

Contents

INTRODUCTION	1
Site Description	1
Brief Project Description	1
Purpose of this Report	1
Evidence of Technical Competence and Experience	2
Relevant Legislation and Policy	2
METHODOLOGY	4
Scope of the Assessment	4
Baseline Data Collection.....	4
Limitations	6
ASSESSMENT APPROACH.....	7
Important Ecological Features	7
Determining Importance	7
Impact Assessment	8
Significant Effects	8
Cumulative Effects.....	9
Avoidance, Mitigation, Compensation and Enhancement	9
BASELINE ECOLOGICAL CONDITIONS.....	10
Sites Designated for Nature Conservation.....	10
Habitats	12
Species.....	16
Summary of Important Ecological Features	20
ASSESSMENT OF EFFECTS AND MITIGATION MEASURES.....	21
Potential Impacts	21
Cumulative Effects.....	26
Proposed Mitigation and Compensation Measures.....	31
CONCLUSIONS	33
REFERENCES	34
FIGURES	36

Tables

Table 5-1: European Sites Considered for Potential Effects using the Source – Pathway – Receptor model.....	10
Table 5-2: List of Proposed Natural Heritage Areas Within 15 km of the Site	12
Table 5-3 Rare and/or Protected Species Recorded Within 2 km Grid Squares W55E	16
Table 5-4: Summary of Important Ecological Features Subject to Detailed Assessment	20

Figures

Figure 5-1: Habitat Map.....	36
Figure 5-2: European Sites Map.....	36
Figure 5-3: Natural Heritage Areas Map.....	36

Appendices

Appendix 5-A Relevant Legislation.....	37
Appendix 5-B Site Photographs	2
Appendix 5-C Species Protection Plan & Ecological Monitoring	0
Appendix 5-D Invasive Species Management Plan	1

Introduction

- 5.1 SLR Consulting (Ireland) Ltd. was commissioned by Keohane Readymix Ltd., to prepare a biodiversity chapter which forms part of the Environmental Impact Assessment Report (EIAR) prepared in support of a planning application for the extension of the sand and gravel pit at Kilmore, Brinny, Co. Cork.

Site Description

- 5.2 The proposed pit extension (together with the ancillary plant / facilities to be continued in use are hereafter referred to as “the Site”) extends west and north-west of the existing pit. The pit is centred at approximate Irish Transverse Mercator (ITM) coordinates 550896 X 559563 Y within the townland of Kilmore, Brinny, Co. Cork, refer to EIAR Figure 1-1 for site location map.
- 5.3 The existing pit and ancillary facilities are located on the northern side of the Sall River, which forms the southern border. The northern and western boundaries are composed of small roads with a tree line on either side of the road. The eastern boundary is composed of tree lines and hedgerows. The lands immediately surrounding the pit are mostly improved agricultural grassland and arable farmland, with small patches of forestry to the east and south.

Brief Project Description

- 5.4 The proposed development comprises:
- An extension to the existing sand & gravel pit with extraction area of c. 9.8 hectares worked on a phased basis.
 - Continued use of development granted planning permission under P. Ref. 24/6269 comprising the existing processing plant and related water management system; the existing concrete plant; ancillary buildings (site office (63 sq.m), 3 no. welfare portacabins (32 sq.m, 23.5 sq.m & 22.0 sqm), 4 no. storage buildings / containers (15 sq.m, 10 sq.m, 6 sq.m & 5 sq.m), 2 no. garages (76 sqm & 76 sq.m), ESB Substation (26 sq.m)); covered vehicle storage (220 sq.m); site access and all related ancillary facilities (wheelwash, fuel storage tank, weighbridge); and recycling of c. 15,000 tonnes of concrete per year for use in concrete production.
 - Phased and final restoration to agricultural use.

All within an application area of c.18.3 hectares.

- 5.5 Permission is sought for fifteen years plus two years for final restoration (total duration 17 years). Further details of the proposed development are provided in Chapter 2 of this EIAR, and EIAR Figure 2-2.

Purpose of this Report

- 5.6 The purpose of this biodiversity chapter is 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.
- 5.7 This chapter forms part of the EIAR that will be submitted with the planning application to assist the competent authority, in this case to carry out an Environmental Impact Assessment (EIA) of the proposed development.

Evidence of Technical Competence and Experience

- 5.8 SLR Project Ecologist Victoria Molloy prepared this report and Michael Bailey carried out the technical review.
- 5.9 **Victoria Molloy BSc (Hons)** has over four years' experience as a consultant ecologist and holds a BSc. in Zoology from the University of Galway. Victoria has prepared a range of survey reports and impact assessment reports for a variety of project types including extractive, 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. Victoria is also involved in the Irish Pollinator Monitoring Scheme and carries out regular pan trapping and pollinator transects during the summer months as part of this survey.
- 5.10 **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

5.11 The relevant local planning policies have been extracted from the Cork County Development Plan (CDP) 2022-2028 (Cork County Council, 2022). 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

5.12 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), 2024);
- 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

- 5.13 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 2024 by the Chartered Institute of Ecology and Environmental Management (CIEEM).

Scope of the Assessment

- 5.14 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

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

Field survey

- 5.16 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

- 5.17 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 imagery¹.
- 5.18 All designated sites for biodiversity within 15 km and with ecological and/or hydrological connectivity have also been considered.
- 5.19 The following data sources were used to compile the desk study:

¹ <https://www.google.ie/maps> & <http://www.bing.com/maps/> (Accessed January 2026)

- 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.
- Environmental Protection Agency (EPA) Maps⁴ 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 Cork 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.).
- Cork County Council website was accessed for information on relevant planning policy while the planning portal⁵ was accessed for information on other planning applications within the Site and immediate surrounding area.
- 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, Chapter 10: Noise & Vibration and Chapter 13 - Landscape.

Field Survey(s)

5.20 The Site was initially visited on 15th October 2020, and a preliminary ecological appraisal (PEA) was carried out by SLR ecologists Owen Twomey and Aisling Kinsella. The ecological survey was carried out in mostly dry weather conditions with scattered showers with F1 light air on the

² www.npws.ie (Accessed January 2026)

³ <http://maps.biodiversityireland.ie/#/Map> (Accessed January 2026)

⁴ <http://gis.epa.ie/> (Accessed January 2026)

⁵ <https://www.myplan.ie/> (Accessed January 2026)

Beaufort scale. The temperature was ca. 13°C and conditions were overcast with cloud cover of 6 oktas⁶.

- 5.21 The site was re-visited by Michael Bailey on 6th April 2022 to note any changes habitats or utilisation of the site by fauna since the initial survey in October 2020. The survey was conducted in dry weather conditions with intermittent cloud cover, some sunny spells, a temperature of 15oC and a gentle breeze.
- 5.22 An up-dated habitat survey was carried out by SLR ecologist Lorcan Kelly on 31st April 2025 again to characterise any changes habitats or utilisation of the site by fauna since the April 2022 visit.
- 5.23 An invasive species survey was conducted on 31st April 2025 by Lorcan Kelly to identify and map invasive species within the active sand and gravel pit area and to inform the preparation of an invasive species management plan (see Appendix 5-D).
- 5.24 The objective of the ecological surveys was to describe the ecology of the Site and to determine its ecological value.
- 5.25 Habitats were classified using '*A Guide to Habitats in Ireland*' (Fossitt, 2000) during this visit. The dominant plant species present in each habitat type were recorded. Species nomenclature follows Parnell & Curtis (2012) for scientific and English names of vascular plants.
- 5.26 Incidental sightings or evidence of birds, mammals or amphibians were noted during the ecological survey. Trees or structures suitable for bat roosts within the Site and potential suitable bat foraging and commuting habitat were also noted.

Limitations

Desk Study

- 5.27 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.
- 5.28 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.
- 5.29 In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys⁷, the details of this report will remain valid for a period of 18-months from the date of the most recent habitat and species survey (i.e.: until 31st October 2026). After which the validity of this assessment should be reviewed to determine whether further updates are necessary.

Field Surveys

- 5.30 There were no limitations encountered during the field surveys. The field surveys were conducted within the optimal survey season for fauna and flora. The surveys were carried out in suitable weather conditions, and all areas of the Site were accessible.

⁶ Cloud amount is reported in oktas or eighths. Okta is a unit used in expressing the extent of cloud cover, equal to one eighth of the sky.
<https://www.metoffice.gov.uk/guide/weather/observations-guide/how-we-measure-cloud>

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

Assessment Approach

- 5.31 The ecological evaluation and assessment within this chapter have 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).
- 5.32 Although it 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); but 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

- 5.33 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

- 5.34 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);
 - County (Cork);
 - Local (i.e., within circa 5km); and
 - Negligible.
- 5.35 The above frame of reference is applied to the IEFs identified during the desk study and surveys to inform this report.
- 5.36 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.

- 5.37 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

- 5.38 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.
- 5.39 When describing impacts, reference has been made to the following characteristics, as appropriate:
- Positive or negative;
 - Extent;
 - Magnitude;
 - Duration;
 - Timing;
 - Frequency; and
 - Reversibility.
- 5.40 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).
- 5.41 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.
- 5.42 The threshold of importance is based at 1% of the existing background population / area (CIEEM, 2024).

Significant Effects

- 5.43 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.

- 5.44 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.
- 5.45 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

- 5.46 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.
- 5.47 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

- 5.48 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.
- 5.49 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.

5.50 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

5.51 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

5.52 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

5.53 An Appropriate Assessment (AA) screening report and Natura Impact Assessment (NIS) report has been provided alongside this report (SLR, 2025). Table 5-1 lists the European sites considered for potential effects, as shown in Figure 5-2. 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.

Table 5-1: European Sites Considered for Potential Effects using the Source – Pathway – Receptor model

Site Code	Site Name	Distance	Qualifying Feature
001230	Courtmacsherry Estuary SAC	12.71km	Embryonic shifting dunes [2110], Fixed coastal dunes with herbaceous vegetation - grey dunes [2130], Salicornia and other annuals colonising mud and sand [1310], Mudflats and sandflats not covered by seawater at low tide [1140], Mediterranean salt meadows (Juncetalia maritimi) [1410], Shifting dunes along the shoreline with Ammophila arenaria - white dunes [2120], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330], Estuaries [1130]
004219	Courtmacsherry Bay SPA	13.47km	Lapwing (Vanellus vanellus) [A142], Great Northern Diver (Gavia immer) [A003], Common Gull (Larus canus) [A182], Golden Plover (Pluvialis apricaria) [A140], Shelduck (Tadorna tadorna) [A048], Dunlin (Calidris alpina) [A149], Black-headed Gull (Chroicocephalus ridibundus) [A179], Wetland and Waterbirds [A999], Wigeon (Anas penelope) [A050],

Site Code	Site Name	Distance	Qualifying Feature
			Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Curlew (<i>Numenius arquata</i>) [A160], Red-breasted Merganser (<i>Mergus serrator</i>) [A069]
004030	Cork Harbour SPA	21.46km	Redshank (<i>Tringa totanus</i>) [A162], Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183], Common tern (<i>Sterna hirundo</i>) [A193], Curlew (<i>Numenius arquata</i>) [A160], Lapwing (<i>Vanellus vanellus</i>) [A142], Shelduck (<i>Tadorna tadorna</i>) [A048], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Wetland and Waterbirds [A999], Grey Heron (<i>Ardea cinerea</i>) [A028], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Dunlin (<i>Calidris alpina</i>) [A149], Common Gull (<i>Larus canus</i>) [A182], Great Crested Grebe (<i>Podiceps cristatus</i>) [A005], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179], Wigeon (<i>Anas penelope</i>) [A050], Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Shoveler (<i>Anas clypeata</i>) [A056], Teal (<i>Anas crecca</i>) [A052], Pintail (<i>Anas acuta</i>) [A054], Red-breasted Merganser (<i>Mergus serrator</i>) [A069]
004124	Sovereign Islands SPA	21.26km Hydrologically Connected Surface water –	Cormorant (<i>Phalacrocorax carbo</i>) [A017]
002171	Bandon River SAC	25.6km Hydrologically Connected Groundwater –	Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation [3260], Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnus incanae</i> , <i>Salix albae</i>) [91E0], <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029], <i>Lampetra planeri</i> (Brook Lamprey) [1096]

5.54 The Appropriate Assessment Screening report prepared for this Project evaluated that there are no likely significant adverse effects on the qualifying interests, special conservation interest or the conservation objectives of any designated European site.

