# Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) Report

## Proposed Derryarkin Sand and Gravel Pit, Croghan, Rhode, Co Offaly

BD Flood
Building with Confidence

Prepared by:

**SLR Environmental Consulting (Ireland) Ltd**

7 Dundrum Business Park, Windy Arbour, Dublin, D14 N2Y7

SLR Project No.: 501.065657.00001

Client Reference No: 00023

3 February 2026

Revision: FINAL

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| 00 Draft | 15 July 2025 | VM | MB | |
| 01 Draft | 5 September 2025 | VM | MB | |
| Final Draft | 9 October 2025 | VM | MB | SMcD |
| FINAL | 21 January 2026 | VM | MB | |

## Basis of Report

This document has been prepared by SLR Environmental Consulting (Ireland) Ltd (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature, and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

# Table of Contents

## Tables in Text



## Appendices

## Acronyms and Abbreviations

| | |
|---|---|
| AA | Appropriate Assessment |
| NIS | Natura Impact Statement |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| LSE | Likely Significant Effect(s) |
| EcIA | Ecological Impact Assessment |

# 1.0 Introduction

## 1.1 Background

SLR Environmental Consulting Ireland (SLR) was commissioned by BD Flood Unlimited Company (hereafter referred to as the Client), to prepare an Appropriate Assessment (AA) Screening report and Natura Impact Statement (NIS) to accompany a planning application for the extraction of sand and gravel at Derryarkin townland, Rhode, Co. Offaly (hereafter referred to as "the Site").

## 1.2 Relevant Legislation and Policy

The requirement for AA screening and AA is set out in the Habitats Directive (Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is transposed into Irish law primarily through the European Communities (Birds and Natural Habitats) Regulations 2011–21, (S.I. 477 of 2011, as amended) ("Birds and Natural Habitats Regulations")) and the Planning and Development Acts 2000-22. Further details are provided in **Appendix A**.

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) provides legal protection for habitats and species of European importance. The Directive requires that where a plan or project is likely to have a significant effect on a European Site, while not directly connected with or necessary to the nature conservation management of the site, it will be subject to 'Appropriate Assessment' to identify any implications for the European site in view of the site's Conservation Objectives. Specifically, Article 6(3) of the Habitats Directive states:

> *'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 subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.*

The competent authority must carry out a screening for appropriate assessment to assess, in view of best scientific knowledge, if the proposed project, individually or in combination with another plan or project is likely to have a significant effect on a European site. If it cannot be excluded, based on objective information, that the proposed project, individually or in combination with other plans or projects, will have a significant effect on a European site, an appropriate assessment of its implications for the European Site(s) in view of the Site's conservation objectives is required to be carried out.

The provisions of Article 6(3) do not apply where the proposed plan or project is 'connected with or necessary to the management of the site'. In this case, the proposed project is not directly connected with or necessary to the management of any European site(s).

## 1.3 Report Purpose

This report presents an examination of whether the proposed project is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is based on best available scientific knowledge. This report has been prepared to inform the competent authority in completing their statutory obligations in relation to Appropriate Assessment, as required by Article 6(3) under Council Directive 92/43/EEC (Habitats Directive).

The information presented will allow the Competent Authority, in this case Offaly County Council, to make a determination regarding likely significant effects on European sites resulting from the proposed development, in accordance with and fulfillment of the requirements of Article 6 of the Habitats Directive and derived Regulations.

## 1.4 Statement of Authority

SLR Project Ecologist Victoria Molloy prepared this report and SLR Associate Ecologist Michael Bailey carried out the technical review.

Victoria Molloy holds a BSc. in Zoology from the University of Galway. She has over four years' experience as a consultant ecologist and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Victoria has prepared a range of survey reports and impact assessment reports for a variety of project types including quarries, renewable energy, forestry licence applications, housing, road, and industrial developments. She is also responsible for carrying out a range of surveys to inform these assessments including preliminary ecological assessment (PEA), habitat, ornithological, and marsh fritillary surveys.

Michael Bailey BSc (Hons) MSc MCIEEM is an Associate Ecologist with SLR and has worked in ecological consultancy in Ireland and the UK and also internationally since 2003. Michael Bailey holds a BSc. in Biology and Ecology from the University of Ulster and an MSc. in Quantitative Conservation Biology from the University of the Witwatersrand in Johannesburg, South Africa. Michael has prepared ecological reports including Appropriate Assessment (AA) screening reports and Natura Impact Statements (NIS) for a wide range of projects in Ireland and the UK and is a full member of CIEEM.

# 2.0 Project Description and the Receiving Environment

## 2.1 Project Description

The proposed extraction of the sand and gravel (as per **Chapter 2** *Project Description* of the EIAR enclosed in **Appendix D**) will be wet working, (i.e., extraction below the natural groundwater level of the site). Processing of the extracted materials will be carried out on-site to produce a range of aggregates for use by the applicant in the manufacture of concrete. The application also includes for the ancillary facilities required to serve the development, as outlined below:

- An overall application area of c. 19.5 hectares.
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures.
- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²); mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site.
- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body.
- The proposed development life is for 15 years to complete extraction and restoration operations.

## 2.2 Existing Environment

A desk study was carried out to collate available information on the existing natural environment at the proposed project location.

### 2.2.1 Site Description

The site is a former Bord na Móna working bog, worked until the 1980s. Following peat extraction, the land at the site was converted to a grassland and used for agriculture as the established land use for c. 40 years.

The application area covers a total area of approximately 19.5 hectares (48.2 acres) and comprises reclaimed agricultural land, currently under pasture. The site is a reclaimed former cutaway bog, with a thin layer of residual organic rich clay material remaining, below which there are reserves of sand and gravel both above and below the underlying water table.

The Site is flat with elevations only varying between c. 78m –79m AOD over the proposed extraction area. The access road and existing site entrance are slightly elevated from the main site area being at an elevation of c. 80m AOD. There are no hedgerows within the application area; and the proposed extraction area consists of one large agricultural field sub-divided by stockproof fencing.

The northern boundary consists of a stockproof fence and field drain. Beyond this is an area of slightly elevated higher ground within which turbine T7 of the Yellow River Windfarm is located.

The entire eastern landholding boundary is denoted by the Yellow River. The application boundary runs along the western bank of the river and consists of a post and wire stockproof fence and intermittent trees and vegetation.

The southern application boundary consists of a stockproof fence. Beyond this is an agricultural access track that runs along the southern boundary before taking a ninety-degree turn north along a small section of the eastern boundary to a bridge access over the Yellow River to access the lands on the eastern side of the river.

The western application boundary is set back slightly and runs parallel to the western edge of the existing agricultural access track which provides access within the overall landholding from the landowner's farm to the northern application area.

The surrounding landscape is comprised of a mix of agricultural land, cutover bog with recolonising vegetation and commercial forestry stands.

### 2.2.2 Habitats (Annex I) Summary

There are no Annex I habitats known to be present on the Site or within 2km of the Site.

### 2.2.3 Species (Annex I birds and Annex II others) Summary

The following Annex I and Annex II species have been recorded in the NBDC 2km grid squares N43X and N43Y and/or within 2km of the Site according to the Article 17 data from the NPWS (as per **Chapter 5** *Biodiversity* of the EIAR enclosed in **Appendix D**):

- Otter (*Lutra lutra*);
- White-clawed crayfish (*Austropotamobius pallipes*); and
- Whooper swan (*Cygnus cygnus*).

# 3.0 Methodology

## 3.1 Guidance

The assessment was conducted in accordance with the following guidance:

- European Commission. (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Luxembourg: Office for Official Publications of the European Communities;
- 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. Commission Notice (2021) Brussels, 28.9.2021 C(2021) 6913 final;
- Environment Heritage and Local Government. (2009, updated 2010). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Dublin: National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government;
- European Commission. (2019). Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC. Brussels, (2019/C 33/01). OJ C 33, 25.1.2019;
- European Commission. (2013). Interpretation Manual of European Union Habitats. Version EUR 28; and
- Office of the Planning Regulator. (2021). OPR Practice Note PN01 Appropriate Assessment Screening for Development Management.

## 3.2 Sources of Information

Sources of information for the assessment of the Project 'alone' and in combination with other plans and projects include the following:

- Environmental Protection Agency (EPA) (on-line map-viewer including the Appropriate Assessment Tool)[1];
- Department of Housing, Planning, and Local Government- EIA Portal.
- Offaly County Development Plan 2021-2027[2]; and
- Offaly County Council planning portal[3] and myplan.ie[4] were accessed for information on other projects and plans.
- National Parks and Wildlife Service – online European site network information, including site conservation objectives[5];
- National Parks and Wildlife Service – Information on the status of EU protected habitats and species in Ireland (including Article 17 and Article 12 Reports); and
- National Biodiversity Data Centre[6].

[1] https://gis.epa.ie/EPAMaps, accessed July 2025
[2] https://www.offaly.ie/c/county-development-plan/, accessed July 2025
[3] https://www.offaly.ie/planning-search/, accessed July 2025
[4] https://www.myplan.ie/, accessed July 2025
[5] www.npws.ie, accessed July 2025
[6] www.biodiversityireland.ie accessed July 2025

## 3.3 Process

The process of determining the likelihood of significant effects from a proposed project on European sites is an iterative process centred around a Source-Pathway-Receptor model. For an effect to be established, all three elements of this mechanism must be in place. The absence of one of the elements of the mechanism is sufficient to conclude that a potential effect cannot occur:

- **Source(s)** – e.g., pollutant run-off, noise, removal of vegetation, etc.;
- **Pathway(s)** – functional link, or ecological pathway e.g., groundwater connecting to nearby qualifying wetland habitats; and
- **Receptor(s)** – the qualifying habitats and species of European sites and ecological resources supporting those habitats/species.

In the context of this report, a source is any identifiable element of the proposed project that is known to interact with the receiving environment. A receptor is the Qualifying Interests (QI)[7] for an SAC or Special Conservation Interests (SCI)[8] for an SPA or an ecological feature that is known to be utilised by the QI/SCI. In practice, the term Qualifying Interests also applies to SCIs (and is used in this document for simplicity). A pathway is any connection or link between the source and the receptor

### 3.3.1 Stage One: AA Screening

The assessment commences with a description of the proposed project, along with a description of the receiving environment and the associated sources for impacts to the receiving environment. All elements of the proposed project are presented including the proposed project location and existing baseline environment. The type of impacts that are likely due to the proposed project (Source) are identified having regard to the spatial and temporal scale of the proposed project, resource requirements and likely emissions. These sources are then used to define the zone of influence (ZoI) of the proposed project as detailed in Section 2.0.

The European Commission Notice (2021) on the '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, states that in identifying European sites (Natural 2000 sites), which may be affected by the project, the following should be identified:

- Any European 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 European sites within the likely zone of influence of the plan or project. European 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; and
- European sites whose connectivity or ecological continuity can be affected by the plan or project.

[7] SACs are areas designated under the Habitats Directive to conserve habitats listed in Annex I of the Directive and plant and animal species listed in Annex II. Collectively these are referred to as the 'Qualifying Interests' or 'QIs' of the SAC.
[8] SPAs are sites classified under the Birds Directive to protect rare or vulnerable bird species listed in Annex I to the Directive as well as regularly occurring migratory species and wetlands. Wetland habitats that support internationally important populations of migratory birds may be coastal or inland. Collectively, these species and habitats are referred to as the 'Special Conservation Interests' of the SPA.

The zone of influence of a proposed project is the geographical area over which it could affect the receiving environment in a way that could have potential effects on the Qualifying Interests of a European site. The OPR (2021) practice note states that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor (S-P-R) framework and not by arbitrary distances (such as 15 km). Section 3.2 sets out the detailed rationale for the identification of relevant European sites within the ZoI based on the sources of impacts arising from the proposed project. Subsequently, an assessment is undertaken with respect to potential connectivity (Pathways) to European Sites and their qualifying interests/special conservation interests are identified.

The potential for in-combination effects with other plans and projects is examined in Section 3.3, having regard to the identified impacts of the proposed project along the ecological pathways identified to European sites.

In section 3.4 the likelihood of significant effects of the European Sites within the ZoI is examined having regard to the sensitivity of the site with pathways for impacts associated with the project on its own and in combination with other plans and projects.

Having regard to the European Commission Communication on the Precautionary Principle (European Commission, 2021) the:

> *"Absence of scientific evidence on the significant negative effect of an action cannot be used as justification for approval of this action. When applied to Article 6(3) procedure, the precautionary principle implies that the absence of a negative effect on Natura 2000 sites has to be demonstrated before a plan or project can be authorised. In other words, if there is a lack of certainty as to whether there will be any negative effects, then the plan or project cannot be approved."*

Where significant effects are determined to be likely, or where there is uncertainty regarding the likelihood of significant effects, the project will be required under law to be subjected to Appropriate Assessment.

This AA screening is based on best scientific knowledge and has utilised ecological expertise. In addition, a detailed online review of published scientific literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives.

### 3.3.2 Stage Two: Appropriate Assessment

A Stage 2 AA (Natura Impact Statement) is a focused and detailed examination, analysis and evaluation carried out by the competent authority of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, in summary:

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

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

(iii) may only include a determination that the project will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects.

If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three and, if necessary, stage four.

# 4.0 AA Screening

## 4.1 Management of any European Site

The proposed project consists of the extraction of sand and gravel on the Site. Therefore, it is not connected with, or necessary for, the management of a European site.

## 4.2 Sources of Potential Impacts

Based on the project description in Section 2.0 and a review of the planning documents the following sources for impacts have been identified. The proposed development has the potential to result in the following effects:

- Habitat loss within the project footprint;
- Changes to surface water quality due to the introduction of suspended solids or other pollutants into water bodies;
- Changes to groundwater quality which may impact groundwater dependant water features near the project site;
- Changes to groundwater levels;
- Noise and vibration associated with extraction activities (quarry machinery and plant activity) which may disturb fauna near the project site; and
- Emissions to air (dust) resulting from extraction activities which could lead to ecological impacts such as smothering of vegetation restricting growth and reducing potential foraging sources for fauna near the project site.

The habitats and species listed as features of interest of any European sites in proximity to the project must therefore be assessed for affects from potential impact factors listed above, and these effects are considered further below.

## 4.3 Pathways - Ecological Connections

#### 4.3.1.1 General overview of connection rationale

A population of a mobile species that is a qualifying interest of a European site could also use habitat within or in the vicinity of a project site. If such a population is sometimes present within a project site, it is ecologically connected to the relevant European site. For example, ecological connections may include populations of birds, mammals, migratory fish and other species from the QIs of a European site.

Other examples of potential ecological connections include habitat connections either directly or as ‘stepping stones’ between habitats. Also, a project site may support a population of the same species as those within a connected European site which occasionally exchange individuals. Furthermore, a project site may support populations of species which are prey/food or hosts to the QIs of a European site.

#### 4.3.1.2 Ecological Connections – zone of influence

NPWS guidelines (NPWS, 2010) and the Office of the Planning Regulator’s Practice Note PN01 (OPR, 2021) suggest that a 15 km study area is adopted, but a case-by-case basis is undertaken when assessing the potential for source-receptor connectivity between a project and European sites.

While an initial 15 km study area was adopted for SACs, a different approach was undertaken for SPAs.

In the absence of any specific European or Irish guidance in relation to establishing ecological connectivity to SPAs, NatureScot guidance (formerly Scottish Natural Heritage or 'SNH') (SNH, 2016) was consulted. This document provides guidance in relation to the identification of ecological connectivity between development sites and SPAs. The guidance takes into consideration the distances species may travel beyond the boundary of relevant SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects. It goes on to state that *"in most cases the core range should be used when determining whether there is connectivity between the proposal and the QIs"*. Where SPAs and developments are separated by a greater distance than the core foraging ranges for the SPAs listed QI species, there is no likely ecological connectivity to the development.

According to NatureScot guidance (SNH, 2016), the core foraging distances of wintering grey geese (greylag goose *Anser anser* and pink-footed goose *Anser brachyrhunchus*) from SPAs is 15-20 km. This represents the largest foraging range of all the species listed in this guidance document recorded in Ireland. It is acknowledged that information on core foraging ranges is not available for all Irish SCI species. In such cases, the 15-20 km core foraging range for grey geese has been adopted as a precautionary approach.

Thus, all SPAs within 20 km from the Project were considered for ecological source-receptor connectivity.

Airborne emissions were considered using the approaches outlined in IAQM guidance (IAQM, 2016), which suggests that air pollution and dust from mineral extraction are only likely to be important for sensitive European sites within 500 m.

#### 4.3.1.3 Hydrological and Hydrogeological Connections

Hydrological connectivity beyond 20 km was also searched for using GIS to identify any European sites downstream of the project connected via watercourses.

The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and therefore connects the Site to the River Boyne and River Blackwater SAC and SPA c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site.

The Site is located on the Athboy groundwater body. The River Boyne and River Blackwater SAC and SPA are located within the same groundwater body.

## 4.4 Identification of European Sites - Sensitive Receptors

European sites identified to have sources and pathways for effects from steps 1 and 2 above. These sites are detailed in **Table 4-1** to interrogate the sensitive receptors present (if any). The locations of these sites, along with hydrological and hydrogeological details, are shown in **Figure 1**.

**Table 4-1: Description of European sites with Potential Source-Pathway-Receptor Links**

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| **Special Areas Of Conservation (SACS)** | | | | |
| **Raheenmore Bog SAC [000582]** | 5.22km south-west | • Degraded raised bogs still capable of natural regeneration [7120],<br>• Depressions on peat substrates of the Rhynchosporion [7150],<br>• Active raised bogs [7110] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is no surface water hydrological connection between the Site and this European site. Therefore, there is no potential for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. In addition, the peat habitats for which the European site is designated are primarily rain-fed and are not reliant on groundwater. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there are no pathways identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site. | **N** |
| **Split Hills and Long Hill Esker SAC** | 10.24km west | • Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) *important orchid sites [6210] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the | **N** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| **[001831]** | | | European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is no surface water hydrological connection between the Site and this European site. Therefore, there is no potential for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there are no pathways identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site. | |
| **Lough Ennell SAC**<br>**[000685]** | 11.16km north-west | • Alkaline fens [7230] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is no surface water hydrological connection between the Site and this European site. Therefore, there is no potential for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there | **N** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | | is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there are no pathways identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site. | |
| **Mount Hevey Bog SAC**<br>**[002342]** | 15.8km north-east | • Active raised bogs [7110],<br>• Degraded raised bogs still capable of natural regeneration [7120],<br>• Depressions on peat substrates of the Rhynchosporion [7150] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is no surface water hydrological connection between the Site and this European site. Therefore, there is no potential for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in the same groundwater body to this European site. Therefore, there is potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration. | **Y** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | | **Conclusion:** Therefore, there is a pathway identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | |
| **River Boyne and River Blackwater SAC**<br>**[002299]** | c. 27km downstream | • Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0],<br>• *Lampetra fluviatilis* (River Lamprey) [1099],<br>• *Salmo salar* (Salmon) [1106],<br>• *Lutra lutra* (Otter) [1355] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is a surface water hydrological connection between the Site and this European site. Therefore, there is a potential pathway for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there is a pathway identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | **Y** |
| **Boyne Coast and Estuary SAC** | c. 105km downstream | • Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the | **Y** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| **[001957]** | | • Annual vegetation of drift lines [1210],<br>• Salicornia and other annuals colonising mud and sand [1310],<br>• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330],<br>Embryonic shifting dunes [2110],<br>• Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120],<br>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] | European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is a surface water hydrological connection between the Site and this European site. Therefore, there is a potential pathway for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there is a pathway identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | |
| **Special Protection Areas (SPAs)** | | | | |
| **Lough Ennell SPA**<br>**[004044]** | 11.84km north-west | • Great Crested Grebe (Podiceps cristatus) [A005],<br>• Mallard (*Anas platyrhynchos*) [A053],<br>• Pochard (*Aythya ferina*) [A059],<br>• Tufted Duck (*Aythya* fuligula) [A061],<br>• Goldeneye (*Bucephala clangula*) [A067], | **Habitat loss –** The Site does not overlap with this European site. The Site is located over 11km from the European site which is outside the maximum foraging range of the golden plover (SNH, 2016). The Site is considered to be sufficiently distant from the European site to be outside of the core foraging range of the other species for which the site is designated. Therefore, there is no potential for LSEs as a result of habitat loss. | **N** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | • Coot (*Fulica atra*) [A125],<br>• Golden Plover (Pluvialis apricaria) [A140],<br>• Lapwing (*Vanellus vanellus*) [A142],<br>• Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395],<br>• Wetland and Waterbirds [A999] | **Surface Water Quality –** There is no surface water hydrological connection between the Site and this European site. Therefore, there is no potential for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there are no pathways identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site. | |
| **River Boyne and River Blackwater SPA**<br>**[004232]** | c. 27km downstream | • Cormorant (*Phalacrocorax carbo*) [A017],<br>• Grey Heron (*Ardea cinerea*) [A028],<br>• Teal (*Anas crecca*) [A052],<br>• Mallard (*Anas platyrhynchos*) [A053],<br>• Kingfisher (*Alcedo atthis*) [A229] | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is a surface water hydrological connection between the Site and this European site. Therefore, there is a potential pathway for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality. | **Y** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | | **Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there is a pathway identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | |
| **Boyne Estuary SPA [004080]** | c. 105km downstream | • Cormorant (*Phalacrocorax carbo*) [A017],<br>• Brent Goose (*Branta bernicla*) [A046],<br>• Shelduck (*Tadorna tadorna*) [A048],<br>• Wigeon (*Anas penelope*) [A050],<br>• Teal (Anas crecca) [A052],<br>• Mallard (*Anas platyrhynchos*) [A053],<br>• Red-breasted Merganser (*Mergus serrator*) [A069],<br>• Oystercatcher (*Haematopus ostralegus*) [A130],<br>• Ringed Plover (*Charadrius hiaticula*) [A137],<br>• Golden Plover (*Pluvialis apricaria*) [A140],<br>• Grey Plover (*Pluvialis squatarola*) [A141],<br>• Lapwing (*Vanellus vanellus*) [A142], Knot (*Calidris canutus*) [A143],<br>• Sanderling (*Calidris alba*) [A144], | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is a surface water hydrological connection between the Site and this European site. Therefore, there is a potential pathway for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016).<br>**Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration. | **Y** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | • Dunlin (*Calidris alpina*) [A149],<br>• Black-tailed Godwit (Limosa limosa) [A156],<br>• Bar-tailed Godwit (*Limosa lapponica*) [A157],<br>• Curlew (*Numenius arquata*) [A160],<br>• Redshank (*Tringa totanus*) [A162],<br>• Greenshank (*Tringa nebularia*) [A164],<br>• Turnstone (*Arenaria interpres*) [A169],<br>• Black-headed Gull (*Larus ridibundus*) [A179],<br>• Common Gull (*Larus canus*) [A182],<br>• Little Tern *(Sterna albifrons)* [A195], Wetland and Waterbirds [A999] | **Conclusion:** Therefore, there is a pathway identified relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | |
| **North-West Irish Sea SPA**<br>**[004236]** | c. 110km downstream | • Red-throated Diver (*Gavia stellata*) [A001],<br>• Great Northern Diver (*Gavia immer*) [A003],<br>• Fulmar (*Fulmarus glacialis*) [A009],<br>• Manx Shearwater (*Puffinus puffinus*) [A013],<br>• Cormorant (*Phalacrocorax carbo*) [A017],<br>• Shag (*Phalacrocorax aristotelis*) [A018],<br>• Common Scoter (*Melanitta nigra*) [A065],<br>• Black-headed Gull (*Chroicocephalus ridibundus*) [A179],<br>• Common Gull (*Larus canus*) [A182],<br>• Lesser Black-backed Gull (*Larus fuscus*) [A183], | **Habitat loss –** The Site does not overlap with this European site. None of the Annex I habitats for which the European site is designated are found on-site. Therefore, there is no potential for LSEs as a result of habitat loss.<br>**Surface Water Quality –** There is a surface water hydrological connection between the Site and this European site. Therefore, there is a potential pathway for LSEs as a result of reduced surface water quality.<br>**Groundwater Quality –** The Site is located in a different groundwater body to this European site. Therefore, there is no potential for LSEs as a result of reduced groundwater quality.<br>**Dust Emissions –** The Site is located over 500m from this European site. Therefore, it is sufficiently distant to exclude any LSE from dust emissions (IAQM, 2016). | **Y** |

| Site Name & Site Code | Distance | Qualifying Features | Connections (Source-Pathway-Receptor) | Considered further in screening [Y/N] |
|---|---|---|---|---|
| | | • Herring Gull (*Larus argentatus*) [A184],<br>• Great Black-backed Gull (*Larus marinus*) [A187],<br>• Kittiwake (*Rissa tridactyla*) [A188],<br>• Roseate Tern (*Sterna dougallii*) [A192],<br>• Common Tern (*Sterna hirundo*) [A193],<br>• Arctic Tern (*Sterna paradisaea*) [A194],<br>• Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200],<br>• Puffin (*Fratercula arctica*) [A204],<br>• Little Gull (*Hydrocoloeus minutus*) [A862],<br>• Little Tern (*Sternula albifrons*) [A885] | **Noise and Vibration –** The Site is considered to be sufficiently distant from this European site to exclude the possibility of LSEs from noise and vibration.<br>**Conclusion:** Therefore, there is a pathway identified – relative to the sources for impacts outlined in **Section 4.2** – that are likely to affect the sensitive receptors of this European site, and this likely effect is assessed further in this report. | |

## 4.5 Assessment of Likely Significant Effects

### 4.5.1 Effects of the Proposed Project Alone

As detailed in **Table 4-1** it has been demonstrated that the sources for impacts are:

- Changes to surface water quality due to the introduction of suspended solids or other pollutants into waterways;
- Changes to groundwater quality which may impact groundwater dependant water features near the project site; and
- Changes to groundwater levels.

Therefore, further considerations are required regarding these potential effects relative to each of the sensitive receptors in the following European sites:

- Mount Hevey Bog SAC [002342];
- River Boyne and River Blackwater SAC [002299];
- Boyne Coast and Estuary SAC [001957];
- River Boyne and River Blackwater SPA [004232];
- Boyne Estuary SPA [004080]; and
- North-West Irish Sea SPA [004236].

### 4.5.2 Changes in Surface Water Quality

The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and connects the Site to the River Boyne and River Blackwater SAC [002299] and the River Boyne and River Blackwater SPA [004232] c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site.

The extraction area will be located approximately 35m from the Yellow stream, and a berm will be constructed along the edges of the extraction area at a distance of 20m from the stream.

The proposed development has the potential to result in the introduction of suspended solids and/or other pollutants into the Yellow stream which may, ultimately, enter the European sites listed above.

Dilution in the marine environment would significantly reduce any potential impacts from changes in water quality for the North-West Irish Sea SPA. Therefore, this site can be reasonably excluded from further consideration in this report.

### 4.5.3 Groundwater

The Site is located in the Athboy groundwater body; only Mount Hevey Bog SAC is located in the same groundwater body.

#### 4.5.3.1 Changes in Groundwater Quality

Direct impacts on groundwater quality as a result of accidental leaking or spillage of fuel and/or other petroleum-based products, have the potential to impact the groundwater body on which the Site is located. However, any effect to groundwater will be limited due to the short-term nature of works, and any leakage / spillage would be accidental only and of limited volume. Any impacts on groundwater are considered to be slight and not significant.

