-marigold (Caltha palustris) and Marsh Bedstraw (Galium palustre), while the more elevated and peaty areas are characterised by low-growing sedges, particularly Yellow Sedge (Carex flava agg.) and Star Sedge (Carex echinata). All these communities are very diverse in their total number of plant species, and include the scarce species Meadow-rue (Thalictrum flavum), Summer Snowflake (Leucojum aestivum) and Marsh Stitchwort (Stellaria palustris).

A further two Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well-grown woodland consisting mainly of Ash (Fraxinus excelsior) and Willows (Salix spp.). The islands are prone to regular flooding from the river.

At Clorhane, an area of limestone pavement represents the only known example in Co. Offaly. It is predominantly colonised by mature Hazel (Corylus avellana) woodland, with areas of open limestone and calcareous grassland interspersed. The open limestone pavement comprises bare or moss -covered rock, or rock with a very thin calcareous soil cover supporting a short grassy turf. The most notable plant in the grassy area is a substantial population of Green-winged Orchid (Orchis morio), which occurs with such species as Sweet Vernal-grass (Anthoxanthum odoratum), Quaking-grass (Briza media), sedges (Carex caryophyllea, C. flacca), Common Bird's-foot-trefoil (Lotus corniculatus), Common Knapweed (Centaurea nigra), and Ribwort Plantain (Plantago lanceolata). Ferns associated with the cracks in the pavement include Asplenium trichomanes, A. ruta-muraria, A. adiantum-nigrum and Polypodium australe. Bryophytes include Grimmia apocarpa and Orthotrichum cf. anomalum. Anthills are common within the open grassland. The Hazel wood is well-developed and has herbaceous species such as Primrose (Primula vulgaris), Common Dog-violet (Viola riviniana), Wood-sorrel (Oxalis acetosella) and Herb-Robert (Geranium robertianum). The wood is noted for its luxuriant growth of epiphytic mosses and liverworts, with such species as Neckera crispa and Hylocomium brevirostre. Yew (Taxus baccata) occurs in one area.

Other habitats of smaller area but also of importance within the site are lowland dry grassland, drainage ditches, freshwater marshes and reedbeds. The dry grassland areas, especially where they exist within hay meadows, are species-rich, and of two main types: calcareous grassland on glacial material, and dry grassland on levees of river alluvium. The former can contain many orchid species, Cowslip (Primula veris), abundant Adder's-tongue (Ophioglossum vulgatum) and Spring-sedge (Carex caryophyllea), and both contain an unusually wide variety of grasses, including False Oat-grass (Arrhenatherum elatius), Yellow Oat-grass (Trisetum flavescens), Meadow Foxtail (Alopecurus pratense), and Meadow Brome (Bromus commutatus). In places Summer Snowflake also occurs.

Good quality habitats on the edge of the callows included in the site are wet broadleaved semi-natural woodland dominated by both Downy Birch (Betula pubescens) and Alder (Alnus glutinosa), and dry broadleaved woodland dominated by Hazel. There are also areas of raised bog, fen on old cut-away bog with Black Bog-rush (Schoenus nigricans), and a 'petrifying stream' with associated species-rich calcareous flush which supports Yellow Sedge (Carex lepidocarpa), Blunt-flowered Rush (Juncus subnodulosus) and Stoneworts (Chara spp.).

Immediately south of Portumna Bridge and south east of the town of Portumna the area of low-lying terrestrial land west of the river comprises are large area of the Annex I habitat alkaline fen. The fen comprises a complex of rich-fen plant communities. Sedges (Carex lasiocarpa, Carex acutiformis) and Bogbean (Menyanthes trifoliata) dominate parts of the fens while other small sedges are common throughout. The orchids Early Marsh Orchid (Dactylorhiza incarnata), Western Marsh Orchid (D. majalis) and Marsh Helloborine (Epipactis palustris) and the red-listed plant species Marsh Pea (Lathyrus palustris) have been recorded within the fen.

Two species which are legally protected under the Flora (Protection) Order, 2015, occur in the site - Opposite-leaved Pondweed (Groenlandia densa) in drainage ditches, and Meadow Barley (Hordeum secalinum) on dry alluvial grassland. This is one of only two known inland sites for Meadow Barley in Ireland. The Red Data Book plant Green-winged Orchid is known from dry calcareous grasslands within the site.

The site is of international importance for wintering waterfowl as numbers regularly exceed the 20,000 threshold (mean of 34,985 for five winters 1994/94-1998/99). Of particular note is an internationally important population of Whooper Swans (287). A further five species have populations of national importance (all figures are means for five winters 1995/96-1999/00): Mute Swan (349), Wigeon (2972), Golden Plover (4254), Lapwing (11578) and Black-tailed Godwit (388). Species which occur in numbers of regional or local importance include Bewick's Swan, Tufted Duck, Dunlin, Curlew and Redshank. The population of Dunlin is notable as it is one of the few regular inland flocks in Ireland. Small flocks of Greenland White-fronted Goose use the Shannon Callows; these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows.

Shoveler (an estimated 12 pairs in 1987) and Black-tailed Godwit (Icelandic race) (one or two pairs in 1987) breed within this site. These species are listed in the Red Data Book as being threatened in Ireland. The scarce bird Quail is also known to breed within the area. The callows has at times held over 40% of the Irish population of the globally endangered Corncrake, although numbers have declined in recent years. A total of 66 calling birds were recorded in 1999, but numbers have dropped significantly since then. The total population of breeding waders (Lapwing, Redshank, Snipe and Curlew) in 1987 was one of three major concentrations in Ireland and Britain. The population of breeding Redshank in the site was estimated to be 10% of the Irish population, making it nationally significant. Also, the Annex I species Merlin and Hen Harrier are regularly reported hunting over the callows during the breeding season and in autumn and winter.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the callows.

The Shannon Callows are used for summer dry-stock grazing (mostly cattle, with some sheep and a few horses), and permanent hay meadow. About 30 ha is a nature reserve owned by voluntary conservation bodies. The River Shannon is used increasingly for recreational purposes with coarse angling and boating accounting for much of the visitor numbers. Intermittent and scattered damage to the habitats has occurred due to over-deepening of drains and peat silt deposition, water-skiing, ploughing and neglect of hay meadow (or reversion to pasture). However, none of these damaging activities can yet be said to be having a serious impact. Threats to the quality of the site may come from the siting of boating marinas in areas away from centres of population, fertilising of botanically-rich fields, the use of herbicides, reversion of hay meadow to pasture, neglect of pasture and hay meadow, disturbance of birds by boaters, anglers, birdwatchers and the general tourist. The maintenance of generally high water levels in winter and spring benefits all aspects of the flora and fauna, but in this regard, summer flooding is a threat to breeding birds, and may cause neglect of farming.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland, and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse with two legally protected species of plants and many scarce species. Excellent examples of two habitats listed on Annex I of the E.U. Habitats Directive occur within the site – Molinia meadows and lowland hay meadows with good examples of a further three Annex habitats (two with priority status). In winter the site is internationally important for numbers and species of waterfowl. In spring it feeds large numbers of birds on migration, and in summer it holds very large numbers of breeding waders, rare breeding birds and the endangered Corncrake, as well as a very wide variety of more common grassland and wetland birds. The presence of Otter, an Annex II species, adds further importance to the site.