5.55 Therefore, European designated sites are excluded from further consideration in this chapter.

Natural Heritage Areas

5.56 There are no Natural Heritage Areas (NHAs) located within 15km of the Site. Table 5-2 details the seven proposed Natural Heritage Areas (pNHAs) within 15 km of the proposed development, as shown in Figure 5-3.

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

Proposed Natural Heritage Area	Distance ⁸	Details
Bandon Valley Above Inishannon (001740)	1.74 km	Semi-natural woodland and otters.
Bandon Valley West of Bandon (001034)	4.95 km	Semi-natural woodland and otters.
Bandon Valley Below Inishannon (001515)	5.82 km	Wetlands.
Ballincollig Cave (001249)	12.12 km	Semi-natural grassland and semi-natural woodland.
Killaneer House Glen (001062)	12.33 km	Semi-natural woodland.
Courtmacsherry Estuary (001230)	12.67 km	There is no synopsis available for this pNHA. This pNHA overlaps with Courtmacsherry Bay SAC and SPA. It is assessed that this pNHA likely is designated for the same qualifying interests as these Natura 2000 sites and has, therefore, already been assessed in this report.
Lee Valley (000094)	12.76 km	Semi-natural woodlands, semi-natural grasslands, freshwater marsh, and breeding wetland birds.

- 5.57 Bandon Valley Above Inishannon (001740) and Bandon Valley Below Inishannon (001515) are located downstream of the Site. Therefore, there is a potential pathway for impacts as a result of accidental introduction of pollutants to the river located adjacent to the Site.
- 5.58 All other NHAs and pNHAs can be excluded from further consideration as no potential pathway for impacts was identified.

Habitats

- 5.59 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.

⁸ When measured in a straight line over the shortest distance between the site and NHA/pNHA.

Desk Study

- 5.60 The nearest recorded Annex I habitat is [91A0] old oak woodland located approximately 2km from the Site. This habitat is also recorded as an ancient and long-established woodland in the National Survey of Native Woodlands. There are no other Annex I habitats or ancient and long-established woodlands within 2km of the Site.

Field Survey

Exposed Sand, Gravel or Till (ED1)

- 5.61 Throughout the existing sand and gravel pit area, there were numerous areas of exposed sand and gravel where material has been extracted over the years. There are some small areas within the habitat where there are steep and sloping banks where vegetation cover was less than 50%. Vegetation consisted of ruderal species such as foxglove *Digitalis* spp., creeping buttercup *Ranunculus repens*, horsetails *Equisetum* spp. and white clover *Trifolium repens*.
- 5.62 This habitat provides very limited value to biodiversity. In addition, the level of human activity on this habitat on-site further reduces its biodiversity value. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Spoil and Bare Ground (ED2)

- 5.63 There were a number of small areas of bare ground within the Site which had been recently cleared or where un-wanted sand or gravel had been recently spread and no recolonisation had yet taken place.
- 5.64 This habitat provides very limited value to biodiversity. In addition, the level of human activity on this habitat on-site further reduces its biodiversity value. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Recolonising Bare Ground (ED3)

- 5.65 There are two areas of recolonising bare ground to the east and south of the ponds. These areas have been re-seeded with grass which now forms a short monospecific cover.
- 5.66 There are other small and isolated areas throughout the Site such as old stockpiles, which now have some vegetation cover greater than 50%. These areas are dominated by ruderal species including nettle *Urtica dioica*, willow-herb *Epilobium* spp., and ragwort *Senecio* spp.
- 5.67 Colonising weeds were also present including white clover *Trifolium repens*, horsetails *Equisetum* spp., creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, birdsfoot trefoil *Lotus corniculatus*, coltsfoot *Tussilago farfara*, sow thistle *Sonchus arvensis*, dock *Arumix* spp., creeping thistle *Cirsium arvense* and common centaury *Centaureum erythraea*.
- 5.68 Grasses present included coarse grasses, Yorkshire fog *Holcus lanatus* and creeping bentgrass *Argostis stolonifera*. Stands of teasle *Dipsacus* spp. were growing throughout.
- 5.69 There were also mossy areas present, particularly on the old stockpiles, with rushes *Juncus* spp., dock *Rumex* spp. and willowherb *Epilobium* spp. growing.
- 5.70 This habitat provides very limited value to biodiversity. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Earth Banks (BL2)

- 5.71 On the edges of some of the extraction areas there were earth banks which have been constructed to provide some protection against wind. Some of these banks are being recolonised in a similar way to the recolonised bare ground areas with similar pioneering vegetation species such as nettle, willow-herb and ragwort *Senecio* spp.

- 5.72 This habitat provides very limited value to biodiversity. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Buildings and Artificial Surfaces (BL3)

- 5.73 There are a number of temporary buildings (portacabins), extraction infrastructure and roads and tracks within the Site. None of the buildings provided any suitable nesting sites for bird species such as swallows, starlings or pigeons, and did not have any bat roosting potential.
- 5.74 This habitat provides no value to biodiversity. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Depositing / Lowland Rivers (FW2)

- 5.75 The Sall River flows along and forms the southern boundary of the Site. It flows in an easterly direction and meet the Brinny River ca. 870m downstream of the Site. There is a water quality Q-value reading from the Sall River directly south of the Site. There was a Q-value of 4 (good) recorded in 2003; another Q-value was taken at the Sall/Brinny confluence of 4-5 (high) recorded in 2020.
- 5.76 There is no surface water discharge from the Site into the Sall River, however, some surface rainwater percolates through the ground and then drains into open drainage ditches which flow into the Sall River (Plate 1).
- 5.77 This habitat is evaluated to be of **County level** importance due to its connectivity the river network of the county and as there are objectives addressing the protection of this habitat in the County Development Plan.

Other Artificial Lakes and Ponds (FL8)

- 5.78 There are settlement lagoons on the Site (Plate 2). These lagoons form part of the closed water management system and for circulation, use and storage of water within the Site. These lagoons are located above the existing pit floor.
- 5.79 These lagoons were shallow with no vegetation and are therefore considered to be of **negligible importance** and is excluded from further consideration.

Drainage Ditches (FW4)

- 5.80 Two drainage ditches were recorded along the southern boundary during the Site walkover. Vegetation growing within the drainage ditches included bulrush *Typha latifolia*, foals watercress *Apium nodiflorum*, water forget-me-not *Myosotis scorpioides* and water plantain. Stands of teasle *Dispacus spp.* were growing from one of the ditches and the banks had areas of scrub, predominantly consisting of willow *Salix spp.*
- 5.81 Both drainage ditches, in the southern section of the Site, had slow flowing water at the time of the April 2022 survey which was likely to be surface rainwater which had percolated down through the existing ground surface and into land drains (Plate 1). This drainage ditch was ca. 2 m deep and ca. 1 m wide. Only the eastern-most drainage ditch was flowing in the October 2020 survey.
- 5.82 This habitat provides very limited value to biodiversity. Therefore, it is evaluated to be of **negligible importance** and is excluded from further consideration.

Improved Agricultural Grassland (GA1)

- 5.83 Within the applicant's land interest, there were five fields classified as improved agricultural grassland. The two areas allocated for the extension of the sand and gravel pit comprised of large fields which were heavily grazed by cattle at the time of both surveys (Plate 3). Within the area used for the existing sand and gravel pit, one field was recently re-seeded while the remaining two were under forage growth.

- 5.84 Ground vegetation of these fields was dominated by the typical agricultural perennial ryegrass *Lolium perenne*, white clover *Trifolium repens* and nettle.
- 5.85 This is a common and widespread habitat throughout Ireland. This habitat is considered to be of **Site level importance** and is excluded from further consideration.

Hedgerow (WL1)

- 5.86 Hedgerows were present along the field boundaries of the habitats described above as well as along parts of the eastern boundary of the site.
- 5.87 Hedges were dominated by hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior* and willow *Salix spp.* Floral species recorded within the hedges include nettle, thistle, ragwort, mayweed *Tripleurospermum inodorum* and muellin *Verbascum spp.*
- 5.88 Old areas of stockpile had turned into scrub where gorse *Ulex europaeus* and bramble *Rubus fruticosus* were dominant. Other species such as ferns, foxglove *Digitalis spp.*, creeping buttercup, horsetails and white clover comprised the ground vegetation. Small stands of willow were also growing amongst the scrub and at the foot of the stockpiles.
- 5.89 Hedgerows within the Site provide ecological connectivity to the larger hedgerow network in the surrounding area as well as to the Sall River on the southern border of the Site. Hedgerows within the Site are evaluated as important at the **County level**. However, the hedgerows on-site will be retained during the proposed development and, therefore, can be reasonably excluded from further consideration.

Treelines (WL2)

- 5.90 There were two distinctive treelines either side of farm access tracks separating the agricultural fields to the west and north of the site (Plate 4) The treelines extended up to 14 m at their highest point. Mature tree species present included beech *Fagus sylvatica*, ash *Fraxinus excelsior*, oak *Quercus spp.*, elm *Ulmus spp.*, elder *Sambucus nigra* and hawthorn *Crataegus monogyna*. These species were interspersed with bramble, nettles, holly, hedge bindweed *Calystegia sepium*, ferns, cow parsley *Anthriscus sylvestris* and ivy *Hedera helix* in the understory.
- 5.91 Treelines provide many of the same ecological features of hedgerows and are more abundant on Site. Treelines are evaluated as important at the **County level** as there are objectives addressing the protection of this habitat in the County Development Plan.

Riparian Woodland (WD5)

- 5.92 There is a small area of wet woodlands adjacent to the Sall River along the southern boundary of the Site. The area is dominated by willows (*Salix spp.*), with some alder (*Alnus glutinosa*) and the occasional ash (*Fraxinus excelsior*). There is evidence that the water level fluctuates frequently with river borne debris collecting around the bases of the trees and along the riverbank. There is an understory of creeping buttercup (*Ranunculus repens*) and wood dock (*Rumex sanguineus*); there were no invasive species typically associated with waterways, such as Japanese knotweed or Indian balsam (*Impatiens glandulifera*) observed in this area.
- 5.93 This woodland is common in Ireland and is well represented in the area. As this area will not be affected by the development, it is assessed as important at the **Site level importance** and is excluded from further consideration.

Scrub (WS1)

- 5.94 In the north-west of the Site there is an area of scrub which shows some signs of excavation but most of the vegetation is still intact. The area is dominated by gorse (*Ulex europaeus*), with some bramble (*Rubus fruticosus agg.*) growing in many of the gaps and a small number of young hawthorn and blackthorn along the northern edge.

5.95 This scrub vegetation is fragmented and thin in places and is therefore considered to be of **negligible importance** and is excluded from further consideration.

Species

Desk Study

5.96 The NBDC database was searched for records of rare and/or protected species from the 2 km grid square W55E 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 and/or Protected Species Recorded Within 2 km Grid Squares W55E

Species	Date of Last Record	Conservation Status	Dataset
Coot (<i>Fulica atra</i>)	2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
Goldcrest (<i>Regulus regulus</i>)	1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Grey Wagtail (<i>Motacilla cinerea</i>)	2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List	Bird Atlas 2007 - 2011
Mallard (<i>Anas platyrhynchos</i>)	2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011

Spotted Flycatcher (<i>Muscicapa striata</i>)	1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Swallow (<i>Hirundo rustica</i>)	1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Badger (<i>Meles meles</i>)	2012	Protected Species: Wildlife Acts	Road Kill Survey
Hedgehog (<i>Erinaceus europaeus</i>)	2020	Protected Species: Wildlife Acts	Hedgehogs of Ireland
Otter (<i>Lutra lutra</i>)	2017	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	Mammals of Ireland 2016-2025

Rare and Protected Flora

- 5.97 The data search returned no records of rare and protected flora within the 2 x 2 km square.
- 5.98 No notable protected plant species were noted within the Site during the field surveys. Therefore, they have been scoped out from further assessment.

Rare and Protected Fauna

Amphibians

- 5.99 The data search returned no records of notable amphibians within the 2 x 2 km square. No notable amphibians were noted on-site during the field surveys.
- 5.100 The drainage ditches within the Site offers suitable habitat for common frog and drainage ditches are recognised as important breeding habitat for frogs (Reid *et al*, 2013). Frog and its breeding sites are protected under the Wildlife Acts and Annex IV of the Habitats Directive. Given the presence of suitable habitat and the widespread and common distribution of frog throughout the island of Ireland it is possible that they occur within the Site.
- 5.101 The amphibian population of the Site would be evaluated as **local-level importance** due to the possible presence of breeding common frog in the drainage ditches.