As such, the possibility of impacts on groundwater quality as a result of the proposed development are negligible and any spillage that may occur would be low in volume. Therefore, it is unlikely that any impacts on groundwater quality would extend to the Mount Hevey Bog SAC due to the distance between the Site and this European site.

#### 4.5.3.2 Changes in Groundwater Levels

The proposed sand and gravel pit will be worked below the groundwater in the sand and gravel deposits; however, no dewatering of shallow groundwater will take place. Therefore, there will be very localised, temporary and limited impacts on the Athboy groundwater body. These impacts are unlikely to extend to the Mount Hevey Bog SAC, due to the distance between the Site and this European site.

### 4.5.4 In-Combination Effects

In-combination effects can occur where a proposed development results in individually non-significant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

Other plans and projects that should be considered when establishing cumulative effects are:

- proposals for which consent has been applied but which are awaiting determination;
- projects which have been granted consent, but which have not yet been started, or which have been started but are not yet completed (i.e., under construction);
- proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- developments specifically referenced in a National Policy Statement, a National Plan or a Local Plan.

There are no plans or policies in the Offaly County Development Plan 2021-2027 or the Westmeath County Development Plan 2021-2027 which would result in LSE in-combination with the proposed development.

A search of recent (within the last five years) planning applications was carried out for applications that may give rise to in-combination effects with the project. As such the search focused on projects along the hydrological connection between the Site and any European designated site both upstream and downstream of the Site to where the potential for likely cumulative impacts could be reasonably scoped out due to factors such as dilution.

There are a number of applications along the Yellow river which have the potential to share a hydrological link to European sites downstream which could potentially act in–combination with the proposed project. These projects include a 23-year permission to the extension of a sand and gravel pit adjacent to the Site and a 10-year permission for a solar farm development approximately 6.1 km downstream of the Site. Other projects within this zone of influence are limited to small-scale agricultural developments such as a farm shed etc. **Appendix C** lists the recent planning applications considered for in combination effects with the proposed development.

The planning applications listed in **Appendix C** are not anticipated to result in cumulative effects with the proposed development. Therefore, the risk of significant effects on European sites because of the proposed development can be excluded for the project when considered in-combination with other proposed or permitted plans and projects.

# 5.0 AA Screening Conclusion

Through an assessment of the Pathways for potential effects and an evaluation of the Sources for impacts, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that, in the absence of the implementation of suitable mitigation, there is potential for likely significant adverse effects on the qualifying interests, special conservation interest or the conservation objectives. Therefore, further consideration is required for the following European sites:

- River Boyne and River Blackwater SAC;
- River Boyne and River Blackwater SPA;
- Boyne Coast and Estuary SAC; and
- Boyne Estuary SPA.

This information is presented in this report will allow the Competent Authority to make their determination regarding the need for a Stage 2 Appropriate Assessment with regard to likely significant effects on European sites resulting from the proposed project, in accordance with and fulfilment of the requirements of Article 6 of the Habitats Directive and derived Regulations.

# 6.0 Stage Two: Appropriate Assessment

## 6.1 Information on the Project

### 6.1.1 The Project

The proposed extraction of the sand and gravel will be wet working, (i.e., extraction below the natural groundwater level of the site). Processing of the extracted materials will be carried out on-site to produce a range of aggregates for use by the applicant in the manufacture of concrete. The application also includes for the ancillary facilities required to serve the development, as outlined below.

- An overall application area of c. 19.5 hectares.
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures.
- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²), mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site.
- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body.
- The proposed development life is for 15 years to complete extraction and restoration operations.

### 6.1.2 Construction Phase (Ancillary Facilities, Hardcore Access Track & Fencing)

As this is a greenfield site, there is a requirement for new welfare and ancillary facilities and infrastructure to be installed to service the site for the duration of the proposed development and following cessation of extraction and operations.

It is anticipated that the construction stage works as outlined below will be carried out within a 6-month period. It should be noted that extraction and production operations may be commenced within this 6-month period and carried out in tandem with the below-mentioned development works.

A new internal access road will run from the existing site entrance (which provides access to turbine T7) in a south-westerly direction to the new site facilities compound area. There is already a section (c. 120m) of the internally access inside the site entrance where hardcore is already in place serving the turbine compound location. An additional section (c. 210m) of hardcore road will be constructed between the existing hardcore road and the new site facilities area.

The site facilities area will also consist of a hardcore surface where the weighbridge and wheelwash will be installed on the outbound carriageway. Adjacent to this will be the mobile welfare pod (office, canteen, toilet) and a dedicated parking area. The perimeter will be fenced, and an automated barrier will be installed to control access to the site.

Beyond the compound area, a hardcore surface track will run south to the proposed extraction and stripped soil stockpile storage areas.

### 6.1.3 Operational Phase (Phased Soil Stripping / Berm Construction and Sand & Gravel Extraction / Processing)

The extraction of the sand and gravel will be carried out in line with best international practice.

The volume, lateral extent and depth of overburden / sands and gravels for the site have been determined from site investigations. The proposed extraction and processing tasks and activities to be implemented at the site consist of:

- removal of the in-situ residual clay overlying the sand and gravel.
- wet working extraction, i.e., extraction of the sand and gravel materials from beneath the natural water table of the site to a depth of typically from 6m up to 10m.
- long-reach excavator will dig out the sand and gravel and stockpile it in a row beside excavation.
- stockpiling of the sand and gravel adjacent to the working extraction area to allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground.
- stockpiled material is allowed to dry out for typically 2-3 days.
- mobile tracked screener is moved along with the advancing extraction face and the stockpiles and the materials are screened and put into 4 different stockpiles
- sand, 10mm, 20mm and oversize.
- the oversize stockpiles will be crushed as required to produce aggregates of a suitable size in the concrete production process.
- trucks will be loaded directly from the screener or from adjacent stockpiles.
- trucks weigh out on weighbridge and receive a delivery docket and exit the site via the wheelwash.

The overall extraction footprint is c. 11.7 hectares, and it is proposed to extract the materials on a gradual and phased basis as follows:

| | | |
|---|---|---|
| • Phase 1 | c. 3.2 hectares | c. Years 1-4 |
| • Phase 2 | c. 3.4 hectares | c. Years 5-8 |
| • Phase 3 | c. 3.5 hectares | c. Years 9-12 |
| • Phase 4 | c. 1.6 hectares | c. Years 13-14 |
| • Total | c. 11.7 hectares | |

The phased approach to extraction will be carried out within the individual phase areas consisting of soil stripping, followed by sand and gravel extraction followed by restoration using onsite materials. Extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed. All lands will remain in agricultural use until required for extraction.

There is no requirement for hedgerow or tree removal during any of the development phases. The following is an overview of the proposed works to be carried out on a phased basis over the life of the proposed development.

#### 6.1.3.1 Phase 1 – Extraction

- Initial soil stripped from both the Phase 1 extraction area (c. 3.2 ha.) and the soil/overburden storage area (c. 1.9 ha.) will be stored on ground level in permitter screening berms.
- The external perimeter of the berm will be secured with stockproof fencing.
- Sand and gravel extraction within Phase 1, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

#### 6.1.3.2 Phase 2 – Extraction / Restoration

- Soil stripped from the Phase 2 extraction area (c. 3.4 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary.
- Any excess stripped soils will be stored in the soil/overburden storage area to the north of Phase 1.
- The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.
- The soil material in the existing berm between Phases 1 & 2 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.
- Sand and gravel extraction within Phase 2, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

#### 6.1.3.3 Phase 3 – Extraction / Restoration

- Soil stripped from the Phase 3 extraction area (c. 3.5 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary.
- The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.
- Any excess stripped soils along with the soil material in the existing berm between Phases 2 & 3 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.
- Sand and gravel extraction within Phase 3, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

#### 6.1.3.4 Phase 4 – Extraction / Restoration

- Soil stripped from the Phase 4 extraction area (c. 1.6 ha.) will either be stored in the soil/overburden storage area to the north of Phase 1 or used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.
- Sand and gravel extraction within Phase 4, with the wet working face advancing in a northerly direction, leaving a permanent waterbody feature behind.

The phased extraction and restoration scheme has the benefit of:

- retaining existing land for agricultural use for as long as possible thereby minimising the stripped areas being exposed at any one time.
- progressive restoration will expedite the return of the lands to a beneficial biodiversity and water feature after use and minimise the overall duration required to carry out the extraction and restoration works.
- where possible, minimising soil handling by stripping from one area and placing directly onto the area previously extracted and ready for restoration.
- replanting of new vegetation at the earliest opportunity.

### 6.1.4 Restoration Phase (Reinstatement to Ecological Habitat)

The extraction and restoration activities proposed for the site will be on a phased basis. Working in this manner will facilitate the progressive restoration of each area which will generally comprise reinstatement of excavated deposits to the extracted areas, the establishment of a permanent water body and allowing the lake edges and external perimeter berms to naturally regenerate / revegetate over time. There is no requirement to import any materials to site for restoration purposes.

Evidence from similar existing operations is that following extraction works, areas will become colonised with locally occurring grass, wildflower and scrub species, as well as aquatic species along the lakes edge. It is most likely that the lake will be regularly visited by bird species, such as Whooper Swan and Mute Swan which are observed at other wet working extraction operations within the vicinity of the site.

During the post-operational stage, the progressive landscape restoration measures would already be in place across much of the site and, as such, the area will be left undisturbed and allowed to naturally regenerate with secondary woodland and scrub becoming established over a number of years.

Any soil that was previously stripped and stored within the soil/overburden storage area to the north of Phase 1 will be along the northern boundary of Phase 1 to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site. The soil/overburden area will be left to naturally regenerate and provide a valuable ecological habitat area adjacent to the permanent water body feature.

The perimeter berm around the final extraction profile will be retained as it will have been colonised for some time with native species. The stockproof fence will also be retained and along with the berm will provide an adequate security barrier to the water body.

The 20m riparian corridor along the length of the easter extraction boundary between the retained screening berm and the Big River will be planted with blocks of native tree species and allow to develop naturally and will provide a habitat refuge linking the new water body created by the extraction works and the river and into the areas of forestry and scrubland beyond.

Redundant structures, plant equipment and stockpiles will be removed from the site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

The restoration works will be carried out in accordance with the EPA Guidelines (2006). Ecological advice will also be incorporated into the restoration process to facilitate future habitat value in the area for flora and fauna.

All existing boundary fences and hedgerows will be retained to ensure that the site is secure.

It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

### 6.1.5 The Project Site

#### 6.1.5.1 Habitats (Annex I) Summary

There are no Annex I habitats known to be present on the Site or within 2km of the Site.

#### 6.1.5.2 Species (Annex I birds and Annex II others) Summary

The following Annex I and Annex II species have been recorded in the NBDC 10km grid squares N43X and N43Y and/or within 2km of the Site according to the Article 17 data from the NPWS:

- Otter (*Lutra lutra*);
- White-clawed crayfish (*Austropotamobius pallipes*);
- Whooper swan (*Cygnus cygnus*).

## 6.2 Information on European Sites

### 6.2.1 River Boyne and River Blackwater SAC [002299]

#### 6.2.1.1 Brief Description

*"This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part, with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.*

*The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the riverbanks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species."*

#### 6.2.1.2 Qualifying/Special Conservation Interest

The qualifying interests relevant to this NIS are listed below. All other qualifying interests listed for this European site have been scoped out of further consideration in this report as changes in water quality are not considered to have a direct or indirect impact on their conservation objectives.

**Alkaline Fens [7230]**

- Conservation objective: To maintain the favourable conservation condition of Alkaline fens in River Boyne and River Blackwater SAC.
    - Attributes and targets relevant to this NIS: Ecosystem function: water quality.

- The target is to maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat.

**River Lamprey *Lampetra fluviatilis* [1099]**

- Conservation objective: To restore the favourable conservation condition of River Lamprey (*Lampetra fluviatilis*) in River Boyne and River Blackwater SAC.
  - Attributes and targets relevant to this NIS: Extent and distribution of spawning nursery habitat.
  - The target is no decline in extent and distribution of spawning and nursery beds.
  - A reduction in water quality may result in a reduction in the extent of suitable spawning and nursery habitat for river lamprey.

**Salmon *Salmo salar* [1106]**

- Conservation objective: To restore the favourable conservation condition of Salmon (*Salmo salar*) in River Boyne and River Blackwater SAC.
  - Attributes and targets relevant to this NIS: Water quality.
  - The target is at least Q4 at all sites sampled by EPA.

**Otter *Lutra lutra* [1355]**

- Conservation objective: To maintain the favourable conservation condition of Otter (*Lutra lutra)* in River Boyne and River Blackwater SAC.
  - Attributes and targets relevant to this NIS: Fish biomass available.
  - The target is no significant decline.
  - A reduction in water quality may result in a reduction in the availability of prey for otter.

### 6.2.2 River Boyne and River Blackwater SPA [004232]

#### 6.2.2.1 Brief Description

*"The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Cos Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.*

*A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.*

*The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive."*

#### 6.2.2.2 Qualifying/Special Conservation Interest

**Kingfisher *Alcedo atthis* [A229]**

- Conservation objective: To maintain the favourable conservation condition of Kingfisher (*Alcedo atthis)* in River Boyne and River Blackwater SPA.
  - Attributes and targets relevant to this NIS: Water quality.
  - The target is both biotic (i.e. Q-value) and abiotic indices reflect overall good-high quality status.

The other species listed in **Table 4-1** are regularly occurring migratory species that are associated with the River Boyne and River Blackwater SPA. These species may also be indirectly impacted by changes to water quality as there may be a reduction in foraging availability.

### 6.2.3 Boyne Coast and Estuary SAC [001957]

#### 6.2.3.1 Brief Description

*"Boyne Coast and Estuary SAC is a coastal site which includes most of the tidal sections of the River Boyne, intertidal sand-and mudflats, saltmarshes, marginal grassland, and the stretch of coast from Bettystown to Termonfeckin that includes the Mornington and Baltray sand dune systems.*

*The site is of considerable conservation interest as a coastal complex that supports good examples of eight habitats that are listed on Annex I of the E.U. Habitats Directive, including one which is listed with priority status, and for the important bird populations that it supports."*

#### 6.2.3.2 Qualifying/Special Conservation Interest

The qualifying interests relevant to this NIS are listed below. All other qualifying interests listed for this European site have been scoped out of further consideration in this report as changes in water quality are not considered to have a direct or indirect impact on their conservation objectives.

**Estuaries [1130]**

- Conservation objective: To maintain the favourable conservation condition of Estuaries in Boyne Coast and Estuary SAC.
  - Attributes and targets relevant to this NIS: Community distribution.
  - The target is to conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with Hediste diversicolor and Corophium volutator community; and Subtidal fine sand dominated by polychaetes community.
  - Changes in water quality may result in changes to the community distribution through impacts on the fauna associated with this habitat.

### 6.2.4 Boyne Estuary SPA [004080]

#### 6.2.4.1 Brief Description

*"This moderately-sized coastal site is situated west of Drogheda on the border of Counties Louth and Meath. The site comprises most of the estuary of the Boyne River, a substantial river which drains a large catchment. Apart from one section which is over 1 km wide, its width is mostly less than 500 m. The river channel, which is navigable and dredged, is defined by training walls, these being breached in places. Intertidal flats occur along the sides of the channelled river. The sediments vary from fine muds in the sheltered areas to sandy muds or*

*sands towards the river mouth. The linear stretches of intertidal flats to the north and south of the river mouth are mainly composed of sand.*

*The site is of considerable ornithological importance for wintering waterfowl, with Black-tailed Godwit occurring in internationally important numbers and nine other species having populations of national importance. Of particular significance is that three species that regularly occur, Golden Plover, Bar-tailed Godwit and Little Tern are listed on Annex I of the E.U. Birds Directive. Part of the Boyne Estuary SPA is a Wildfowl Sanctuary."*

#### 6.2.4.2 Qualifying/Special Conservation Interest

**Shelduck *Tadorna tadorna* [A048]**

- Conservation objective: To maintain the favourable conservation condition of Shelduck in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Oystercatcher *Haematopus ostralegus* [A130]**

- Conservation objective: To maintain the favourable conservation condition of Oystercatcher in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Golden Plover *Pluvialis apricaria* [A140]**

- Conservation objective: To maintain the favourable conservation condition of Golden Plover in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Grey Plover *Pluvialis squatarola* [A141]**

- Conservation objective: To maintain the favourable conservation condition of Grey Plover in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Lapwing *Vanellus vanellus* [A142]**

- Conservation objective: To maintain the favourable conservation condition of Lapwing in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Knot *Calidris canutus* [A143]**

- Conservation objective: To maintain the favourable conservation condition of Knot in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Sanderling *Calidris alba* [A144]**

- Conservation objective: To maintain the favourable conservation condition of Sanderling in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Black-tailed Godwit *Limosa limosa* [A156]**

- Conservation objective: To maintain the favourable conservation condition of Black-tailed Godwit in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Redshank *Tringa totanus* [A162]**

- Conservation objective: To maintain the favourable conservation condition of Redshank in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Turnstone *Arenaria interpres* [A169]**

- Conservation objective: To maintain the favourable conservation condition of Turnstone in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Distribution.
  - The target is no significant decrease in the range, timing or intensity of use of areas other than that occurring from natural patterns of variation.
  - Changes in water quality may result in changes to the distribution through impacts on foraging availability.

**Little Tern *Sterna albifrons* [A195]**

- Conservation objective: To maintain the favourable conservation condition of Little Tern in Boyne Estuary SPA.
  - Attributes and targets relevant to this NIS: Prey biomass available.
  - The target is no significant decline.
  - A reduction in water quality may result in a reduction in the availability of prey for little tern.

The other species listed in **Table 4-1** are regularly occurring migratory species that are associated with the Boyne Estuary SPA. These species may also be indirectly impacted by changes to water quality as there may be a reduction in foraging availability.

## 6.3 Effects of the Project Alone

There is the potential for indirect impacts on the River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, Boyne Coast and Estuary SAC, and Boyne Estuary SPA from the discharge of pollution into surface waters that ultimately enter these European sites.

There is the potential for surface water to be polluted with silt and/or hydrocarbons from the proposed project and without mitigation these pollutants have the potential to affect the qualifying interests of the European sites listed above.

There is also the potential for pollution of groundwater from groundwater recharge at the Site to the locally important bedrock aquifer within the Athboy GWB.

### 6.3.1 Consideration of spatial and temporal scale

For the surface water bodies being assessed, in terms of the scale of the water body and its catchment, it is considered that there will be no risk of deterioration from the construction or operational works as there no discharge from the Site to the Yellow stream. However, there is an indirect pathway via groundwater baseflow to the Yellow stream from the Site.

For the Athboy groundwater body there is a direct hydrological pathway from the Site as storm water infiltrates to the ground. In terms of the scale of the Athboy groundwater body (c. 964 km2) and the relatively small site area (c. 0.19 km2) is there will be no risk of change in groundwater volume in the groundwater body. There is the potential for deterioration in groundwater quality from the construction and operational phases with no mitigation measures in place however the site area is small relative to the overall groundwater body area.

In terms of the temporal scale, the construction phase of the sand and gravel pit site would be conducted over a relatively short time period compared to the six-year Water Framework Directive (WFD) River Basin Planning (RBP) cycle.

## 6.4 Cumulative Effects

The risk for significant in combination, or cumulative, effects as a result of the proposed development can be excluded, as considered in **Section 3.5.2**.

## 6.5 Mitigation Measures

The following mitigation measures will be implemented to avoid adverse impacts on the conservation objectives of the QIs/SCIs identified in **Section 4.2**:

### 6.5.1 Construction & Operational Stages

BD Flood is part of the Flood Group who has implemented an environmental management system (EMS) at their existing sites. If planning permission is granted for the proposed development, then the Group EMS will be extended to include the application site (refer to **Appendix E**).

Environmental water monitoring will be carried out on a regular basis to demonstrate that the development is not having any significant adverse effects on the surrounding environment.

In order to mitigate against the risk of pollution to surface water occurring, the following mitigation measures (as per **Chapter 7** *Water* of the EIAR enclosed in **Appendix D**): will be implemented:

- Rainfall across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site.
- There will be no direct discharge from the proposed development to any surface watercourse.
- No fuel and oils will be stored at the site. HGV's will be refuelled off-site at other BD Flood sites. The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits). Refuelling will typically be carried out every 2 days.
- During any fuelling or servicing of plant and equipment at the site a spill kit and drip trays will be available in the event of any accidental spills or leakages.
- A number of spill kits will be available on-site in the event of any accidental leakages or spillages, should they arise.
- In order to control dust emissions, water will be sprayed from a tractor drawn bowser on dry exposed surfaces and stockpiles as required.
- Areas of bare or exposed soils will, insofar as practicable, be kept to a minimum during the extraction operations.
- All HGVs exiting the site will be routed through a bath type wheel wash.
- A road sweeper will be used to maintain entrances and any emergency spillages on public roads.
- The BD Flood environmental team will undertake quarterly environmental audits at the site to ensure that compliance with all planning consents, licences and site environmental management system, which is accredited to ISO14001 standard, is both maintained and enhanced.

With the implementation of these mitigation measures at the site any potential adverse impacts on the surface water quality identified above will be reduced and will be considered to be neutral and not significant.

### 6.5.2 Post - Operational Stage

The principal activity which will be undertaken at the application site is the extraction and processing of the in-situ sand and gravel with ultimate restoration of lands returned to a beneficial ecological habitat.

It is proposed to restore the application area on a phased basis to a natural habitat land use. The water body within the restoration scheme includes shallow sand & gravel slopes in some locations along the edge of the water body. This will help increase the potential for biodiversity-rich habitats along the edges of the final water body. The proposed restoration to a natural habitat land use, is in line with the beneficial after uses recommended in the EPA Guidelines: *'Environmental Management in the Extractive Industry*' (2006).

It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

Following extraction all plant, machinery and ancillary infrastructure will be removed from the site, so there will be no further potential for adverse impacts on surface water quality.

# 7.0 Conclusion



Stage 1 AA Screening and Stage 2 AA of the proposed development have been carried out. The NIS, based on the best available scientific information, shows that the proposed project has the potential to result in effects to the integrity of any European sites, if unmitigated; particularly in relation to changes to surface water and groundwater quality and/or groundwater levels.

The risks to the safeguarding and integrity of the qualifying interests, special conservation interests and conservation objectives of the European sites have been addressed by the inclusion of mitigation measures that will prioritise the avoidance of effects in the first place and mitigate effects where these cannot be avoided.

In-combination effects from interactions with other plans and projects were considered in the assessment and the mitigation measures incorporated into the plan are seen to be sufficiently robust to ensure there will be no significant adverse effects as a result of the implementation of the proposed project either alone or in-combination with other plans/projects.

Having incorporated mitigation measures, it is concluded that the proposed project will not give rise to any adverse effects on designated European sites, alone or in combination with other plans or projects[9]. This evaluation is made in view of the conservation objectives of the habitats or species, for which these sites have been designated.

Based on the information set out in this report we submit that the competent authority has sufficient information, beyond a reasonable scientific doubt, to allow it to determine that the proposed development will not have an adverse effect on the integrity or pose a risk of likely significant effects on the River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, Boyne Coast and Estuary SAC, and Boyne Estuary SPA, or any other European site.

[9] Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: (a) no alternative solution available; (b) imperative reasons of overriding public interest for the plan to proceed; and (c) adequate compensatory measures in place.

# 8.0 References



**CIEEM (2018)** Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

**DoEHLG (2010)** Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government. Dublin.

**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.

**European Union Habitats Directive, (1992)** Council Directives 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

**Scott Wilson and Levett-Therivel, (2006)** Appropriate Assessment of Plans. Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants.

**Institute of Air Quality Management (IAQM). (2016)** Guidance on the Assessment of Mineral Dust Impacts for Planning.

**Kettunen, M, Terry, A., Tucker, G. & Jones A. (2007)** Guidance on the maintenance of landscape features of major importance for wild flora and fauna - Guidance on the implementation of Article 3 of the Birds Directive (79/409/EEC) and Article 10 of the Habitats Directive (92/43/EEC). Institute for European Environmental Policy (IEEP), Brussels, 114 pp. & Annexes.

**NPWS (2012)** Conservation Objectives for Boyne Coast and Estuary SAC [IE0001957] Version 1.

**NPWS (2013)** Conservation Objectives for Boyne Estuary SPA [IE0004080] Version 1.

**NPWS (2015)** Conservation Objectives for Raheenmore Bog SAC [IE0000582] Version 1.

**NPWS (2018)** Conservation Objectives for Lough Ennell SAC [IE0000685] Version 1.

**NPWS (2018)** Conservation Objectives for Split Hills and Long Hill Esker SAC [IE0001831] Version 1.

**NPWS (2021)** Conservation Objectives for River Boyne and River Blackwater SAC [IE0002299] Version 1.

**NPWS (2022)** Generic Conservation Objectives for Lough Ennell SPA [IE0004044] Version 9.

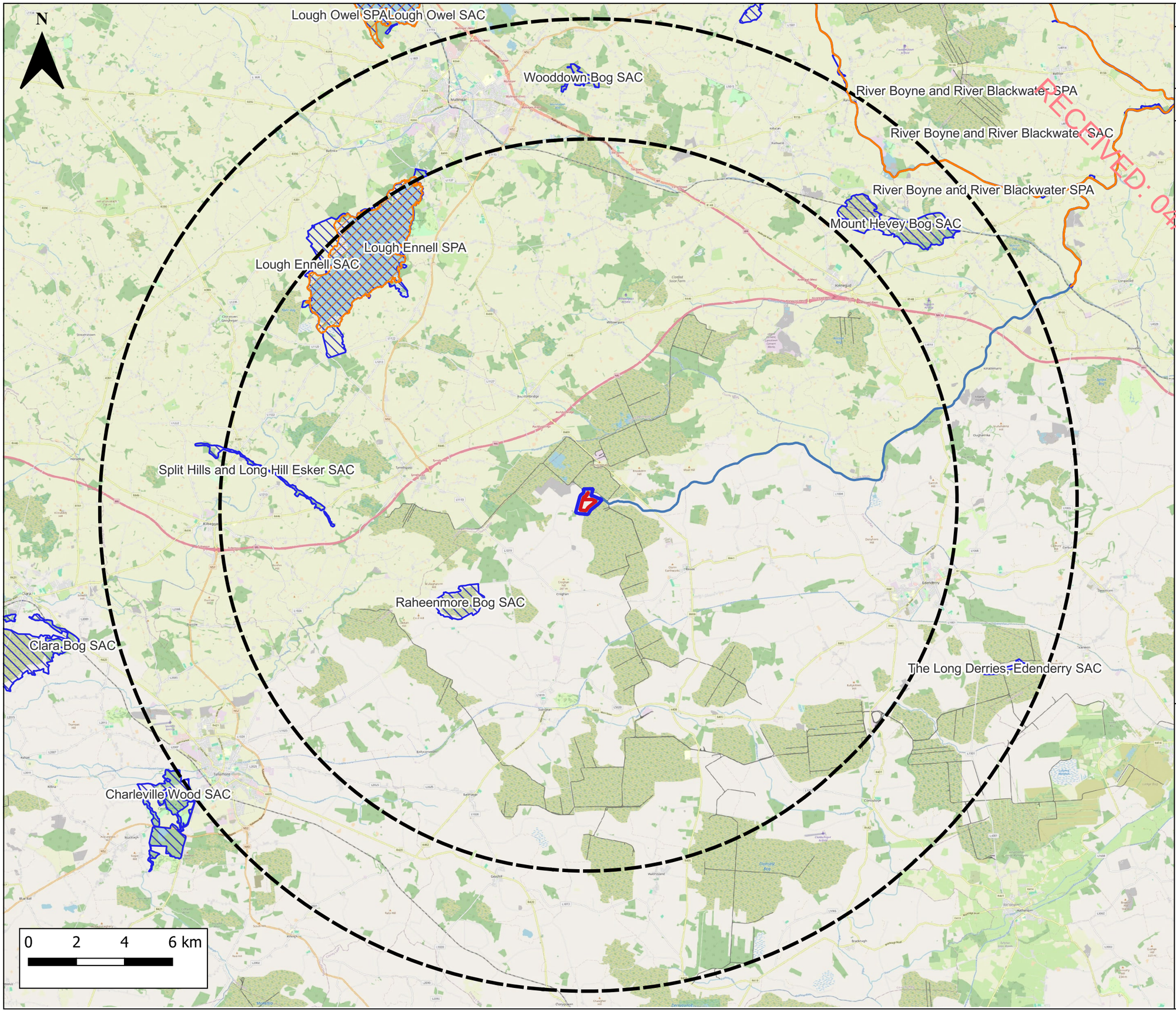
**NPWS (2023)** Conservation Objectives for North-West Irish Sea SPA [IE0004236] Version 1.