3.1.2. Lough Derg, North-east Shore SAC [002241]

The NPWS provides the following Site Synopsis in relation to the Lough Derg, North-east Shore SAC Version 002241_Rev13.Doc date 3.01.2014.

Lough Derg, the lowest order lake on the River Shannon, is one of the largest bodies of freshwater in Ireland. This SAC, however, only includes the northern shore of the lake from the mouth of the Cappagh River in the north-west to just below Black Lough at the north-eastern shore. The greater part of this site lies on Carboniferous limestone, although there is Old Red Sandstone on the southern shores of the eastern section.

*The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E. U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):*

[5130] Juniper Scrub

*[7210] Cladium Fens**

[7230] Alkaline Fens

*[8240] Limestone Pavement**

*[91EO] Alluvial Forests**

*[91JO] Yew Woodlands**

The geology of the lake shore is principally limestone and in places this protrudes at the surface in the form of boulders and rubble and can be classified as limestone pavement. These are often bryophyte-lich surfaces or else support a calcareous grassland or heath flora, as well as some woody species, such as Yew (Taxus baccata) and Juniper (Juniperus communis). Examples occur at Cornalack, Kylenamelly and Portumna. The last two named areas were partly afforested but are proposed for restoration under a Coillte E. U. LIFE Programme. The geographical location of these examples of limestone pavement within the country is notable.

A second priority Annex I habitat, Cladium fen, occurs occasionally along the lake margins, mainly in association with alkaline fens, Common Reed (Phragmites australis) and other swamp vegetation. Typically, Great Fen-sedge (Cladium mariscus), which can be up to 2 m in height, forms dense stands. Associated species include Common Reed, Black Bog-lush (Schoenus nigricans), Water Horsetail (Equisetum fluviatile), Bottle Sedge (Carex rostrata) and occasional Slender Sedge (Carex lasiocarpa). This community generally merges with alkaline fen dominated by Black Bog-rush, with Purple Moor-grass (Molinia caerulea), Marsh Horsetail (E. palustre), Meadowsweet (Filipendula ulmaria) and scattered tussocks of Greater Tussock-sedge (Carex paniculata).

Yew woods in Ireland are mostly confined to the west of the country. However, a substantial area of Yew is located on limestone at Cornalack, where Yew forms a scrub woodland along the east shore of Lough Derg. Here, Yew is found in association with small amounts of Juniper, which forms protection against grazing for the young Yew. Other notable species present include Hawthorn (Crataegus monogyna), Hazel (Corylus avellana), Holly (Ilex aquifolium), Small-leaved Cotoneaster (Cotoneaster microphyllus), along with occasional Ivy (Hedera helix), Wild Strawberry (Fragaria vesca), Bramble (Rubus fruticosus agg.) and Wood-sorrel (Oxalis acetosella). Elsewhere, small stands of Yew up to 5 m high occur with Spindle (Euonymus europaeus), Blackthorn (Prunus spinosa), Gorse (Ulex europaeus) and Ash (Fraxinus excelsior). Due to shading, and in places cattle trampling, the ground flora supports few herbs. However, the bryophyte layer is well developed with many moss covered rocks present.

Juniper occurs throughout this site in a range of habitats, associated with calcareous grasslands, heath and limestone outcrops. Some of the finest examples of Jumper formations in Ireland occur along the lake edge where bushy Juniper shrubs up to 3 m tall are found. Typically, Juniper forms dense hedges with Ash, Hawthorn, Gorse, Hazel and Bramble, and occasional Yew. These tall Juniper shrubs are a unique feature in Ireland, where it is more typically found growing in prostrate form. In places along the lake shore Juniper forms a mosaic with Black Bog-rush and Great Fen-sedge fen. The best examples are seen at the north and north-east of the site. On drier ground above the flood level, Juniper occurs in association with species-rich calcareous grassland with Mouse-ear Hawkweed (Hieracium pilosella), Daisy (Bellis perennis), Lady's Bedstraw (Galium verum), Wild Thyme (Thymus praecox) and Blue Moor-grass (Sesleria albicans). An extensive area of this vegetation is seen north of Kilgarvan Quay. Many of the islands also support significant Juniper cover. This is particularly evident on Bounla Island. Juniper generally occurs as fringing vegetation around the islands, which typically have wooded centres. At Cornalack, along the eastern shore of Lough Derg. tall Juniper is found in association with loose limestone rubble with a significant cover of Yew.

Deciduous woodlands are also a notable feature of the site, dominated by oak (Quercus spp .), as at Bellevue, and Hazel/Ash at many of the examples along the north-eastern shore. Typically the ground layer includes Early purple Orchid (Orchis mascula), violets (Viola spp.), Ivy, Lesser Celandine (Ranunculus ficaria), Bluebell (Hyacinthoides non-scripta), Wood Anemone (Anemone nemorosa), Wood-sorrel, Primrose (Primula vulgaris), Bramble, Ground Ivy (Glechoma hederacea), Pignut (Conopodium majus) and Honeysuckle (Lonicera periclymenum). Wet woodland is frequent along the lake shore, and in some areas this conforms well with the E.U. Annex I habitat, alluvial woodland. At Kylenamelly wood, where some planting of commercial forestry has occurred, there are extensive areas of alluvial woodland which are subject to flooding. These woods are dominated by willows (Salix spp.) and Alder (Alnus glutinosa), with Downy Birch (Betula pubescens) and Ash also present. The ground flora of the undisturbed alluvial sites is often dominated by Yellow Iris (Iris pseudacorus), with a range of other species commonly present, including Bogbean (Menyanthes trifoliata), Marsh-marigold (Caltha palustris), Meadowsweet, Purple Loosestrife (Lythrum salicaria), horsetails (Equisetum spp.), Wild Angelica (Angelica sylvestris), Greater Tussock-sedge and Remote Sedge (Carex remota). Further examples of alluvial woodland occur at Portumna. Beech (Fagus sylvatica) and Scots Pine (Pinus sylvestris) are often present at the lake edge along areas which were once parts of estates. Some areas of coniferous forestry have been included within the site.

The only known site in the country for the Red Data Book plant Irish Fleabane (Inula salicina) occurs along the lake shore. This plant is legally protected under the Flora (Protection) Order, 1999. Other Red Data Book species present within this site are Marsh Pea (Lathyrus palustris) and Ivy Broomrape (Orobanche hederae). The Red Data Book stonewort Chara tomentosa has its stronghold in Lough Derg.

The lake is rated as nationally important for waterfowl. The entire lake, including all of the islands, is a designated SPA (Special Protection Area). Counts from 1995/96 carried out at seven locations on the lake indicate that the lake holds nationally important numbers for Mute Swan, Cormorant, Mallard, Teal, Tufted Duck and Goldeneye. The lake also supports a number of Greenland White-fronted Goose, a bird species listed on Annex I of the E. U. Birds Directive. There is a Wildlife Sanctuary" at the north western edge of the lake.

Lough Derg is of conservation interest also for its fish and freshwater invertebrates. Lampreys, listed under Annex II of the E. U. Habitats Directive, are known to occur and the lake contains an apparently self-sustaining landlocked population of Sea Lamprey (Petromyzon marinus). A landlocked population, where the fish are feeding and not completing a seaward migration, is unique in an Irish context, though there are several such populations in the U.S. and one is known from Loch Lomond in Scotland. Brook Lamprey (Lampetra planeri) is known to be common in the lower Shannon catchment where all three lamprey species breed.