Invertebrates

- 5.102 The data search returned no records of notable invertebrates within the 2 x 2 km square. No notable invertebrates were noted on-site during the field surveys.
- 5.103 The habitats on-site including hedgerows, treelines, riparian woodland, and semi-natural grassland may provide suitable breeding and foraging habitats for common and widespread invertebrates.

- 5.104 Invertebrates are evaluated to be of **site-level importance** due to the presence of suitable habitat for common and widespread invertebrate species within the Site. The most valuable habitats on-site for invertebrates will be retained and, therefore, they can be reasonably excluded from further consideration.

Birds

- 5.105 The data search returned records of several red and amber listed birds within the 2 x 2 km squares (refer to Table 5-3).
- 5.106 Several Grey Wagtails *Motacilla cinerea* were seen during the ecological site walkover within the habitats classified as ED3 and FW4. This species is Red-Listed due to a short-term decline in their breeding population (>50%). This species predominantly breeds in upland streams and will move to lowland areas, including agricultural and urban lands, during the winter months to forage.
- 5.107 During the October 2020 survey multiple Snipe *Gallinago gallinago* were seen in the north-eastern section of the Site which consisted of recolonising bare soil and old stockpiles, the eastern boundary of the Site which consisted of hedgerow, and also along the southern boundary of the Site along the Sall River. This species is Amber Listed in Ireland due to a decline in its local breeding range as a result of habitat loss and degradation through drainage and afforestation of moorlands and bogs. This species can be found foraging in well vegetated wetland areas. Snipe were also observed during the April 2022 survey but only in the grasslands along the southern boundary of the Site.
- 5.108 Sand Martin *Riparia riparia* nests were present on the slope in the north-eastern section of the Site (approx. 9 nests counted) as well as the southern section of the Site (approx. 12 nests counted), within the habitat classified as ED1 in October 2020. Sand Martin is an amber listed species due to concerns over the European breeding population.
- 5.109 No Sand Martin were observed during the April 2022 survey, and no holes were observed in the location seen in October 2020. The nesting sites used in 2020 may have been removed as part of the ongoing sand extraction activities and the April survey may have been prior the return of any sand martin for a new nesting season.
- 5.110 All other bird species recorded during the ecological site walkover were green listed. One buzzard *Buteo buteo* was observed flying west over the north-eastern section of the Site, habitat ED3. Pheasant *Phasianus colchicus* was observed along the double tree line to the north-west as well as in the north-eastern section of the Site which consisted of recolonising bare soil and old stockpiles. Wood pigeon *Columba palumbus* was observed within the double tree line as well as flying over the Site. Corvids such as rook *Corvus frugilegus* and hooded crow *Corvus cornix* were also present. Other bird species recorded within the Site include common passerine species such as blackbird *Turdus merula*, European robin *Erithacus rubecula*, goldfinch *Carduelis caruelis*, blue tit *Cyanistes caeruleus* and willow warbler *Phylloscopus trochilus*.
- 5.111 Bird species in Ireland, their nests and eggs, are protected under the Wildlife Acts. The bird population of the Site would be evaluated as important at the Local level. The Sall River on the southern boundary of the Site may be a nesting site for Grey Wagtails. While Snipe is present within the Site, it is not likely to be breeding there but the Site may represent an important foraging area for the local population.
- 5.112 Grey Wagtail is evaluated as important at the **County level**. All other bird species are evaluated as important at the **Local level**.

Mammals

Bats

- 5.113 The data search returned no records of bat species within the 2 x 2 km square.

- 5.114 No bat roosts were observed on Site but some of the larger trees along the boundaries of the site did show some potential roost features (PRFs) such as holes in the trunks and where large branches had broken off.
- 5.115 Irish bat species, and their roosts, are protected under the Wildlife Acts and Annex IV of the Habitats Directive. The bat population using the Site for would be evaluated as important at the **County Level**.

Badgers

- 5.116 The data search returned records of Eurasian badger within the 2 x 2 km square.
- 5.117 No badger *Meles meles* setts were identified on-site. However, badger tracks were observed during both the October 2020 and April 2022 surveys. Badger is likely to cross the Site during quiet times, mainly at night, due to the presence of suitable foraging area on all sides of the Site. Badger is protected under the Wildlife Acts.
- 5.118 The site would be evaluated as important at the **Local level** for badger.

Otters

- 5.119 The data search returned one record of otter within the 2 x 2 km square. This record is from an otter spraint collected along the Sall River c. 900 m downstream of the Site. No signs of otter activity were noted during the site surveys.
- 5.120 The riparian woodland located to the south of the Site may provide suitable breeding or resting habitat for otters. The southern boundary of Extension Area 2 is approximately 20 m from this habitat at the closest point.
- 5.121 It is unlikely that a natal den would be established directly adjacent to the Site due to regular and long-term potential for disturbance from the already established sand and gravel pit.
- 5.122 The site would be evaluated as important at the **Local level** for otters. However, the potentially suitable habitats for otters will not be impacted as a result of the proposed development and there is a suitable buffer designed in the project description between Site activities and these habitats. As such, otters can be reasonably excluded from further consideration.

Other Mammals

- 5.123 The data search returned records of hedgehogs within the 2 x 2 km square.
- 5.124 Several European rabbits *Oryctolagus cuniculus* were observed within the Site with multiple warren entrances also identified throughout the Site. European rabbit is an introduced species in Ireland that is common and widespread. No other records or evidence of mammal use of the Site were detected during the ecological site walkover.
- 5.125 The population of other mammals, such as European rabbit, using the Site would be evaluated as not important and can be scoped out of further detailed assessment.

Invasive Species

- 5.126 The data search returned records of Spanish bluebell (*Hyacinthoides hispanica*) within the 2km x 2km square.
- 5.127 No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011, (as amended) were recorded within the Site.
- 5.128 Two non-regulated invasive species were recorded within the Site:
- Buddleja (*Buddleja davidii*), and
 - Winter heliotrope (*Petasites pyrenaicus*)

- 5.129 These species had localised distribution within the Site, primarily to the southern area of woodland and riparian habitat (see Appendix 5-D)
- 5.130 Invasive species can be reasonably excluded from further consideration in this report due to the absence of listed invasive species and the distribution of the non-listed invasive species on-site being limited to areas that will be unaffected by the proposed development.
- 5.131 Notwithstanding this, and on a precautionary basis, an Invasive Species Management Plan (ISMP) has been implemented at the existing site, refer to copy provided in Appendix 5-D

Summary of Important Ecological Features

- 5.132 **Table 5-4** 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.
- 5.133 All ecological features scoped out from further assessment have been detailed in the previous section.

Table 5-4: 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		
Natural Heritage Areas	National	- Bandon Valley Above Inishannon (001740), Bandon Valley Below Inishannon (001515) - Protected under objectives BE 15-2 of the Cork County Development Plan (2022-2028).
Habitats		
Treelines	County	Protected under objectives G1 14-1 of the Cork County Development Plan (2022-2028).
Depositing Lowland Rivers	County	Protected under objectives WM 11-1, 11-11, and BE 15-2, of the Cork County Development Plan (2022-2028).
Species		
Amphibians	Local	- Wildlife Acts 1976 – 2012 and Annex IV of the Habitats Directive confers protection on common frog and smooth newt and their breeding places. - The overall planning policy for the Habitats and Species Data is set out in Chapter 15 Biodiversity and Environment of Volume One, of the Plan, paragraph 15.3.1 to 15.3.10 and objective BE 15-2 “Protected Sites, Habitats and Species” - Cork County Development Plan (2022-2028)
Grey Wagtail	Local	- Wildlife Acts 1976 – 2012 confers protection on breeding birds. The Grey Wagtail is Red-Listed under the Birds of Conservation Concern Ireland. - The overall planning policy for the Habitats and Species Data is set out in Chapter 15 Biodiversity and Environment of Volume One, of the Plan, paragraph 15.3.1 to 15.3.10 and objective 15-2 “Protected Sites, Habitats and Species” - Cork County Development Plan (2022-2028)
Bats	Local	Wildlife Acts 1976 – 2020 and Annex IV of the Habitats Directive confers protection on all Irish bat species and their roosts.

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
		The Plan recognises the overlapping policy themes that Built and Cultural Heritage shares with other Chapters within the Plan. At a site level, for example, there is potential for negative impacts for biodiversity, flora and fauna where older building stock provides habitat for roosting bats, owls etc. and is refurbished without mitigation measures being implemented. The Plan therefore recommends consultation with Chapter 15 Biodiversity and Environment in this instance and supports the requirement for an ecological assessment (where appropriate) - Cork County Development Plan (2022-2028)
Badger	Local	- Wildlife Acts 1976-2012 confers protection of badgers and their setts. - The overall planning policy for the Habitats and Species Data is set out in Chapter 15 Biodiversity and Environment of Volume One, of the Plan, paragraph 15.3.1 to 15.3.10 and objective 15-2 "Protected Sites, Habitats and Species"- - Cork County Development Plan (2022-2028)

Assessment of Effects and Mitigation Measures

5.134 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

Proposed Natural Heritage Areas

Potential Impacts

- 5.135 There is potential for downstream impacts on the surface water quality of Bandon Valley Above Inishannon (001740) and Bandon Valley Below Inishannon (001515) pNHAs (Figure 5-3).
- 5.136 The Sall River, a tributary of the Brinny River, borders the Site to the South, which ultimately flows into the pNHAs listed above. There are / will be no discharges of trade effluent from the proposed development to the river. Surface rainwater will percolate through the ground and then drains through existing open ditches which flow into the Sall River.
- 5.137 There is an existing water abstraction point (WAP), refer to location shown on the Existing Site Layout EIAR Figure 2-1 and also on planning drawing PL04. The water abstraction has been registered with the EPA, register no. R01578-01. The quantity of water abstracted each day is up to c. 120 m³/day. The amount of water abstracted is minimised by use of a closed water management (settlement lagoon) system for treatment and reuse of wash-water in the washing plant. This abstraction volume is 1.2% of the 95% low flow in the Sall River and will not impact on the overall flow regime in the river.
- 5.138 There is also a potential effect on the Sall River as a result of the proposed development through dust settlement from extraction activities.
- 5.139 The proposed development is set back c. 50 m from the Sall River.

Proposed Mitigation Measures

Groundwater & Surface Water Protection

- 5.140 There are a range of measures currently in place to ensure that silt laden water does not enter the River Sall including:
- Use of settlement lagoons to treat, recirculate and reuse wash water from the washing plant in a closed system. The treated water will be reused in the washing process.
 - Berm constructed along the southern boundary to prevent surface runoff from the site going to the river.
- 5.141 In order to mitigate against the risk of pollution to groundwater and surface water occurring the following water / environmental management control and mitigation measures will be implemented:-
- Diesel fuel is stored in an internally banded double skinned fuel tank. Other lubricants and oils are stored on spill pallets within a secure storage container. The volume of diesel, lubricants and oils stored on site at any one time is and will continue to be small.
 - The location of the existing refuelling area and the hydrocarbon interceptor are shown on EIAR Figure 2-1 and planning drawing PL04. The interceptor will be maintained in accordance with the manufacturer's requirements and will be pumped out by a licenced waste operator (e.g. ENVA or similar) on an as needed basis.
 - Spill kits will be maintained on site and spill kit training will be provided on site.
 - A groundwater and surface water monitoring programme is currently in place at the existing site, and monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 7 – Water. Monitoring results are, and will continue to be, submitted to Cork County Council.

Dust Suppression

- 5.142 In dry, windy weather conditions, site activities may give rise to dust blows across and beyond the planned development site areas. In order to control dust emissions, dust management and mitigation measures will continue to be implemented in accordance with the DoEHLG (2004), and EPA (2006) environmental guidelines for the sector, refer to EIAR Chapter 8 – Air Quality.
- Water will be sprayed from a tractor drawn bowser on dry exposed surfaces and stockpiles (paved roads, unsealed haul roads and hardstand areas);
 - Areas of bare or exposed soils will, insofar as practicable, be kept to a minimum;
 - All HGV's exiting the site are and will continue be routed through a wheelwash. This will minimise the transport of fines by HGVs over the access / egress road and the public road network;
 - A dust monitoring programme is currently in place at the existing site, and ongoing dust deposition monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 8 – Air Quality. Monitoring results are, and will continue to be, submitted to Cork County Council.

Significance of Residual Effects

- 5.143 Under the current development proposals and recommended mitigation measures in place, it is assessed that the residual effects on proposed Natural Heritage Areas will not be significant.