**NPWS (2024)** Conservation Objectives for River Boyne and River Blackwater SPA [IE0004232] Version 1.

**OPR (2021).** Appropriate Assessment Screening for Development Management.

# FIGURES

**Figure 1: Location of The Site Relative to European Sites**



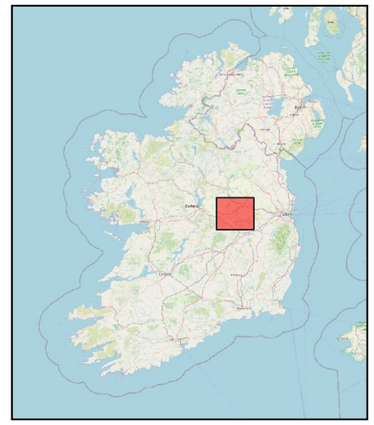

NOTES

1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)

LEGEND

- Proposed Planning Application Area
- Applicant Land Interest Boundary
- 20 km and 15 km Buffers
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Surface Water Connectivity from the Site





SLR CONSULTING
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
D14 N2Y7
T +353 (0)1296 4667
www.slrconsulting.com

**BD Flood Unlimited Company**

AA Screening / Natura Impact Statement (NIS) Report

Proposed Sand & Gravel Pit Development
Derryarkin Townland, Rhode, Co. Offaly

**European Sites Map**

# FIGURE 1

| Scale | Date |
|---|---|
| 1:150000 @ A3 | SEP 2025 |

# Appendix A Relevant Legislation and Policy

## Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) Report

**Proposed Derryarkin Sand and Gravel Pit, Croghan, Rhode, Co Offaly**

SLR Project No.: 501.065657.00001

3 February 2026

# A.1 Relevant Legislation and Policy

## A.1.1 Habitats and Birds Directives

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of Special Areas of Conservation (SACs) and a precursor designation Sites of Community Interest (SCI). Similarly, Special Protection Areas (SPAs) are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). Collectively, SACs, SCIs and SPAs are referred to as the Natura 2000 network. The Natura 2000 Network is the minimum required to conserve certain habitats and species which are listed in the Directives.

Under Article 6(3) of the Habitats Directive, an Appropriate Assessment (AA) must be undertaken for any plan or project that is not directly connected with or necessary to the management of a Natura 2000 site but is likely to have a significant effect thereon, either alone or in combination with other plans or projects. An AA is an evaluation of the adverse effects of a plan or project, alone or in combination with other plans or projects, on the integrity of a Natura 2000 site, and the identification, where necessary, of avoidance or mitigation measures to preclude adverse effects on the integrity of the site.

Article 6, paragraph 3 the Habitats Directive states that:-

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

Article 6, paragraph 4 goes on to deal with the special circumstances for the granting of consent for plans and projects which would have an adverse effect the integrity of the site(s) concerned.

## A.1.2 European Communities (Birds and Natural Habitats) Regulations 2011

Pursuant to the Habitats Directive, Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, similarly sets out the requirements for screening assessments, the circumstances under which an AA is required and the further implementation of Article 6(3) and 6(4) of the Habitats Directive.

It defines a "European Site" as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. European sites may therefore include sites which may intended to become part of the Natura 2000 network as well as those already within that network.

Regulation 42 has 22 paragraphs, with selected text provided below.

Regulation 42(1) requires that '*a screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site*.'

Regulation 42(2) expands on this, stipulating that a public authority must carry out a screening for AA before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.

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

Regulation 42(3)(a) gives the public authority the power to direct a third party to provide a Natura Impact Statement (NIS) and Regulation 42(3)(b) allows it to request any additional information that it needs to complete the screening assessment or AA. Regulation 42(5) goes on to make clear that the NIS should include such information as the public authority considers necessary to enable it to undertake the AA and to ascertain if a project or plan will affect the integrity of a Natura 2000 site. In addition to the information, Regulation 2(1) provides a definition of a Natura Impact Statement as "*a report comprising the scientific examination of a plan or project and the relevant European Site or European Sites, to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment*".

Regulation 42(11) makes clear that the AA must be carried out by the public authority and that it must include its conclusion as to whether the project or plan would adversely affect the integrity of a Natura 2000 site, and that this must be done prior to consenting the project. Regulation 42 (12) makes clear that the competent authority should, *inter alia*, consider the Natura Impact Statement when undertaking the AA.

Regulations 43 and45 then go on to deal with Article 6(4) of the Habitats Directive.

### A.1.3 Planning and Development Act 2000 (as amended)

These processes have been further enshrined in the Planning and Development Act 2000 (as amended), in sections 177T, 177U and 177V.

177T states that:

*(1) (a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a Land use plan, 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.*

*(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.*

*(3) …..*

*(4) The applicant for consent for proposed development may, or if directed in accordance with subsection (5) by a competent authority, shall furnish a Natura impact statement to the competent authority in relation to the proposed development.*

*(5) At any time following an application for consent for proposed development a competent authority may give a notice in writing to the applicant concerned, directing him or her to furnish a Natura impact statement.*

*(6) ….*

*(7) a) …… a Natura impact report or a Natura impact statement shall include all information prescribed by regulations under section 177AD.*

*(b) Where appropriate, a Natura impact report or a Natura impact statement shall include such other information or data as the competent authority considers necessary to enable it to ascertain if the draft Land use plan or proposed development will not affect the integrity of the site.*

177U states that:

*(1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*

*(2)….*

*(3) in carrying out screening for appropriate assessment of a proposed development a competent authority may request such information from the applicant as it may consider necessary to enable it to carry out that screening….*

*(4) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.*

*(5) [the vice versa of (4)]*

*(6) ….*

*(7) ….*

*(8) ….*

*(9) ….*

*(10) ….*

177V. states that:

*(1) An appropriate assessment carried out under this Part shall include a determination by the competent authority under Article 6.3 of the Habitats Directive as to whether or not a draft Land use plan or proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority, in each case where it has made a determination under section 177U(4) that an appropriate assessment is required, before — ...*

*(a) the draft Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or*

*(b) consent is given for the proposed development*

*(2) In carrying out an appropriate assessment under subsection (1) the competent authority shall take into account each of the following matters:*

*(a) the Natura impact report or Natura impact statement, as appropriate*

*(b)….*

*(3) ……a competent authority shall make a Land use plan or give consent for proposed development only after having determined that the Land use plan or proposed development shall not adversely affect the integrity of a European site*

*(4)*

*(5)*

*(6)*

The Act then goes on to deal with Article 6(4) of the Habitats Directive.

### A.1.4 National Planning Framework

National Policy Objective 59 Enhance the conservation status and improve the management of protected areas and protected species by

- Implementing relevant EU Directives to protect Ireland's environment and wildlife;
- Integrating policies and objectives for the protection and restoration of biodiversity in statutory development plans;
- Developing and utilising licensing and consent systems to facilitate sustainable activities within Natura 2000 sites;
- Continued research, survey programmes and monitoring of habitats and species.

# Appendix B Appropriate Assessment Process

## Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) Report

**Proposed Derryarkin Sand and Gravel Pit, Croghan, Rhode, Co Offaly**

SLR Project No.: 501.065657.00001

3 February 2026

## B.1 Appropriate Assessment Process

### B.1.1 Stage One: AA Screening

Stage One is a preliminary assessment, the purpose of which is to determine whether a plan or project requires more detailed assessment including the identification of mitigation measures.

There are two principal tests. The first considers whether the plan or project is needed for the management of a European site for the purpose of maintaining or restoring its conservation interest. Any such plans or projects can usually be screened out of further assessment.

The second test considers whether the plan or project, without specific mitigation measures, would be likely to have a significant effect on any European Site. This requires consideration of the project on its own and in combination with other plans or projects. A project can only be screened out of further assessment if it is certain (beyond reasonable scientific doubt and on the basis of the best scientific knowledge) that there would be no significant effects on any European site without detailed scientific investigation or mitigation designed specifically to address potential impacts on the qualifying interest of such sites. Significant effects in this assessment are those which could undermine the conservation objective(s) of a qualifying interest feature of a European site and therefore of the site itself. The process is used to determine which European Sites should be included in the later stages of the assessment. It can also be used to determine which qualifying interest features require further assessment.

*The objective of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone and in-combination with other plans or projects, could have significant effects on a European site in view of the site's conservation objectives.*

*There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment (AA) has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether a Stage Two AA must be undertaken by the competent authority on the implications of the proposed development for the conservation objectives of a European site. Therefore, where significant effects are likely, uncertain or unknown at screening stage, a second stage AA will be required.*

Since the screening assessment must be completed by the competent authority, this report is intended to provide the competent authority the information it requires following the same steps.

*Measures intended to avoid or reduce the harmful effects of the proposed development on European sites (i.e. "mitigation measures") or best practice measures have not been taken into account in the screening stage appraisal.*

### B.1.2 Stage Two: Appropriate Assessment

Stage Two is a more detailed assessment, known as an "Appropriate Assessment" due to the terminology in the legislation. This essentially repeats the second test of the screening assessment but in more detail and considering mitigation measures before reaching a conclusion.

At this stage, the test is whether the project or plan will have an adverse effect on the integrity of any European site. This must be done in the light of the conservation objectives for each of

the sites and qualifying interest features that have been 'screened in' by the earlier stage of assessment. Any effect which could undermine the conservation objectives is considered an adverse effect on the integrity of the site, and vice versa. If the project, with mitigation included, is predicted to lead to adverse effects upon the integrity of the site, further stages of assessment are required before the project can be authorise.

*A Stage Two AA is a focused and detailed examination, analysis and evaluation carried out by the competent authority of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, in summary:*

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

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

*(iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three and, if necessary, stage four.*

# Appendix C Planning Applications Considered for In-Combination Effects

## Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) Report

**Proposed Derryarkin Sand and Gravel Pit, Croghan, Rhode, Co Offaly**

SLR Project No.: 501.065657.00001

3 February 2026

| Application Number | Development Description | Cumulative Effects | Approx. Distance |
|---|---|---|---|
| 21247 | A 23 Year Permission For A 44.0 Hectare Extension To An Existing Authorised Sand And Gravel Pit Comprising Of The Following: An Extraction Area Of 43.8 Ha.; Removal Of 10.2 Ha. Of Commercial Forestry And Removal Of Overburden Material From The Remaining 33.6 Hectares Of The Proposed Extraction Area; Extraction Of Sand And Gravel By Mechanical Means; Upgrading Of The Existing Internal Haul Road Measuring 0.2 Ha.; Transportation Of Extracted Material To The Existing Authorised Manufacturing Area For Processing Via The Internal Haul Road; Landscaping And Restoration Of The Site Including Screening Berms; All Associated Ancillary Facilities/Works. The Application Is Accompanied By An Environmental Impact Assessment Report (EIAR) | The AA Screening supplied with this application determined that a Stage 2 Appropriate Assessment (NIS) is not required. As such, there is no potential for impacts on any European Site as a result of this project and no pathway to act in combination with any other projects.<br><br>https://offalycoco.eplanning.ie/idocsweb/ViewFiles.aspx?docid=166124&format=djvu | 0.84 km |
| 22278 | (1) Construct a new farm building for the housing of livestock over and including an underground slatted slurry storage tank, completed with associated siteworks; (2) Permission to construct a new farm building for the housing of livestock including livestock handling unit, completed with associated siteworks; (3) Permission to construct a new farmyard dungstead manure pit, completed with associated siteworks; and (4) Permission to construct a new entrance into farmyard, completed with associated siteworks | No AA screening supplied with this application. There will be no discharge to the watercourse as a result of this project and as such no potential for in – combination effects. | 3.3 km |
| 25/60344 | The development of a Data Centre Facility and Decentralised Energy Resource within an overall development boundary area of 243 hectares comprising: • 1 No. Security control building (floor area 23.5m2). • 6 No. new data buildings including administration blocks (each 228m x 62m x 18m high), 6 No. MV switch room buildings, within a secure campus having an area of 39 hectares, 1 No. fire water tank (Volume: 2000m3), pump house and proprietary modular water treatment plant. • 6 No. fuel cell towers (each 89m x 29m x 20m high), 2 No. chilled water tanks (Volume: 1000m3 each), pump house, ancillary water tank (Volume: 2000m3), carbon dioxide process building (30.7m x 15.7m x 11.3m high) and 16 No. carbon dioxide storage tanks (100 tonnes each). • Ancillary equipment compound including a storage building (30.7m x 10.7m x 9.7m high), 2 No. diesel generators, fire water tank (Volume: 2000m3) and pump house and proprietary modular water treatment plant. • Above ground gas installation (AGI) compound including a boiler/instrument kiosk, regulator/metal skid kiosk and connection to the existing gas network within the site. • 33kV IPP building (60.9m x 18.4m x 16.8m high), 1 No. telecoms tower 36m high and compound. • Fuel cell IPP building (40m x 9.8m x 7.1m high) and compound. • Solar farm IPP building (30m x 9.8m x 7.1m high) and compound. • Battery compound including 138 No. battery enclosures & 138 No. medium voltage power stations (MVPS), IPP building (40m x 9.8m x 7.1m high) and fire water tank (Volume: 500m3). • Proprietary modular water treatment plant serving the solar farm IPP building and battery compound IPP building. • Solar farm (168 hectares) to the east of the data campus facility including solar arrays measuring (10.2m x 6.9m), (20.4m x 6.9m) & (30.6 x 6.9m), 45 No. medium voltage power stations (MVPS), 5 No. weather stations, river crossings, internal gravel access roads, security fencing and gates, 3 No. temporary construction compounds, cable crossings in the R446, L11272 & L51251 public roads, and cable crossing under the M6 using horizontal directional drilling. • Connection to public sewer under the R446 public road. • New emergency only access/egress from the R446 public road. • Access/egress to the data centre campus facility through the existing Castlelost Flexgen and GIS substation access to the R446. • Demolition of the existing derelict dwelling and agricultural sheds. • All associated site works including | The AA Screening supplied with this application determined that a Stage 2 Appropriate Assessment (NIS) is not required. As such, there is no potential for impacts on any European Site as a result of this project and no pathway to act in combination with any other projects.<br><br>https://westmeathcoco.eplanning.ie/idocswebdpss/ViewFiles.aspx?docid=283424&format=djvu | 4.1 km |
| 20494 | A 10-year permission. the development will consist of the construction of: 1. a solar pv development on a c.132 ha site consisting of solar panels on ground-mounted frames, 27 no. single storey electrical inverter/ transformer units, security fencing, cctv system with pole mounted cameras, upgrading of existing access, landscaping and all associated ancillary development works; 2. an enclosed battery energy storage system compound on a c.0.385 ha located within the solar pv development site consisting of 18 no. battery storage units (each with associated containerised step up transformer), 1 no. containerised control room and 1 no. containerised switch room and all associated ancillary development works; and 3. a temporary construction compound adjacent to the existing access. the operational lifespan of the solar pv development and battery energy storage system will be 35 years. a natura impact statement (nis) will accompany the planning application | The NIS supplied with this application details mitigation measures to ensure no adverse effects on water quality will occur as a result of the proposed project. As such, there is no potential for in – combination effects to occur as there is no pathway.<br><br>https://offalycoco.eplanning.ie/idocsweb/ViewFiles.aspx?docid=157808&format=djvu | 6.1 km |
| 2560082 | Amendments to the development permitted under Offaly County Council Planning Register Reference 20/494 to: (i) revise the layout of the permitted development including solar array and inverter/transformer units; (ii) increase the height of the permitted solar array from 2.914 metres to up to 3.3 metres; (iii) provide for variable spacings between the solar array rows; (iv) provide for varying solar array tilt-angles; (v) alter the design of the electrical inverter/transformer units and reduce the number | The project was for the amendment to an already granted application. The addendum to the NIS supplied with this application details mitigation measures to ensure no adverse effects on water quality will occur as a result of the proposed project. As such, there is no potential for in – combination effects to occur as there is no pathway | 6.1 km |

| Application Number | Development Description | Cumulative Effects | Approx. Distance |
|---|---|---|---|
| | of electrical inverter/transformer units from 27 no. to 14 no.; (vi) revise the alignment of approximately 250 metres of existing on-site access tracks and construct approximately 7,500 metres of access track; (vii) relocate and redesign the permitted battery energy storage system compound including an increase in the compound footprint from approximately 3,850 square metres to approximately 10,100 square metres; (viii) alter the design of the battery energy storage system and increase the number of battery energy storage system and ancillary containers from 38 no. to 83 no.; (ix) alter Condition No. 6(b) to provide for the planting of screening vegetation at the end of the construction phase; (x) alter Condition No. 5(a) to provide for the decommissioning of the development no later than 40-years from the date of commissioning; and, (xi) all associated site development, drainage, access and reinstatement works. This planning application is accompanied by a Natura Impact Statement (NIS) | https://offalycoco.eplanning.ie/idocsweb/ViewFiles.aspx?docid=249101&format=djvu | |
| 21247 | A 23 Year Permission For A 44.0 Hectare Extension To An Existing Authorised Sand And Gravel Pit Comprising Of The Following: An Extraction Area Of 43.8 Ha.; Removal Of 10.2 Ha. Of Commercial Forestry And Removal Of Overburden Material From The Remaining 33.6 Hectares Of The Proposed Extraction Area; Extraction Of Sand And Gravel By Mechanical Means; Upgrading Of The Existing Internal Haul Road Measuring 0.2 Ha.; Transportation Of Extracted Material To The Existing Authorised Manufacturing Area For Processing Via The Internal Haul Road; Landscaping And Restoration Of The Site Including Screening Berms; All Associated Ancillary Facilities/Works. The Application Is Accompanied By An Environmental Impact Assessment Report (EIAR) | The AA Screening supplied with this application determined that a Stage 2 Appropriate Assessment (NIS) is not required. | 0.84 km |
| 2171 | And Continuation Of Use Of An Internal Haul Road Which Measures 1,116 Meters In Length And Connects Two Areas Of An Existing Authorised Sand And Gravel Pit. Permission For Development Of An Area Of 1.4 Hectares | The AA Screening supplied with this application determined that a Stage 2 Appropriate Assessment (NIS) is not required. | 0.84 km |

# Appendix D Relevant EIAR Plans & Extracts

## Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) Report

**Proposed Derryarkin Sand and Gravel Pit, Croghan, Rhode, Co Offaly**

SLR Project No.: 501.065657.00001

3 February 2026

**EIAR Extracts:**

Chapter 2 – Project Description

Chapter 5 – Biodiversity Chapter

Chapter 7 – Water Chapter

## Contents

**Figures**

# Existing Development

2.1 The application area covers a total area of approximately 19.5 hectares (48.2 acres) and comprises reclaimed agricultural land, currently under pasture.

2.2 The site is a reclaimed former cutaway bog, with a thin layer of residual organic rich clay material remaining, below which there are reserves of sand and gravel both above and below the underlying water table.

2.3 The general site layout is shown on **Figure 2-1** and consists of a flat site with elevations only varying between c. 78m –79m AOD over the proposed extraction area. The access road and existing site entrance are slightly elevated from the main site area being at an elevation of c. 80m AOD. There are no overhead powerlines or underground services within the application area. There are no hedgerows within the application area; and the proposed extraction area consists of one large agricultural field sub-divided by stockproof fencing.

2.4 The northern application (red line) boundary consists of a stockproof fence and field drain. Beyond this is an area of slightly elevated higher ground within which turbine T7 of the Yellow River Windfarm is located. The base of the turbine is c. 41m from the application boundary but within the overall landowner landholding boundary. The northern landholding boundary is denoted by the unnamed stream and directly beyond that the local access road.

2.5 The entire eastern landholding boundary is denoted by the Yellow River. The application boundary runs along the western bank of the river and consists of a post and wire stockproof fence and intermittent trees and vegetation.

2.6 The southern application boundary consists of a stockproof fence. Beyond this is an agricultural access track that runs along the southern boundary before taking a ninety degree turn north along a small section of the eastern boundary to a bridge access over the Yellow River to access the lands on the eastern side of the river.

2.7 The western application boundary is set back slightly and runs parallel to the western edge of the existing agricultural access track which provides access within the overall landholding from the landowners farm to the northern application area. Beyond this internal agricultural access track are similar agricultural lands within the ownership of the landowner.

2.8 The application area includes an extensive deposit of sand and gravel which is proposed to be extracted and processed on site, the majority of which will be used by the applicant in the manufacture of concrete at their existing concrete batching plant located c. 600m to the northwest, and the balance distributed to their other sites in the region.

# Proposed Development

## Development Overview

2.9 The proposed extraction of the sand and gravel will be wet working, (i.e., extraction below the natural groundwater level of the site). Processing of the extracted materials will be carried out on-site to produce a range of aggregates for use by the applicant in the manufacture of concrete. The application also includes for the ancillary facilities required to serve the development, as outlined below. Details are shown in plan on **Figures 2-2** and **2-3**, and in cross section on **Figure 2-4**, and will consist of:

- An overall application area of c. 19.5 hectares;
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures;

- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²); mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site;
- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body;
- The proposed development life is for 15 years to complete extraction and restoration operations.

### Construction Phase (Ancillary Facilities, Hardcore Access Track & Fencing)

2.10 As this is a greenfield site, there is a requirement for new welfare and ancillary facilities and infrastructure to be installed to service the site for the duration of the proposed development.

2.11 It is anticipated that the construction stage works as outlined below will be carried out within a 3-6 month period. It should be noted that extraction and production operations may be commenced within this 6-month period and carried out in tandem with the below-mentioned development works.

2.12 A new internal access road will run from the existing site entrance (which provides access to turbine T7 and shown in Plate 1-1 in Chapter 1) in a south-westerly direction to the new site facilities compound area. There is already a section (c. 120m) of the internally access inside the site entrance where hardcore is already in place serving the turbine compound location. An additional section (c. 210m) of hardcore road will be constructed between the existing hardcore road and the new site facilities area.

2.13 The site facilities area will also consist of a hardcore surface where the weighbridge and wheelwash will be installed on the outbound carriageway. Adjacent to this will be the mobile welfare pod (office, canteen, toilet) and a dedicated parking area. The perimeter will be fenced and an automated barrier will be installed to control access to the site.

2.14 Beyond the compound area, a hardcore surface track will run south to the proposed extraction and stripped soil stockpile storage areas.

### Operational Phase (Phased Soil Stripping / Berm Construction and Sand & Gravel Extraction / Processing )

2.15 The extraction of the sand and gravel will be carried out in line with best international practice.

2.16 The volume, lateral extent and depth of overburden / sands and gravels for the site have been determined from site investigations. The proposed extraction and processing tasks and activities to be implemented at the site consist of:

- removal of the in-situ residual clay overlying the sand and gravel;
- wet working extraction, i.e., extraction of the sand and gravel materials from beneath the natural water table of the site to a depth of typically from 6m up to 10m;
- long-reach excavator will dig out the sand and gravel and stockpile it in a row beside excavation;
- stockpiling of the sand and gravel adjacent to the working extraction area to allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground;
- stockpiled material is allowed to dry out for typically 2-3 days;

- mobile tracked screener is moved along with the advancing extraction face and the stockpiles and the materials are screened and put into 4 different stockpiles
- sand, 10mm, 20mm and oversize;
- the oversize stockpiles will be crushed as required to produce aggregates of a suitable size in the concrete production process;
- trucks will be loaded directly from the screener or from adjacent stockpiles;
- trucks weigh out on weighbridge and receive a delivery docket and exit the site via the wheelwash.

2.17 The overall extraction footprint is c. 11.7 hectares, and it is proposed to extract the materials on a gradual and phased basis as shown in **Figure 2-3** as follows:

| | | |
|---|---|---|
| • Phase 1 | c. 3.2 hectares | c. Years 1-4 |
| • Phase 2 | c. 3.4 hectares | c. Years 5-8 |
| • Phase 3 | c. 3.5 hectares | c. Years 9-12 |
| • Phase 4 | c. 1.6 hectares | c. Years 13-14 |
| • Total | c. 11.7 hectares | |

2.18 The phased approach to extraction will be carried out within the individual phase areas consisting of soil stripping, followed by sand and gravel extraction followed by restoration using onsite materials. Extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed. All lands will remain in agricultural use until required for extraction.

2.19 There is no requirement for hedgerow or tree removal during any of the development phases. The following is an overview of the proposed works to be carried out on a phased basis over the life of the proposed development.

### Phase 1 – Extraction

- Initial soil stripped from both the Phase 1 extraction area (c. 3.2 ha.) and the soil/overburden storage area (c. 1.9 ha.) will be stored on ground level in permitter screening berms as shown in **Figure 2-3** – Phase 1;
- The external perimeter of the berm will be secured with stockproof fencing;
- Sand and gravel extraction within Phase 1, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

### Phase 2 – Extraction / Restoration

- Soil stripped from the Phase 2 extraction area (c. 3.4 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in **Figure 2-3** – Phase 2;
- Any excess stripped soils will be stored in the soil/overburden storage area to the north of Phase 1;
- The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing;
- The soil material in the existing berm between Phases 1 & 2 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the

extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site;

- Sand and gravel extraction within Phase 2, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.



### Phase 3 – Extraction / Restoration

- Soil stripped from the Phase 3 extraction area (c. 3.5 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in **Figure 2-3** – Phase 3;
- The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing;
- Any excess stripped soils along with the soil material in the existing berm between Phases 2 & 3 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site;
- Sand and gravel extraction within Phase 3, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

### Phase 4 – Extraction / Restoration

- Soil stripped from the Phase 4 extraction area (c. 1.6 ha.) will either be stored in the soil/overburden storage area to the north of Phase 1 or used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site;
- Sand and gravel extraction within Phase 4, with the wet working face advancing in a northerly direction, leaving a permanent waterbody feature behind.