The endangered fish species Pollan (Coregonus autumnalis pollan) is recorded from Lough Derg, one of only three sites in Ireland and in western Europe. The Pollan is a landlocked species of Corgonid or 'White Fish', thought to have colonised Irish waters after the last Ice Age. Its nearest relative, the Arctic Cisco, is found as far away as Alaska, Northern Canada and Siberia. Although it is anadromous throughout

most of its northern range, the Irish population are all non-migratory and purely freshwater. Lough Derg is also a well known fishing lake with a good Trout (Salmo trutta) fishery. Atlantic Salmon (Salmo salar) also use the lake as a spawning ground. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E. U. Habitats Directive.

Otter and Badger have been recorded within the site. Both of these species are listed in the Irish Red Data Book and are legally protected by the Wildlife Act, 1976.

Land use within the site is mainly of a recreational nature with many boat hire companies, holiday home schemes and angling clubs located at the lake edge.

Recreational disturbance may pose a threat to the wintering wildfowl populations, though tourism is scaled down during the winter. The water body is surrounded mainly by improved pastoral farmland to the south and east, with areas of bog to the south-west and west. Coniferous plantations are present along the west and north- west shore and small areas of these are included within the site. If these areas are felled no further planting should take place as afforestation damages the wetland habitats between the plantation and lake edge.

The main threats to the quality of the site are water polluting activities resulting from intensification of agricultural activities around the lake shore, uncontrolled discharge of sewage, which is causing eutrophication of the lake, and housing and boating development which has resulted in the destruction of lakeshore habitats. There is also significant fishing and shooting pressure on and around the lake. Forestry" can result in the loss of some areas of wetland habitat. The spread of Zebra Mussel (Dreissena polymorpha) in Lough Derg also poses a threat the ecology of the lake.

This is a site of significant ecological interest, with six habitats listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats - Cladium fen, alluvial woodland, limestone pavement and Yew woodland. Other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. In addition, the lake itself is an SPA that supports important numbers of wintering wildfowl, Greenland White-fronted Goose, Common Tern and Cormorant, a number of which are listed under Annex I of the E.U. Birds Directive.

3.1.3. Lough Derg (Shannon) SPA [004058]

The NPWS provides the following Site Synopsis in relation to the Lough Derg (Shannon) SPA Version date 8.07.2014.

Lough Derg lies within counties Tipperary, Galway and Clare and is the largest of the River Shannon Lakes, being some 40 km long. Its maximum breadth across the Scariff Bay -Youghal Bay transect is 13 km but for most of its length it is less than 5 km wide. The lake is relatively shallow at the northern end being mostly 6 m in depth but in the middle region it has an axial trench and descends to over 25 m in places. The narrow southern end of the lake has the greatest average depth, with a maximum of 34 m. The greater part of the lake lies on Carboniferous limestone but the narrow southern section is underlain by Silurian strata. Most of the lower part of the lake is enclosed by hills on both sides, the Slieve Aughty Mountains to the west and the Arra Mountains to the east. The northern end is bordered by relatively flat, agricultural country. The lake shows the high hardness levels and alkaline pH to be expected from its mainly limestone catchment basin, and it has most recently been classified as a mesotrophic system. The lake has many small islands, especially on its western and northern sides. The shoreline is often fringed with swamp vegetation. Aquatic vegetation includes a range of charophyte species, including the Red Data Book species, Chara tomentosa. The shoreline is often fringed by swamp vegetation, comprised of such species as Common Reed (Phragmites australis), Great Fen-sedge (Cladium mariscus) and Bottle Sedge (Carex rostrata).

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Tufted Duck, Goldeneye and Common Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Lough Derg is of importance for both breeding and wintering birds. The site supports a nationally important breeding colony of Common Tern (55 pairs recorded in 1995). Management of one of the islands used for nesting has increased the area of suitable habitat available and prevented nests being destroyed by fluctuating water levels. Large numbers of Black-headed Gull have traditionally bred on the many islands (2,176 pairs in 1985) but the recent status of this species is not known. The islands in the lake also support a nationally important Cormorant colony - 167 pairs were recorded in 1995; a partial survey of the lake in 2010 recorded 113 pairs. Lough Derg is also a noted breeding site for Great Crested Grebe (47 pairs in 1995) and Tufted Duck (169 pairs in May 1995).

In winter, the lake is important for a range of waterfowl species, including nationally important populations of Tufted Duck (776) and Goldeneye (157) all figures are mean peaks for 4 of the 5 seasons between 1995/96 and 1999/2000. Other species which occur in winter include Mute Swan (164), Whooper Swan (IS), Wigeon (249), Teal (301), Mallard (376), Little Grebe (14), Cormorant (90), Coot (173), Lapwing (922), Curlew (66) and Black-headed Gull (732). Areas to north and south west of

Lough Derg has been utilised in the past by small numbers of Greenland White-fronted Goose — 19 geese were recorded on callow land near Portumna in 1996/97. A relatively small flock based in the Lough Derg-Lough Graney area and possibly further afield have been recorded in the Scarriff Bay area, with 20 geese recorded in 2004. Few sightings, at either location have been made in recent years.

Hen Harrier are also known to roost in the reedbeds on the margins of the site during the winter.

Lough Derg (Shannon) SPA is of high ornithological importance as it supports nationally important breeding populations of Cormorant and Common Tern. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The presence of Whooper Swan, Greenland White-fronted Goose, Hen Harrier and Common Tern is of particular note as these are listed on Annex I of the E.U. Birds Directive. Parts of Lough Derg (Shannon) SPA are a Wildfowl Sanctuary.

3.1.4. Middle Shannon Callows SPA [004096]

The NPWS provides the following Site Synopsis in relation to the Middle Shannon Callows SPA Version date 10.01.2012.

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 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.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Wigeon, Corncrake, Golden Plover, Lapwing, Black-tailed Godwit and Black-Headed Gull. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to

wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Middle Shannon Callows qualifies as a site of international importance as it regularly supports in excess of 20,000 wintering waterbirds (23,656 – four year mean peak for four of the winters between 1995/96 and 1999/2000). The site also supports internationally important populations of Whooper Swan (305 – five year mean peak for the period 1995/96 to 1999/2000) and Black-tailed Godwit (485 – four year mean peak for four of the winters between 1995/96 and 1999/2000). Four further species of wintering waterbird occur in numbers of national importance, i.e. Wigeon (3,059), Golden Plover (4,133) , Lapwing (13,240) and Black-headed Gull (1,209) – all figures are four year mean peaks for four of the winters between 1995/96 and 1999/2000.

The Shannon Callows is the largest site monitored as part of I-WeBS and many parts of it are inaccessible on the ground. Annual monitoring of the wintering waterbirds of the Shannon Callows is undertaken by aerial surveys in January/February with some areas also covered by ground counts. The importance of the site for some species may have been underestimated if count coverage missed the brief spring peaks for these species, e.g. peak counts of Lapwing (23,409) and Black-tailed Godwit (1,096) recorded in the baseline period (1995/96 to 1999/2000) have been considerably higher than the four year means. . A wide range of other species occurs within the site, including Mute Swan (407), Teal (88), Tufted Duck (41), Dunlin

(335), Curlew (162) and Redshank (39). Small numbers of Greenland White-fronted Goose use the Shannon Callows (peak 55 in 1998/99) and these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows. The callow grasslands provide optimum feeding grounds for these various species of waterfowl, while many of the birds also roost or rest within the site.