Treelines

Potential Impacts

- 5.144 There will be the loss of some mature trees along the existing tree-lines within the application area, as two approximately 10m wide access points into the two sections of the extension areas are created for access points (note: the vast majority of the existing tree-lines and other boundary vegetation will be retained), refer to the locations shown on planning drawing PL07 Landscape & Restoration Plan (Incl. Tree Protection & Removal).

Proposed Mitigation Measures – Tree Protection

- 5.145 A Tree Protection Plan will be implemented to protect trees/ tree lines/ hedgerows, where works are required within the driplines of trees to be retained. These measures are set out on planning application drawing PL07 – Landscape & Restoration Plan (Incl. Tree Protection & Removal). This drawing also shows the root protection zones of trees to be retained in proximity to the works.
- 5.146 It is proposed to install sturdy tree protection fencing (e.g. 1.5m high post & rail or post & wire mesh) along those boundaries of the extraction / restoration areas which adjoin tree lines / hedgerows within the site. This fencing will be installed prior to any extraction / restoration works taking place, in order to ensure that the machinery used for the extraction / restoration activities cannot access the root protection zones (RPZ) of the trees to be retained. The RPZ is indicated on the plan.
- 5.147 A suitably qualified tree surgeon will be engaged at the same time as the fence construction is taking place, to carefully prune back any low overhanging branches (in accordance with BS3998:2010 Tree Work - Recommendations). This is to prevent subsequent damage by the machinery used for the extraction / restoration activities, when operating in the vicinity of the trees
- 5.148 The landscape proposals for the development will add significant areas of tree/shrub planting (i.e. 7,200m²), such that there will be a net increase in the number of trees on site.

Significance of Residual Effects

- 5.149 Under the current development proposals and recommended mitigation measures in place, it is assessed that the residual effects on treelines will not be significant.

Depositing / Lowland rivers

Potential Impacts

- 5.150 The Sall River borders the Site to the South. There will be no abstraction of water from the Sall River, and no surface water discharges from the proposed development will flow directly into the river. Any surface rainwater will percolate through the ground and then drains through open ditches which flow into the Sall River.
- 5.151 There is also a potential effect on the Sall River as a result of the proposed development through dust settlement from extraction activities.
- 5.152 The Sall River is set back ca. 35 m from the Site.

Proposed Mitigation Measures

Groundwater & Surface Water Protection

- 5.153 There are a range of measures currently in place to ensure that silt laden water does not enter the River Sall including:
- Use of settlement lagoons to treat, recirculate and reuse wash water from the washing plant in a closed system. The treated water will be reused in the washing process.

- Berm constructed along the southern boundary to prevent surface runoff from the site going to the river.

5.154 In order to mitigate against the risk of pollution to groundwater and surface water occurring the following water / environmental management control and mitigation measures will be implemented:-

- Diesel fuel is stored in an internally banded double skinned fuel tank. Other lubricants and oils are stored on spill pallets within a secure storage container. The volume of diesel, lubricants and oils stored on site at any one time is and will continue to be small.
- The location of the existing refuelling area and the hydrocarbon interceptor are shown on EIAR Figure 2-1 and planning drawing PL04. The interceptor will be maintained in accordance with the manufacturer's requirements and will be pumped out by a licenced waste operator (e.g. ENVA or similar) on an as needed basis.
- Spill kits will be maintained on site and spill kit training will be provided on site.
- A groundwater and surface water monitoring programme is currently in place at the existing site, and monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 7 – Water. Monitoring results are, and will continue to be, submitted to Cork County Council.

Dust Suppression

5.155 In dry, windy weather conditions, site activities may give rise to dust blows across and beyond the planned development site areas. In order to control dust emissions, dust management and mitigation measures will continue to be implemented in accordance with the DoEHLG (2004), and EPA (2006) environmental guidelines for the sector, refer to EIAR Chapter 8 – Air Quality.

- Water will be sprayed from a tractor drawn bowser on dry exposed surfaces and stockpiles (paved roads, unsealed haul roads and hardstand areas);
- Areas of bare or exposed soils will, insofar as practicable, be kept to a minimum;
- All HGV's exiting the site are and will continue be routed through a wheelwash. This will minimise the transport of fines by HGVs over the access / egress road and the public road network;
- A dust monitoring programme is currently in place at the existing site, and ongoing dust deposition monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 8 – Air Quality. Monitoring results are, and will continue to be, submitted to Cork County Council.

Significance of Residual Effects

5.156 Under the current development proposals and recommended mitigation measures in place, it is assessed that the residual effects on depositing / lowland rivers will not be significant.

Amphibians

Potential Impacts

5.157 There will be no loss of drainage ditches as a result of the proposed extension area.

5.158 Common frog is not considered likely to be significantly affected as a result of the proposed development.

Proposed Mitigation & Monitoring Measures

- 5.159 There will be no significant effect on common frog as a result of the proposed development. Notwithstanding this a Species Protection Plan and ecological monitoring will be implemented at the site (refer to Appendix 5-C Species Protection Plan & Ecological Monitoring). This will include measures to ensure the avoidance of disturbance of breeding sites of relevant species (including amphibians) to ensure continued protection of protected species at the site.

Significance of Residual Effects

- 5.160 Under the current development proposals and recommended mitigation measures in place, it is assessed that the residual effects on amphibians will not be significant.

Birds

Potential Impacts

- 5.161 The loss of agricultural grassland and treelines will result in displacement of some bird species that may use these areas. However, similar habitat exists within the surrounding area and local populations will not be significantly affected by the proposed development.

Proposed Mitigation & Monitoring Measures

- 5.162 There will be no significant effect on the local bird population and composition as a result of the proposed development. Notwithstanding this a Species Protection Plan and ecological monitoring will be implemented at the site (refer to Appendix 5-C Species Protection Plan & Ecological Monitoring). This will include measures to ensure the avoidance of disturbance of breeding sites of relevant species (specifically including sand martins) to ensure continued protection of protected species at the site. An annual breeding bird survey will be carried out at the site by a qualified ecologist.
- 5.163 No vegetation loss should be undertaken during the breeding bird season to avoid impacting birds during this sensitive time. If vegetation removal is required during this time as a last resort (using an exemption in the Wildlife Act⁹), a nesting bird check conducted by a suitably qualified ecologist should be undertaken no more than 24 hours prior to the planned removal.
- 5.164 If nesting birds are found during this check, they must be left in situ with a suitable buffer around the nest (detailed by the ecologist following the nesting bird check) until the chicks have fledged. A further nesting bird check should be undertaken to confirm this.
- 5.165 Landscaping of the development site to create screening bunds and general landscape proposals will add significant areas of tree/shrub planting (i.e. 7,200m²), and over the lifetime and restoration of the development there will be 620m of hedgerows planted within and around the boundary of the Site. This additional planting will provide additional beneficial habitats for breeding and roosting bird species and will lead to an increase the overall biodiversity of the Site.

Significance of Residual Effects

- 5.166 Under the current development proposals and recommended mitigation measures in place, it is assessed that the residual effects on birds will not be significant.

⁹ Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018 – Section 40(2) (e)

Bats

Potential Impacts

- 5.167 The extension of an existing sand and gravel pit will result in the loss of some bat foraging and commuting habitat in the form of a small area of hedgerow and treeline removal. This is not considered to be a significant effect, given the small scale of habitat loss and the availability of suitable alternative habitat in the wider landscape.
- 5.168 Any negative effects arising from loss of foraging and commuting habitat will be temporary due to the provision of landscaping measures, such as planting of native trees and shrubs, that should offset any loss of foraging/commuting habitat. Connectivity with the wider landscape will be maintained.
- 5.169 Some trees with potential roost features were identified within the Site, however, there is no potential for effects on roosting bats as the trees identified with PRF will not be impacted by the development.

Proposed Mitigation Measures

- 5.170 Specific mitigation measures are not required as no significant effect on bats is predicted to occur as a result of the proposed development.
- 5.171 Additional tree and hedgerow planting will provide additional beneficial foraging habitats for bats.

Significance of Residual Effects

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

Badger

Potential Impacts

- 5.173 The extension of an existing sand and gravel pit will result in the loss of some badger foraging and commuting habitat in the form of grassland removal and the loss of some hedgerow. This is not considered to be a significant effect, given the small scale of habitat loss and the availability of suitable alternative habitat in the wider landscape.
- 5.174 No badger setts were identified on or close to the Site and so there will be no impact on breeding badgers.

Proposed Mitigation Measures

- 5.175 Specific mitigation measures are not required as no significant effect on badgers is predicted to occur as a result of the proposed development.

Significance of Residual Effects

- 5.176 Under the current development proposals, it is assessed that the residual effects on badgers will not be significant.

Cumulative Effects

- 5.177 There are no strategies or objectives in the County Development Plan that are likely to result in significant effects when considered in-combination with the proposed development.
- 5.178 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. It is assumed that all planning permissions granted more than 5 years ago have been completed and therefore are considered through the existing environment section. Table 5.5

found. lists the recent planning applications considered to be sufficiently significant and/or large in scale to warrant examination for in combination effects with the proposed project.

- 5.179 The planning applications not considered in Table 5.5 primarily consist of one-off domestic developments that are considered to be sufficiently small in scale and distant from the Site that they are not anticipated to result in in-combination effects with the proposed project.
- 5.180 The planning applications listed in Table 5.5 are not anticipated to result in cumulative effects with the proposed project. Therefore, the risk of significant effects can be excluded for the project when considered in-combination with other proposed or permitted plans and projects.

BIODIVERSITY 5

Table 5.5: Planning Applications Considered for 'In Combination' Effects

Application Number	Development Description	Distance
235715	Permission for retention of a) external storage area storing modular sections of prefabricated buildings and b) a single storey building for the storage/repair of prefabricated modular buildings, c) continuance of use of the existing vehicular access from public road and associated site works.	0 km
246269	Permission for retention and continued use of existing processing plant and related water management system, the existing concrete plant, ancillary buildings (site office 63 sq.m), 3 no. welfare portacabins (32 sq.m, 23.5 sq.m & 22.0 sq.m), 4 no. storage buildings/containers (15 sq.m, 10 sq.m, 6 sq.m & 5 sq.m), 2 no. garages (76 sq.m & 76 sq.m), ESB Substation (26 sq.m), covered vehicle storage (220 sq.m), site access and all related ancillary facilities (wheelwash, fuel storage tank, weighbridge etc), permitted under Pl.Reg.No. S/02/1023), all for a duration of 10 years. 2) Permission for proposed development comprising removal of existing disused fuel storage tanks, recycling of c.15,000 tonnes of concrete for use in concrete production, importation of 25,000 tonnes of sand & gravel for processing, importation of c. up to 20,000 tonnes of soil and stone per year (under Article 27) for phased site restoration with a revised phasing plan and completion of restoration of the overall site to agricultural use. Permission is sought for eight years plus two years final restoration, total of 10 years. All within an application area of c.21.4 hectares.	0 km
215203	Construction of two number dressing rooms, storage shed, wastewater treatment system, re-organised car parking area (from that previously permitted under planning register number 18/06687) and all associated site works.	0.27 km
236470	Permission for the construction of a solar PV energy development comprising the installation of solar photovoltaic (PV) panels on ground mounted frames/support structures within existing field boundaries, inverters, transformer stations, all ancillary underground cabling and ducting, internal site access tracks, perimeter security fencing, security entrance gate, CCTV structures, 1 no. temporary construction compound, landscaping including screen planting, and accessed via an existing upgraded vehicular access and all associated site	0.31 km