2.20 The phased extraction and restoration scheme has the benefit of:

- retaining existing land for agricultural use for as long as possible thereby minimising the stripped areas being exposed at any one time;
- progressive restoration will expedite the return of the lands to a beneficial biodiversity and water feature afteruse and minimise the overall duration required to carry out the extraction and restoration works;
- where possible, minimising soil handling by stripping from one area and placing directly onto the area previously extracted and ready for restoration;
- replanting of new vegetation at the earliest opportunity.

## Restoration Phase (Reinstatement to Ecological Habitat)

2.21 The extraction and restoration activities proposed for the site will be on a phased basis. Working in this manner will facilitate the progressive restoration of each area which will generally comprise reinstatement of excavated deposits to the extracted areas, the establishment of a permanent water body and allowing the lake edges and external perimeter berms to naturally regenerate / revegetate over time. There is no requirement to import any materials to site for restoration purposes.

2.22 Evidence from similar existing operations is that following extraction works, areas will become colonised with locally occurring grass, wildflower and scrub species, as well as aquatic

species along the lakes edge. It is most likely that the lake will be regularly visited by bird species, such as Whooper Swan and Mute Swan which are observed at other wet working extraction operations within the vicinity of the site.



2.23 During the post-operational stage, the progressive landscape restoration measures would already be in place across much of the site and, as such, the area will be left undisturbed and allowed to naturally regenerate with secondary woodland and scrub becoming established over a number of years.

2.24 Any soil that was previously stripped and stored within the soil/overburden storage area to the north of Phase 1 will be along the northern boundary of Phase 1 to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site. The soil/overburden area will be left to naturally regenerate and provide a valuable ecological habitat area adjacent to the permanent water body feature.

2.25 The perimeter berm around the final extraction profile will be retained as it will have been colonised for some time with native species. The stockproof fence will also be retained and along with the berm will provide an adequate security barrier to the water body.

2.26 The 20m riparian corridor along the length of the easter extraction boundary between the retained screening berm and the Big River will be planted with blocks of native tree species and allow to develop naturally and will provide a habitat refuge linking the new water body created by the extraction works and the river and into the areas of forestry and scrubland beyond.

2.27 Redundant structures, plant equipment and stockpiles will be removed from the site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

2.28 The restoration works will be carried out in accordance with the EPA Guidelines (2006). Ecological advice will also be incorporated into the restoration process to facilitate future habitat value in the area for flora and fauna, refer to **EIAR Chapter 5**.

2.29 All existing boundary fences and hedgerows will be retained to ensure that the site is secure.

2.30 It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

## Aggregate Reserve Assessment

2.31 A detailed topographical survey of the site was commissioned by BD Flood (refer to **Figure 2-1**). The survey data was used to produce a 3D digital terrain model using a quarry design software package called LSS. In preparing the design, standard criteria were adopted with regard to extraction depth and stand-offs to the site boundaries etc. with the sand and gravel pit design provided in plan on **Figures 2-2** and **2-3** in cross section on **Figure 2-4**).

2.32 Site investigations were also undertaken by the applicant across the site. These works, which principally comprised of a geophysical survey (non-invasive), trial pits and boreholes; encountered clay overlying sand and gravel deposits.

2.33 The sand and gravel material deposit is inferred to be c. 6-10m in depth across the proposed extraction area. The total in-situ reserves are assessed to be of the order of 0.67 M $m^3$. The in-situ bulk density of the sand and gravel, is assumed at 2.1t/$m^3$, indicating an overall reserve of approximately 1.4 M tonnes.

## Duration of Extraction

2.34 It is envisaged that the annual extraction rate of sand and gravel at the site will be up to a maximum of 100,000 tonnes per year. Assuming a total reserve of 1.4 M tonnes across the extraction area, this indicates that the life of the development will be c. 14 years, based on the maximum extraction rate of 100,000 tonnes per annum.

2.35 The planning application seeks a proposed development life of 14 years to extract the sand and gravel reserves at the site and a further 1 year period to carry out any final restoration works given an overall development life of 15 years.

2.36 It is considered that planning permission for the proposed development should be commensurate with the life of the reserves. This will ensure the developer has security for this investment and that the operation is carried out in accordance with proper planning and development guidelines. An adequate operational life is required to secure an acceptable return on investment, when the costs of investment in the site development, aggregate processing plant, operational costs and development contributions are considered.

## Site Screening and Boundary Treatment

2.37 The boundary treatment at the existing site is typical of an agricultural setting and currently comprises post and wire fencing, agricultural style field gates at the site entrance from the access road, as well as a mix of hedgerows, and scrub along the river boundaries.

2.38 It is envisaged that the planning boundaries of the proposed site are already broadly defined. It is proposed to construct a perimeter screening berm and erect stockproof fencing around the operational pit area, and this will increase in areas as the operational area increases through the various extraction phases as outlined above and shown on **Figure 2-3**. The final perimeter berm and fencing will be retained following cessation of operations at the site.

2.39 There is no proposed upgrade required at the existing site entrance onto the local access road which has a security gate set back from the edge of the carriage way.

## Hedgerows / Trees

2.40 As noted previously, there is no requirement for the removal of any hedgerows or trees as part of the proposed development

2.41 The proposed landscaping / restoration plan is shown on **Figure 2-5**. On commencement of the development, native hedge planting would be carried out along the western and southern boundary of the application area, to increase the screening by vegetation in views from locations to the west and south and to provide habitat corridor connections around the site.

2.42 As part of the final restoration works, it is proposed to carry out tree planting within the 20m wide riparian corridor between the eastern screening berm and the Yellow River, to encourage biodiversity between the application site and the adjacent river. Any trees planted as part of the proposed restoration plan will be comprised of native and typically occurring species present in the local vegetation and/or hedgerows in Co. Offaly.

## Site Drainage

2.43 The existing agricultural lands are currently drained by a combination of percolation down through the soil and sub-strata to the groundwater table. There is a shallow cut drainage channel along the northern application boundary running in a west to east direction towards the unnamed stream.

2.44 The surface water management system at the proposed site will be relatively simple. Rain falling across the application site will infiltrate naturally into the ground across in-situ residual soil / sand & gravel areas, internal haul roads or stripped processing areas. In worked out

areas it will fall into the permanent waterbody (restoration lake) and become part of the surface water body.



2.45 Due to the high permeability of the underlying materials, little rainwater run-off is expected to arise within the application site. There will be no discharge of water from the extraction area to any surface watercourse. Therefore, no specific surface water management plan is required in respect of the proposed development.

2.46 The Yellow Stream flowing in a northerly direction to the east / northeast of the site and the unnamed stream flowing in an easterly direction to the north of the site are the only notable surface watercourses in the vicinity of the site.

2.47 As there is no discharge of surface water off-site to either the Yellow River or unnamed stream or any other watercourse, it is envisaged that the proposed development will not present any pollution risk to surface water.

2.48 A hydrological / hydrogeological assessment has been carried out taking into consideration the existing water regime at the site and to determine what the requirements are for the proposed development. It addresses mitigation measures to eliminate and/or minimise the potential impacts, if any, on surface water and groundwater. These measures will be incorporated into the pit design and operation (refer to Chapter 7 – Surface Water and Groundwater).

## Method of Extraction

### Removal of overlying soils

2.49 In order to gain access to the sand and gravel deposits within each phase, efficient removal of the overlying soil materials is required. The excavated materials will either be backfilled along the edges of a previously excavated area or will be placed in mounds within the soil/overburden storage are to the north of Phase 1 to await use in final restoration operations.

2.50 It is proposed to work the extraction area in a series phases as outlined above. Within each phase, stripping will be carried out in blocks which will be cleared to allow sufficient area for aggregate excavation (described in detail below). The removal of the overlying materials will thus be an intermittent operation which will progress in advance of aggregate excavation with site stripping typically taking place during periods of drier weather.

### Extraction and Blasting

2.51 There will be no blasting associated with the proposed sand and gravel extraction process.

### Excavation of Sand & Gravel Aggregate Deposit

2.52 The excavation of the sand and gravel aggregate deposit will follow on from the overlying materials removal stage. Aggregate excavation will occur predominantly beneath the water table. Working methods are specifically designed to account for excavations beneath the water table. No pumping or lowering of the water table will occur that could potentially impact existing localised groundwater flow.

2.53 Extraction will proceed on a phased basis, through Phases 1 to 4 (refer to **Figures 2-3** for phasing plan). In each phase, activities will commence with the establishment of a working platform across land which has been stripped of soils. A long reach excavator will then be used to excavate the sand and gravel deposit. The method of working will proceed in a series of strips / blocks. The material will be stockpiled behind the excavator on previously stripped ground in order to:

- prevent contamination of the excavated materials;

- to allow water within the material to drain directly over the ground to the sand and gravel extraction area and the existing water table; and
- to allow collecting trucks access to the available stockpile.

### Processing, Screening and Stockpiling

2.54 Initial stockpiling of excavated aggregate will occur behind the mobile long-reach excavator where stockpiling of the sand and gravel adjacent to the working extraction area will allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground. The stockpiled material will be allowed to dry out for typically 2-3 days. A mechanical loader will then transfer the extracted material to the mobile tracked screener to screen the materials into 4 different stockpiles: sand, 10mm, 20mm and oversize.

### Dispatch of Aggregates

2.55 Trucks will be loaded directly from the screener or from the screened stockpiles by means of a mechanical loading shovel. Trucks will then leave the working area and travel to the weighbridge on the exit route out of the site where loads dispatched off-site will be weighed and recorded. The dispatch office will monitor the movement of incoming and outgoing HGV's and will also be responsible for the issuing of dispatch dockets.

2.56 Prior to leaving the site, all HGV's will pass through the wheelwash facility to minimise dust / mud carry onto the public carriageway.

## Pit Working Hours

2.57 It is intended that the proposed development will be operated during the hours of 07:00 to 18:00 hours from Monday to Friday (excluding Bank Holidays) and from 07:00 to 14:00 hrs on Saturday. with no extraction, processing or associated activities being permitted on Sundays or public holidays.

2.58 The proposed working hours are consistent with Section 4.7(b) of the DoEHLG Quarries and Ancillary Activities Guidelines for Planning Authorities (2004).

## Employment

2.59 The proposed sand and gravel extraction development will provide employment for 2 staff members directly, with a further estimate of 3 sub-contractors, hauliers and service providers on-site on a regular basis, and it is not anticipated that these numbers will increase.

2.60 Therefore, the proposal will secure direct employment for site staff for the duration of the extraction development i.e., 14 years.

2.61 The proposed pit will provide a vital feedstock for the construction sector locally and within the wider Midland regions. In view of the significant quantities of sand and gravel aggregate to be won at the pit, the site will provide an important aggregate supply to BD Flood and their existing business which is a firmly established and integral part of the regional construction supply chain. In addition to supporting direct and indirect employment, it will also support downstream jobs in the construction and development sectors, principally at concrete / block production and added value production facilities.

# Site Infrastructure



## Site Access and Security

2.62 As noted previously, the existing site entrance located to the north of the landholding will be used to provide a single dedicated and secure access to the proposed development. The site entrance has direct access onto the local access road, and beyond to the R400 Regional Road and Junction 3 of the M6 Motorway.

2.63 The existing entrance onto the local access road (as shown in Plate 1-1 in Chapter 1) consists of a recessed double agricultural style gate that will be locked outside of site operating times. The application site itself will be fully enclosed with a stockproof fence and an automated barrier will be installed immediately north of the site wheelwash to further control access to the site.

## Parking, Hardcore Areas and Internal Access

2.64 Adequate provision for car parking by employees and visitors will be provided within a dedicated hardcore area at the welfare compound area, as shown on **Figure 2-2**.

2.65 Internal access roads will be provided within the site, with the main route running from the site entrance past the proposed weighbridge/wheelwash/welfare facilities compound, then south towards the extraction and soil storage area. The internal access roads and the site compound area will consist of hardcore surfaces.

2.66 HGV traffic movements will be straightforward with HGV traffic entering the site and keeping left along the internal road to gain access to the working area. Once loaded, the HGV traffic again keeps left leaving the site to pass over the weighbridge and wheelwash before exiting the site.

2.67 Depending on the phase of extraction development, informal haulage routes will be established between the active extraction area and the weighbridge. These routes will be dynamic and will change as extraction advances through the various phases.

## Wheelwash

2.68 A wheel wash facility will be constructed within the facilities compound area on the outbound side of the access track (as shown on **Figure 2-2**) and will be set back c. 350m from the edge of the public road at the site entrance. This will help to eliminate the risk of mud and dust being carried from the development onto the local access road. All aggregate haulage vehicles will be required to pass through the wheelwash prior to leaving the site.

2.69 The new unit will be utilised throughout the life of the development, with due maintenance as required. It will consist of a wheel bath system whereby the trucks drive through the water bath to dislodge any debris before exiting the site. The water level is maintained by top-up from an adjacent reservoir tank with the reservoir tank being topped up a water bower that will source water from the adjacent working pit as required. Details of the proposed wheelwash are provided in Planning **Drawing 10**.

2.70 In the event of material being spilled on the public road the operator will ensure that spilled material is removed from the road surface in a safe and timely manner as soon as they notice or are notified that a spillage has arisen. BD Flood has its own road sweeper to maintain entrances and any emergency spillages on roads etc.

## Weighbridge

2.71 All heavy goods vehicles (HGVs) existing the site will be required to pass over the weighbridge which will be set-back c. 370m from the site entrance adjacent to and in-line with the proposed wheelwash. Details of the weighbridge are provided in Planning **Drawing 11**.

2.72 The weighbridge will be utilised to establish a weight for each truck used for hauling products from the site. All loaded trucks will pass over the weighbridge before exiting the site so that a record of each load can be made. Apart from keeping a record of the sites' productivity, the weighbridge will also be used to ensure all loads exiting the site do not exceed the legal weight limit.

## Offices and Ancillary Facilities & Equipment

2.73 A new welfare pod (consisting of canteen, office, toilet and drying room) will be towed to site prior to the commencement of works. The welfare pod is a fully self-contained welfare unit which is regularly serviced by the provider to refill the water tank and empty the waste tank. Details are provided in Planning **Drawing 12**.

2.74 There is no requirement for any garage / workshop at the application site. Servicing of HGVs will be carried out off site.

## Refuelling of Plant / Machinery

2.75 There will be no diesel fuel stored on site. HGV's will be refuelled off-site at other BD Flood sites. The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits). Refuelling will typically be carried out every 2 days. There is no requirement to store any oils at the application site.

2.76 Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions.

2.77 A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise. Spill kits will be located at the main site office and at the mobile processing plant. Spill kit training will be provided to staff when they start first and refresher training will be provided periodically thereafter. In addition, a drip tray will be used when refuelling is being carried out to further prevent any spillages within the exposed pit floor area.

## Lighting

2.78 Lighting will be provided at the site, only as necessary. This will include fixed downlights outside the office / welfare facilities; and mobile lighting on the machinery used within the working pit area. All lighting would only be in use for wintertime operations, when darkness has fallen, within the proposed site operating hours of 07.00 hours until 18.00 hours Monday to Friday and until 14.00 hours on Saturdays. There will therefore be a period where such lighting will be required for up to 1 hour in the morning and up to 2.5 hours in the evening, during periods in winter. Any night-time light pollution caused by the proposed development will therefore be of brief duration during winter months and is not considered significant.

## Utilities and Services

2.79 The ancillary site infrastructure will be powered by mains electricity from the ESB's national grid via a new connection to the existing power lines in the area. This will be done in consultation with ESB Networks through standard connection arrangements.

2.80 Site based staff at the application site will be contactable by mobile phone, and email and broadband connections to the site office will be provided via a mobile network.

2.81 The provision of a serviced welfare pod (with toilet) on site will negate the requirement for installing a septic tank / propriety effluent treatment system. The wastewater from the welfare pod will be serviced by contract with the hire company, under its waste management licence. The welfare pod will also contain a clean water tank for washing and hygiene purposes.

2.82 Drinking water will be supplied by means of bottled water.

2.83 Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out during quarry operations. A range of fire extinguishers (water, foam and $CO_2$) will be kept at the site office to deal with any localised small scale fires which might occur. Additional fire-fighting capacity can be provided by storing water in a mobile bowser.

# Waste Management

## General Waste Management

2.84 Potential waste produced and the proposed measures used to control it are described as follows:

- **Scrap metal** – these materials are chiefly produced from the maintenance of the plant and can cause a nuisance if allowed to build up in an uncontrolled manner. A designated scrap metal area will be demarcated on site, and the build-up of scrap will be controlled by the regular removal by licensed scrap metal contractors.
- **Used Oil and Oil Filters** – servicing of machinery will be carried out off-site at the adjacent BD Flood concrete batching facility site any waste oil/oil filters that may arise from servicing will be removed from the site by a licensed waste contractor.
- **Used Batteries** – similarly all used batteries will be removed from site for collection and recycling by a licensed waste contractor in accordance with the Waste Management Regulations.
- **Domestic Waste** (Canteen Waste) – domestic waste generated at the offices and employee's facility will be collected by a licensed waste collection contractor.

## Extractive Waste Management

2.85 Almost all products and by-products arising from the aggregate processing have commercial value. Any waste materials from the site will be stored, collected, recycled and/or disposed of in accordance with any requirements of Offaly County Council.

2.86 In Ireland, the management of extractive waste is regulated by the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (SI No. 566 of 2009). Under these Regulations, quarry operators are required to prepare an Extractive Waste Management Plan (EWMP) which outline the plans and procedures for minimisation, treatment, recovery and disposal of extractive wastes, having regard to the principle of sustainable development.

### Description of the Waste Generating Operation

2.87 There is no intention on behalf of BD Flood to discard, where possible, any material extracted from the sand and gravel pit at Derryarkin. The principal aim of the extractive waste management plan for the site is to prevent waste production which is in accordance with Section 5(2)(a) of the 2009 Regulations.

2.88 Extracted material will fall into the following categories:

#### Soil and Sub-soil (Overburden) Stripping

2.89 This material will be excavated to expose the underlying sand and gravel resource.

2.90 **Topsoil** – all topsoil stripped will be used to construct perimeter visual/noise screening mounds. Any additional stripping of soils will be stockpiled on site, again for reuse in final restoration operations.

2.91 **Sub-soil (Overburden)** – this material will be dealt with in a similar manner to the Topsoil listed above.

2.92 An Extractive Waste Management Plan for the site will be prepared prior to commence of the development, should planning permission be granted.

# Environmental Controls

## General

2.93 Extraction, processing and ultimately restoration activities at the application site will require a number of environmental controls to eliminate or minimise the potential nuisance to the public arising from the extraction and processing operations. The environmental control measures to be put in place at the site are outlined in the following sections.

## Surface Water Drainage

2.94 The surface water management system at the proposed site will be relatively simple. Rain falling across the application site will infiltrate naturally into the ground across residual areas, internal haul roads or stripped processing areas. In worked out areas it will fall into restoration ponds and become part of the surface water body.

2.95 Due to the high permeability of the underlying materials, little rainwater run-off is expected to arise within the application site. There will be no discharge of water from the application site to any surface watercourse. Therefore, no specific surface water management plan is required in respect of the proposed development.

## Groundwater

2.96 There will be no dewatering of groundwater for the proposed sand and gravel extraction activity as it will be worked 'wet' and excavated below the groundwater level at the site using mechanical long-reach excavator. There is therefore no requirement to manage any dewatered groundwater at the application site.

2.97 An open groundwater lagoon/lake will remain in-situ following extraction of the sand and gravel resource, meaning that the regional groundwater table will coincide with the surface water level in the lagoon/lake. The lagoon / lake will receive direct rainfall but given that it is located within an excavated void in a low-lying, topographically constrained peatland area surrounded by higher ground on all sides, there will be no direct discharge off site to any surface watercourse.

2.98 Water for the wheel wash and any dust suppression will be taken from lagoon/lake. Potable water for human consumption will be provided by bottled water brought to the site.

## Dust Control

2.99 Although it is anticipated that the dust related impacts of the planned development will be insignificant, a number of best practice measures will be implemented wherever practicable to minimise the potential dust impact of on-site activities. These will include minimising drop height when handling materials, avoiding work in adverse or windy conditions, using water spraying to dampen surfaces during dry weather periods, restricting vehicle speeds, employed road sweepers and seeding mounds / stockpiles to stabilise them where and if appropriate.

2.100 Details of dust and air quality impacts and proposed dust management / mitigation measures are described in more detail in Chapter 8 of this EIAR.

## Noise Control

2.101 Although it is anticipated that the noise related impacts of the planned development will be negligible, a number of best practice measures will be implemented wherever practicable to minimise the potential noise impact of on-site activities. These measures will include ensuring all plant is properly maintained and complies with required noise emissions standards and fitted with silencers were appropriate, maintaining roads in a good state of repair, restricting revving of engines and taking care when loading / unloading vehicles.

2.102 Details of noise impacts and proposed noise management / mitigation measures are described in more detail in Chapter 10 of this EIAR.

## Traffic Control

2.103 The existing entrance onto the local access road will not require any alteration or upgrade to provide the necessary visibility splays in both directions. The site entrance is also provided with a secure and lockable gate, set-back off the carriageway.

## Litter Control

2.104 As the proposed development will be largely free of litter, the daily operational activities are unlikely to give rise to problems with windblown litter. Accordingly, there is no requirement to implement any specific litter control measures at the site.

2.105 In the unlikely event that any litter waste is identified, it will be immediately removed off-site to an authorised waste disposal or recovery site.

## Odour Control

2.106 As the sand and gravel extraction activities at the site will not be biodegradable and will not therefore emit odorous gases, site activities will not give rise to odour nuisance. Accordingly, it is not intended to implement any specific odour control measures at the site.

## Vermin Control

2.107 As the proposed development will be free of putrescible (food / kitchen) waste, on-site activities will not attract vermin (rats) for the duration of the extraction or subsequent restoration operations. Accordingly, no specific vermin control measures are required to be implemented at the site.

## Fire Control

2.108 As the proposed development will be free of flammable and biodegradable materials which could create a fire or explosion risk, on-site extraction activities will not present a fire risk for

the duration of the extraction operations. Accordingly, there will be no requirement to implement specific fire control measures at the site.

2.109 In the unlikely event that a fire does occur, the fire stations in either Mullingar, Kilbeggan or Tullamore will be contacted, and emergency response procedures will be implemented. Fire extinguishers (water and foam) will be provided at the office / canteen to deal with any small outbreaks which may occur.



# Environmental Monitoring

## Environmental Management System (EMS)

2.110 BD Flood is part of the Flood Group who has implemented an environmental management system (EMS) at their existing operational sites - refer to **Appendix 2-A**. A copy of the Flood Group ISO14001 accreditation is also provided in **Appendix 1-B**.

2.111 Should planning permission be granted, a site specific EMS will be implemented to incorporate the requirements set out in any relevant conditions attached to the permission such as limit values for environmental emissions arising from the site activities. Environmental sampling, monitoring and testing will generally be undertaken by external consultants as and when required. Records of environmental monitoring and testing will be held by BD Flood and submitted to the Local Authority as required.

2.112 Environmental noise, dust and water monitoring will be carried out on a regular basis to demonstrate that the sand and gravel pit is not having any significant adverse effects on the surrounding environment.

## Dust Monitoring

2.113 Baseline dust monitoring has been carried out monthly between March and June at the 3 no. dust monitoring station locations, around the overall application site, and shown on EIAR **Figure 8-1**).

2.114 It is proposed that the dust monitoring stations will remain in place for the duration of extraction and processing operations at the site. Monitoring will be undertaken on a monthly basis during March and September using the industry standard Bergerhoff method of monitoring.

2.115 Baseline monitoring and experience from similar types of development indicate that, subject to implementation of appropriate mitigation measures (as described in Chapter 8 of the EIAR), the development can comply with the DoEHLG (2004) / EPA (2006) recommended total dust deposition threshold of 350 milligrams per day (averaged over a 30 day period).

## Noise Monitoring

2.116 Baseline noise monitoring has been carried out at the existing site at 2 no. noise monitoring stations, at noise sensitive receptors, with the locations shown on EIAR **Figure 10-1**.

2.117 It is proposed that the noise monitoring survey will be carried out for the duration of extraction and processing operations at the site on a BI-annual basis.

2.118 Baseline monitoring and experience from similar types of development indicate that, subject to implementation of appropriate mitigation measures (as described in Chapter 10 of the EIAR), the development can comply with the noise threshold limit of 55 dB(A) recommended in the EPA (2006) environmental management guidelines for the sector. The mitigation measures are in accordance with the 'best practice / mitigation' measures described in Section 3.2 of the DoEHLG (2004) guidelines.

### Water Monitoring (Groundwater / Surface Water)

2.119 The following monitoring activities will be carried out to demonstrate that the proposed development is not having an adverse impact on the surrounding environment and to document any improvements in water quality:

- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab sample from the Yellow River upstream and downstream of the site;
- groundwater levels in all boreholes will be monitored on a bi-annual basis for the duration of the proposed development; and
- groundwater quality monitoring to be undertaken on an annual basis for the duration of the proposed development.

## Proposed Landscape Management & Final Restoration

2.120 It is proposed to restore the application area on a phased basis to a natural habitat land use. The water body within the restoration scheme includes shallow sand & gravel slopes in some locations along the edge of the water body. This will help increase the potential for biodiversity-rich habitats along the edges of the final water body. The proposed restoration to a natural habitat land use, is in line with the beneficial after uses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006).

2.121 It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

2.122 The principal landscaping aims are:

- the physical and visual integration of the existing site and associated features into the surrounding landscape;
- screening to minimise visual intrusion and to reduce any significant negative aspects regarding the visual impact of the proposed development on adjacent sensitive receptors;
- retention of boundary planting to reduce/eliminate visual prominence of the proposed development area to the closest receptors.

### Proposed Landscape Scheme

2.123 On commencement of the development, native hedge planting would be carried out along the western and southern boundary of the application area, to increase the screening by vegetation in views from locations to the west and south and to provide habitat corridor connections around the site.

2.124 Shallow sand & gravel slopes would be retained, instead of extracting the sand and gravel at a steeper angle all the way to the edge of the water body. This will create more biodiversity friendly shallow water areas. In tandem with the extraction phasing, material stripped from the extraction areas would be backfilled along the edges of the completed wet working areas to further create shallow water areas and/or additional dry areas.

### Proposed Restoration Scheme

2.125 The proposed restoration scheme envisages that the worked-out area will ultimately be reinstated to a landscaped lake, interspersed with constructed peninsulas, capable of supporting new habitat.

2.126 The principal activity which will be undertaken at the application site is the extraction of the in-situ sand and gravel, with ultimate restoration of the overall application site to a natural wildlife and biodiversity diverse habitat, which is a beneficial after use listed in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). The final restoration scheme and detail is shown on the restoration plan and cross sections in **Figure 2-5** and **2-6**.

2.127 It is expected that the proposed restoration scheme would integrate into the surrounding landscape. The proposed restoration scheme relates to the overall site and will be achieved by the following measures:

- stockpiles and processing plant to be removed from site;
- all welfare and ancillary facilities to be removed from site;
- all existing boundary hedgerows will be retained;
- the final earth screening berm and stockproof fencing will be retained to ensure that the site is secure;
- the entrance gates at the site entrance will be retained and kept locked at all times, except for maintenance access.

2.128 Most restoration works will be carried out on a phased basis as outlined previously. The only restoration works that will remain on permanent completion of extraction works will be the removal of all of the site welfare and ancillary facilities such as the welfare pod, weighbridge, wheelwash and parking area.