The Shannon Callows is also an important site for breeding waders with the total population on the Shannon and Little Brosna Callows being one of three major concentrations in Ireland and Britain in 1987. Numbers of some species have declined since then but a survey of the Shannon Callows in 2002 recorded the following breeding waders - Lapwing (63 pairs), Redshank (116 pairs), Snipe (139 drumming birds) and Curlew (8 pairs). Black-tailed Godwit, a very rare breeding species in Ireland, nests or attempts to nest in small numbers each year within the site. A further scarce breeding species, Shoveler, also nests in small numbers each year (an estimated 12 pairs in 1987).

The Middle Shannon Callows SPA supports a breeding population of Corncrake (19 pairs - five year mean peak between 2003 and 2007, based on records of calling males).

Corncrake winter in southern and eastern Africa, migrating northwards to arrive on their breeding grounds from early April onwards, departing again in August and September. They require the cover of tall vegetation throughout their breeding cycle and are strongly associated with meadows which are harvested annually, where they nest and feed. Annual cutting of these meadows creates a sward which is easy for the birds to move through. Other habitats, which can provide cover for Corncrake in the early and late stages of the breeding season, are also important for this species.

Corncrake is listed on the 2010 International Union for Conservation of Nature (IUCN) Red List of Threatened Species. This is due to population and range declines of more than 50% in the last 25 years across significant parts of its range.

Quail, a related, scarce species, is also known to breed within the callow grasslands.

A good variety of other bird species are attracted to the site. Birds of prey, including scarce species such as Merlin and wintering Hen Harrier have been recorded hunting over the callows. A range of passerine species associated with grassland and swamp vegetation breed, including Sedge Warbler, Grasshopper Warbler, Skylark and Reed Bunting. Kingfisher is also known to occur within the site. Whinchat, an uncommon breeding species, occurs in small numbers.

The Middle Shannon Callows SPA is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds. It holds internationally important populations of two species - Whooper Swan and Black-tailed Godwit. In addition, there are four species that have wintering populations of national importance. The site also supports a nationally important breeding population of Corncrake. Of particular note is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Corncrake and Golden Plover.

3.2. Conservation Objectives of European Sites

3.2.1. River Shannon Callows SAC (000216)

Specific Conservation Objectives and Target Notes are set by the NPWS (Version 1. 18 Jan 2022) for the Lough Derg, North-east Shore SAC (002241) as follows. Specific objectives are included for the aquatic habitats and species identified in the zone of influence of the Proposed Development.

1355 Otter *Lutra lutra*

To maintain the favourable conservation condition of Otter (*Lutra lutra*) in River Shannon Callows SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 282.1ha	No field survey. Areas mapped to include 10m terrestrial buffer along shorelines and river banks identified as critical for otters (NPWS, 2007)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 146.7km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk and Moorhouse, 1991; Kruuk, 2006)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013)
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed

7230 Alkaline fens

To maintain the favourable conservation condition of Alkaline fens in River Shannon Callows SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Alkaline fen in River Shannon Callows SAC occurs south of Portumna Bridge and south-east of the town of Portumna in an area of low-lying terrestrial land west of the river. The fen area corresponds largely to a former small bay at the northern end of Lough Derg that was cut off from the lake when the embankment was originally constructed as part of the Shannon Hydroelectric Scheme in the late 1920s. The area of alkaline fen in the SAC has been mapped as c.15ha based on Heery and Mayes (2012). See map 4. It is important to note that further unsurveyed areas of the habitat may be present within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	Distribution based on Heery and Mayes (2012). See map 4. It is important to note that further unsurveyed areas of the habitat may be present within the SAC
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Relevant nutrients and their natural ranges are yet to be defined. However, nitrogen deposition is noted as being relevant to this habitat in O'Neill et al. (in prep.). See also Kelleghan et al. (in prep.) and Bobbink and Hettelingh (2011). Increased nutrients can lead to changes in plant and invertebrate species through competition and subsequent structural changes to micro-habitats. These nutrients favour growth of grasses rather than forbs and mosses and leads to a higher and denser sward
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients; water supply	Maintain, or restore where necessary, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Fen habitats require high groundwater levels (i.e. water levels at or above the ground surface) for a large proportion of the calendar year (i.e. duration of mean groundwater level). Fen groundwater levels are controlled by regional groundwater levels in the contributing catchment area (which sustain the hydraulic gradients of the fen groundwater table). Regional abstraction of groundwater may affect fen groundwater levels. In this SAC, the fen may partly be fed by springs, and there is some evidence of base-rich flushing on sloping ground with outcropping rock to the west of the fen (Heery and Mayes, 2012)
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or restore where necessary, as close as possible to natural or semi-natural drainage conditions	Drainage, either within or surrounding the fen habitat, can result in the drawdown of the groundwater table. The depth, geometry and density of drainage (hydromorphology) will indicate the scale and impact on fen hydrology. Drainage can result in loss of characteristic species and transition to drier habitats
Ecosystem function: water quality	Various	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient under natural conditions. Water supply should also be relatively calcium-rich

Vegetation composition: community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	Heery and Mayes (2012) described two main communities in the habitat in the SAC based on relevé data. The first was *Carex lasiocarpa-Menyanthes trifoliata* vegetation where *C. lasiocarpa*, *C. acutiformis* and *M. trifoliata* were constant, while *C. lasiocarpa* was slightly less abundant where *Schoenus nigricans* was present towards the north of the fen area. *Utricularia intermedia* was a component of this type and calcium carbonate accretions were common among the mosses. The second type was a *Briza media-Carex disticha-Festuca rubra* community which was rich in small sedges, and also orchid-rich. *Cirsium dissectum*, while widespread over the whole fen, was commonest in this community. Information on the vegetation communities associated with alkaline fens is provided by O'Neill et al. (in prep.). See also the Irish Vegetation Classification (Perrin, 2018; www.biodiversityireland.ie/projects/ivc-classification-explorer)
Vegetation composition: typical brown mosses	Percentage cover at a representative number of monitoring stops	Maintain adequate cover of typical brown moss species	For lists of typical bryophyte species, including high quality indicator species, see O'Neill et al. (in prep.). Typical brown moss species recorded in the habitat in the SAC by Heery and Mayes (2012) include *Bryum pseudotriquetrum*, *Campylium stellatum*, *Scorpidium cossonii* and *S. scorpioides*
Vegetation composition: typical vascular plants	Percentage cover at a representative number of monitoring stops	Maintain adequate cover of typical vascular plant species	For lists of typical vascular plant species for the different vegetation communities, including high quality indicators, see O'Neill et al. (in prep.). Typical species recorded in the habitat in the SAC by Heery and Mayes (2012) include slender sedge (*Carex lasiocarpa*), carnation sedge (*Carex panicea*), few-flowered spike-rush (*Eleocharis quinqueflora*), purple moor-grass (*Molinia caerulea*) and meadow thistle (*Cirsium dissectum*). The high quality indicator species early marsh-orchid (*Dactylorhiza incarnata*) and marsh helleborine (*Epipactis palustris*) have been recorded within the fen in the SAC (Heery and Mayes, 2012)
Vegetation composition: native negative indicator species	Percentage cover at a representative number of monitoring stops	Cover of native negative indicator species at insignificant levels	Negative indicators include species not characteristic of the habitat and species indicative of undesirable activities such as overgrazing, undergrazing, nutrient enrichment, agricultural improvement or impacts on hydrology. Native negative indicators may include *Anthoxanthum odoratum*, *Epilobium hirsutum*, *Holcus lanatus*, *Juncus effusus*, *Phragmites australis* and *Ranunculus repens*. See O'Neill et al. (in prep.). *Phragmites australis* and *Ranunculus repens* were recorded in a number of releves collected by Heery and Mayes (2012), but at relatively low cover
Vegetation composition: non-native species	Percentage cover at a representative number of monitoring stops	Cover of non-native species less than 1%	Attribute and target based on O'Neill et al. (in prep.). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on O'Neill et al. (in prep.). Scrub and trees will tend to invade if fen conditions become drier
Vegetation composition: algal cover	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of algae less than 2%	Attribute and target based on O'Neill et al. (in prep.). Algal cover is indicative of nutrient enrichment from multiple sources (McBride et al., 2011)
Vegetation structure: vegetation height	Percentage cover at a representative number of monitoring stops	At least 50% of the live leaves/flowering shoots are more than either 5cm or 15cm above ground surface depending on community type	Attribute and target based on O'Neill et al. (in prep.). While grazing may be appropriate in this habitat, excessive grazing can reduce the ability of plant species to regenerate reproductively and maintain species diversity, especially if flowering shoots are cropped during the growing season

Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of disturbed bare ground not more than 10%	Attribute and target based on O'Neill et al. (in prep.). While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. Disturbance can include hoof marks, wallows, human footprints, vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion for peatlands
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%	Attribute and target based on O'Neill et al. (in prep.). Heery and Mayes (2012) recorded tufa formation at the base of brown mosses in areas of the habitat in the SAC
Indicators of local distinctiveness	Occurrence and population size	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	This includes species on the Flora (Protection) Order, 2015 and species of flora and fauna on Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.; see Nelson et al., 2019, 2021). Of note is the presence of marsh pea (*Lathyrus palustris*) in the habitat in the SAC. This species is extremely scarce in Ireland, with half of its distribution occurring along the River Shannon (Heery and Mayes, 2012)
Transitional areas between fen and adjacent habitats	Hectares; distribution	Maintain adequate transitional areas to support/protect the alkaline fen habitat and the services it provides	In many cases, fens transition to other wetland habitats. It is important that the transitional areas between fens and other habitats are maintained in as natural condition as possible in order to protect the functioning of the fen. Alkaline fen represents about a third of the terrestrial land that is within the part of the SAC south of Portumna Bridge and west of the river. The rest of this terrestrial area is unimproved/semi-improved grassland and there is c.2ha of reedswamp vegetation within the fen itself (Heery and Mayes, 2012)

3.2.2. Lough Derg, North-east Shore SAC [002241]

Specific Conservation Objectives and Target Notes are set by the NPWS (Version 1. 24th April 2019) for the Lough Derg, North-east Shore SAC (002241) as follows. Specific objectives are included for the aquatic habitats and species identified in the zone of influence of the Proposed Development.

7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae

To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae* in Lough Derg, North-east Shore SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae* has not been mapped in detail for Lough Derg, North-east Shore SAC and thus the total current area of the qualifying priority habitat in the SAC is unknown. *Cladium* fen (habitat code 7210) occurs occasionally along lake margins in the SAC in association with the Annex I habitat Alkaline fens (habitat code 7230) and swamp vegetation also. The habitat is particularly well-developed at the sheltered bays of Lough Derg around the Portumna Forest Park area and immediately north of Kilgarvan Quay (NPWS internal files)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Fen habitats require high groundwater levels (i.e. water levels at or above the ground surface) for a large proportion of the calendar year (i.e. duration of mean groundwater level). Fen groundwater levels are controlled by regional groundwater levels in the contributing catchment area (which sustain the hydraulic gradients of the fen groundwater table). Regional abstraction of groundwater may affect fen groundwater levels
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural, drainage conditions	Drainage, either within or surrounding the fen habitat, can result in the drawdown of the fen groundwater table. The depth, geometry and density of drainage (hydromorphology) will indicate the scale and impact on fen hydrology. Drainage can result in loss of characteristic species and transition to drier habitats
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient under natural conditions. Water supply should also be relatively calcium-rich
Vegetation composition: typical species	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical species, including brown mosses and vascular plants	For lists of typical plant species, see the Article 17 conservation status assessment for *Cladium* fens (NPWS, 2013) and the Article 17 fen habitats supporting document (Kimberley, 2013). Typical species recorded in the habitat in the SAC include great fen-sedge (*Cladium mariscus*) and black bog-rush (*Schoenus nigricans*) (NPWS internal files)
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of native negative indicator species at insignificant levels	Negative indicators include species not characteristic of the habitat and species indicative of undesirable impacts such as overgrazing, undergrazing, nutrient enrichment, agricultural improvement or impacts on hydrology. See JNCC (2004) and Kimberley (2013)
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances

Vegetation composition: trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014). Scrub and trees will tend to invade if fen conditions become drier
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	Attribute and target based on Perrin et al. (2014). While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. Disturbance can include hoof marks, wallows, human footprints, vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion of peatlands
Indicators of local distinctiveness	Occurrence and population size	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	This includes species on the Flora (Protection) Order, 2015 and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.)

7230 Alkaline fens

To maintain the favourable conservation condition of Alkaline fens in Lough Derg, North-east Shore SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Alkaline fen has not been mapped in detail for Lough Derg, North-east Shore SAC and thus the total current area of the qualifying habitat in the SAC is unknown. The habitat occurs frequently along lake margins in the SAC, often in association with the Annex I habitat Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae (7210*), common reed (*Phragmites australis*) beds and other swamp vegetation. The habitat is particularly well-represented at the edge of Portumna Forest Park (NPWS internal files)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Relevant nutrients and their natural ranges are yet to be defined. However, nitrogen deposition is noted as being relevant to this habitat in NPWS (2013). See also Bobbink and Hettelingh (2011)
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Fen habitats require high groundwater levels (i.e. water levels at or above the ground surface) for a large proportion of the calendar year (i.e. duration of mean groundwater level). Fen groundwater levels are controlled by regional groundwater levels in the contributing catchment area (which sustain the hydraulic gradients of the fen groundwater table). Regional abstraction of groundwater may affect fen groundwater levels
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural drainage conditions	Drainage, either within or surrounding the fen habitat, can result in the drawdown of the alkaline fen groundwater table. The depth, geometry and density of drainage (hydromorphology) will indicate the scale and impact on fen hydrology. Drainage can result in loss of characteristic species and transition to drier habitats
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient under natural conditions. Water supply should also be relatively calcium-rich
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The entire diversity of alkaline fen vegetation communities present in the SAC is currently unknown. Information on the vegetation communities associated with alkaline fens in the uplands is presented in Perrin et al. (2014). See also the Irish Vegetation Classification (Perrin, 2018; www.biodiversityireland.ie/projects/national-vegetation-database/irish-vegetation-classification)
Vegetation composition: brown mosses	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical brown moss species	Typical brown moss species include *Bryum pseudotriquetrum, Calliergonella cuspidata, Calliergon giganteum, Campylium stellatum, Cratoneuron filicinum, Ctenidium molluscum, Fissidens adianthoides, Palustriella commutata, Scorpidium cossonii, S. revolvens* and *S. scorpioides*. Many brown moss species are present in the alkaline fen in Lough Derg, North-east Shore SAC, including *Campylium stellatum, Calliergonella cuspidata, Ctenidium molluscum* and *Fissidens adianthoides* (NPWS internal files)