BIODIVERSITY 5

Application Number	Development Description	Distance
	development works. The application relates to development which comprises or is for the purposes of an activity requiring an industrial emissions licence.	
217034	The addition of a zinc box internally illuminated wind breaker with MSD logo to the entrance area of building 21 and associated site works along with the installation of a 2.43 meter high fence to the north site boundary of the building to tie into existing site fencing. This application relates to a development, which comprises an activity for which an Industrial Emissions License under part IV of the Environment Protection Agency Act 1992 (as amended) is required.	0.49 km
215817	A waste collection area comprising an external yard, 4 no. waste storage units, plant for waste compaction, 1 no. canopy shelter, and all associated ancillary site works for the purpose of staging waste for regular collection at the facility. This application relates to a development, which comprises an activity for which an Industrial Emissions License under part IV of the Environment Protection Agency 1992 (as amended) is required.	0.53 km
215958	A horticultural enterprise for the production and processing of cut flowers and flower bulbs and will involve the construction of an operations building (1632.41 sq. m), photovoltaic panels (320.00 sq. m), hardstanding and storage area, parking area, wastewater treatment system and soil polishing filter, site entrance and internal access road, water storage tank, site lighting, boundary fencing, landscaping, and all ancillary works.	0.9 km
225810	Full planning permission to construct 1 no. natural grass playing pitch, perimeter fencing, 6 no. floodlighting masts, the installation of floodlighting, high level ball retention nets, goalposts, a generator, dugouts and associated site works (revised pitch levels and revised mitigation for archaeological feature from that permitted under Pl. Ref. No. 19/5215)	1.02 km
23654	The existing Bandon to Dunmanway 110 kV Overhead Line (OHL), which is approximately 26km long between the existing Bandon 110kV Substation in the townland of Mishells, Co. Cork (approximately 1km north of Bandon, Co. Cork) and the existing Dunmanway 110kV Substation in the townland of Ballyhalwick, Co. Cork (approximately 0.4km east of Dunmanway Co. Cork). The existing OHL is located in the townlands of Acres, Aghalinane, Ballyhalwick, Balteenbrack, Behagh, Caher, Carhoon West, Castlelands, Derrycool, Dromidiclogh, Dromidiclogh West, Gortnamucklagh, Gurteen, Gurteenroe, Kilnacranagh East, Kilnacranagh West, Laragh, Lissacroneen, Mallowgaton, Mishells, Murragh, Roughgrove East, Roughgrove West, Sranaviddoge, Teadies Upper, Toom and Tullyglass, Co. Cork. An uprate (refurbishment) of the existing Bandon to Dunmanway 110kv OHL, which consists of the : (i) replacement ("restringing") of the existing OHL conductor wires with a new higher capacity conductor including installation of a new fibre optic communication	1.5 km

BIODIVERSITY 5

Application Number	Development Description	Distance
	connection; (ii) replacement of 12 no. of the 13 no. existing steel towers including 11 no. angle masts (AM) and 1 no. end mast (EM) and their foundations with similar structures and member replacement and new bolts at 1 no. EM. Any replacement AMs will be constructed at, or immediately adjacent to the existing structures that they will replace with a height difference of between 0.5-1.5m; (iii) Replacement of 16 no. of the 1127-no. existing intermediate Polesets (IMPs); with similar structures. Any replacement IMPs will be constructed in situ, with the exception of IMP128 which will be replaced at an offset of 10m. The height differences of the replacements will be 1m, with the exception of IMP113 and IMP115 which will be a 2m and 3m increase in height respectively, (iv) Carrying out of civil works for tower foundation strengthening at 1 no. location; (v) Replacement of hardware and fittings at all locations, including insulators, clamps, anti-climb guards, vibration dampers, and installation of new jumper arrangements, suspension weights, plump poles, pole bolts and anti-climb guards; (vi) replacement of a crossarm at 1 no. location; (vii) all associated works within the existing Dunmanway Substation to accommodate the uprated 110 kV OHL and all associated site development works including above and below the ground works to gain access to the existing structures including timber cutting and vegetation clearance, painting, renumbering of replacement structures, installation of line identification labels and danger notices and other ancillary works necessary to facilitate the proposed development; and (viii) Other temporary associated and ancillary development works required for the purpose of the uprate, including construction compounds, conductor support structures, trench box / support, / sheet piles, working platforms (crane/stringing), temporary access routes, Aerial Conductor Support Systems, Guard poles, goal posts, traffic management arrangements, square rigging and all associated site development works. The planning application is accompanied by a Natura Impact Statement.	
225234	2km of grid connection infrastructure on the public road and agricultural land to connect the approved Finnis Solar Farm (Planning reference 17/6111) to the existing Bandon Substation and to connect two parcels of land within the consented development comprising the laying of underground electricity cables, associated infrastructure and horizontal directional drilling.	1.58 km

Proposed Mitigation and Compensation Measures

Groundwater & Surface Water Protection

- 5.181 There are a range of measures currently in place to ensure that silt laden water does not enter the River Sall including:
- Use of settlement lagoons to treat, recirculate and reuse wash water from the washing plant in a closed system. The treated water will be reused in the washing process.
 - Berm constructed along the southern boundary to prevent surface runoff from the site going to the river.
- 5.182 In order to mitigate against the risk of pollution to groundwater and surface water occurring the following water / environmental management control and mitigation measures will be implemented:-
- Diesel fuel is stored in an internally bunded double skinned fuel tank. Other lubricants and oils are stored on spill pallets within a secure storage container. The volume of diesel, lubricants and oils stored on site at any one time is and will continue to be small.
 - The location of the existing refuelling area and the hydrocarbon interceptor are shown on EIAR Figure 2-1 and planning drawing PL04. The interceptor will be maintained in accordance with the manufacturer's requirements and will be pumped out by a licenced waste operator (e.g. ENVA or similar) on an as needed basis.
 - Spill kits will be maintained on site and spill kit training will be provided on site.
 - A groundwater and surface water monitoring programme is currently in place at the existing site, and monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 7 – Water. Monitoring results are, and will continue to be, submitted to Cork County Council.

Dust Suppression

- 5.183 In dry, windy weather conditions, site activities may give rise to dust blows across and beyond the planned development site areas. In order to control dust emissions, dust management and mitigation measures will continue to be implemented in accordance with the DoEHLG (2004), and EPA (2006) environmental guidelines for the sector, refer to EIAR Chapter 8 – Air Quality.
- Water will be sprayed from a tractor drawn bowser on dry exposed surfaces and stockpiles (paved roads, unsealed haul roads and hardstand areas);
 - Areas of bare or exposed soils will, insofar as practicable, be kept to a minimum;
 - All HGV's exiting the site are and will continue be routed through a wheelwash. This will minimise the transport of fines by HGVs over the access / egress road and the public road network;
 - A dust monitoring programme is currently in place at the existing site, and ongoing dust deposition monitoring is / will continue to be carried out as part of the environmental monitoring programme, refer to EIAR Chapter 8 – Air Quality. Monitoring results are, and will continue to be, submitted to Cork County Council.

Habitat Protection & Compensation (Tree Protection & Tree / Shrub Planting)

- 5.184 Tree protection measures will be implemented to protect trees/ tree lines/ hedgerows, where works are required within the driplines of trees to be retained. These measures are set out on planning application drawing PL07 – Landscape & Restoration Plan (Incl. Tree Protection &

Removal). This drawing also shows the root protection zones of trees to be retained in proximity to the works.

- 5.185 It is proposed to install sturdy tree protection fencing (e.g. 1.5m high post & rail or post & wire mesh) along those boundaries of the extraction / restoration areas which adjoin tree lines / hedgerows within the site. This fencing will be installed prior to any extraction / restoration works taking place, in order to ensure that the machinery used for the extraction / restoration activities cannot access the root protection zones (RPZ) of the trees to be retained. The RPZ is indicated on the plan.
- 5.186 A suitably qualified tree surgeon will be engaged at the same time as the fence construction is taking place, to carefully prune back any low overhanging branches (in accordance with BS3998:2010 Tree Work - Recommendations). This is to prevent subsequent damage by the machinery used for the extraction / restoration activities, when operating in the vicinity of the trees
- 5.187 The landscape proposals for the development will add significant areas of tree/shrub planting (i.e. 7,200m²), such that there will be a net increase in the number of trees on site, refer to planning drawing PL07.

Species Protection Plan (Incl. Sand Martins)

- 5.188 A Species Protection Plan and ecological monitoring will be implemented at the site (refer to Appendix 5-C Species Protection Plan & Ecological Monitoring). This will include measures to ensure the avoidance of disturbance of breeding sites of relevant species (specifically including sand martins) to ensure continued protection of protected species at the site. An annual breeding bird survey will be carried out at the site by a qualified ecologist.
- 5.189 No vegetation loss should be undertaken during the breeding bird season to avoid impacting birds during this sensitive time. If vegetation removal is required during this time as a last resort (using an exemption in the Wildlife Act¹⁰), a nesting bird check conducted by a suitably qualified ecologist should be undertaken no more than 24 hours prior to the planned removal.
- 5.190 If nesting birds are found during this check, they must be left in situ with a suitable buffer around the nest (detailed by the ecologist following the nesting bird check) until the chicks have fledged. A further nesting bird check should be undertaken to confirm this.
- 5.191 Landscaping of the development site to create screening bunds and general landscape proposals will add significant areas of tree/shrub planting (i.e. 7,200m²), and over the lifetime and restoration of the development there will be 620m of hedgerows planted within and around the boundary of the Site, refer to planning drawing PL07 Landscape & Restoration Plan. This additional planting will provide additional beneficial habitats for breeding and roosting bird species and will lead to an increase the overall biodiversity of the Site.

Invasive Species Management Plan

- 5.192 Notwithstanding the absence of listed invasive species and the distribution of the non-listed invasive species on-site being limited to areas that will be unaffected by the proposed development, on a precautionary basis, an Invasive Species Management Plan (ISMP) will be implemented consistent with the ISMP in place for the existing site, copy provided in Appendix 5-D.

¹⁰ Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018 – Section 40(2) (e)

Conclusions

5.193 Overall, it is assessed that with the recommended mitigation measures outlined, the proposed development will not have a significant impact on the biodiversity, designated sites, and habitats on the Site. 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.

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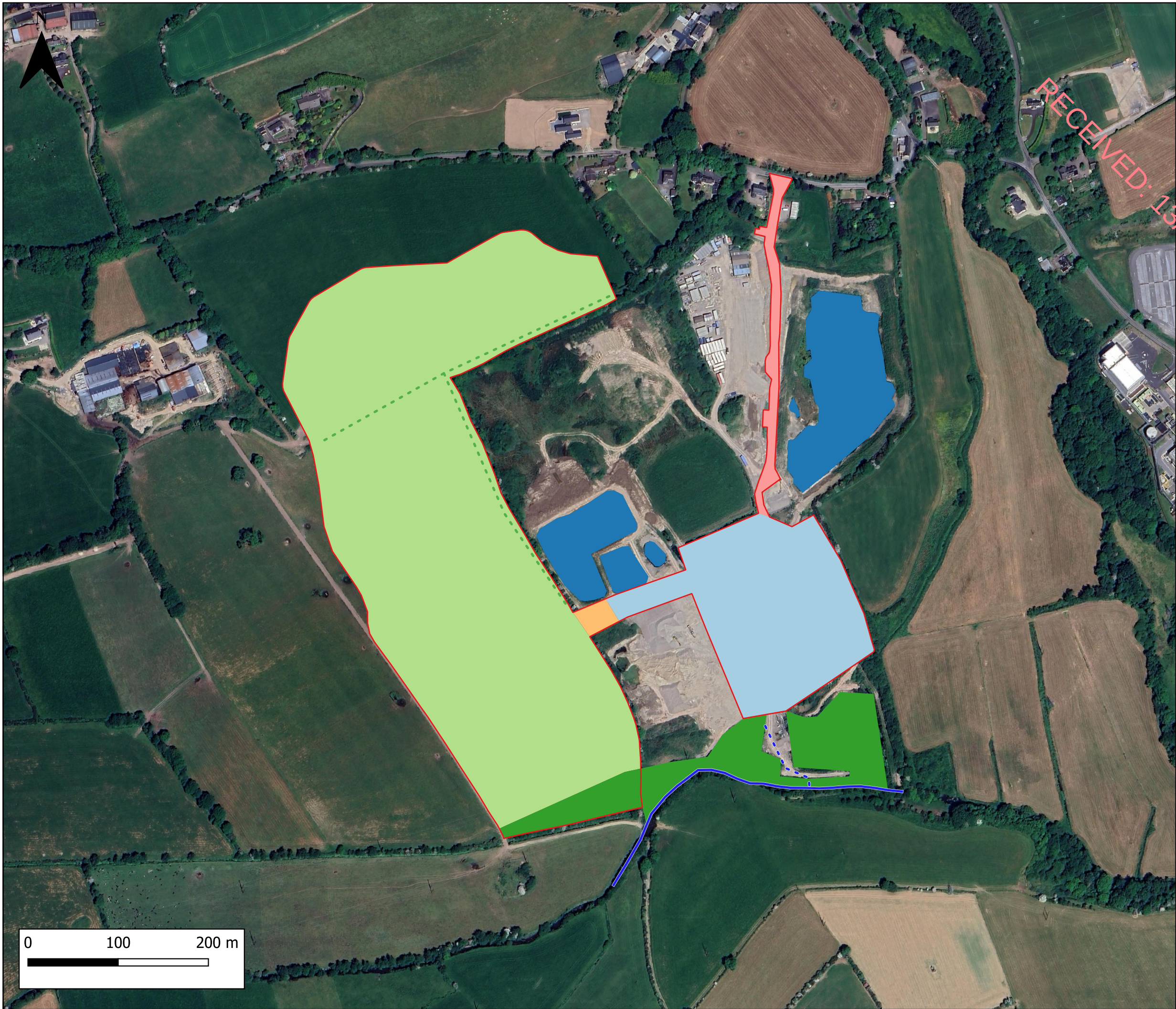
Figures