2.129 The restoration works will be carried out in accordance with the EPA Guidelines (2006). Ecological advice will also be incorporated into the restoration process to facilitate future habitat value in the area for biodiversity.

### Site Management and Supervision

2.130 The Applicant will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information (from the planning application) and authority to manage the whole restoration process (both ongoing phased and final). Relevant staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

### Long Term Safety and Security

2.131 All components of the barrier system of the site consisting of existing mature boundary hedgerows, fences and walls will remain in place after extractive/ processing operations have ceased.

2.132 As the lands will be restored to natural habitat use with a body of open water, the secure fencing provided around the perimeter of the site will be retained. Existing hedges surrounding the development will be gapped up and thickened where required. These combined with the secure and locked entrance gates to the development will prevent unauthorised third-party access.

### Long Term Surface Water and Groundwater

2.133 There will be no requirement for any active long-term surface water or groundwater management at the site.

### Decommissioning of Plant and Machinery

2.134 Redundant structures, plant equipment and stockpiles will be removed from site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

### Aftercare and Monitoring

2.135 There will be no on-going requirement for monitoring noise or dust after extraction and processing and manufacturing operations have ceased.

2.136 Establishment maintenance will be carried out for 2 years following the restoration works on a (minimum) quarterly basis. This will include weed control, replacement planting, watering (if required) and the adjustment of spiral guards, ties, and stakes.

# Figures

Turbine T6

Skeagh Farms Piggery

Existing Derrycoffey Sand and Gravel Pit Extraction Development

BD Flood Ltd. Landholding

P. Ref. 22490
Proposed Materials Recovery Facility

Existing BD Flood Ltd. Concrete Batching Plant (P. Ref. 13/122)

Unnamed Stream

782.1m

Existing Site Access gate

Local Access Road

Doire Dhraighneach
Derrygreenagh

Doire Aircean
Derryarkin

293.9m 264.5m

96.4m

Yellow River Windfarm Turbine **T7**
Nordex N117/3600 Model:
Rotor Ø 116.8m
Hub height TBC

57.2m

Yellow River

20.2m

35.0m

Existing Access Track

35.0m

20.0m

259.2m

178.2m

Residence **R2**

Residence **R1**

An Baile Beag
Ballybeg

Yellow River

0 50 100 150 200 250m
Scale 1:4,000

N

RECEIVED: 04/02/2026

**Notes:**

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

**Legend:**

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Extraction Area 11.7 hectares
- BD Flood Ltd. Land Interest Boundary 2.5 hectares
- Existing BD Flood Ltd. Concrete Batching Facility (P. Ref. 13/122)
- Surface Water Features (Yellow River / Unnamed Stream)
- Proposed Haulage Route from Proposed Sand & Gravel Extraction Area to Existing Concrete Batching Plant (c. 1.2km)

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|
| | | | | | |

SLR

www.slrconsulting.com

Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development
at Derryarkin, Co. Offaly

Figure Title
Existing Site Layout

| Scale | | SLR Project No. |
|---|---|---|
| 1:4,000 | @ A3 | 501.00023.065461 |

| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| smcd | smcd | lh | lh |
| Date | Date | Date | Date |
| 01/25 | 01/25 | 09/25 | 09/25 |

Figure Number **Figure 2-1** Rev. **0**

21/10/2025

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0023 BD Flood\065657 Derryarkin EIAR PA NRS\3 EIAR\02 Project Description\Dwgs\CAD\Wking\00023.065657 BDFlood Derryarkin EIAR Fig2-1 Existing Layout R0.dwg

CYAL50450233

Turbine T6

Existing Derrycoffey Sand and Gravel Pit Extraction Development

Skeagh Farms Piggery

BD Flood Ltd. Landholding

Existing BD Flood Ltd. Concrete Batching Plant (P. Ref. 13/122)

P. Ref. 22490
Proposed Materials Recovery Facility

Unnamed Stream

Existing Site Access gate

Local Access Road

Doire Dhraighneach
Derrygreenagh

Doire Aircean
Derryarkin

**Proposed** Hardcore Access Track

**Proposed** Security Gate

Wheelwash

Weighbridge

**Proposed** Site Facilities

Welfare Pod

Parking Area

Yellow River Windfarm Turbine **T7**
Nordex N117/3600 Model:
Rotor Ø 116.8m

Soil / Overburden Storage Area

**Proposed** Perimeter Stockproof Fence

Yellow River

Phase 1
c. 3.4 Ha. / Years 1-4

Phase 2
c. 3.4 Ha. / Years 5-8

Phase 3
c. 3.5 Ha. / Years 9-12

Phase 4
c. 3.4 Ha. / Years 13-17

**Proposed** Perimeter Stockproof Fence

Existing Access Track

**Proposed** Perimeter Berm (2m high)

**Proposed** Perimeter Berm (3m high)

Riparian Corridor (20m)

An Baile Beag
Ballybeg

Residence **R2**

Residence **R1**

A
A'
B
B'
C
C'
D
D'

782.1m
505.0m

N

RECEIVED: 04/02/2026

22/10/2025

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0023 BD Flood\065657 Derryarkin EIAR PA NIS\3 EIAR\02 Project Description\Dwgs\CAD\Wking\00023.065657 BDFlood Derryarkin EIAR Fig2-2 Proposed Layout R0.dwg

**Notes:**

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

**Legend:**

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Extraction Area 11.7 hectares
- Surface Water Features (Yellow River / Unnamed Stream)
- Proposed Perimeter Berms
- Proposed Perimeter Stockproof Fencing
- Proposed Hardcore Areas
- Proposed Haulage Route from Proposed Sand & Gravel Extraction Area to Existing Concrete Batching Plant
- Proposed Direction of Sand & Gravel Extraction within Each Phase
- Existing Contours: extraction will be below the water table to a depth of 6-10m (c. 69-73m AOD)

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|

SLR

www.slrconsulting.com

Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development
at Derryarkin, Co. Offaly

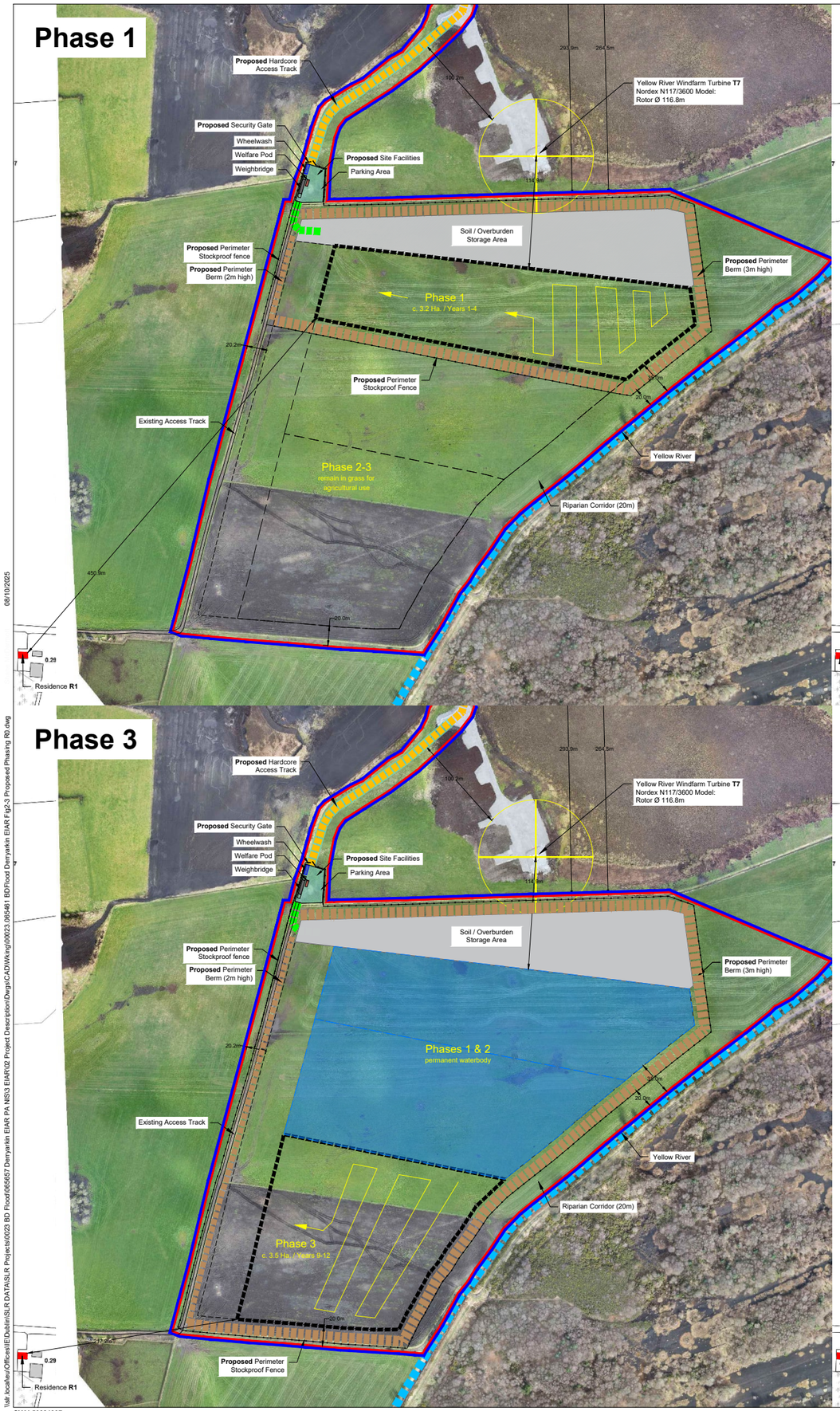
Figure Title
Proposed Site Layout: Development Overview

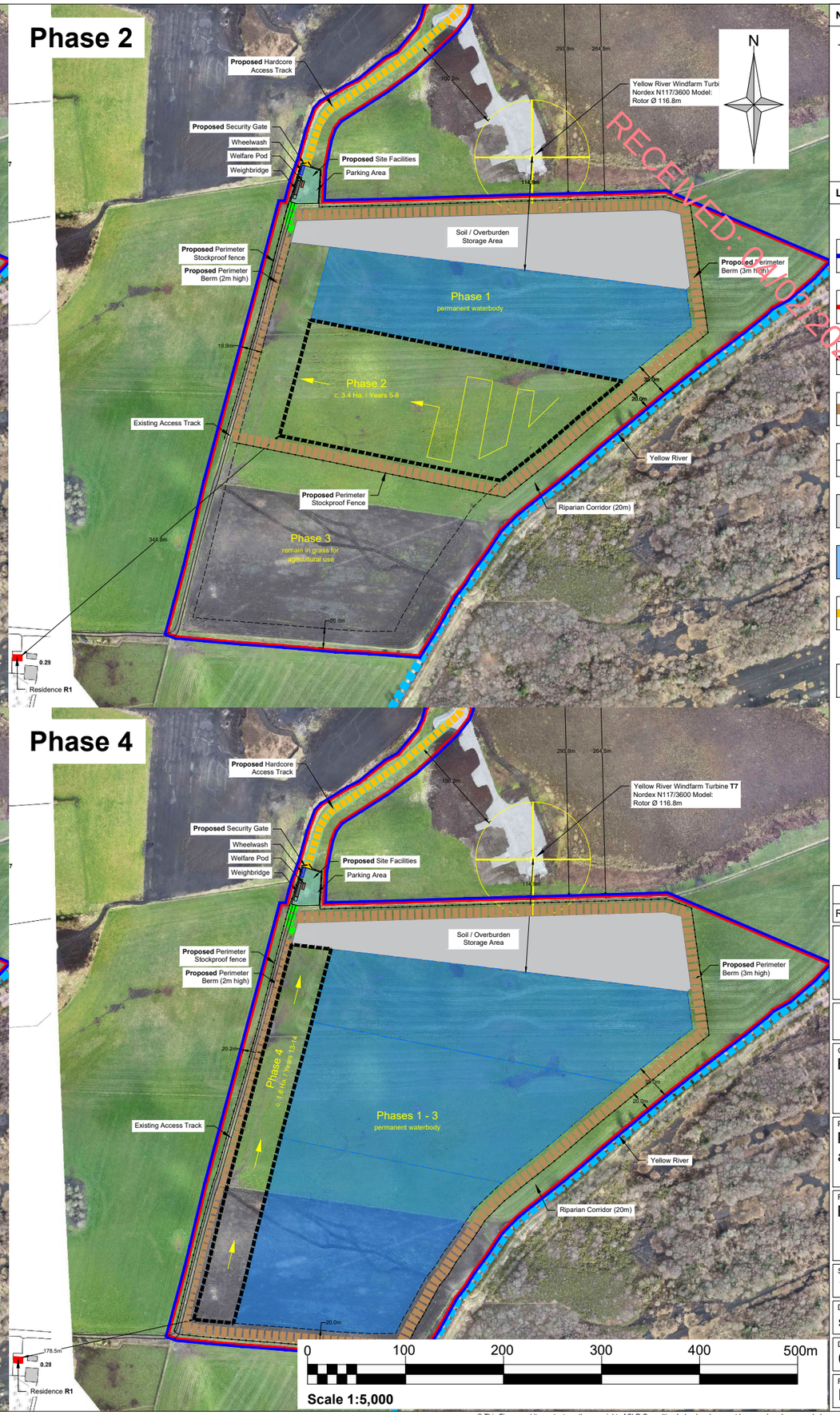
| Scale | | SLR Project No. | |
|---|---|---|---|
| 1:4,000 | @ A3 | 501.00023.065461 | |
| Designed | Drawn | Checked | Authorised |
| smcd | smcd | lh | lh |
| Date | Date | Date | Date |
| 01/25 | 01/25 | 09/25 | 09/25 |

Figure Number
**Figure 2-2**

Rev.
**0**

CYAL50450233




RECEIVED: 07/04/2026

**Notes:**

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

**Legend:**

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Operational Extraction Area Phase
- Proposed Perimeter Berms
- Proposed Perimeter Stockproof Fencing
- Proposed Hardcore Areas
- Proposed Permanent Waterbody (created following S & G extraction)
- Proposed Haulage Route from Proposed Sand & Gravel Extraction Area to Existing Concrete Batching Plant
- Proposed Direction of Sand & Gravel Extraction within Each Phase

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|

SLR

www.slrconsulting.com

Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
Proposed Phasing Layout Plan

| Scale | | SLR Project No. |
|---|---|---|
| 1:5,000 | @ A3 | 501.00023.065461 |

| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| smcd | smcd | lh | lh |
| Date | Date | Date | Date |
| 01/25 | 01/25 | 09/25 | 09/25 |

Figure Number
**Figure 2-3**

Rev.
**0**

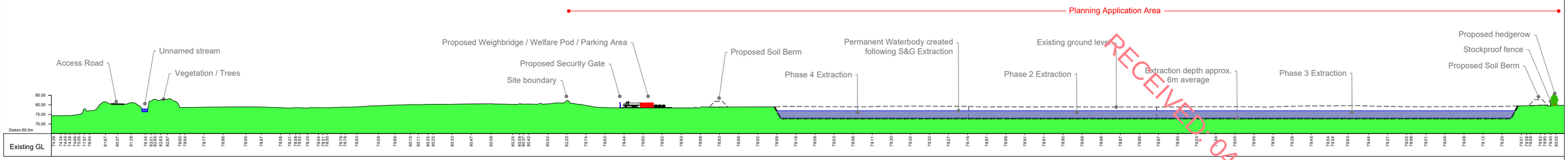
0 100 200 300 400 500m

**Scale 1:5,000**

08/10/2025

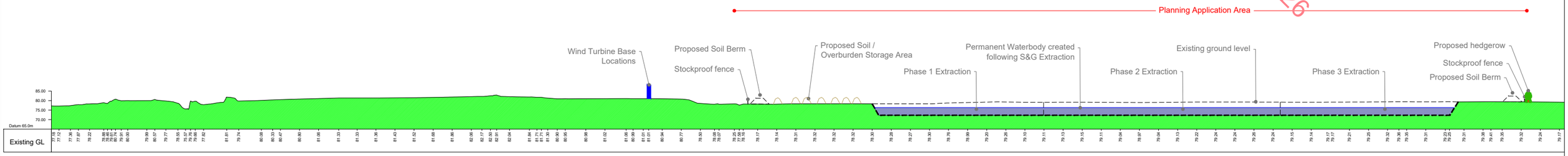
\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\00023 BD Flood\065657 Derryarkin EIAR PA NI\S3 EIAR\02 Project Description\Dwgs\CAD\Wking\00023.065461 BDFlood Derryarkin EIAR Fig2-3 Proposed Phasing R0.dwg

CYAL50381397

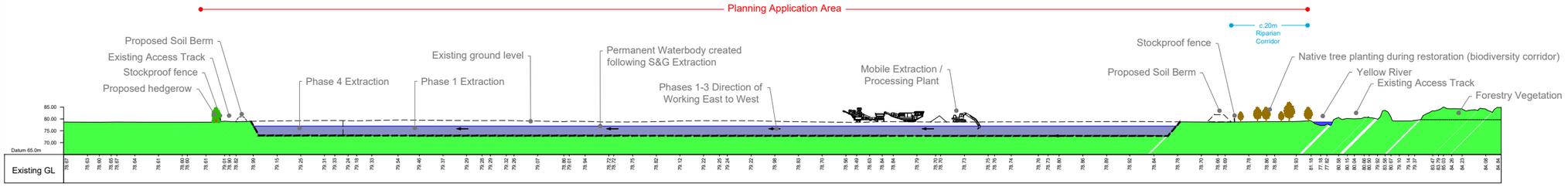



**Section A-A'**

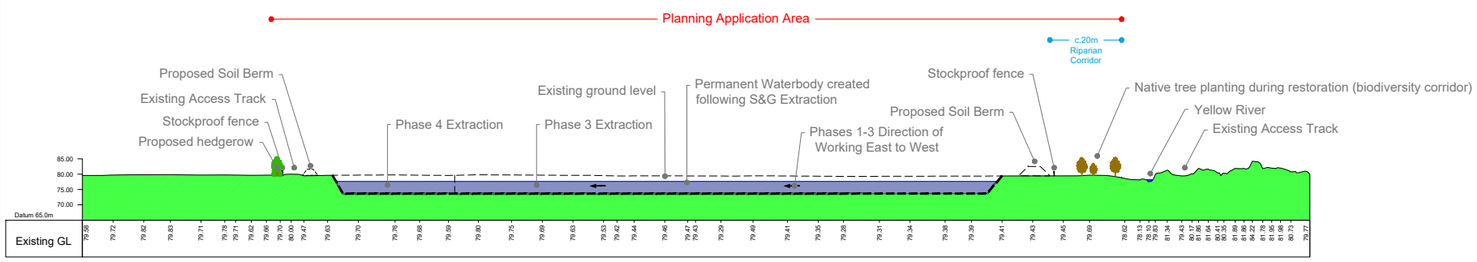




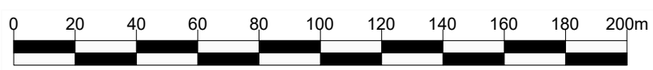

**Section B-B'**




**Section C-C'**




**Section D-D'**




**Scale 1:2,000**

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|

SLR

www.slrconsulting.com

Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
Existing & Proposed Cross Sections

| Scale | SLR Project No. |
|---|---|
| 1:2,000 @ A3 | 501.00023.065461 |

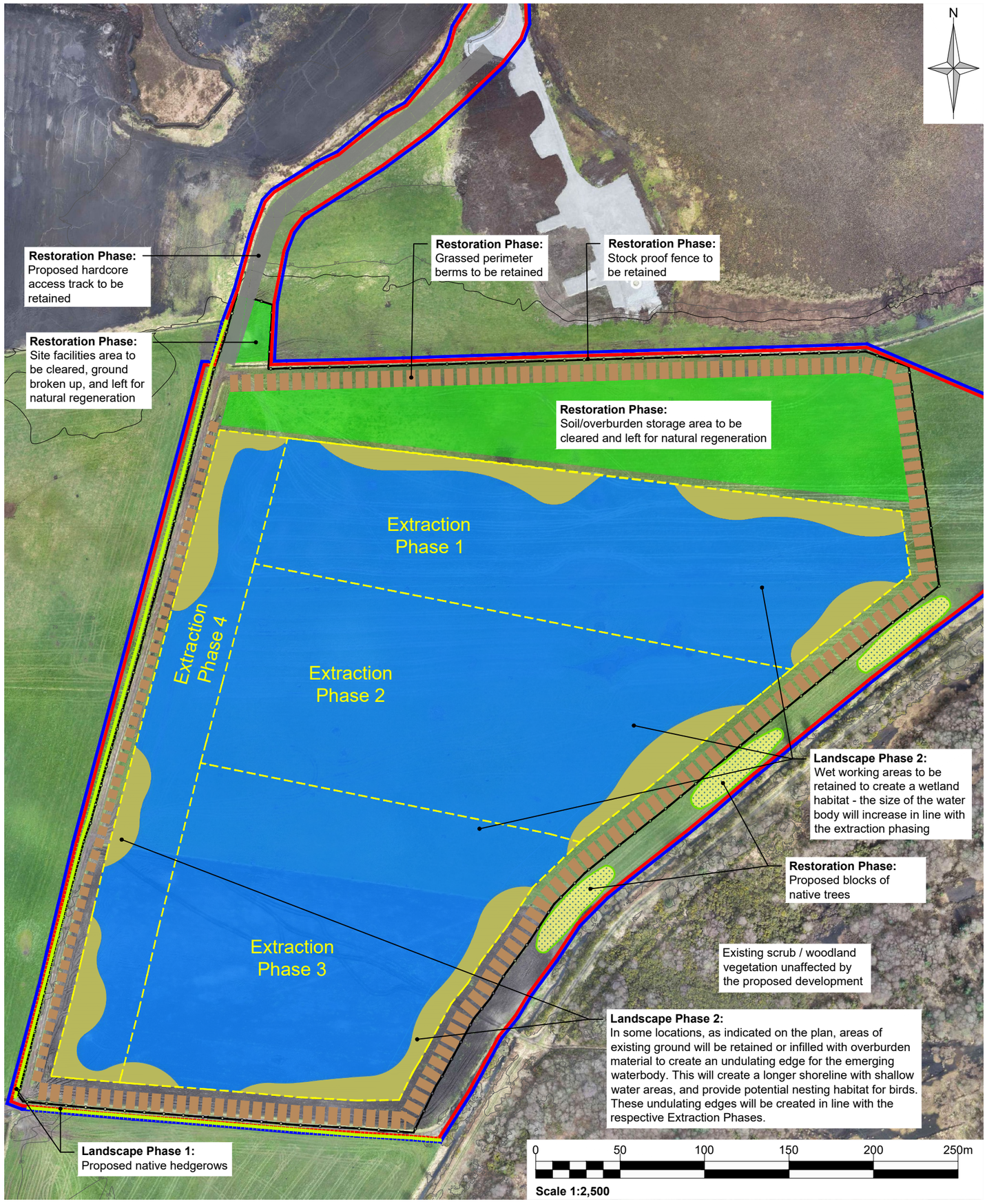
| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| smcd | smcd | lh | lh |
| Date 01/25 | Date 01/25 | Date 09/25 | Date 09/25 |

Figure Number **Figure 2-4** | Rev. **0**

08/10/2025

\\dir.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\0023 BD Flood\065657 Derryarkin EIAR PA N913 EIAR\02 Project Description\Dwgs\CAD\Wking\00023.065461 BD\Flood Derryarkin EIAR Fig2-4 Cross Sections R0.dwg

CYAL50450233




## LANDSCAPE AND RESTORATION SCHEME

It is proposed to restore the application area on a phased basis to a natural habitat land use, which is in line with the beneficial afteruses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006).

The sand and gravel pit will worked wet and the resulting water body will be retained on completion of the extraction works. Undulating and shallow edges will be created, to help increase the potential for biodiversity-rich habitats along the edges of the final water body. Native hedge planting and blocks of native trees along some of the boundaries will increase habitat linkage and provide additional biodivestity potential.

### LANDSCAPE PHASE 1

The following works will be carried out on commencement of the proposed development:

- **Native Hedge Planting** will be carried out along the western and southern boundaries, to augment the screening provided by the proposed perimeter berms in views from a number of residential properties to the west and south, as well as increase biodiversity.

### LANDSCAPE PHASE 2

The following works would be carried out in tandem with the extraction works:

- In the approximate locations indicated on the plan, undulating shallow sand & gravel slopes would be retained, instead of extracting the sand and gravel at a steeper angle all the way to the edge of the water body; and / or
- any surplus material (i.e. not used in perimeter berm construction) stripped from the extraction areas will be backfilled along the edges of the completed wet working areas to create / enhance the undulating shallow water and dry areas.

### RESTORATION PHASE

The following works would be carried out on completion of the extraction works:

- Both the perimeter berms and stock proof fencing will be retained.
- The site facilities near the site entrance will be cleared and the ground decompacted. The soil / overburden storage area will also be cleared and both areas left for natural regeneration. (note: during the one-year restoration period, any dry areas along the edge of the water body will be monitored for the level of natural regeneration. Should there be large bare areas, these will be planted with willow and birch, to initiate the natural regeneration of these areas. It is however expected that this will not be an issue, as natural regeneration is readily taking place within the local area).
- Some blocks of native trees will be planted along the buffer with the Yellow River, to increase habitat linkage and biodiversity futher.

### GENERAL NOTES:

- All plant handling, planting and establishment works to be carried out in accordance with current best practice and to take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions.
- All works to be carried out by a suitably qualified landscape contractor.
- Establishment maintenance to be carried out for 2 years following the completion of planting (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). Works to include weed control, replacement planting (where required) and the adjustment/removal of spiral guards.