Vegetation composition: typical vascular plants	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical vascular plant species	For lists of typical plant species see the Article 17 conservation status assessment for alkaline fens (NPWS, 2013) and the fen habitats supporting document (Kimberley, 2013). See also Perrin et al. (2014) and JNCC (2004). In this SAC, black bog-rush (*Schoenus nigricans*) typically dominates the habitat, along with a rich vascular plant flora including other typical species such as purple moor-grass (*Molinia caerulea*), carnation sedge (*Carex panicea*), devil's-bit scabious (*Succisa pratensis*) and meadow thistle (*Cirsium dissectum*) (NPWS internal files)
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of native negative indicator species at insignificant levels	Negative indicators include species not characteristic of the habitat and species indicative of undesirable impacts such as overgrazing, undergrazing, nutrient enrichment, agricultural improvement or impacts on hydrology. Native negative indicators may include graminoids such as reed canary-grass (*Phalaris arundinacea*) and reed sweet-grass (*Glyceria maxima*), tall herbs such as great willowherb (*Epilobium hirsutum*), bracken (*Pteridium aquilinum*), bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*), and bryophytes such as *Brachythecium rutabulum* and *Kindbergia praelonga*
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014). Scrub and trees will tend to invade if fen conditions become drier
Vegetation composition: soft rush and common reed cover	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of soft rush (*Juncus effusus*) and common reed (*Phragmites australis*) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: litter	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of litter not more than 25%	Attribute and target based on JNCC (2004). More than 25% litter cover may indicate insufficient removal of biomass by grazing and/or undesirable water table levels
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground not more than 10%	Attribute and target based on Perrin et al. (2014). While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. Disturbance can include hoof marks, wallows, human footprints, vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion for peatlands
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%	Attribute and target based on Perrin et al. (2014)
Indicators of local distinctiveness	Occurrence and population size	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	This includes species on the Flora (Protection) Order, 2015 and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.). Lough Derg, North-east Shore SAC contains the only known population of the FPO listed and Critically Endangered Irish fleabane (*Inula salicina*) (Wyse Jackson et al., 2016) which occurs in the alkaline fen habitat along the lakeshore (NPWS internal files)

3.2.3. Lough Derg (Shannon) SPA [004058]

Conservation Objectives and Target Notes are set by the NPWS (Version 1. 27 August 2024) for the Lough Derg (Shannon) SPA (004058).

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Conservation Objectives

To restore the Favourable conservation condition of Cormorant in Lough Derg (Shannon) SPA.

To maintain the Favourable conservation condition of Tufted Duck at Lough Derg (Shannon) SPA.

To maintain the Favourable conservation condition of Goldeneye at Lough Derg (Shannon) SPA.

To restore the Favourable conservation condition of Common Tern in Lough Derg (Shannon) SPA.

To maintain the Favourable conservation condition of Wetland habitats in Lough Derg (Shannon) SPA as a resource for the regularly-occurring migratory waterbirds that utilise these areas. This is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Wetland habitat area	Hectares	No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant loss to the wetland habitat within the SPA would likely negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Such loss of wetland habitat would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species
Wetland habitat quality and functioning	Quality and function of the wetland habitat	No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant impact on the quality, functioning and accessibility of the wetland habitat within the SPA would likely negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Impacts on wetland quality, functioning and accessibility would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species

3.2.4. Middle Shannon Callows SPA [004096]

Conservation Objectives and Target Notes are set by the NPWS (Version 1. 27 August 2024) for the Lough Derg (Shannon) SPA (004058).

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Conservation Objectives

To maintain the favourable conservation condition of whooper swan in Middle Shannon Callows SPA.

To restore the favourable conservation condition of wigeon in Middle Shannon Callows SPA.

The status of corncrake as a Species of Conservation Interest for the Middle Shannon Callows SPA is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species.

To maintain the favourable conservation condition of golden plover in Middle Shannon Callows SPA.

To restore the favourable conservation condition of lapwing in Middle Shannon Callows SPA.

To restore the favourable conservation condition of Black-tailed godwit in Middle Shannon Callows SPA.

To restore the favourable conservation condition of black-headed gull in Middle Shannon Callows SPA.

To maintain the favourable conservation condition of wetlands in Middle Shannon Callows SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Wetland habitat area	Hectares	No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant loss to the wetland habitat within the SPA would likely significantly negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Such loss of wetland habitat would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species
Wetland habitat quality and functioning	Quality and function of the wetland habitat	No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant impact on the quality, functioning and accessibility of the wetland habitat within the SPA would likely significantly negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Impacts on wetland quality, functioning and accessibility would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species

3.3. Consideration of Effects on European Sites

3.3.1. Annex I Habitats Directive Habitats

There are no Annex I habitats located under the footprint or in the vicinity of the Proposed Development. There will be no direct impacts on the habitats of the four European sites considered in the assessment and there will be no habitat loss or fragmentation as a result of the proposed development. Having considered direct impacts and ruling them out, indirect impacts are then considered in terms of source pathway vectors.

Potential impacts on the River Shannon Callows SAC, the Middle Shannon Callows SPA along with the Lough Derg, North-east Shore SAC and the Lough Derg (Shannon) SPA are considered in terms of hydrological connectivity between the Proposed Development and Lough Derg via the Gortaha River.

A worst-case scenario may arise were the Proposed Development to result in a significant detrimental change in water quality in the Gortaha River leading to the River Shannon either alone or in combination with other projects or plans as a result of indirect pollution, the effect would have to be considered in terms of changes in water quality which would significantly affect the habitats for which River Shannon and Lough Derg are designated.

3.3.2. Annex I Habitats Directive Species

The drainage ditches on site are relatively small and sallow with no fisheries value and no potential for otter commuting. There are no records from the Gortaha River from the NBDC database for otters. The nearest records are from the River Shannon upstream of Portumna Bridge and from the area of

Portumna Bay in Lough Derg. There will be no direct impacts on otters and there will be no habitat loss or barriers to movement as a result of the proposed development. Having considered direct impacts and ruling them out, indirect impacts are then considered in terms of source pathway vectors.

A worst-case scenario may arise were the Proposed Development to result in a significant detrimental change in water quality in the Gortaha River leading to the River Shannon either alone or in combination with other projects or plans as a result of indirect pollution, the effect would have to be considered in terms of changes in water quality which would significantly affect the habitats or prey availability of otters.

3.3.3. Annex I Birds Directive Birds

There will be no direct impacts on qualifying interest habitats or species and so the main concern is with regard to water quality in The River Shannon and Lough Derg and indirect impacts on water quality and habitats and food sources, particularly for Annexed birds.