Figure 5-1: Habitat Map

Figure 5-2: European Sites Map

Figure 5-3: Natural Heritage Areas Map

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NOTES

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

LEGEND

- Application Site
- BL3 - Buildings & Artificial Surfaces
- ED1/ED2/ED3 - Exposed Sand, Gravel or Till / Spoil and Bare Ground / Recolonising Bare Ground
- CA1 - Improved Agricultural Grassland
- WD5 - Riparian Woodland
- WS1 - Scrub
- FL8 - Other Artificial Lakes and Ponds
- WL2 - Treelines
- FW2 - Lowland / Depositing Rivers
- FW4 - Drainage Ditches



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Habitat Map

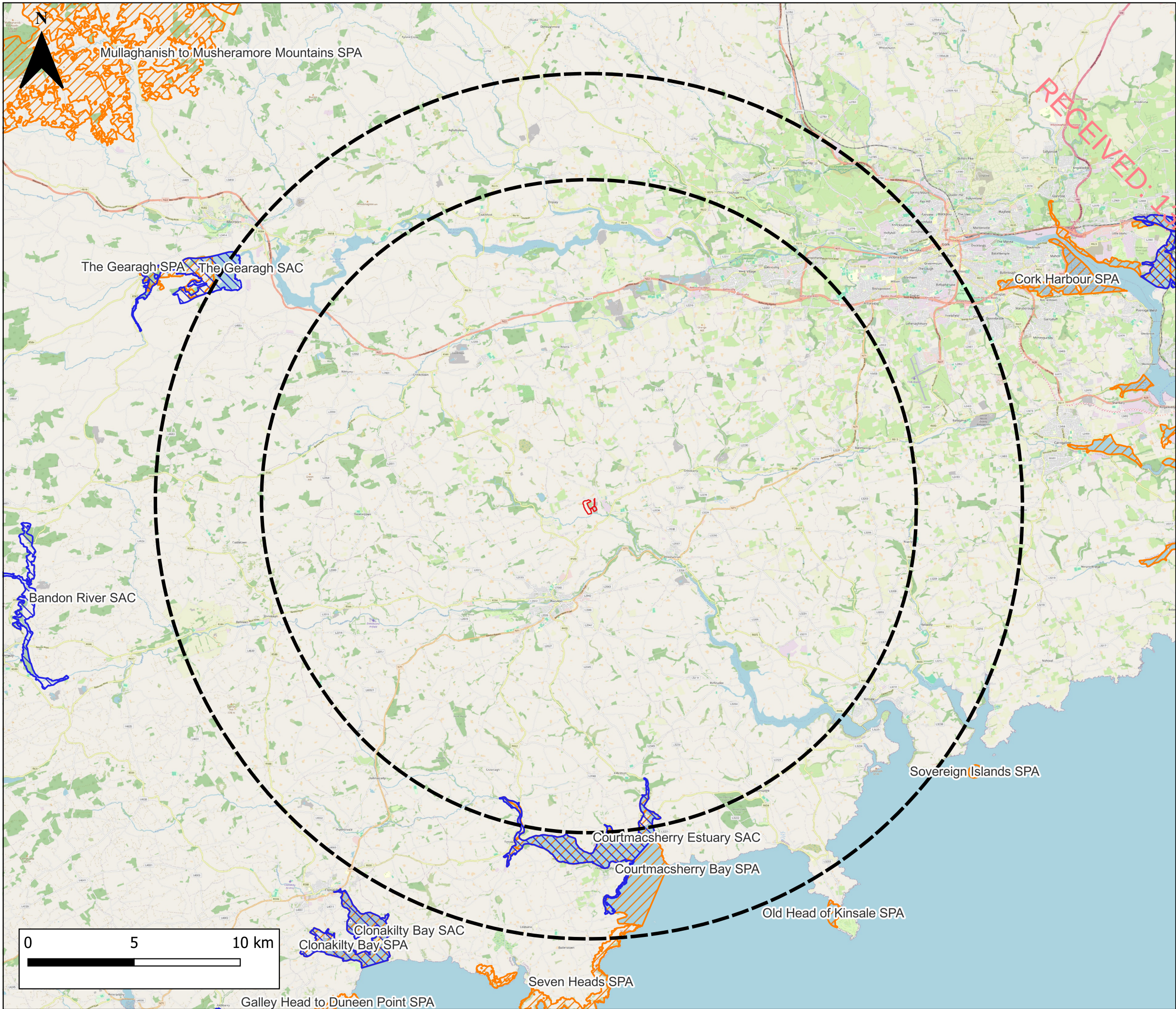
FIGURE 5-1

Scale

1:4000 @ A3

Date

MAR 2026



NOTES

1. Base Mapping: Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors.

LEGEND

- Application Boundary
- 15 & 20km Buffers
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)

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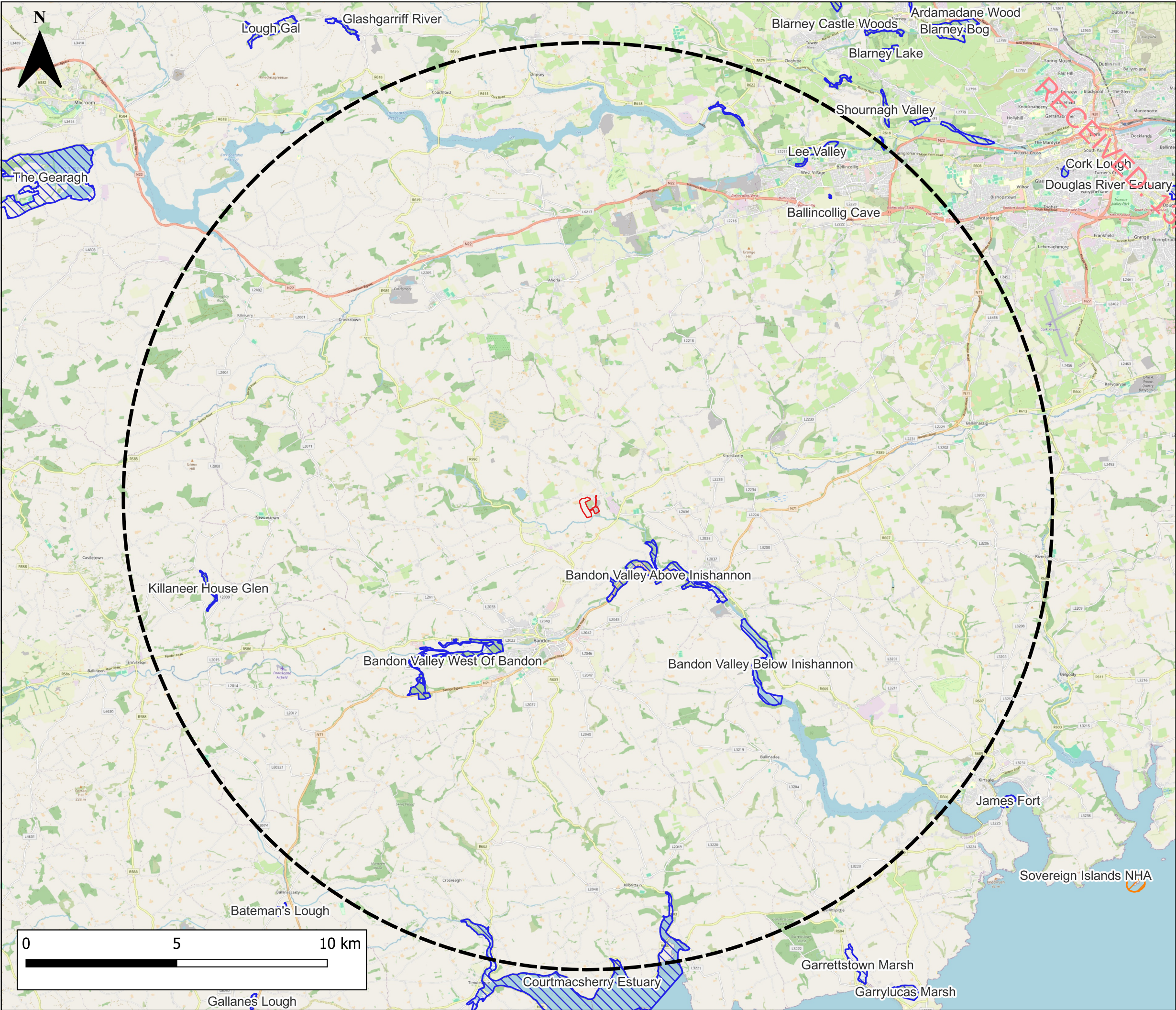
Extension & Continuance of Use
Brinny, Co. Cork

European Sites Map

FIGURE 5-2

Scale
1:170000 @ A3

Date
JAN 2026



NOTES

1. Base Mapping: Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors.

LEGEND

- Application Boundary
- 15 km Buffer
- Natural Heritage Areas (NHA)
- Proposed Natural Heritage Areas (pNHAs)



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Natural Heritage Areas Map

FIGURE 5-3

Scale
1:120000 @ A3

Date
JAN 2026

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Appendix 5-A Relevant Legislation

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Relevant Legislation¹¹

EIA Directive

The EIA Directive, Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment as amended by Council Directive 97/11/EC of 3 March 1997, Directive 2003/35/EC of 26 May 2003 and Directive 2009/31/EC of 23 April 2009, now codified in Directive 2011/92/EU of 13 December 2011 and amended in Directive 2014/52/EU of 16 April 2014, is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to project consent being given.

The EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Project) Act, 1963 (and other legislation) to provide for environmental impact assessment. The European Union (Planning and Project) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of Directive 2014/52/EU, Amending previous Directive 2011/52/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into Irish planning law.

Habitats and Birds Directive

The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora was adopted in 1992 and aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments.

The Natura 2000 network of protected areas is known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). In general terms, they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community. The requirements of the Habitats Directive have been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 477/2011]. This legislation affords protection to both Special Protection Areas and Special Areas of Conservation.

Special Areas of Conservation (SAC) are designated under the Conservation of Natural Habitats and of Wild Fauna and Flora Directive 92/43/EEC (Habitats Directive) which is transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). Special Protection Areas (SPA) are classified under the Birds Directive (2009/147/EC on the Conservation of Wild Birds). Article 6(3) of the Habitats Directive requires an 'appropriate assessment' to be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An 'appropriate assessment' is an evaluation of the potential impacts of a plan or

¹¹ Please note that the summary of relevant legislation provided here is intended for general guidance only. The original legislation should be consulted for definitive information.

project on the integrity of a Natura 2000 site, and the incorporation, where necessary, of measures to mitigate or avoid negative effects.

National Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts 1976 to 2018 and the Floral (Protection) Order 2015. Natural Heritage Areas (NHA) are areas that are considered to be important for the habitats present or for the species of plants and animals supported by those habitats. Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they were formally proposed for designation. Section 19(1) of the Act states that 'Where there is a subsisting natural heritage area order in respect of any land, no person shall carry out, or cause or permit to be carried out, on that land any works specified in the order or any works which are liable to destroy or to significantly alter, damage or interfere with the features by reason of which the designation order was made'.

In addition, a list of proposed NHAs (pNHAs) was published in 1995 but to date these have not had their status confirmed. Prior to statutory designation, pNHAs are subject to limited protection under various agri-environment and forestry schemes and under local authority planning strategies such as County Development Plans.

Regional Spatial and Economic Strategy – Northern and Western Regional Assembly

The relevant regional biodiversity policy objectives are set out in the following section:

RPO 5.5: *Ensure efficient and sustainable use of all our natural resources, including inland waterways, peatlands, and forests in a manner which ensures a healthy society a clean environment and there is no net contribution to biodiversity loss arising from development supported in this strategy. Conserve and protect designated areas and natural heritage areas. Conserve and protect European sites and their integrity.*

RPO 5.7: *Ensure that all plans, projects and activities requiring consent arising from the RSES are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate.*

Relevant Planning Policy

The planning policy and legislation that is relevant to the development.

Cork County Development Plan 2022-2028

The relevant planning policies as extracted from Volume 1 of the Cork County Development Plan (CDP) 2022-2028 are set out below:

Chapter 5 - Rural

County Development Plan Objective RP 5-22: Design and Landscaping of New Dwelling Houses and Replacement Dwellings in Rural Areas

Require the appropriate landscaping and screen planting of proposed developments by retention of existing on-site trees hedgerows, historic boundaries, and natural features using predominantly indigenous/local trees and plant species and groupings.