### NATIVE HEDGE PLANTING

Hedge to be planted as a double row, with plants 40cm apart (i.e. 2.5 plants per m, Approx. 720m in total = 1,800 plants). To be planted randomly in same species groups of 3-8 and to be supplied with spiral guards.

| *No.* | *Plant Name* | *Common Name* | *Height (cm)* | *Age* | *%* |
|---|---|---|---|---|---|
| *Transplants/Container Grown Shrubs* | | | | | |
| 180 | *Betula pendula* | Silver Birch | 60-90 | 1+1 | 10 |
| 270 | *Corylus avellana* | Common Hazel | 60-90 | 1+0 | 15 |
| 630 | *Crataegus monogyna* | Hawthorn | 60-90 | 1+1 | 35 |
| 270 | *Prunus spinosa* | Blackthorn | 60-90 | 1+0 | 15 |
| 270 | *Rosa canina* | Dog Rose | 40-60 | 1+1 | 15 |
| 180 | *Salix aurita* | Eared Willow | 60-120 | 0+1 | 10 |

### NATIVE TREE MIX

To be planted at 1.5m centres (i.e. 1 plant/2.25m²; approx. 2,475m² in total = 1,100 plants). To be planted randomly with no more than 4-6 plants of the same species in one group and to be supplied with spiral guards.

| *No.* | *Plant Name* | *Common Name* | *Height (cm)* | *Age* | *%* |
|---|---|---|---|---|---|
| *Transplants/Container Grown Shrubs* | | | | | |
| 165 | *Betula pendula* | Silver Birch | 60-90 | 1+1 | 15 |
| 165 | *Corylus avellana* | Common Hazel | 60-90 | 1+0 | 15 |
| 165 | *Crataegus monogyna* | Hawthorn | 60-90 | 1+1 | 15 |
| 165 | *Prunus spinosa* | Blackthorn | 60-90 | 1+0 | 15 |
| 165 | *Rosa canina* | Dog Rose | 40-60 | 1+1 | 15 |
| 165 | *Salix aurita* | Eared Willow | 60-120 | 0+1 | 15 |
| 110 | *Pinus sylvestris* | Scots Pine | 60-80 | R/B | 10 |

**Notes:**

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

**Legend:**

- Applicant Land interest boundary
- Proposed planning application area
- Proposed extraction phasing boundaries
- Proposed hardcore access track

**Landscape Phase 1 (to be carried out on commencement of the development)**

- Native hedge planting (720m in total)

**Landscape Phase 2 (to be carried out in tandem with the extraction works)**

- Wet working area to be retained as wetland habitat
- Undulating / shallow edges to be created by retaining edge / backfilling with overburden material

**Restoration Phase (to be carried out on completion of all extraction works)**

- Site facilities and soil / overburden storage area to be removed and area to be left for natural regeneration
- Grassed perimeter berms to be retained
- Stock proof fence to be retained
- Native tree planting blocks (2,450m² in total)



| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|

SLR

www.slrconsulting.com

Client: BD Flood Unlimited Company

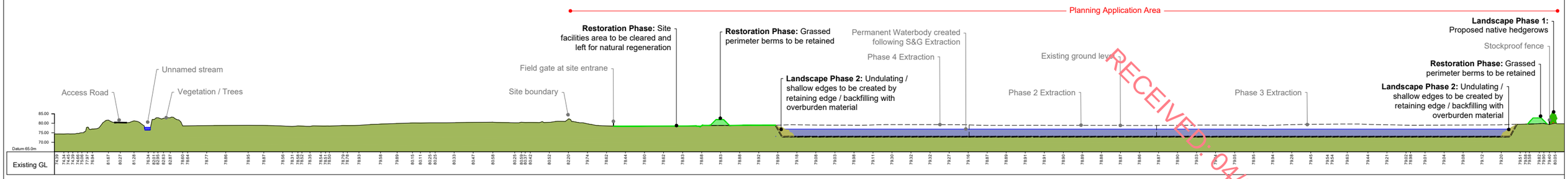
Project: Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title: Proposed Landscape & Restoration Plan

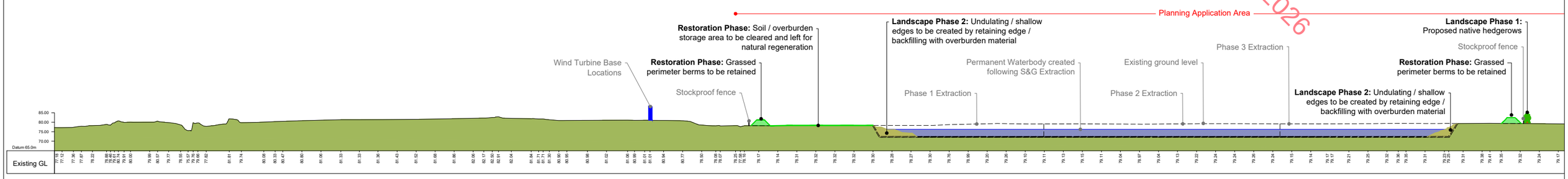
| Scale | SLR Project No. |
|---|---|
| 1:2,500 @ A3 | 501.00023.065461 |

| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| CN | CN | AM | AM |
| Date | Date | Date | Date |
| 09/25 | 09/25 | 09/25 | 09/25 |

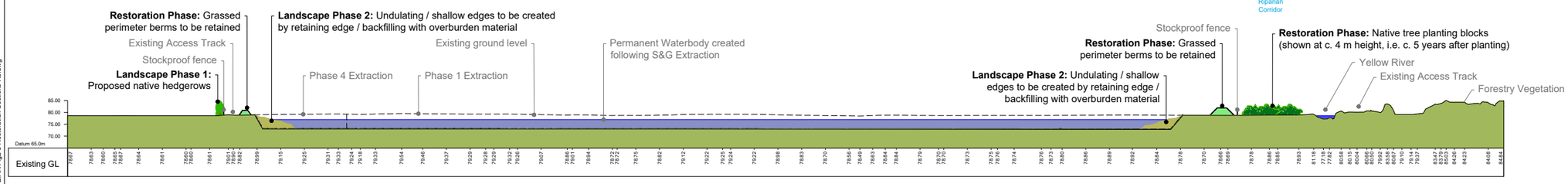
Figure Number: **Figure 2-5** Rev.: **0**



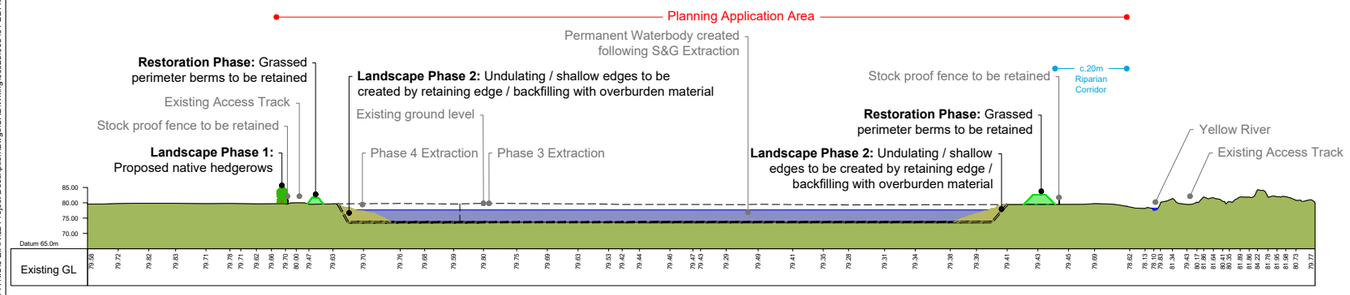

**Section A-A'**



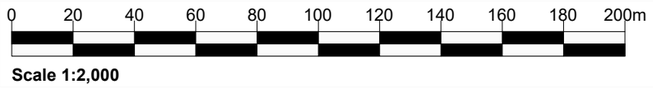

**Section B-B'**




**Section C-C'**




**Section D-D'**




**Scale 1:2,000**

RECEIVED: 04/02/2026

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|

SLR

www.slrconsulting.com

Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
Restoration Cross Sections

| Scale | | SLR Project No. |
|---|---|---|
| 1:2,000 | @ A3 | 501.00023.065461 |

| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| CN | CN | AM | AM |
| Date | Date | Date | Date |
| 09/25 | 09/25 | 09/25 | 09/25 |

Figure Number
**Figure 2-6**

Rev.
**0**

08/10/2025

\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\00023 BD Flood\065657 Derryarkin EIAR PA NIS\3 EIAR\02 Project Description\Dwgs\CAD\Wking\00023.065461 BDFlood Derryarkin EIAR Fig2-6 Restoration Sections R0.dwg

CYAL50450233

## Contents

**Tables**

**Photographs**



**Appendices**

# Introduction

5.1 SLR Consulting (Ireland) Ltd. has prepared this Biodiversity chapter which forms part of the Environmental Impact Assessment Report (EIAR) prepared in support of the proposed extraction of sand and gravel at Derryarkin townland, Rhode, Co. Offaly (hereafter referred to as "the Site").

## Site Description

5.2 The application area covers a total area of approximately 19.5 hectares (48.2 acres) and comprises reclaimed agricultural land, currently under pasture. The site is a reclaimed former cutaway bog, with a thin layer of residual organic rich clay material remaining, below which there are reserves of sand and gravel both above and below the underlying water table.

5.3 The Site is flat with elevations only varying between c. 78m –79m AOD over the proposed extraction area. The access road and existing site entrance are slightly elevated from the main site area being at an elevation of c. 80m AOD. There are no hedgerows within the application area; and the proposed extraction area consists of one large agricultural field sub-divided by stockproof fencing.

5.4 The northern boundary consists of a stockproof fence and field drain. Beyond this is an area of slightly elevated higher ground within which turbine T7 of the Yellow River Windfarm is located.

5.5 The entire eastern landholding boundary is denoted by the Yellow River. The application boundary runs along the western bank of the river and consists of a post and wire stockproof fence and intermittent trees and vegetation.

5.6 The southern application boundary consists of a stockproof fence. Beyond this is an agricultural access track that runs along the southern boundary before taking a ninety degree turn north along a small section of the eastern boundary to a bridge access over the Yellow River to access the lands on the eastern side of the river.

5.7 The western application boundary is set back slightly and runs parallel to the western edge of the existing agricultural access track which provides access within the overall landholding from the landowners farm to the northern application area.

5.8 The surrounding landscape is comprised of a mix of agricultural land, cutover bog with recolonising vegetation and commercial forestry stands.

## Project Description

5.9 The applicant is seeking planning permission for the following development at the Site:

- An overall application area of c. 19.5 hectares;
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures;
- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²); mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site;

- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body;
- The proposed development life is for 15 years to complete extraction and restoration operations.

## Purpose of this Report

5.10 This biodiversity chapter aims to describe the baseline ecological conditions at the Site and to identify potential significant effects associated with the proposed development. Where necessary appropriate mitigation measures will be set out to reduce residual effects to a suitable level.

5.11 This chapter forms part of the EIAR that will be submitted with the planning application to assist the competent authority, in this case Offaly County Council, to carry out an Environmental Impact Assessment (EIA) of the proposed development.

5.12 The purpose of this report is to:

- Describe (any) likely significant effects, any indirect, secondary, cumulative, transboundary, short-term, medium-term, and long-term, permanent, and temporary, positive and negative effects of the project, which result from the proposed works during construction, operation and restoration;
- Describe mitigation measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on biodiversity; and
- Explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced, or offset.

5.13 This chapter will address the terrestrial and freshwater habitats and species, with particular attention to rare and protected species as listed under the Checklist of protected and threatened species in Ireland (Nelson et al., 2019).

## Evidence of Technical Competence and Experience

5.14 This report was prepared by SLR Project Ecologist Victoria Molloy BSc and SLR Associate Ecologist Michael Bailey carried out the technical review for this report.

5.15 **Victoria Molloy** holds a BSc. in Zoology from the University of Galway. She has over four years' experience as a consultant ecologist and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Victoria has prepared a range of survey reports and impact assessment reports for a variety of project types including quarries, renewable energy, forestry licence applications, housing, road, and industrial developments. She is also responsible for carrying out a range of surveys to inform these assessments including preliminary ecological assessment (PEA), habitat, ornithological, and marsh fritillary surveys.

5.16 **Michael Bailey** holds a BSc (Hons) in Biology and Ecology from the University of Ulster, and an MSc in Quantitative Conservation Biology from the University of the Witwatersrand, Johannesburg, South Africa. Michael is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Michael is an experienced consultant ecologist with field and research experience with mammal, bird, bat and invasive species surveys in Ireland, the UK and Africa. He has prepared Appropriate Assessments and Ecological Impact Assessments for a wide range of infrastructure, mining and extractive industry, and renewable energy projects.

## Relevant Legislation and Policy

### International legislation and policy

- United Nations (UN) Convention on Biological Diversity (CBD); and
- The Ramsar Convention on Wetlands of International Importance.

### European legislation and policy

- EU Habitats Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) (as amended) (the Habitats Directive);
- EU Birds Directive on the conservation of wild birds (2009/147/EC) (as amended);
- The Berne Convention on the Conservation of European Wildlife and Natural Habitats;
- The Bonn Convention on the Conservation of Migratory Species of Wild Animals;
- EU Water Framework Directive establishing a framework for Community action in the field of water policy (2000/60/EC) (as amended);
- EU Environmental Liability Directive (2004/35/EC);
- EU EIA Directive on the assessment of the effects of certain public and private projects on the environment (2011/92/EU) (as amended);
- EU Biodiversity Strategy 2020;
- Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species, as amended, together with Commission Implementing Regulation (EU) 2016/1141 and Implementing Regulation (EU) 2019/1262; and
- EU Nature Restoration Law 2023 2022/0195(COD).

### National legislation and policy

- The Wildlife Acts 1976, as amended;
- S.I. No. 477/2011 - Regulation 49 and 50 of European Communities (Birds and Natural Habitats) Regulations;
- S.I. No. 272/2009 – European Communities Environmental Objectives (Surface Waters) Regulations, as amended;
- S.I. No. 293/1988 - European Communities (Quality of Salmonid Waters) Regulations;
- European Union Environmental Objectives (Freshwater Pearl Mussel *Margaritifera margaritifera*) (Amendment) Regulations 2009 to 2018;
- The Flora (Protection) Order 2022;
- The Heritage Act, 2018 (as amended);
- Planning and Development Act, 2000 (as amended);
- Project Ireland 2040;
- National Heritage Plan 2030;
- Ireland's 4th National Biodiversity Action Plan 2023 - 2030.

- European Communities (Planning and Development) (Environmental Impact Assessment (EIA)) Regulations 2018, as amended;
- European Communities (Water policy) Regulations, 2003, as amended; and
- European Communities Environmental Objectives (Surface Waters) Regulations 2009.

### Local policy

5.17 The relevant local planning policies have been extracted from the Offaly County Development Plan (CDP) 2021-2027 (Offaly County Council, 2021). These policies are specific to "Chapter 4: Biodiversity and Landscape" of the County Development Plan and are concerned with the policies and objectives to protect and/or enhance the ecology and biodiversity of the county. In broad terms these objectives and policies aim to ensure correct measures are put in place to identify and protect natural heritage and important environmental features within the county. The full list of relevant policies and objectives are listed in **Appendix 5-A** of this report.

### Guidance

5.18 The relevant guidance has been followed:

- Guidelines for Assessment of Ecological Impacts of National roads Schemes (National Roads Authority (NRA, 2009a.);
- Ecological Surveying Techniques for Protecting Flora and Fauna during the Planning of National Road Schemes (NRA, n.d.);
- Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (NRA, 2009b);
- Surveying Badgers (Harris et al., 1989)
- Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018);
- Guidance Note 08/23: Bats and Artificial Lighting at Night (Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT), 2023);
- Bat Surveys for Professional Ecologists – Good Practice Guidelines (Collins 2016; and Collins, 2023);
- A guide to Habitats in Ireland (Fossitt, 2000);
- The Status of Ireland's Breeding Seabirds: Birds Directive Article 12 Reporting 2013 – 2018 (Cummins et al., 2019);
- The Status of EU Protected Habitats and Species in Ireland (National Parks and Wildlife Service (NPWS), 2019);
- Common Standards Monitoring Guidance for Reptiles and Amphibians (Joint Nature Conservation Committee (JNCC), 2004);
- UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation (Cresswell et al., 2012); and
- New Atlas of the British and Irish Flora: An Atlas of the Vascular Plants of Britain, Ireland, The Isle of Man and the Channel Islands (Preston et al., 2022).

# Methodology

5.20 The methods used to carry out the survey of the Site, to evaluate the ecological value and to prepare the biodiversity chapter is outlined in this section. The assessment methodology for this proposal was developed using the standard professional impact assessment guidance published in 2018 by the Chartered Institute of Ecology and Environmental Management (CIEEM).

## Scope of the Assessment

5.21 The scope of this Biodiversity Chapter is to identify potential impacts likely to occur from the proposed extraction and restoration operations, and to determine if the effects on biodiversity are significant. The scope of the report includes the provision of mitigation, compensation and enhancement measures as required.

### Desk study

5.22 All designated sites for biodiversity within 15 km and with ecological and/or hydrological connectivity have also been considered.

### Field survey

5.23 The study area for field surveys comprised the site boundary, although incidental sighting of species beyond this boundary are represented where relevant in this report.

## Baseline Data Collection

### Desk Study

5.24 A desk study was carried out to collate the available existing ecological information on the Site. The Site and the surrounding area were viewed using existing available satellite imagery[1].

5.25 The following data sources were used to compile the desk study:

- The National Parks and Wildlife Service (NPWS)[2] online resources were accessed for information on sites with a statutory designation for nature conservation, specifically European sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)), Ramsar sites and Natural heritage Areas (NHAs), and other sites such as proposed Natural Heritage Areas (pNHA) that are not legally designated but are identified as being of conservation interest, and protected habitats and species as defined under the NPWS Checklist of Protected and Threatened Species in Ireland (Nelson et al., 2019).
- The National Biodiversity Data Centre (NBDC)[3] online resources were accessed for information on rare and protected habitats and species (Nelson et al., 2019). All records were considered within this assessment; however, where a record was sufficiently old and unlikely to comprise relevant data (e.g., where changes in land management that has occurred in the intervening period), these data have been omitted from the assessment.

[1] https://www.google.ie/maps & http://www.bing.com/maps/ (Accessed July 2025)
[2] www.npws.ie (Accessed July 2025)
[3] http://maps.biodiversityireland.ie/#/Map (Accessed July 2025)

- Environmental Protection Agency (EPA) Maps[4] was accessed for other environmental information, such as surface water features, relevant to preparation of this report.
- Records of Annex I habitats, and Annex II and IV species of the Habitats Directive (92/43/EEC) using Article 12 and Article 17 reports.
- Local policies listed in the Offaly County Development Plan.
- Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert et al., 2021), published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened.
- Wildlife Acts 1976 – 2018 (ISB, n.d.), the Red List of Terrestrial Mammals (Marnell et al., 2019)
- Annexes of the EU Habitats Directive 92/43/EEC12 (European Commission, n.d.).
- The Offaly County Council website was accessed for information on relevant planning policy while the planning portal[5] was accessed for information on other planning applications within the Site and immediate surrounding area.
- The ecological reports for nearby planning applications were consulted, and their findings have been considered in this report.
- The drawings and the full project description are contained within other sections of this EIAR which also informed the desk study. Other chapters of the EIAR reviewed included **Chapter 7 - Water**, **Chapter 8 - Air Quality**, and **Chapter 10: Noise**.

## Field Survey(s)

5.26 A preliminary ecological assessment survey was conducted on 5th February 2025 by SLR Senior Ecologist Jake Matthews to identify the habitats on-site and to determine the baseline ecology of the Site.

5.27 The approach to the field surveys is based on accepted standard practice and methods. Habitats within the study area were classified after '*A Guide to Habitats in Ireland*'[6] and were assessed if they comprise Annex I habitats under the Habitats Directive, habitats which have a supporting function for such habitats, habitats which may support Annex II species of the Habitats Directive and/or habitats which may support Annex I species of the Birds Directive.

5.28 The Site was appraised for its ability to support any protected and threated species as listed in Nelson *et al.* (2019). The following were recorded during this survey:

- The Site's suitability to support amphibians;

[4] http://gis.epa.ie/ (Accessed July 2025)
[5] https://www.myplan.ie/ (Accessed July 2025)
[6] Fossitt (2000): A Guide to Habitats in Ireland

- The Site's suitability to support commuting and foraging bats. Note that no buildings or trees suitable for roosting bats were present on the Site;
- Any badger setts or evidence of badger activity;
- 150m upstream and downstream of the nearby rivers were walked to check for the presence of potential otter holts and couches, or other evidence of otter presence (e.g., slides and spraint);
- All protected and threatened bird species, or the Site's suitability to support such species; and

5.29 Two follow-up wintering bird surveys were conducted on the Site. Each survey comprised a vantage point survey (located at approximate ITM coordinates 649192 736740) and walked transect of the Site and surrounding areas (i.e., 1km buffer – where access was possible).

5.30 The vantage point surveys were conducted on 11th March 2025 at dawn (i.e., 5:00 – 7:00); and 25th March 2025 (i.e., 19:00 – 21:00). The walked transects were conducted immediately after the dawn survey (i.e., 7:30 – 9:30) and preceding the dusk survey (i.e., 16:30 – 18:30) to assess the Site for foraging winter birds. All other protected and threatened bird species were recorded as incidental records during these surveys. The walked transect route has been presented in **Figure 5-4**.

5.31 These winter bird surveys aimed to assess the presence and abundance of foraging and roosting whooper swan and other wintering birds on the Site. These surveys included a vantage point survey,

## Limitations

### Desk Study

5.32 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

5.33 The lack of ecological records returned in the data search does not conclude the absence of a species. Such an absence of records may simply indicate an under-recording of the area.

5.34 In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys[7], the details of this report will remain valid for a period of 18-months from the date of the survey (i.e., until 5th August 2026). After which the validity of this assessment should be reviewed to determine whether further updates are necessary.

### Field Survey

5.35 The field surveys were conducted in February 2025. These are outside the optimal seasonality for floral species (considered April – September). However, only heavily disturbed agricultural habitats of limited value are being lost to facilitate the proposed development. As such, it is considered unlikely that any notable flora is present within

[7] CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys

the impacted habitats and this limitation is not considered to pose a significant constraint to the accuracy of the survey.

5.36 Additional surveys were conducted in March 2025 to assess the utilisation of the project site by nesting birds and by over-wintering birds such as whooper swan. However, while whooper swan were found to utilise the site a full winter bird survey was not completed which would have included surveys from October to March in any year. Moreover, the second winter bird survey was conducted at the very end of the wintering bird season and whooper swan were found to be absent during this survey and were assessed to have likely migrated by this time. However, previous planning applications in the vicinity of the application site were found to have conducted similar surveys and these were consulted to supplement the results of the surveys conducted for the Site. As such, the assessment was no considered to be significantly constrained by this limitation.

# Assessment Approach

5.37 The ecological evaluation and assessment within this chapter has been undertaken with reference to relevant parts of the 2024 Guidelines for Ecological Impact Assessment in the UK and Ireland developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, September 2024).

5.38 Although this is recognised as current good practice for ecological assessment, the guidance itself recognises that it is not a prescription about exactly how to undertake an ecological impact assessment (EcIA); rather, they "*provide guidance to practitioners for refining their own methodologies*". For the full guidance, refer to https://www.cieem.net/data/files/ECIA%20Guidelines.pdf. The approach to impact assessment also has regard to advice set out in the EPA draft guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) published in 2022.

## Important Ecological Features

5.39 Important Ecological Features (IEFs) can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline. IEFs comprise the following:

- Designated sites including European, nationally, and locally designated sites;
- Habitats listed on Annex I of the Habitats Directive;
- Populations of bird species listed on Annex I of the Birds Directive; on local biodiversity action plan or are provided protection through policies listed under the county development plans;
- Populations of protected and threatened species in Ireland as defined by Nelson et al. (2019) and/or the local biodiversity action plan; or
- Habitats that comprise a significant resource for a rare or protected species.

## Determining Importance

5.40 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International (European);
- National (Ireland);
- Regional (Leinster);
- County (Offaly);
- Local (i.e., within circa 5km); and
- Negligible.

5.41 The above frame of reference is applied to the IEFs identified during the desk study and surveys to inform this report.

5.42 In assigning a level of value to the population of a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 - 2012 and BoCCI.

5.43 The level of value is determined by reference to standard criteria. All features of Local value and higher are considered in the assessment if they are likely to be significantly affected. Other features are also considered in the assessment if they are protected by law or policy, or otherwise require consideration in the development process.

## Impact Assessment

5.44 The impact assessment process involves the following steps:

- identifying and characterising potential impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required); and
- identifying opportunities for ecological enhancement.

5.45 When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

5.46 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action (e.g., the physical loss of habitat occupied by a species during the construction process). Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or feature (e.g.,

the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland).



5.47 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- **Habitats** – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure, and functions as well as its distribution and its typical species within a given geographical area.
- **Species** – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

5.48 The threshold of importance is based at 1% of the existing background population / area (CIEEM, 2024).

## Significant Effects

5.49 The 2024 CIEEM guidance sets out information in paragraphs 5.24 through to 5.28 of the guidance documents which describes the concept of ecological significance. Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

5.50 A significant effect, for the purposes of EclA, is defined as an effect that either supports or undermines biodiversity conservation objectives for '*important ecological features*' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

5.51 The nature of the identified effects on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the site, habitat, or population's structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

## Cumulative Effects

5.52 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

5.53 Other plans and projects that should be considered when establishing cumulative effects are:

- proposals for which consent has been applied but which are awaiting determination;
- projects which have been granted consent, but which have not yet been started, or which have been started but are not yet completed (i.e., under construction);

- proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- developments specifically referenced in a National Policy Statement, a National Plan, or a Local Plan.

### Avoidance, Mitigation, Compensation and Enhancement

5.54 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

5.55 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

5.56 It is important to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:

- **Avoidance** is used where an impact has been avoided, e.g. through changes in scheme design;
- **Mitigation** is used to refer to measures to reduce or remedy a specific negative impact in situ;
- **Compensation** describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
- **Enhancement** is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

## Baseline Ecological Conditions

5.57 This section sets out the current baseline conditions for the ecological features considered within the Site and provides a clear description of the changes that would occur as a result of the proposed development using the findings of the desk study and field survey.

### Sites Designated for Nature Conservation

5.58 Sites which have been designated for nature conservation are discussed in this section. These designations may include European sites, Natural Heritage Areas, National Parks, Nature Reserves, and Ramsar Sites.

## European Designated Sites

5.59 An Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) report has been provided alongside this report (SLR, 2025). **Table 5-1** lists the European sites identified within 15 km of the Site or with hydrological connectivity to the Site. Sites beyond this distance have been scoped out as it is considered that the potential impacts caused by the proposed development are likely to have an imperceptible effect on sites beyond this distance.

5.60 The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and connects the Site to the River Boyne and River Blackwater SAC [002299] and the River Boyne and River Blackwater SPA [004232] c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site. As such, potential impacts on these European sites as a result of changes in surface water quality are assessed further in this report.

5.61 The Site is located on the Athboy groundwater body. The River Boyne and River Blackwater SAC and SPA are located on the same groundwater body. Therefore, potential impacts on these European sites as a result of changes in groundwater quality and groundwater levels are assessed further in this report.

5.62 All of the European sites listed in **Table 5-1** are considered to be sufficiently distant to exclude the possibility of impacts as a result of dust[8], noise and vibration.

5.63 All other European sites have been scoped out from potential impacts in the AA Screening & NIS report and have, therefore, not been assessed further in this chapter.