It is unlikely that there would be a pollution event from fuel or chemical spillage. However, such an event could significantly affect the Gortaha River leading to the River Shannon and/or the trophic status of Lough Derg which would be contrary to the conservation objectives of the River Shannon Callows SAC and the Middle Shannon Callows SPA.

3.3.4. Ecological Network Supporting Natura 2000 Sites

An analysis of the proposed Natural Heritage Areas and designated Natural Heritage Areas in terms of their role in supporting the species using Natura 2000 sites was undertaken. These supporting roles mainly relate to mobile fauna such as mammals and birds which may use pNHAs and NHAs as "stepping stones" between Natura 2000 sites.

Article 10 of the Habitats Directive and the Habitats Regulations 2011 place a high degree of importance on such non-Natura 2000 areas as features that connect the Natura 2000 network. Features such as ponds, woodlands and important hedgerows were taken into account during the AA process.

There are two NHAs located within 5km of the Proposed Development; Cloonoolish Bog NHA and Capira/Derrew Bog NHA, however, there are no pathways or connectivity to these NHAs. The pNHAs identified in Figure 4 associated with Lough Derg and the River Shannon; Lough Derg pNHA [000011] and River Shannon Callows pNHA [000216] are considered under the higher status as European sites. There is no connectivity to any other pNHAs including Barroughter Bog pNHA [000231].
There are no areas of supporting habitat that will be impacted by the Proposed Development.

3.4. Effects on the Qualifying Interests of European Sites

3.4.1. Direct Effects

There will be no direct impacts on the River Shannon Callows SAC, the Middle Shannon Callows SPA, the Lough Derg North-east Shore SAC or the Lough Derg (Shannon) SPA as a result of the Proposed Development. Direct impact refers to physical impacts defined in the Departmental Guidance as 'Loss of habitat area' and/or 'Habitat Fragmentation'. There are no direct impacts identified which may affect the Annexed habitats or species of the SACs or SPAs. The proposed development will have **no impacts** upon the integrity or the site structure of these four listed European sites.

Having established this, the assessment emphasis is placed on potential indirect and cumulative impacts.

The primary consideration in terms of source-vector-pathways for indirect impacts relates to surface water and potential indirect impacts on hydrologically linked habitats and aquatic species.

3.4.2. Indirect Effects

The potential for impact is considered whereby the Proposed Development would result in a significant detrimental change in water quality either alone or in combination with other projects or plans as a result of indirect pollution of surface water. The effect would have to be considered in terms of changes in water quality which would affect the habitats or species for which the River Shannon Callows SAC, the Middle Shannon Callows SPA, the Lough Derg North-east Shore SAC and the Lough Derg (Shannon) SPA are designated.

Consideration of Effects on Surface Water

The likelihood of impacts on hydrologically connected environmental sites is low and will be avoided by best practice construction management, with particular attention paid to the culverting of drainage ditches leading to the Gortaha River.

Accidental spillages and contaminated runoff and will be avoided by construction management measures which will be set out in a Construction Environmental Management Plan (CEMP). Management measures will include appropriate site-specific measures from the CIRIA Report C532 Control of Water Pollution from Construction Sites.

The CEMP will include a reference to this NIS for the Proposed Development which establishes the connectivity of the Gortaha River to the River Shannon and Lough Derg, and the requirement for avoidance in terms of potential indirect construction activity.

3.5. Mitigation Measures

Ground disturbance is unlikely to have significant indirect impacts the River Shannon Callows SAC, the Middle Shannon Callows SPA, the Lough Derg North-east Shore SAC or the Lough Derg (Shannon) SPA. However, as a precaution, best practice construction methods are proposed to include standard site management to prevent local impacts. The standard best practices also outline methods for the prevention of chemical pollution.

Surface Water Management

Prior to any works, all personnel involved will receive an on-site induction relating to operations adjacent to watercourses and the environmentally sensitive nature of the water courses leading to the Gortaha River and re-emphasise the precautions that are required as well as the construction management measures to be implemented, in particular in relation to the diversion of this stream.

The project proponent will ensure that the engineer setting out the works is fully aware of the ecological constraints and construction management requirements.

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Care will be taken to ensure that exposed soil surfaces are stable to minimize erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All runoff will be prevented from directly entering any water courses as no construction will be undertaken directly adjacent to open water.

During the construction phase as part of standard practice, appropriate measures to prevent water pollution to any watercourses near the site will be implemented during all of the construction phases and will include referral to:

1. Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532).
2. Environmental Good Practice on Site (3rd edition) (C692).

3. Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016).

Pollution of watercourses

- Site boundary markings to safeguard features of interest/value, including drains and streams.
- Silt fencing will be installed strategically around and through the site. The location of the silt fencing will be determined in the construction stage CEMP and will be subject to a detailed assessment of the planned works methodology and works area. The purpose of the silt fencing is to prevent silt laden water leaving the site and entering adjoining lands and the existing

watercourse with the potential to impact watercourses. A typical silt fence detail is shown below in the Figure below. It will consist of a double layer of geotextile membrane fixed to wooden stakes approximately 600mm high. The membrane will be anchored into the ground to form a continuous barrier to silt laden water from the works site. Silt fences will be monitored via a silt inspection log (to be maintained by the Environmental Manager/ ECoW) and periodically maintained during the construction period. Typical maintenance will consist of repairs to damaged sections of membrane and removal of a build-up of silt on the upslope side of the fence. Daily silt fence inspections are recommended as part of their operation ensuring that any necessary repairs can be expedited.

Typical silt fence to be employed

- Drainage ditches will be installed to intercept surface water where there is a risk of significant water flow into excavations, adjoining lands or the existing watercourse. There will also be a requirement to periodically pump water from excavations. All collected and pumped water will have to be treated.
- Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.
- Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.

- The Environmental Manager or ECoW will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.
- Any temporary storage of soil, hardcore, crushed concrete or similar material will be stored 50m from any surface water drains. All temporary storage areas should also have surface run-off controls in place to prevent migration of possible materials. There can be no direct pumping of silty water from the works directly to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement areas, silt busters etc.

Management of Ground Water contamination

The following measures will be required to avoid easy and rapid pathways to the ground water via high level bedrock:

- Stockpiles of soil shall be kept at areas of the site with low bedrock levels where there is at least 1m of soil above the bedrock.
- Earthworks shall be left exposed for the minimum time possible. Earthworks formations shall be protected by a layer of imported granular fill.
- Landscaping and seeding of the site shall be carried out as early as possible.
- Site compounds, fuel storage areas, generators and the like shall be sited away from areas of high level bedrock.

Concrete

- Wet concrete and cement are very alkaline and corrosive and can cause serious pollution to watercourses.
- Disposal of raw or uncured waste concrete will be controlled to ensure that watercourses will not be impacted.
- Best practice in bulk-liquid concrete management addressing pouring and handling, secure shuttering / form-work, adequate curing times will be implemented.
- Wash water from cleaning ready mix concrete lorries and mixers may be contaminated with cement and is therefore highly alkaline, therefore, washing will not be permitted on site.

Accidental Spills and Leaks

- Bulk fuel storage areas should be adequately protected with the provision of appropriate bunding to provide a minimum storage volume of 110% of total fuel storage capacity with the

provision of a spill kit and the use of drip trays. Fuel storage must be sited away from any watercourse or on-site services as far as possible and have a designated area.