Chapter 14 - Green Infrastructure and Recreation

GI 14-1: Countywide Green and Blue Infrastructure Objectives

Seek to strengthen ecological linkages which watercourses have with other water dependent habitats as well as with hedges/treelines, woodland and scrub in the wider landscape.

GI 14-9: Landscape

Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.

Chapter 15 – Biodiversity and Environment

BE 15-2: Protect sites, habitats and species

Support and implement best practice in the management of roadside boundaries including tree lines and hedgerows managed by Council.

BE 15-5: Biodiversity on Council owned and managed land and property

Support and implement best practice in the management of roadside boundaries including tree lines and hedgerows managed by Council.

BE 15-6: Biodiversity and New Development

Encouraging the retention and integration of existing trees, hedgerows and other features of high natural value within new developments

BE 15-8: Trees and Woodlands

Where appropriate, to protect mature trees/groups of mature trees and mature hedgerows that are not formally protected under Tree Preservation Orders

Chapter 16 – Built and Cultural Heritage

HE 16-21 - Require the appropriate landscaping and screen planting of proposed developments by using predominantly indigenous/local species and groupings and protecting existing hedgerows and historic boundaries in rural areas. Protection of historical/commemorative trees will also be provided for.

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Appendix 5-B Site Photographs

Photograph 1: Drainage Ditch Flowing into Sall River



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Photograph 2: Settlement Lagoons (Closed Circuit)



Photograph 3: Improved Agricultural Grassland (GA1) Field On-Site



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Photograph 4: Treelines (WL2) Between Fields



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Appendix 5-C Species Protection Plan & Ecological Monitoring

The following Species Protection Plan (hereafter referred to as the “Plan”) has been developed and will be implemented over the lifetime of the pit including its restoration phase.

The Plan includes measures to ensure the avoidance of disturbance of breeding sites of the relevant species (specifically sand martins and amphibians) to ensure the continued occurrence of protected species at the site. No badger setts have been observed within the site. This will be kept under review as part of the annual ecological monitoring programme.

The Plan includes for monitoring of the site by a qualified ecologist. Provision for updating the Plan on an annual basis to address any findings in relation to other protected species at the site, which may arise over the lifetime of the development.

Sand Martins

Sand martins have been recorded within the site. They are present due to the suitable nesting habitat being created in the pit faces by the sand & gravel extraction process.

The following mitigation and management measures will be implemented by the Applicant to ensure protection for the sand martin population:

- Sand and gravel faces have been colonised in places by sand martins. If sand martins do colonise an operational area, then all work must cease on that face from 1st March – 31st August inclusive. Where these colonies are present, they should be left undisturbed until the breeding season concludes, and the chicks have fledged. Further excavation should be planned to commence outside of this period, and it is advisable to make any exposed faces where work is planned during the breeding season uninviting to the sand martins before they arrive, no later than early March, so that operations may continue without interruption.
- The following measures are recommended by the Royal Society for Protection of Birds (RSPB) for protection of sand martin using operational pits / quarries¹², and will be implemented for the proposed development:
 - o Before each nesting season - identify non-operational areas where suitable vertical faces can be provided to encourage sand martin colonisation.
 - o Before each nesting season – provide suitable sloping batters to operational areas where sand martin activity could hamper operations in order to make them less attractive for sand martins seeking nesting sites.
 - o Between March and April regularly check all operational faces for evidence of sand martin nesting, particularly after pit closures such as at Easter.
 - o Review sand martin activity to ensure that the risk of nesting sand martin disturbance is minimised. Although there is no specific exclusion distance it is critical that activities do not pose a threat to the sand martins or their nests.
 - o In addition to the effect of excavation any review should consider the effect of passing machinery to ensure that it does not cause damage through vibrations.

¹² CEMEX and RSPB Advisory Information – Sand Martins <https://www2.rspb.org.uk/globalassets/downloads/join-and-donate/celex-and-rspb-sand-martin-quarry-advice.pdf>

- o Clearly demarcate areas which should not be disturbed and routinely monitor activities, making changes to demarcated areas as necessary.
- o Ensure that all personnel are aware of the individual and company legal obligation to prevent harm.
- o Where, and if removal, of this habitat is required as part of the restoration works, these works will be carried out, outside the nesting season as described above. Suitable faces will be allowed to remain in place for sand martin after operations have ceased and restoration carried out. These faces will compensate for any loss of habitat during buffer restoration works.
- An annual breeding bird survey (including sand martins) will be carried out at the site by a qualified ecologist to monitor the sand martin and bird populations over the lifetime of the development, refer to Ecological Monitoring & Reporting section below.

Amphibians

The following mitigation and management measures will be implemented by the Applicant to ensure protection of any amphibian population within the pit area.:

- Existing natural surface water drainage ditches will be maintained and included in the annual survey.
- An annual amphibian survey will be carried out at the site to record the presence, if any, of amphibians within the site, refer to Ecological Monitoring & Reporting section below.
- Where the survey indicates the present of amphibians, these specific areas will be demarcated and protected from any disturbance during the key times of the year i.e. during the breeding season. If any of these specific areas need to be removed for operational reasons, then suitable alternative habitat within the site will be provided prior to any translocation programme being undertaken.

Ecological Monitoring & Reporting

The following ecological surveys will be undertaken by a qualified ecologist on an annual basis:

- Breeding bird survey (including sand martins)
- Amphibian survey
- General habitat survey (including update on current badger assessment which has observed no badger setts present within the site)

An Annual Ecological Monitoring Report will be submitted to the Cork Co. Council. This report will describe the survey work undertaken; the results of the surveys; review the species protection plan as outlined above and provide recommendations for any modifications required to the plan for the forthcoming year(s).

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Appendix 5-D Invasive Species Management Plan

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Invasive Species Management Plan Further Information Item 6c (P. Ref. 24/06269)

Kilmore, Brinny, Co. Cork

Keohane Readymix Ltd.

Ballygurteen, Co. Cork

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SLR Project No.: 501.0033.065499

25 April 2025

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	25 April 2025	Lorcan Kelly	Michael Bailey	T. Paul

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 **Keohane Readymix Ltd.** (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.

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Table of Contents

Basis of Report	i
Acronyms and Abbreviations	iv
1.0 Introduction	1
1.1 Background and Existing information	1
1.2 Legislative Background	1
1.2.1 Wildlife Acts, 1976 and subsequent amendments	1
1.2.2 European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015	1
1.3 Invasive Alien Species Management Plan: Purpose and Objectives.....	2
2.0 Methodology	3
2.1 Desk Study.....	3
2.2 Field Surveys	3
2.3 Limitations.....	3
3.0 Baseline Conditions.....	4
3.1 Desk Study Results	4
3.2 Field Survey Results	4
3.2.1 Buddleja.....	4
3.2.2 Winter Heliotrope.....	5
3.3 Characteristics of Species: <i>Buddleja davidii</i>	5
3.4 Characteristics of Species: <i>Petasites fragrans</i>	5
4.0 Potential Impacts.....	5
5.0 Invasive Alien Species: Monitoring & Management Requirements	6
5.1 General Biosecurity Measures.....	6
5.2 Monitoring – Survey Update	7
5.3 Control & Management.....	7
5.3.1 Competent Professional.....	7
5.3.2 Control Options: <i>Buddleja davidii</i>	7
5.3.3 Control Options: Winter heliotrope (<i>Petasites fragrans</i>)	8
5.4 Proposed Approach for Project Site.....	8
6.0 Conclusion.....	9
7.0 References.....	10

Tables in Text

Table 3-1: Non-native Floral Species within the 2 km Grid Square W55E	4
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Figures in Text

Figure 1: Locations of IAS within the Project Site B-1

Appendices

Appendix A Photographs

Appendix B Figures

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Acronyms and Abbreviations

IAS	Invasive Alien Species
ISMP	Invasive Species Management Plan
NBDC	National Biodiversity Data Centre
RFI	Request for Further Information

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1.0 Introduction

1.1 Background and Existing information

SLR Consulting Ireland (SLR) was commissioned by Keohane Readymix Ltd. to prepare a site-specific Invasive Species Management Plan (ISMP) proposed development at the existing sand & gravel pit Kilmore, Brinny, Co. Cork (hereafter, 'the Site'). This ISMP is in response to Item 6c of the request for further information (RFI), Plan File Ref. No. 24/06269, issued by Cork Co. Council in relation to the proposed development.

1.2 Legislative Background

The legislative framework governing the control of Invasive Alien Species (IAS) includes:

- Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000);
- European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015; and
- Planning and Development Acts, 2000 to 2015

The stipulations of the Wildlife Acts and the Birds and Natural Habitats Regulations are most pertinent. The relevant provisions are summarised hereunder.

1.2.1 Wildlife Acts, 1976 and subsequent amendments

Section 52(7)(c) of the Wildlife Act, 1976, as included by 56(d) of the Wildlife (Amendment) Act, 2000 reads as follows:

'Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, [“refers only to exotic species thereof”][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.’¹

1.2.2 European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015

Legal Status of Target Species

Part 1 of Third Schedule to SI No. 477/2011 (as amended) identifies the plant species subject to restrictions under Regulations 49 and 50 of the SI.

Part 3 of the same Schedule identifies vector materials which are subject to strict regulation. Part 3 relates to both plants and animals, but for plant species vector materials, which are defined, in the SI, as comprising:

*'Soil or spoil taken from places infested with Japanese knotweed (*Fallopia japonica*) Giant knotweed (*Fallopia sachalinensis*) or their hybrid Bohemian knotweed (*Fallopia x bohemica*)'*

are subject to regulation and control under the provisions of the SI.

Prohibition and Legal Sanction Pertaining to Target Species

Failure to comply with the legal requirements can result in either civil or criminal prosecution, with very severe penalties accruing. The relevant sections of SI No. 477/2011 (as amended) are set out below.

¹ See also, Section 52(8) of the Wildlife Act, 1976, as inserted by 56(d) of the Wildlife (Amendment) Act, 2000.



Regulation 49 comprises a prohibition on the introduction and dispersal of any plant species listed in Part 1 of the Third Schedule; paragraph (2) states:

'Save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow' scheduled plant species shall be guilty of an offence.'

Regulation 67 (paragraph 2) states that a person who commits an offence, under Regulation 49, is liable:

'(a) on summary conviction, to a Class A fine [“class A fine” means a fine not exceeding €5,000] or imprisonment for a term not exceeding six months, or both, or (b) on conviction on indictment, to a fine not exceeding €500,000, or imprisonment for a term not exceeding three years, or both.'

'Due Diligence'

Regulation 49 (paragraph 3) states:

'[...] it shall be a defence to a charge of committing an offence under paragraph [...] (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.'

As such, a Regulation 49 licence must be received from National Parks and Wildlife Service (NPWS) prior to moving any of the species listed under listed in Part 1 of the Third Schedule of SI No. 477/2011 (as amended).

1.3 Invasive Alien Species Management Plan: Purpose and Objectives

The purpose of this management plan is to ensure that invasive alien species (IAS) are eradicated from the land within the control of the developer and that further spread of these species, either within the site or to other locations, is prevented. In order to achieve this, all works will be undertaken in accordance with relevant best practice guidelines and legislation. The objectives of the management plan can be summarised as follows:

- To assess the best approach for the eradication and long-term management of any IAS found on the site.
- To adopt the best method of dealing with the IAS that prevents their further spread on the site.
- To design a long-term plan to manage any remaining IAS that might not be eradicated initially.
- To prevent the IAS cross contamination with non-impacted areas of the site.
- To prevent further spread of the IAS from the site to any other location.

This management plan will enable legislative compliance and will ensure use of contemporary best practice approaches to management specific to the target IAS species onsite.



2.0 Methodology

2.1 Desk Study

A search of the NBDC² website was carried out for any records of non-native invasive flora, particularly those listed in the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015). The search area encompassed the 2 km grid square W55E within which the proposed project site occurs.

2.2 Field Surveys

The initial site visit was undertaken on 15 October 2020 by SLR Ecologists Owen Twomey and Aisling Kinsella. The Site visit was carried out in mostly dry weather conditions with scattered showers. Temperature was 13°C and conditions were generally overcast with cloud cover of 6 oktas³. The objective of the site visit was to walk the Site to describe and evaluate the baseline ecology of the Site.