**Table 5-1: European Sites Within 15km of the Project Site**

| Site Code | Site Name | Distance[9] | Qualifying Interests[10] |
|---|---|---|---|
| 000582 | Raheenmore Bog SAC | 5.22km | Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150], Active raised bogs [7110] |
| 001831 | Split Hills and Long Hill Esker SAC | 10.24km | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) * important orchid sites [6210] |
| 000685 | Lough Ennell SAC | 11.16km | Alkaline fens [7230] |
| 004044 | Lough Ennell SPA | 11.84km | Great Crested Grebe (Podiceps cristatus) [A005], Mallard (Anas platyrhynchos) [A053], Pochard (Aythya ferina) [A059], Tufted Duck (Aythya fuligula) [A061], Goldeneye (Bucephala clangula) [A067], Coot (Fulica atra) [A125], Golden Plover (Pluvialis apricaria) [A140], Lapwing (Vanellus vanellus) [A142], Greenland White-fronted Goose (Anser albifrons flavirostris) [A395], Wetland and Waterbirds [A999] |

[8] Institute of Air Quality Management (IAQM). (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning.
[9] When measured in a straight line over the shortest distance between the site and European site.
[10] For SPAs, the bird species that are the reason for designation are Species of Conservation Interest (SCIs) and for SACs the habitats and species that are the reason for designation are its Qualifying Interests (QIs). For convenience, the term qualifying interest or QI is used here for both SPAs and SACs.
[9] Protected Sites in Ireland | National Parks & Wildlife Service (npws.ie)

| Site Code | Site Name | Distance[9] | Qualifying Interests[10] |
|---|---|---|---|
| 002299 | River Boyne and River Blackwater SAC | c. 27km downstream | Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0], Lampetra fluviatilis (River Lamprey) [1099], Salmo salar (Salmon) [1106], Lutra lutra (Otter) [1355] |
| 004232 | River Boyne and River Blackwater SPA | c. 27km downstream | Cormorant (Phalacrocorax carbo) [A017], Grey Heron (Ardea cinerea) [A028], Teal (Anas crecca) [A052], Mallard (Anas platyrhynchos) [A053], Kingfisher (Alcedo atthis) [A229] |
| 001957 | Boyne Coast and Estuary SAC | c. 105km downstream | Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Salicornia and other annuals colonising mud and sand [1310], Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] |
| 004080 | Boyne Estuary SPA | c. 105km downstream | Cormorant (Phalacrocorax carbo) [A017], Brent Goose (Branta bernicla) [A046], Shelduck (Tadorna tadorna) [A048], (Anas penelope) [A050], Teal (Anas crecca) [A052], Mallard (Anas platyrhynchos) [A053], Red-breasted Merganser (Mergus serrator) [A069], Oystercatcher (Haematopus ostralegus) [A130], Ringed Plover (Charadrius hiaticula) [A137], Golden Plover (Pluvialis apricaria) [A140], Grey Plover (Pluvialis squatarola) [A141], Lapwing (Vanellus vanellus) [A142], Knot (Calidris canutus) [A143], Sanderling (Calidris alba) [A144], Dunlin (Calidris alpina) [A149], Black-tailed Godwit (Limosa limosa) [A156], Bar-tailed Godwit (Limosa lapponica) [A157], Curlew (Numenius arquata) [A160], Redshank (Tringa totanus) [A162], Greenshank (Tringa nebularia) [A164], Turnstone (Arenaria interpres) [A169], Black-headed Gull (Larus ridibundus) [A179], Common Gull (Larus canus) [A182], Sterna albifrons [A195], Wetland and Waterbirds [A999] |
| 004236 | North-West Irish Sea SPA | c. 110km downstream | Red-throated Diver (Gavia stellata) [A001], Great Northern Diver (Gavia immer) [A003], Fulmar (Fulmarus glacialis) [A009], Manx Shearwater (Puffinus puffinus) [A013], Cormorant (Phalacrocorax carbo) [A017], Shag (Phalacrocorax aristotelis) [A018], Common Scoter (Melanitta nigra) [A065], Black-headed Gull (Chroicocephalus ridibundus) [A179], Common Gull (Larus canus) [A182], Lesser Black-backed Gull (Larus fuscus) [A183], Herring Gull (Larus argentatus) [A184], Great Black-backed Gull (Larus marinus) [A187], Kittiwake (Rissa tridactyla) [A188], Roseate Tern (Sterna dougallii) [A192], Common Tern (Sterna hirundo) [A193], Arctic Tern (Sterna paradisaea) [A194], Guillemot (Uria aalge) [A199], Razorbill (Alca torda) [A200], Puffin (Fratercula arctica) [A204], Little Gull (Hydrocoloeus minutus) [A862], Little Tern (Sternula albifrons) [A885] |

## Natural Heritage Areas

5.64 **Table 5-2** and **Figure 5-3** detail the Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15 km of the proposed development.

5.65 There are no surface water hydrological connections between the Site and any of the NHAs and pNHAs listed in **Table 5-2**. None of the NHAs or pNHAs listed in **Table 5-2** are reliant on the groundwater quality or levels of the Athboy groundwater body (GWB) on which the Site is located. In addition, the peatland habitat for which the listed NHAs are designated are primarily rain-fed and are not reliant on groundwater.

5.66 All of the NHAs and pNHAs listed in **Table 5-2** are considered to be sufficiently distant to exclude the possibility of impacts as a result of dust[11], noise and vibration.

5.67 Therefore, it is assessed that there are no potential pathways for impacts on the NHAs and pNHAs listed in **Table 5-2** as a result of the proposed development.

5.68 All other NHAs and pNHAs are considered to be sufficiently distant to exclude the possibility of significant impacts as a result of the proposed development.

**Table 5-2: Natural Heritage Areas Within 15 km of the Site**

| Site Code | Site Name | Designation | Distance[12] | Details / Reason for Designation |
|---|---|---|---|---|
| **Natural Heritage Areas (NHAs)** | | | | |
| 002323 | Milltownpass Bog | NHA | 7.97 km N | Peatlands [4] |
| 000677 | Cloncrow Bog (New Forest) | NHA | 8 km W | Peatlands [4] |
| 000570 | Black Castle Bog | NHA | 8.2 km E | Peatlands [4] |
| 002033 | Daingean Bog | NHA | 9.4 km SW | Peatlands [4] |
| 001725 | Nure Bog | NHA | 13.2 km NW | Peatlands [4] |
| **Proposed Natural Heritage Areas (pNHAs)** | | | | |
| 002104 | Grand Canal | pNHA | 5.03 km SE | Otter; smooth newt; opposite-leaved pondweed |
| 000582 | Raheenmore Bog | pNHA | 5.23 km SW | It is anticipated that this pNHA is designated for the same QIs as the Raheenmore Bog SAC which it overlaps with. |
| 000918 | Rahugh Ridge (Kiltober Esker) | pNHA | 8.6 km SW | Red hemp-nettle; semi-natural woodland |
| 001831 | Split Hills And Long Hill Esker | pNHA | 10.3 km W | It is anticipated that this pNHA is designated for the same QIs as the Split Hills And Long Hill Esker SAC which it overlaps with. |
| 000685 | Lough Ennell | pNHA | 11.6 km NW | It is anticipated that this pNHA is designated for the same QIs as the Lough |

[11] Institute of Air Quality Management (IAQM). (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning.
[12] When measured in a straight line over the shortest distance between the site and NHA/pNHA.

| | | | | |
|---|---|---|---|---|
| | | | | Ennell SAC and SPA which it overlaps with. |
| 001711 | Ardan Wood | pNHA | 11.15 km SWW | Semi-natural woodland |
| 001775 | Murphy's Bridge Esker | pNHA | 11.18 km SW | Red hemp-nettle; blue fleabane; eskers |
| 002103 | Royal Canal | pNHA | 13.24 km N | Otter; opposite-leaved pondweed; *Tolypella intricata* |



## Habitats

5.69 Habitats present within the Site, as recorded during the preliminary ecological assessment survey, are described in this section. Habitat classification follows that of '*A Guide to Habitats in Ireland*' (Fossitt, 2000). A habitat map for the site is provided in **Figure 5-1**.

### Desk Study

5.70 The desk study found no records of Annex I habitats within the site boundary or within a 2 km buffer of the Site. No other records of notable habitats such as ancient and long-established woodland or semi-natural grasslands were found within 2 km of the Site.

### Field Survey

#### Improved Agricultural Grassland (GA1)

5.71 The majority of the Site consists of two improved agricultural grassland fields. Patches of bare ground are abundant, where disturbed by tractors, but grass is dominant within this habitat. There is evidence of grazing within these fields, however they were not being actively used for grazing at the time of the survey.

5.72 The dominant grass species include perennial ryegrass *Lolium perenne* and creeping bent *Agrostis stolonifera* with areas of fescue *Festuca* spp and cocksfoot *Dactylis glomerata* also present. Broadleaved herbs are also found in this habitat including creeping buttercup *Ranunculus repens*, yarrow *Achillea millefolium*, cow parsley *Anthriscus sylvestris*, creeping thistle *Cirsium arvense*, greater plantain *Plantago major*, cranes-bill *Geranium* spp., dandelion *Taraxacum officinale*, and purple dead-nettle *Lamium purpureum*.

5.73 This habitat is widespread and provides limited value to biodiversity due to a low species diversity and high levels of agricultural activity. Therefore, it is evaluated to be of **negligible importance**.

**Photograph 1: Improved Agricultural Grassland (GA1) Habitat On-Site**

### Eroding/Upland Rivers (FW1)

5.74 The Yellow [Castlejordan] stream flows along the eastern Site boundary. The section of this stream that is found along the Site boundary is approximately 2.5 m in width and 1.5 m in depth with steep banks. Common reed *Phragmites australis* is found along the banks of the river, in addition to some hedgerow, as described in the following section. In areas where there is no hedgerow present, the banks are composed of common reed along with occasional scrub and tree species including willows *Salix* spp. Aquatic vegetation such as watercress *Nasturtium officinale* is present within the stream. A bridge crosses over the stream in the south of the Site, where the stream narrows to approximately 1 m in width. The Yellow stream is a tributary of the River Boyne, ultimately entering the sea at Boyne Estuary approximately 110 km downstream of the Site.

5.75 This habitat provides value to fauna both on-site and downstream of the Site. Therefore, it is evaluated to be of **regional-level importance** due to its potential to provide biodiversity value beyond the boundaries of the Site.

**Photograph 2: Eroding/Upland River (FW1) Habitat On-Site**

### Hedgerows (WL1)

5.76 Approximately 140 m of hedgerow is located along the banks of the Yellow River in the southern corner of the Site. This habitat is primarily composed of unmanaged gorse *Ulex* sp. hedgerow with instances of alder *Alnus glutinosa*, ash *Fraxinus excelsior*, and bramble *Rubus fruticosus* agg. Bracken *Pteridium aquilinum* is locally dominant in places along this hedgerow. An understorey of ivy *Hedera helix*, fescue *Festuca* spp., cocksfoot *Dactylis glomerata*, vetch *Vicia* spp. and Yorkshire fog *Holcus lanatus* is also present.

5.77 A 20m buffer zone will be established between the Yellow River and the proposed periphery screening berm and a 35m buffer will be maintained to the proposed extraction area. Therefore, there will be no loss of hedgerows as a result of the proposed development. This habitat may provide suitable foraging and refuge opportunities for local fauna. Therefore, it is evaluated to be of **county-level importance**. However, since this habitat will not be impacted, it can be reasonably excluded from further consideration.

**Photograph 3: Hedgerow (WL1) Habitat On-Site**

## Species

### Desk Study

5.78 The NBDC database was searched for records of rare and/or protected species from the 2 km grid squares N43X and N43Y within which the Site is located. The records of rare and/or protected species are presented in **Table 5-3** below.

**Table 5-3 Rare or Protected Species Recorded Within 2km Grid Squares N43X & N43Y**

| Species | Date of Last Record | No. of Records | Conservation Status | Dataset |
|---|---|---|---|---|
| **Birds** | | | | |
| Common Sandpiper *Actitis hypoleucos* | 2021 | 1 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Coot *Fulica atra* | 2011 | 1 | Birds of Conservation Concern: Amber List | Bird Atlas 2007 - 2011 |
| Great Crested Grebe *Podiceps cristatus* | 2021 | 3 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Kestrel *Falco tinnunculus* | 2022 | 1 | Birds of Conservation Concern: Red List | Birds of Ireland |
| Lapwing *Vanellus vanellus* | 2021 | 4 | Birds of Conservation Concern: Red List | Birds of Ireland |

| | | | | |
|---|---|---|---|---|
| Mallard *Anas platyrhynchos* | 2019 | 2 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Mute Swan *Cygnus olor* | 2019 | 2 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Ringed Plover *Charadrius hiaticula* | 2024 | 5 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Sand Martin *Riparia riparia* | 2024 | 5 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Skylark *Alauda arvensis* | 2021 | 2 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Tufted Duck *Aythya fuligula* | 2019 | 2 | Birds of Conservation Concern: Amber List | Birds of Ireland |
| Whooper Swan *Cygnus cygnus* | 2021 | 9 | EU Birds Directive: Annex I<br>Birds of Conservation Concern: Amber | Birds of Ireland |
| **Invertebrates** | | | | |
| White-clawed Crayfish *Austropotamobius pallipes* | 2018 | 4 | EU Habitats Directive: Annex II and V<br>Protected Species: Wildlife Acts | A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA) |
| **Mammals** | | | | |
| Badger *Meles meles* | 2014 | 3 | Protected Species: Wildlife Acts | General Biodiversity Records from Ireland<br>Badger Setts of Ireland Database |
| Fallow Deer *Dama dama* | 2010 | 1 | Protected Species: Wildlife Acts | Atlas of Mammals in Ireland 2010-2015 |
| Pine Marten *Martes martes* | 2014 | 1 | EU Habitats Directive: Annex V<br>Protected Species: Wildlife Acts | General Biodiversity Records from Ireland |

## Rare and Protected Flora

5.79 There are no records of rare and protected plant species within the 2 x 2 km grid squares. No notable protected plant species were recorded within the Site during the field surveys.

5.80 The field survey was conducted outside of the optimal season for botanical surveys. However, it is considered unlikely that protected flora species would be present on-site due to the agricultural and disturbed nature of the habitats on-site.

5.81 Therefore, they have been scoped out from further assessment.

## Rare and Protected Fauna

### Amphibians

5.82 The data search returned no records of amphibians. No amphibians were recorded on the site during the field surveys.

5.83 No suitable waterbodies for breeding amphibians were identified on-site. It is considered that the habitats on-site are of low value to amphibians due to the highly disturbed nature of the Site and the monoculture of grass vegetation present. It is assessed that the Site is unlikely to be used as an important refuge for amphibians during the non-breeding season.

5.84 The Site is considered to be of **negligible importance** to amphibians.

### Reptiles

5.85 The data search returned no records of reptiles within the 2 x 2 km squares. No reptiles were noted on-site during the field surveys.

5.86 It is considered that the habitats on-site are of low value to reptiles due to the highly disturbed nature of the Site and the monoculture of grass vegetation present. It is assessed that the Site is unlikely to be used as an important refuge for reptiles.

5.87 The Site is considered to be of **negligible importance** to reptiles.

### Invertebrates

5.88 No notable terrestrial invertebrate species were observed on-site during the field survey. However, the survey was conducted outside of the optimal season for recording terrestrial invertebrates.

5.89 The terrestrial habitats on-site are generally considered to be of limited value to invertebrates. The gorse hedgerows may provide some foraging and refuge habitat for common and widespread invertebrate species. However, the value of this habitat will be limited due to its limited plant diversity.

5.90 The data search returned records of white-clawed crayfish within the 2 x 2 km squares. White-clawed crayfish are listed under Annex II and Annex V of the EU Habitats Directive and are protected under the Wildlife Acts.

5.91 The crayfish records obtained from NBDC are located approximately 200 m north-east of the Site within the Yellow stream and the most recent record is from 2018. Given the short distance between these record locations and the Site, it cannot be excluded that white-clawed crayfish may be present within the section of stream which flows directly adjacent to the Site.

5.92 Invertebrates are evaluated to be of **local-level importance** due to the presence of potentially suitable foraging and refuge habitat for white-clawed crayfish adjacent to the Site.

### Birds

5.93 The data search returned records of several red and amber listed birds (Gilbert *et al.*, 2021) within the 2 x 2 km squares (refer to **Table 5-3**), including the following:

**Red-listed Birds**

- Kestrel
- Lapwing

**Amber-listed birds**

- Common sandpiper
- Coot
- Great Crested Grebe
- Mallard
- Mute Swan
- Ringed Plover
- Sand Martin
- Skylark
- Tufted Duck
- Whooper Swan - In addition to being amber-listed, whooper swans are protected under Annex I of the EU Birds Directive.

5.94 Bird survey findings were examined from the EIAR of accompanying planning applications, including the Kilmurray sand and gravel extraction (planning ref.: 21247 and the operational Yellow River Wind Farm (Planning ref.: PL19.PA0032 / PM19.312876).

5.95 The Kilmurray sand and gravel extraction development recorded the following birds in the EIAR:

- Curlew (population of c. 35)
- Golden plover (numbers generally in low hundreds, peak count c. 700)
- Great crested grebe
- Kestrel
- Lapwing (peak count 200)
- Mallard
- Meadow pipit
- Sand martin
- Snipe
- Starling
- Teal
- Tufted duck
- Whooper swan (population of c. 100)

5.96 The adjacent Yellow River Wind Farm undertook several bird surveys of the area. And found the improved grassland fields at Derryarkin farm provide suitable habitat for whooper Swans and grassland feeding waders (lapwing, golden plover, curlew). Whooper swan were recorded in grassland fields in 2012/13, with numbers ranging between 3 – 82. The swans were part of a population that moved regularly between various fields and bog for feeding. The mainly roosted at ponds located at N510400; as well as and Kilmurray ponds occasionally. The fields of use for foraging was found to vary depending on the levels of disturbance occurring from farming activities.

5.97 The field surveys conducted at the Site recorded a flock of 40 whooper swan were recorded foraging on-site during the preliminary ecological assessment. Two follow-up bird surveys were carried out on 11th March 2025 at dawn and on 25th March 2025 at dusk to investigate the presence of foraging whooper swan on-site. A summary of these survey results is shown in **Table 5-4**.

5.98 The results of the first survey found that the whooper swans are roosting on bog lakes located approximately 500 m north-east of the Site boundary and these birds were seen flying south to forage on the project site. A peak count of 47 whooper swans was recorded during this survey. No whooper swans were seen during the second survey. The number of whooper swans observed foraging on the Site is below the threshold for national importance (150 individuals), therefore this Site is considered to be of local importance to whooper swans.

5.99 A heronry with at least 5 old nests is located c. 150 m west of the Site. This was recorded during the non-breeding season. Therefore, it is possible that this heronry may support larger numbers of grey heron during the breeding season.

5.100 Other notable species recorded during the field surveys on or in the immediate vicinity of the Site were amber listed coot; house sparrow; mallard; mute swan; skylark; and starling, and red listed lapwing and snipe. Various other common and widespread green listed species are also present.

5.101 The bird assemblage on-site is evaluated to be of **local-level importance** due to the presence of amber and red listed birds and suitable breeding and foraging habitat within the Site, including suitable foraging habitat for low numbers of whooper swans.

**Table 5-4: Summary of Bird Survey Results**

| Date | Species | Number of Individuals | Seen / Heard | Breeding Status | Description |
|---|---|---|---|---|---|
| 25/03/2025 | BZ - Buzzard | 4 | Seen | Non-breeder | Circling and calling overhead |
| 25/03/2025 | BZ - Buzzard | 1 | Seen | Non-breeder | Soaring over field |
| 25/03/2025 | CO - Coot | Unknown | Heard | Non-breeder | Single birds heard calling |
| 25/03/2025 | FF - Fieldfare | At least 30 | Seen | Non-breeder | Foraging along river vegetation |
| 11/03/2025 | H. - Grey Heron | 3 | Seen | Confirmed breeder | Three birds noted with one on a nest. Other nests are also visible. Additional birds may be present but unseen. |
| 25/03/2025 | H. - Grey Heron | At least 5 | Seen | Confirmed breeder | At least 5x heron nests noted |
| 25/03/2025 | L. - Lapwing | 1 | Heard | Non-breeder | Heard calling |
| 11/03/2025 | MA - Mallard | 1 | Seen | Non-breeder | Heard and seen taking a short flight to SE. Possible roost site. |
| 25/03/2025 | MA - Mallard | Unknown | Heard | Non-breeder | Heard calling |
| 11/03/2025 | MS - Mute Swan | 2 | Seen | Non-breeder | On water, roost site |
| 25/03/2025 | MS - Mute Swan | 2 | Seen | Non-breeder | On water |
| 25/03/2025 | RW - Reed Warbler | 1 | Seen | Possible breeder | Male |
| 11/03/2025 | S. - Skylark | Unknown | Heard | Possible breeder | Heard singing |

| Date | Species | Number of Individuals | Seen / Heard | Breeding Status | Description |
|---|---|---|---|---|---|
| 11/03/2025 | SN - Snipe | Unknown | Heard | Non-breeder | Heard calling only. |
| 25/03/2025 | SN - Snipe | Unknown | Heard | Non-breeder | Heard calling |
| 11/03/2025 | WS - Whooper Swan | Unknown | Heard | Non-breeder | Potential roost site. Unknown no. heard. Possible x7 individuals seen in thermal camera. Small recording taken on thermal camera. |
| 11/03/2025 | WS - Whooper Swan | 17 | Seen | Non-breeder | Roost site. At 06:30 they took off flying initially west before heading along big river to south and landed on site (foraging site) |
| 11/03/2025 | WS - Whooper Swan | 18 | Seen | Non-breeder | Flew to south. Exact point of origin unknown but likely lake just to N of VP. All landed on site (for foraging) |
| 11/03/2025 | WS - Whooper Swan | 5 | Seen | Non-breeder | Flew to site from NW of VP |
| 11/03/2025 | WS - Whooper Swan | 6 | Seen | Non-breeder | Flew to site from N of VP. One group of 4 and one group of 2 |
| 11/03/2025 | WS - Whooper Swan | 47 | Seen | Non-breeder | Previously observed in flight. Seen feeding on the site |
| 11/03/2025 | WS - Whooper Swan | 1 | Seen | Non-breeder | Flying west to east / NE. approx. height 7m. |

## Mammals

### Bats



5.102 The data search returned no records of bat species within the 2 x 2 km squares.

5.103 Consultation with Biodiversity Maps[13] was undertaken to assess the bat landscape suitability for the 2x2 km grid square in which the site is located, following the methodology set out by Lundy et al. (2011). This methodology applies a 'habitat suitability' index, which ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The bat suitability index score for the Site is provided in **Table 5-5**.

5.104 Based on the bat suitability index, the local area is most suitable for common pipistrelle, soprano pipistrelle, and lesser noctule. The local area is considered by the data to be less suitable for whiskered bat, Nathusius's pipistrelle, and lesser horseshoe bat.

**Table 5-5: Bat Landscape Suitability for 2x2 km square N57H**

| Species | Index score |
|---|---|
| All Bats | 19.11 |
| Common Pipistrelle *Pipistrellus pipistrellus* | 33 |
| Soprano Pipistrelle *Pipistrellus pygmaeus* | 31 |
| Lesser Noctule *Nyctalus leisleri* | 31 |
| Brown Long-eared Bat *Plecotus auritus* | 22 |
| Daubenton's Bat *Myotis daubentonii* | 22 |
| Natterer's Bat *Myotis nattereri* | 18 |
| Whiskered Bat *Myotis mystacinus* | 12 |
| Nathusius's Pipistrelle *Pipistrellus nathusii* | 3 |
| Lesser Horseshoe Bat *Rhinolophus hipposideros* | 0 |

5.105 The Site itself is considered to be of low value to foraging and commuting bats due to a lack of suitable, linear habitats on-site. The river flowing along the eastern Site boundary may provide low/moderate foraging value to bats.

5.106 There are no trees or buildings on-site. Therefore, there is no suitable habitats or opportunities for roosting bats.

5.107 Bats are evaluated to be of **local-level importance** due to the presence of some suitable foraging and commuting habitats adjacent to the Site.

### Otter

5.108 There are no records of otter within the 2 x 2 km NBDC grid squares.

5.109 The riverbanks were searched for signs of otter presence (droppings, couches, holts, tracks, etc.) during the field survey and no signs of otter presence were noted. A possible access point (slide) to the river was noted but there is no evidence this was used by otter. There is potentially suitable habitat for foraging otter within the river and riverbanks that are located along the eastern Site boundary. Breeding otters are unlikely to be present within the Site

[13] Available at https://maps.biodiversityireland.ie/Map (Accessed July 2025).

due to the heavy disturbance and human use of the Site and due to a lack of suitable vegetation cover.

5.110 Otters are evaluated to be of **local-level importance** due to the presence of suitable foraging habitats adjacent to the Site.



**Other Mammals**

5.111 The data search returned records of badger, fallow deer, and pine marten within the 2 x 2 km squares. Two mammal tracks/pathways were recorded on-site. No other signs of mammal activity (feeding signs, droppings, badger setts, burrows, etc.) were noted during the field survey.

5.112 The habitats on-site are unlikely to support a significant population of notable mammals such as badgers or pine marten as the Site is composed of heavily disturbed and actively used agricultural land without any significant areas of vegetation cover.

5.113 The Site is evaluated to be of **negligible importance** for other mammal species.

### Invasive Species

5.114 The data search returned records of brown rat *Rattus norvegicus*, and fallow deer within the 2 x 2 km squares. Brown rat and fallow deer are listed in the Third Schedule of S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations.

5.115 No invasive species were noted on-site during the field surveys.

5.116 Brown rat and fallow deer are widespread and well-established throughout Ireland. It is also considered unlikely that either of these species would be spread outside of the Site as a result of the proposed development.

5.117 Therefore, invasive species are considered to be of **negligible importance** and can be reasonably excluded from further consideration in this report.

## Summary of Important Ecological Features

5.118 **Table 5-6** summarises all important ecological features for which detailed assessment is required. The geographical scale of importance for the ecological features within the Site are summarised along with their legal status and a rationale, where appropriate, for carrying forward any features for detailed assessment.

5.119 All ecological features scoped out from further assessment have been detailed in the previous section.

**Table 5-6: Summary of Important Ecological Features Subject to Detailed Assessment**

| Ecological Feature | Scale at which Feature is Important | Comments on Legal Status and/or Importance |
|---|---|---|
| **Sites Designated for Nature Conservation** | | |
| European Designated Sites | International | • Natura 2000 sites are protected under the Habitats Directive (Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is transposed into Irish law primarily through the European Communities (Birds and Natural Habitats) Regulations 2011 –21, (S.I. 477 of 2011, as amended) (“Birds and Natural Habitats Regulations”)) and the Planning and Development Acts 2000 -22. |

| Ecological Feature | Scale at which Feature is Important | Comments on Legal Status and/or Importance |
|---|---|---|
| **Habitats** | | |
| Eroding/Upland Rivers | Regional | • Rivers and associated habitats are afforded local protection under the following objective from the County Development Plan:<br>**BLP-20:** It is Council policy to preserve riparian buffer strips free from development by reserving a minimum of 10 metres either side of all watercourses (measured from top of bank) with the full extent of the protection determined on a case-by-case basis by the Council, based on site specific characteristics and sensitivities.<br><br>**BLP-21:** It is Council policy to promote clear span bridging structures as the preferred option for culverts Any development proposal requiring culverting should also document stream habitat lost and provide compensatory habitat where possible. Realignment of water courses should incorporate stream enhancement measures, as outlined in Office of Public Works Environmental Guidance. The Council will consult with Inland Fisheries Ireland in relation to riparian and instream works as appropriate. |
| **Species** | | |
| Birds | Local | • All birds are protected under the Wildlife Acts 1976 and subsequent amendments during the breeding bird season (i.e., 1st March to 31st August).<br>• A flock of up to 47 whooper swans was observed foraging on-site.<br>• There is potentially suitable breeding and foraging habitat for amber and the red listed species of lapwing and snipe. |
| Bats | Local | • All bats are protected under the Wildlife Acts 1976 and subsequent amendments.<br>• There is potentially suitable foraging and commuting habitat adjacent to the Site. |
| Freshwater White-clawed Crayfish | Local | • Freshwater white-clayed crayfish are protected under the Wildlife Acts 1976 and subsequent amendments and are listed under Annex II and Annex V of the EU Habitats Directive.<br>• There is potentially suitable breeding and foraging habitat adjacent to the Site. |
| Otter | Local | • Otters are protected under the Wildlife Acts 1976 and subsequent amendments and are listed under Annex II and Annex IV of the EU Habitats Directive.<br>• There is potentially suitable foraging habitat adjacent to the Site. |

# Detailed Project Description



## Construction Phase (Ancillary Facilities, Hardcore Access Track & Fencing)

5.120 As this is a greenfield site, there is a requirement for new welfare and ancillary facilities and infrastructure to be installed to service the site for the duration of the proposed development and following cessation of extraction and operations.