- Where sub-contractors are required to refuel vehicles on-site, this will be carried out at a central refuelling location only. The sub-contractor will be required to make the necessary arrangements with the Main Contractor to access and purchase fuel oil from a central supply. All refuelling areas will be on areas of hard standing only at designated agreed locations. Open valves will not be left unattended.
- All fuel, oil and chemical deliveries will be supervised by a responsible person who will be trained to deal with any spillage to prevent a pollution problem occurring.
- Storage tank levels will be checked before delivery to prevent overfilling and to ensure that the product is delivered to the correct tank.
- The storage of materials in the main compound and work sites will be controlled in such a manner to ensure that materials are not damaged prior to use either through vehicle or people movements or through exposure to the elements.
- All fuel, oil and chemicals will be stored on an impervious base within a bunded area and secured. The bund shall have a capacity of 110% of the volume of the products stored within it. All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10 metres from any watercourse.
- All mobile plant will be refuelled in a designated area on an impermeable surface and away from drains. In case of any spillages, there will be a spill response kit available at each refuelling point and within each machines working area. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills caused by over fuelling.

Every effort will be made to prevent pollution incidents associated with spills during the construction of the proposed development. The risk of oil/ fuel spillages will exist on the site and any such incidents will require an emergency response procedure. Given the scale and extent of the proposed development all contractors will carry spill kit materials in their site cabins.

The following steps provide the procedure to be followed in the event of an oil/ fuel spill occurring on site:

- Identify and stop the source of the spill and alert people working in the vicinity.
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.

- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses and/ or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- The Environmental Manager will notify the appropriate stakeholders, such as Galway County Council, National Parks and Wildlife Service, Department of Communications, Climate Action and Environment and Department of Housing, Planning and Local Government and/or the EPA.
- Environmental incidents are not limited to just fuel spillages, therefore, any environmental incident must be reported, recorded and investigated in accordance with the procedures described.

3.6. Assessment of In-Combination Effects

Cumulative effects are described by the EPA as *the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects*. In combination effects are considered in the appropriate assessment process as an assessment of the potential adverse effects of a plan or project in combination with other plans or projects. The underlying intention of the in-combination provision is to take account of cumulative effects.

As part of the Appropriate Assessment, in addition to the proposed works, other relevant projects and plans in the region must also be considered at this stage. This step aims to identify at this early stage any possible significant in-combination or cumulative effects / impacts of the proposed development with other such plans and projects on the Natura 2000 site.

A review of the National Planning Application Database was undertaken. The first stage of this review confirmed that there were no data outages in the area where the Proposed Development is located. The database was then queried for developments granted planning permission within 1km of the Proposed Development within the last three years, these are presented in Table 3 below.

Table 3. Planning Application granted permission in the vicinity of the Proposed Development.

Planning Ref.	Description of development	Comments
23438	for the following development: installation of a new wastewater treatment system & percolation area to serve an existing dwelling & all associated site works	No potential for in-combination effects given the inclusion of best practice construction measures outlined in the Project CEMP.

Planning Ref.	Description of development	Comments
2360849 Parent application	for the demolition of an existing vacant farmhouse & all associated farm outbuildings (total gross floorspace of demolition works is approximately 609m2); three 400 kV single circuit angle masts (approximately 36.5m high) to facilitate the diversion of the existing Oldstreet-Woodland 400 kV overhead line into the proposed compound; three 400 kV gantry structures to allow connection of the existing 400 kV circuit to the proposed series compensation equipment (approximately 29m high measured to top of lightning rod); three series compensation platforms comprising capacitor bank, metal oxide varistor, triggered air gap & discharge damping circuit (approximately 12m high to top of equipment on platform); a communication & protection equipment single storey control building (gross floorspace approximately 125.8m2 & 5.5m high) with 8no. parking spaces; 400 kV associated electrical equipment, including, insulators, instrument transformers, overhead conductors, lightning masts, disconnectors, circuit breakers & filter reactors; removal of two existing 400 kV overhead line towers & associated overhead cables, conductors & surge arrestors; bat roost compensatory structure (gross floorspace approximately 16m2 & height of 4.5m); & all ancillary site development works including, site preparation works, site clearance & levelling; hardstanding & internal access tracks; underground cabling & earthgrid, surface water drainage network including a soakaway & attenuation tank; palisade internal fencing & gates (approximately 2.6m high) & landscaping as required to facilitate the development	No potential for in-combination effects given the inclusion of best practice construction measures outlined in the Project CEMP.
24360	to construct a single storey extension to the rear of an existing single storey dwelling and all associated site works. Gross floor space of proposed works: 131.20 sqm(extension)	No potential for in-combination effects given the inclusion of best practice construction measures outlined in the Project CEMP.

3.6.1. Conclusion of In-combination Effects

Given the inclusion of strict Best Practice Construction Measures to be included and enforced through a Construction Environmental Management Plan, the proposed development will have no predicted impacts on local ecology and biodiversity or on hydrologically linked European sites, therefore in-combination impacts can be ruled out.

The Galway County Development Plan in complying with the requirements of the Habitats Directive requires that all projects and plans that could affect the Natura 2000 sites in the same zone of impact of the Proposed Development site would be initially screened for Appropriate Assessment and if requiring Stage 2 AA, that appropriate employable mitigation measures would be put in place to avoid, reduce or ameliorate negative impacts. In this way any, in-combination impacts with plans or projects for the development area and surrounding townlands in which the development site is located, would be avoided.

Any new applications for the Proposed Development area will be initially assessed on a case-by-case basis *initially* by Galway County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

4. Natura Impact Statement & Conclusion

This NIS has reviewed the predicted impacts arising from the Proposed Development and found that with the implementation of appropriate measures specifically with regard to surface water during construction and operation, there will be no adverse effects on the integrity of the River Shannon Callows SAC, the Middle Shannon Callows SPA, the Lough Derg North-east Shore SAC and the Lough Derg (Shannon) SPA.

It is the conclusion of this NIS, on the basis of the best scientific knowledge available, and with the implementation of the mitigation and restriction measures set out under Section 3.6., that the possibility of any adverse effects on the integrity of the European Sites considered in this NIS (having regard to their conservation objectives), or on the integrity of any other European Sites (having regard to their conservation objectives,) arising from the proposed development, either alone or in combination with other plans or projects, can be excluded beyond reasonable scientific doubt.

A final determination will be made by the competent authority in this regard.

5. References

Department of the Environment, Heritage and Local Government (2009) Guidance on Appropriate Assessment of plans and projects in Ireland (as amended February 2010).

European Commission (2018) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Brussels 28.9.21.

European Commission (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive, Brussels 12.10.21.

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019) Conservation Objectives: Lough Derg, North-east Shore SAC 002241. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2022) Conservation Objectives: River Shannon Callows SAC 000216. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2022) Conservation Objectives: Middle Shannon Callows SPA 004096. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2024) Conservation Objectives: Lough Derg (Shannon) SPA 004058. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2025) National Parks and Wildlife Service Metadata available online at https://www.npws.ie/maps-and-data

Office-of-the-Planning-Regulator (2021) Appropriate Assessment Screening for Development Management OPR Practice Note PN01. March 2021