5.121 It is anticipated that the construction stage works as outlined below will be carried out within a 6-month period. It should be noted that extraction and production operations may be commenced within this 6-month period and carried out in tandem with the below-mentioned development works.

5.122 A new internal access road will run from the existing site entrance (which provides access to turbine T7 and shown in Plate 1-1 in Chapter 1) in a south-westerly direction to the new site facilities compound area. There is already a section (c. 120m) of the internally access inside the site entrance where hardcore is already in place serving the turbine compound location. An additional section (c. 210m) of hardcore road will be constructed between the existing hardcore road and the new site facilities area.

5.123 The site facilities area will also consist of a hardcore surface where the weighbridge and wheelwash will be installed on the outbound carriageway. Adjacent to this will be the mobile welfare pod (office, canteen, toilet) and a dedicated parking area. The perimeter will be fenced, and an automated barrier will be installed to control access to the site.

5.124 Beyond the compound area, a hardcore surface track will run south to the proposed extraction and stripped soil stockpile storage areas.

## Operational Phase (Phased Soil Stripping / Berm Construction and Sand & Gravel Extraction / Processing )

5.125 The extraction of the sand and gravel will be carried out in line with best international practice.

5.126 The volume, lateral extent and depth of overburden / sands and gravels for the site have been determined from site investigations. The proposed extraction and processing tasks and activities to be implemented at the site consist of:

- removal of the in-situ residual clay overlying the sand and gravel;
- wet working extraction, i.e., extraction of the sand and gravel materials from beneath the natural water table of the site to a depth of typically from 6m up to 10m;
- long-reach excavator will dig out the sand and gravel and stockpile it in a row beside excavation;
- stockpiling of the sand and gravel adjacent to the working extraction area to allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground;
- stockpiled material is allowed to dry out for typically 2-3 days;
- mobile tracked screener is moved along with the advancing extraction face and the stockpiles and the materials are screened and put into 4 different stockpiles
- sand, 10mm, 20mm and oversize;
- the oversize stockpiles will be crushed as required to produce aggregates of a suitable size in the concrete production process;

- trucks will be loaded directly from the screener or from adjacent stockpiles;
- trucks weigh out on weighbridge and receive a delivery docket and exit the site via the wheelwash.



5.127 The overall extraction footprint is c. 11.7 hectares, and it is proposed to extract the materials on a gradual and phased basis as shown in **Figure 2-3** in Chapter 2 as follows:

- Phase 1 c. 3.2 hectares c. Years 1-4
- Phase 2 c. 3.4 hectares c. Years 5-8
- Phase 3 c. 3.5 hectares c. Years 9-12
- Phase 4 c. 1.6 hectares c. Years 13-14
- Total c. 11.7 hectares

5.128 The phased approach to extraction will be carried out within the individual phase areas consisting of soil stripping, followed by sand and gravel extraction followed by restoration using onsite materials. Extraction operations within a particular phase (*e.g.,* Phase 2) will only be carried out when extraction in the previous phase (e.g., Phase 1) has been completed. All lands will remain in agricultural use until required for extraction.

5.129 There is no requirement for hedgerow or tree removal during any of the development phases. The following is an overview of the proposed works to be carried out on a phased basis over the life of the proposed development.

### Phase 1 – Extraction

5.130 Initial soil stripped from both the Phase 1 extraction area (c. 3.2 ha.) and the soil/overburden storage area (c. 1.9 ha.) will be stored on ground level in permitter screening berms as shown in **Figure 2-3** – Phase 1 in Chapter 2.

5.131 The external perimeter of the berm will be secured with stockproof fencing.

5.132 Sand and gravel extraction within Phase 1, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

### Phase 2 – Extraction / Restoration

5.133 Soil stripped from the Phase 2 extraction area (c. 3.4 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in **Figure 2-3** – Phase 2 in Chapter 2.

5.134 Any excess stripped soils will be stored in the soil/overburden storage area to the north of Phase 1.

5.135 The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.

5.136 The soil material in the existing berm between Phases 1 & 2 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.137 Sand and gravel extraction within Phase 2, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

### Phase 3 – Extraction / Restoration

5.138 Soil stripped from the Phase 3 extraction area (c. 3.5 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in Figure 2-3 – Phase 3 in Chapter 2.

5.139 The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.

5.140 Any excess stripped soils along with the soil material in the existing berm between Phases 2 & 3 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.141 Sand and gravel extraction within Phase 3, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

### Phase 4 – Extraction / Restoration

5.142 Soil stripped from the Phase 4 extraction area (c. 1.6 ha.) will either be stored in the soil/overburden storage area to the north of Phase 1 or used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.143 Sand and gravel extraction within Phase 4, with the wet working face advancing in a northerly direction, leaving a permanent waterbody feature behind.

5.144 The phased extraction and restoration scheme has the benefit of:

- retaining existing land for agricultural use for as long as possible thereby minimising the stripped areas being exposed at any one time;
- progressive restoration will expedite the return of the lands to a beneficial biodiversity and water feature afteruse and minimise the overall duration required to carry out the extraction and restoration works;
- where possible, minimising soil handling by stripping from one area and placing directly onto the area previously extracted and ready for restoration;
- replanting of new vegetation at the earliest opportunity.

## Restoration Phase (Reinstatement to Ecological Habitat)

5.145 The extraction and restoration activities proposed for the site will be on a phased basis. Working in this manner will facilitate the progressive restoration of each area which will generally comprise reinstatement of excavated deposits to the extracted areas, the establishment of a permanent water body and allowing the lake edges and external perimeter berms to naturally regenerate / revegetate over time. There is no requirement to import any materials to site for restoration purposes.

5.146 Evidence from similar existing operations is that following extraction works, areas will become colonised with locally occurring grass, wildflower and scrub species, as well as aquatic species along the lakes edge. It is most likely that the lake will be regularly visited by bird species, such as Whooper Swan and Mute Swan which are observed at other wet working extraction operations within the vicinity of the site.

5.147 During the post-operational stage, the progressive landscape restoration measures would already be in place across much of the site and, as such, the area will be left undisturbed

and allowed to naturally regenerate with secondary woodland and scrub becoming established over a number of years.



5.148 Any soil that was previously stripped and stored within the soil/overburden storage area to the north of Phase 1 will be along the northern boundary of Phase 1 to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site. The soil/overburden area will be left to naturally regenerate and provide a valuable ecological habitat area adjacent to the permanent water body feature.

5.149 The perimeter berm around the final extraction profile will be retained as it will have been colonised for some time with native species. The stockproof fence will also be retained and along with the berm will provide an adequate security barrier to the water body.

5.150 The 20m riparian corridor along the length of the easter extraction boundary between the retained screening berm and the Big River will be planted with blocks of native tree species and allow to develop naturally and will provide a habitat refuge linking the new water body created by the extraction works and the river and into the areas of forestry and scrubland beyond.

5.151 Redundant structures, plant equipment and stockpiles will be removed from the site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

5.152 All existing boundary fences and hedgerows will be retained to ensure that the site is secure.

5.153 It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

# Assessment of Effects and Mitigation Measures

5.154 This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect, and cumulative effects. The potential effects resulting from the proposed development works and proposed mitigation measures are discussed in the following sections.

## Potential Impacts

### European Designated Sites

#### Potential Impacts

5.155 The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and connects the Site to the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site.

5.156 The extraction area will be located approximately 35 m from the Yellow stream and a berm will be constructed along the edges of the extraction area at a distance of 20 m from the stream. There is potential for indirect impacts on surface water quality as a result of accidental fuel leakages and spillages.

5.157 The Site is located on the Athboy groundwater body. The River Boyne and River Blackwater SAC and SPA are located on the same groundwater body.

5.158 The proposed sand and gravel pit will be worked below the groundwater in the sand and gravel deposits; however, no dewatering of shallow groundwater will take place. Therefore, there will be very localised and negligible impacts on the levels and flow within the Athboy groundwater body. These impacts are unlikely to extend to the River Boyne and River Blackwater SAC and SPA, due to the distance between the Site and these European sites.

5.159 Indirect impacts on groundwater quality as a result of accidental leaking or spillage of fuel and/or other petroleum-based products have the potential to impact the groundwater body on which the Site is located.



### Proposed Mitigation Measures

5.160 The following standard management measures will be implemented at the extension area to prevent impacts on surface and groundwater quality:

- There will be no discharge from the proposed development to any surface watercourse;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

### Significance of Residual Effects

5.161 Under the current development proposals, it is assessed that the impacts on European designated sites will not be significant.

## Eroding/Upland River

### Potential Impacts

5.162 There is potential for indirect impacts on the water quality of the Yellow stream as a result of accidental fuel leakages and spillages.

### Proposed Mitigation Measures

5.163 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

### Significance of Residual Effects

5.164 Under the current development proposals, it is assessed that the impacts on eroding/upland river habitats will not be significant.

## Freshwater White-clawed Crayfish

### Potential Impacts

5.165 It is assessed that white-clawed crayfish are likely to be present in the river which flows along the eastern Site boundary, based on results from previous surveys in the vicinity of the Site. Changes to the water quality of this river may impact the local crayfish population.

5.166 The recommended water quality conditions for freshwater white-clawed crayfish is described below:

- generally, more than 60% saturation of dissolved oxygen;
- no extremes of pH, generally pH 6.8-8.6, below pH 6.0 is considered unsuitable;
- over 5mg l-1 calcium; and
- absence of toxic chemicals.

5.167 Potential sources of pollutants which may impact freshwater white-clawed crayfish may include:

- oils and fuels, from spillages or runoff;
- contaminated sediments; and
- introduction of excessive silt may make waterbodies unsuitable for white-clawed crayfish.

### Proposed Mitigation Measures

5.168 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally.
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

### Significance of Residual Effects

5.169 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on freshwater white-clawed crayfish will not be significant.

## Bats

### Potential Impacts

5.170 There is potentially suitable foraging and commuting habitat for bats along the Yellow stream, which flows along the eastern Site boundary. Impacts on the waterbody and associated riverbank habitat may have an impact on the capacity to support foraging bats.

### Proposed Mitigation Measures

5.171 A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally. This will improve the quality of the riverbank habitat for foraging and commuting bats.

### Significance of Residual Effects

5.172 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on bats will not be significant.

## Birds

### Potential Impacts

5.173 The habitats present in the Site do not support any nesting birds of significance; and there is no requirement for hedgerow or tree removal during any of the development phases. Therefore, there is no potential for direct impacts to nesting birds.

5.174 There will be a loss of approximately 18.4 ha of agricultural habitat that is known to be used by a flock of approximately 40-50 whooper swans for foraging based on the surveys conducted and consultation with the EIAR of other nearby developments. This whooper swan population is not associated with any nearby SPA. They were recorded roosting on the bog lakes located approximately 500 m north-east of the Site boundary. These birds were found to roost within lakes located to the north of the Site overnight before moving to the Site and surrounding fields during the day to forage. This was supported by the survey findings from other adjacent developments (Earth Science Partnership (Ire.) Ltd, 2021; Jennings O'Donovan and Partners, 2013).

5.175 In addition red-listed species such as lapwing and snipe were also noted foraging on the Site.

5.176 It should be noted that the whooper swan population in Co. Offaly is increasing, with an increase of +1,017 whooper swans recorded between 2015 and 2020, according to the International Swan Census (Burke *et al.*, 2021). Moreover, the whooper swan populations in Ireland increased by 26.5% across the same timeframe (Burke *et al.*, 2021). As such, the loss of such a minor area of foraging habitat will not result in a significant effect to this species on a county nor a national level.

5.177 Lapwing populations, however, are declining with a 6.5% decline in their population over the last five years and a long-term trend being considered a 'large decline' according to BirdWatch Ireland data (BirdWatch Ireland, 2022). Therefore, impacts arising to lapwing from the proposed development are likely to continue to contribute to their continual decline.

5.178 However, this type of agricultural habitat is widespread in the local area surrounding the Site and there is an abundance of alternative areas available for foraging whooper swans, lapwings and other wintering birds. The habitat being lost to facilitate the proposed development is relatively small when compared to the surrounding landscape and it is anticipated that wintering birds will continue to find suitable foraging habitat within the immediate surrounding area and local populations of whooper swans, lapwings, and other wintering birds are unlikely to decline as a direct result of the proposed development.

5.179 Following the completion of the proposed extraction, the Site will be restored through infilling, the creation of a permanent water body and the natural vegetation of the Site. Therefore, all impacts to wintering birds will occur only for the duration of the proposed development, following which, wintering birds will be able to return to the Site for foraging purposes.

### Proposed Mitigation Measures

5.180 While the extraction of the Site will be carried out on a phased basis with 4 phases ranging from 1.6 – 3.5 ha. and extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed, it means that the loss of foraging habitat for whooper swans at any time will not exceed 3.5 ha. However, it is anticipated that the noise and activities associated with the extraction works will mean that whooper swan may temporarily move away from this foraging area.

5.181 After the extraction of each phase, the sand and gravel pit will be restored to naturally regenerated habitat for biodiversity use, including a permanent water body. Therefore, in the long-term, the proposed development will increase the value of the Site for whooper swan, other waterbirds, and a variety of passerine bird species.



### Significance of Residual Effects

5.182 As mentioned, there may be some temporary displacement of the current whooper swan population in the area, but the project is not likely to result in any long term negative impacts on the overall whooper swan national or international population.

5.183 Brides *et al* (2021)[14] has shown that overall whooper swan numbers in Ireland have increased in recent years with a 32.0% increase between 2015 and 2020 and they are not restricted by pasture-based habitat availability.

5.184 Under the current development proposals, recommended mitigation, considering the surrounding landscape and the grassland foraging habitats available, and compensation measures in place, it is assessed that the impacts on birds will not be significant.

## Otters

### Potential Impacts

5.185 No otter holts, dens or couches were identified during the preliminary ecological appraisal. However, suitable habitat does exist for them within the riparian habitat along the Yellow stream.

5.186 The proposed development may result to direct and/or indirect impacts on breeding otter along the riverbanks adjacent to the Site through disturbance. Most otter holts/dens are situated in close proximity to waterbodies but may be located further from the riverbank. Natal dens can be established up to 1km from a waterbody; however they also tend to be located in areas that are not prone to flooding. The limited riparian habitat located adjacent to the Site is low-lying and likely prone to flooding. Therefore, it is unlikely that these areas will be used by breeding otters.

5.187 There is potential for indirect impacts on the water quality of the Yellow stream as a result of accidental fuel leakages and spillages. This may impact the availability of prey for foraging otters adjacent to or downstream of the Site.

### Proposed Mitigation Measures

5.188 The proposed site operating hours of 07.00 hours until 18.00 hours Monday to Friday and until 14.00 hours on Saturdays. Therefore, night works will be limited to a small timeframe in winter only. This will minimise disturbance impacts to this largely nocturnal species.

5.189 A pre-commencement otter survey should be undertaken at the Site if the construction works do not commence within 18-months of the initial survey (survey undertaken on 5th February 2025). This is to ensure that no otter holts or couches have been created been created between the time of writing and the commencement of the proposed development, as per CIEEM Advice Note on the lifespan of ecological reports and surveys (CIEEM, 2019).

5.190 A 20m riparian corridor will be maintained between the proposed development and the Yellow River regardless of any otter presence. This will minimise disturbance to this species throughout the duration of the project.

[14] Brides, K, et al. The Icelandic Whooper Swan *Cygnus cygnus* population: current trends and long-term (1986-2020) trends in its numbers and condition. Wildfowl (2021) 71:9-57

5.191 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site-specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

5.192 The establishment of the riparian corridor and the final restoration of the Site will increase the value of the Site for otters by providing suitable breeding habitat and potentially improving the quality of foraging habitat within the Yellow stream.

### Significance of Residual Effects

5.193 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on otters will not be significant.

## Cumulative Effects

5.194 The following plans were reviewed for strategies and objectives that may act in-combination with the project:

- Offaly County Development Plan 2021-2027

5.195 A search of recent (within the last five years) planning applications was carried out for applications that may give rise to in combination effects with the project. Most recent planning applications in the vicinity of the Site are for small-scale domestic developments that are unlikely to result in cumulative effects with the proposed development. **Appendix 5-B** lists the recent planning applications considered for in combination effects with the proposed development. These planning applications are not anticipated to result in cumulative effects with the proposed development.

5.196 There are no plans or policies in the Offaly County Development Plan 2021-2027 which would result in impacts in combination with the proposed development.

5.197 Therefore, the risk of significant effects on biodiversity can be excluded for the project when considered in-combination with other proposed or permitted plans and projects.

## Proposed Mitigation and Compensation Measures



5.198 The following standard management measures will be implemented at the extension area to prevent impacts on surface and groundwater quality:

- There will be no discharge from the proposed development to any surface watercourse;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site-specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

5.199 The extraction of the Site will be carried out on a phased basis with 4 phases ranging from 1.6 – 3.5 ha. Extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed. All lands will remain in agricultural use until required for extraction. Therefore, the loss of foraging habitat for whooper swans at any time will not exceed 3.5 ha.

5.200 After the extraction of each phase, the sand and gravel pit will be restored to naturally regenerated habitat for biodiversity use, including a permanent water body. Therefore, in the long-term, the proposed development will increase the value of the Site for whooper swan, other waterbirds, and a variety of passerine bird species.

5.201 A pre-commencement otter survey should be undertaken at the Site if the construction works do not commence within 18-months of the initial survey (survey undertaken on 5th February 2025). This is to ensure that no otter holts or couches have been created been created between the time of writing and the commencement of the proposed development, as per CIEEM Advice Note on the lifespan of ecological reports and surveys (CIEEM, 2019).

5.202 Following the establishment of this buffer zone, further advice should be sought from a suitably qualified ecologist.

# Conclusions

5.203 There will be no effect on any sites designated for nature conservation as a result of the proposed works.

5.204 None of the habitats on the Site are considered to comprise Annex I habitats under the Habitats Directive.

5.205 Overall, it is assessed that with the recommended mitigation measures and restoration plans outlined, the proposed development will not have a significant impact on the biodiversity, designated sites, and habitats and species in the surrounding area.

5.206 Provided that the proposed works are undertaken in accordance with the proposed design and best practice that is described within this report, significant effects on ecology are not anticipated. As such, the proposed works are in line with environmental and biodiversity planning policy.

# References



Biosphere Environmental Services (2021). Environmental Impact Assessment Report to accompany planning application for extraction of sand and gravel at Derryarkin, Rhode, Co. Offaly. PL2/21/247

BirdWatch Ireland (2022). I-WeBS Trends Report 1994/95 – 2019/20. Available online: https://birdwatchireland.ie/app/uploads/2022/04/iwebs_trends_00000_National.html. Accessed: October 2025.

BTO (n.d.a). BTO Species Codes. Available online: https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf (Accessed January 2025).

BTO (n.d.b). Breeding Status Codes. Available online: https://www.bto.org/sites/default/files/u36/downloads/breedingcodes.pdf. (Accessed January 2025).

Burke B., McElwaine J.G., Fitzgerald N., Kelly S.B.A., McCulloch N., Walsh A.J., & Lewis L.J. (2021). Population size, breeding success and habitat use of Whooper Swan Cygnus cygnus and Bewick's Swan Cygnus columbianus bewickii in Ireland: results of the 2020 International Swan Census.

CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2019) *Advice Note on the Lifespan of Ecological Reports and Surveys*. Winchester: Chartered Institute of Ecology and Environmental Management.

Collins J., (2023) Bat surveys for professional ecologists: Good practice guidelines (4th edition). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.

Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

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, 28.9.2021

European Commission (n.d.), The Habitats Directive. https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en. (Accessed January 2025).

European Union Birds Directive (2009) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).

European Union Habitats Directive, (1992). Council Directives 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Fossitt, J.A. (2000). A Guide to Habitats in Ireland. Heritage Council, Kilkenny

Fulekar, M.H., Pathak, B. and Kale, R.K. (2014) Environment and sustainable development. New Delhi: Springer Verlag.

Gilbert G, Stanbury A and Lewis L (2021), Birds of Conservation Concern in Ireland 2020 –2026. Irish Birds 9: 523—544.

Holdich, D. (2003) Ecology of the White-clawed Crayfish. Conserving Natura 2000 Rivers Ecology Series No. 1. English Nature, Peterborough.

ISB (n.d.), Wildlife Act, 1976. https://www.irishstatutebook.ie/eli/1976/act/39/enacted/en/html#zza39y1976. (Accessed January 2025).

Jenning O'Donovan & Partners (2013). Yellow River Wind Farm Environmental Impact Statement.

Lewis, L. J., Coombes, D., Burke, B., O'Halloran, J., Walsh, A., Tierney, T. D. & Cummins, S. (2019). Countryside Bird Survey: Status and trends of common and widespread breeding birds 1998-2016. Irish Wildlife Manuals (in prep). National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.

Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

Nelson B., Cummins S., Fay L., Jeffrey R., Kelly S., Kingston N., Lockhart N., Marnell F., Tierney D. and Wyse Jackson M. (2019). Checklists of protected and threatened species in Ireland. Irish Wildlife Manuals, No. 116. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

NPWS (2019a). The Status of EU Protected Habitats and Species in Ireland. Volumes 1 - 3: Summary Overview. Unpublished NPWS report.

NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill

NPWS (2019c). Article 17 Data – 2019. Available online: https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019. (Accessed January 2025).

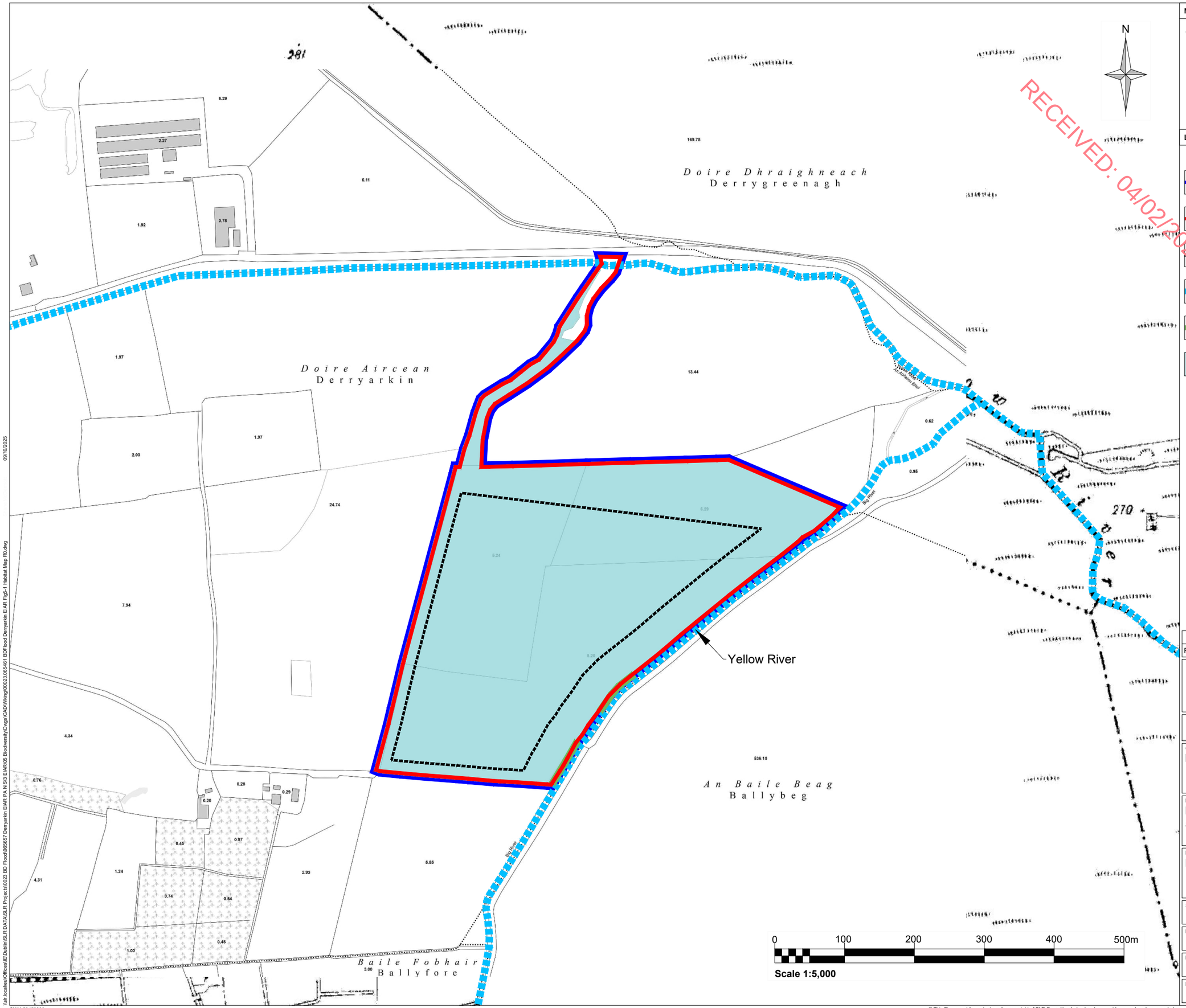
NPWS (2023). Ireland's 4th National Biodiversity Action Plan 2023 - 2030. Available online: https://assets.gov.ie/293802/02ba17a9-fef0-45f2-b0f1-b3ed19ddf358.pdf (Accessed January 2025).

Peay, S. (2003) Guidance on habitat for white-clawed crayfish and how to restore it. R&D Technical Report W1-067/TR. Environment Agency, Bristol.

Protected sites in Ireland (no date) Protected Sites in Ireland | National Parks & Wildlife Service. Available at: https://www.npws.ie/protected-sites (Accessed January 2025).

Reynolds, J.D. (1998) Conservation management of the white-clawed crayfish, Austropotamobius pallipes. Part 1. Irish Wildlife Manuals, No. 1

# Figures




**Notes:**

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

**Legend:**

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Extraction Area 11 hectares
- FW1 - Eroding / Upland Rivers
- WL1 - Hedgerows
- GA1 - Improved Agricultural Grassland

| Rev | Amendments | Date | By | Chk | Auth |
|---|---|---|---|---|---|
| | | | | | |

SLR

www.slrconsulting.com

Client: BD Flood Unlimited Company

Project: Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title: Habitat Map

| Scale | SLR Project No. |
|---|---|
| 1:5,000 @ A3 | 501.00023.065461 |

| Designed | Drawn | Checked | Authorised |
|---|---|---|---|
| smcd | smcd | jm | jm |
| Date: 01/25 | Date: 01/25 | Date: 09/25 | Date: 09/25 |

Figure Number: **Figure 5-1** Rev.: **0**

\\dir.localie\Office\IE\Dublin\SLR DATA\SLR Projects\0023 BD Flood\065657 Derryarkin EIAR PA NIS\3 EIAR\05 Biodiversity\Dwgs\CAD\Wking\00023.065461 BDFlood Derryarkin EIAR Fig5-1 Habitat Map R0.dwg 09/10/2025

CYAL50450233