The Site was re-visited by SLR Ecologist Michael Bailey on 6 April 2022 to note any changes in habitat or utilisation of the site by fauna since the initial survey. The survey was conducted in dry weather conditions with intermittent cloud cover, some sunny spells, temperature of 15°C and a gentle breeze.

An additional Site visit was undertaken on 31 March 2025 by SLR Ecologist Lorcan Kelly. The Site survey was undertaken under dry conditions. Temperature was 12°C, wind speed was 3 Beaufort, and cloud cover of 1/8 oktas. The objective of the survey was to record any invasive alien species within the confines of the Site.

2.3 Limitations

Desk study data is unlikely to be exhaustive, especially in respect of non-native invasive species, and is intended mainly to set a context for the study. It is therefore possible that important non-native invasive 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 carried out 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.

Areas of the Site located to the west and north of the lagoon were not accessed. These areas were observed using binoculars.

The invasive species survey was undertaken on the last day of March, which is at the start of the optimal survey season of April - September.

² <https://biodiversityireland.ie/> (last accessed 12 March 2026)

³ Cloud amount is reported in oktas or eighths. Okta is a unit used in expressing the extent of cloud cover, equal to one eighth of the sky. <https://www.metoffice.gov.uk/guide/weather/observations-guide/how-we-measure-cloud> (last accessed 12 March 2026)



3.0 Baseline Conditions

3.1 Desk Study Results

A search of the NBDC website returned records of three non-native flora species within the 2km grid square W55E, within which the Site occurs. A summary of these records is shown in Table 3-1.

Table 3-1: Non-native Floral Species within the 2 km Grid Square W55E

Species	Date of Last Record	No. of Records	Impact	Third Schedule?	Dataset
Spanish bluebell <i>Hyacinthoides hispanica</i>	22/04/2021	1	N/A	Y	Vascular Plants: Online Atlas of Vascular Plants 2012 Onwards
Sycamore <i>Acer pseudoplatanus</i>	01/10/2009	1	Medium	Y	River Biologist's Database (EPA)
Traveller's-joy <i>Clematis vitalba</i>	22/04/2021	1	Medium	N	Vascular Plants: Online Atlas of Vascular Plants 2012 Onwards

3.2 Field Survey Results

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011, (as amended) were recorded within the Site.

Two non-regulated invasive species were recorded within the Site:

- Buddleja (*Buddleja davidii*), and
- Winter heliotrope (*Petasites pyrenaicus*)

These species had localised distribution within the Site, primarily to the southern area of woodland and riparian habitat (see Figure 1 in Appendix B).

3.2.1 Buddleja

A small area of *Buddleja davidii* was recorded growing on a berm located along the northern section of the existing sand and gravel pit (Area 1). This area had ca. 10% cover of Buddleja.

One individual plant was recorded between the existing storage sheds to the south of the sand and gravel pit (area 2).

Five plants were recorded behind one of the existing storage sheds (area 3).

Buddleja was recorded within the riparian area bordering the central southern track leading from the sand and gravel pit towards the river (area 4). This area had ca. 20% cover of Buddleja.

Buddleja was recorded on a small, vegetated mound along the southern track (area 5) with cover of ca. 5%.

An area of woodland edge habitat along the southern track (area 6) has ca. 15% cover of Buddleja. There were no plants noted further into the woodland.



Buddleja was recorded within the riparian zone of the northern bank of the River Brinny (area 7). This area had ca. 5% cover of Buddleja.

3.2.2 Winter Heliotrope

Winter heliotrope was recorded along a woodland edge located to the south of the existing sand and gravel pit (area 4). This area had ca. 10% cover of winter heliotrope.

Multiple stands of winter heliotrope were also recorded along the western woodland edge of the track to the south of the sand and gravel pit (area 5). This area had ca. 30% cover of winter heliotrope.

A mound located along the same track (area 6) had ca. 75% cover of winter heliotrope.

The species was also recorded within the riparian zone of the northern bank of the River Brinny (area 7). This area had ca. 10% cover of winter heliotrope.

3.3 Characteristics of Species: *Buddleja davidii*

Buddleja (Buddleja davidii) is a small, multi-stemmed, fast-growing tree can grow up to 5 m. The species can display a wide range of phenotypes, however wild specimens commonly display lilac and purple flowers which comprise long pyramidal panicles (see Photographs 1 - 3 in **Appendix A**). It can reproduce asexually through stem and root fragments.

Buddleja davidii was first introduced as an ornamental species which has since escaped confinement and was first reported in the wild in 1957. It has since established itself in Ireland and is considered widespread and common. It can grow in a wide range of conditions and often establishes itself in disturbed areas or natural areas such as riparian zones, transport corridors and clear-cut forests.

3.4 Characteristics of Species: *Petasites fragrans*

Winter heliotrope (*Petasites fragrans*) is a short, hairy, herbaceous perennial which has heart-shaped leaves that persist in winter and can form dense stands (see Photographs 4 - 6 in **Appendix A**). Flowers are white to lilac, but plant reproduces vegetatively as only male plants are known to be found in Britain and Ireland.

The species was originally planted for use as ground cover or a winter food plant for pollinators but has since spread widely. Can establish stands within artificial or constructed habitats, woodland and forested land.

4.0 Potential Impacts

No precise studies have been conducted on the level of impact of Buddleja; however, the species is known to form monocultures. This has the potential to prevent growth and regeneration of native species, displace primary colonisers, and shade out ground flora. It may also outcompete native species for pollination by drawing in pollinators that would otherwise visit native species, which may lead to a decline in native species. Where Buddleja has become established along watercourses, plants are frequently washed away due to their shallow root system which results in erosion of riverbanks and downstream blockages.

Winter heliotrope can form large, dense monocultures which exclude native vegetation by shading out light.



5.0 Invasive Alien Species: Monitoring & Management Requirements

The law regulating the management of IAS includes:

- Use of Plant Protection Products legislation;
- Waste Management Acts, 1996 to 2013, and related legislation;
- Health and Safety legislation; and,
- European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015.

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011, (as amended) was recorded within the Site. General biosecurity measures to prevent the introduction and potential spread of IAS have been included in this report.

There is currently no legal requirement to manage Buddleja or winter heliotrope, however, general guidelines for the control and management of each species have also been included below.

5.1 General Biosecurity Measures

To prevent the introduction and potential spread of IAS beyond the working areas or outside of the proposed project site, the following biosecurity protocol shall be adopted at all times throughout the construction process in the affected areas.

Awareness

- Prior to working on the Site, all contractors will be briefed on the presence of existing IAS on Site, will be provided with information on identification, will be informed of the need to prevent further spread of invasive species, and will be provided with details of the biosecurity protocol.
- Any additional positive or suspected identification of invasive non-native species during Site works shall be reported to an ecologist for verification, and so that appropriate management advice can be given.

Soil Management

- Soil from the affected areas will be kept within the same area and will not be moved. Care will be taken to avoid disturbing soil (containing invasive plants or their seeds) from the Site. There will be no export of soil off-site as part of the proposed development.

Machinery

- Any vehicles or equipment that have been working in affected areas will be inspected and cleaned down before being moved from within the affected areas, or off Site, and all soil and plant debris removed. Cleaning operations will take place in a designated area to prevent further spread.
- Mud and organic debris will not be allowed to accumulate on tracks, tyres or under wheel arches.



Personnel

- Personnel working in the affected area shall check and clean their footwear and tools each day before leaving the area to work on other Sites, or other parts of the Site.

5.2 Monitoring – Survey Update

Given that invasive non-native species tend to spread and change distribution rapidly, an updated site survey should be carried out annually to map the potential spread of existing IAS within the Site and also search for potential IAS that may have colonised the Site in the time since the previous survey.

This updated surveys for invasive species should be undertaken within the growing season of April – September. This will further inform whether control and biosecurity measures are required in any additional areas to those already identified within this document.

The results of any updated survey will be incorporated into the annual Ecological Monitoring Report, as detailed in the site specific Environmental Management System – EMS (refer to response under Further Information Item 5 a).

5.3 Control & Management

As noted above, there is no legal requirement to manage *Buddleja davidii* or winter heliotrope (*Petasites pyrenaicus*).

5.3.1 Competent Professional

An ecologist or horticulturalist with experience in the identification and removal of IAS should be employed to carry out the manual removal of the IAS (TII, 2020) as mapped in Error! Reference source not found., **Appendix B**.

5.3.2 Control Options: *Buddleja davidii*

5.3.2.1 Physical Control

Physical control of *Buddleja* may be suitable for minor infestations at the initial stage of invasion. Digging out or hand-picking of young plants should be carried out with care to avoid soil disturbance which can give rise to new seedlings. The ground should be planted following uprooting to prevent a flush of seedling growth. Where removal of mature plants is not feasible in the short term, flower heads should be cut off in June before seed set. Mature plants should have their stems cut and roots grubbed out using mechanical digger or excavator. All cut plant material should be chipped and either buried on-site or disposed of at a licensed green waste facility. Regular follow-ups to deal with re-growth of seedlings resulting from soil exposure will be necessary.

5.3.2.2 Chemical Control

Recommended practice for the application of herbicides requires cutting back of plants to a basal stump during active growth (late summer/ early spring) which is then immediately treated with a systemic weed killer mix. However, it should be noted that all Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label. As these methods are not in accordance with the product label, it would be necessary to discuss the use of such methods with the Pesticides Control Service with a view to seeking approval under the derogation procedures provided under the Plant Protection Regulations.



5.3.3 Control Options: Winter heliotrope (*Petasites fragrans*)

5.3.3.1 Physical Control

Physical removal of winter heliotrope is only considered practical on a limited scale. Where mechanical means can be employed, it should be possible to deal with larger infestations through a combination of excavation with follow-up treatment with herbicides. All cut plant material should be chipped and either buried on-site or disposed of at a licensed green waste facility.

5.3.3.2 Chemical Control

Winter heliotrope infestations can be treated with herbicide during the active growing season. Follow-up treatments will be required for further re-growth from rhizome fragments.

Note that all Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003).

5.4 Proposed Approach for Project Site

It is recommended that an updated invasive species survey should be carried out annually to obtain updated information regarding the location of all IAS on Site. This will continue guide the most suitable management approach within different areas of the Site.

There is no legal requirement to manage *Buddleja davidii* or winter heliotrope, however there is benefit to controlling their spread, particularly within worked areas of the Site where interactions with these IAS are likely. Due to the presence of waterbodies within the Site and adjacent lands, physical control methods are preferred.

Unworked areas of the Site where IAS have been recorded should be demarcated as such and appropriate signage and fencing should be implemented to prevent further interactions and spread.

In worked areas within the Site where IAS have been recorded (area 1), they should be controlled using physical methods outlined in Section 5.3 above.

The site will be monitored after control measures have been implemented and monitoring will take place again in the subsequent years following treatment. Any re-growth of *Buddleja* or winter heliotrope (or any other invasive species subsequently identified) within the worked areas of the Site will be suitably treated using the methods detailed in this report.



6.0 Conclusion

This Invasive Species Management Plan has been prepared for the proposed development within the existing sand & gravel pit (P. Ref. 24/06269) at Kilmore, Brinny, Co. Cork.

This management plan outlines measures to monitor, control and manage the spread of Buddleja and winter heliotrope. The physical control measures put forward in this management plan present the preferred option for managing any non-native invasive floral species found on the site. Monitoring and control measures will be implemented by a suitably qualified and experienced ecologist.



7.0 References

Invasive Species Northern Ireland:⁴ Butterfly bush

National Biodiversity Data Centre⁵: *Buddleja davidii* Species Profile

National Biodiversity Data Centre: *Petasites fragrans* Winter Heliotrope Species Profile

National Roads Authority (2010) The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads NRA, 2010.

⁴ <https://invasivespeciesni.co.uk/> (accessed March 2025)

⁵ <https://species.biodiversityireland.ie/profile.php?taxonId=40247&taxonGroupName=Flowering%20plant&taxonDesignationGroupId=26> (accessed March 2025)



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Appendix A Photographs

Photograph 1: Buddleja plants on a berm to the north of the existing sand and gravel pit (Area 1; Photograph taken facing west)



Photograph 2: Single Buddleja plant between storage sheds (Area 2; Photograph taken facing northeast)



Photograph 3: Stand of Buddleja within woodland edge habitat (eastern edge of Area 6; Photograph taken facing north)



Photograph 4: Stand of winter heliotrope growing on a mound next to area of woodland (Area 6; Photograph taken facing south)



Photograph 5: Stand of winter heliotrope growing on a mound along woodland edge (Area 5; Photograph taken facing southwest)



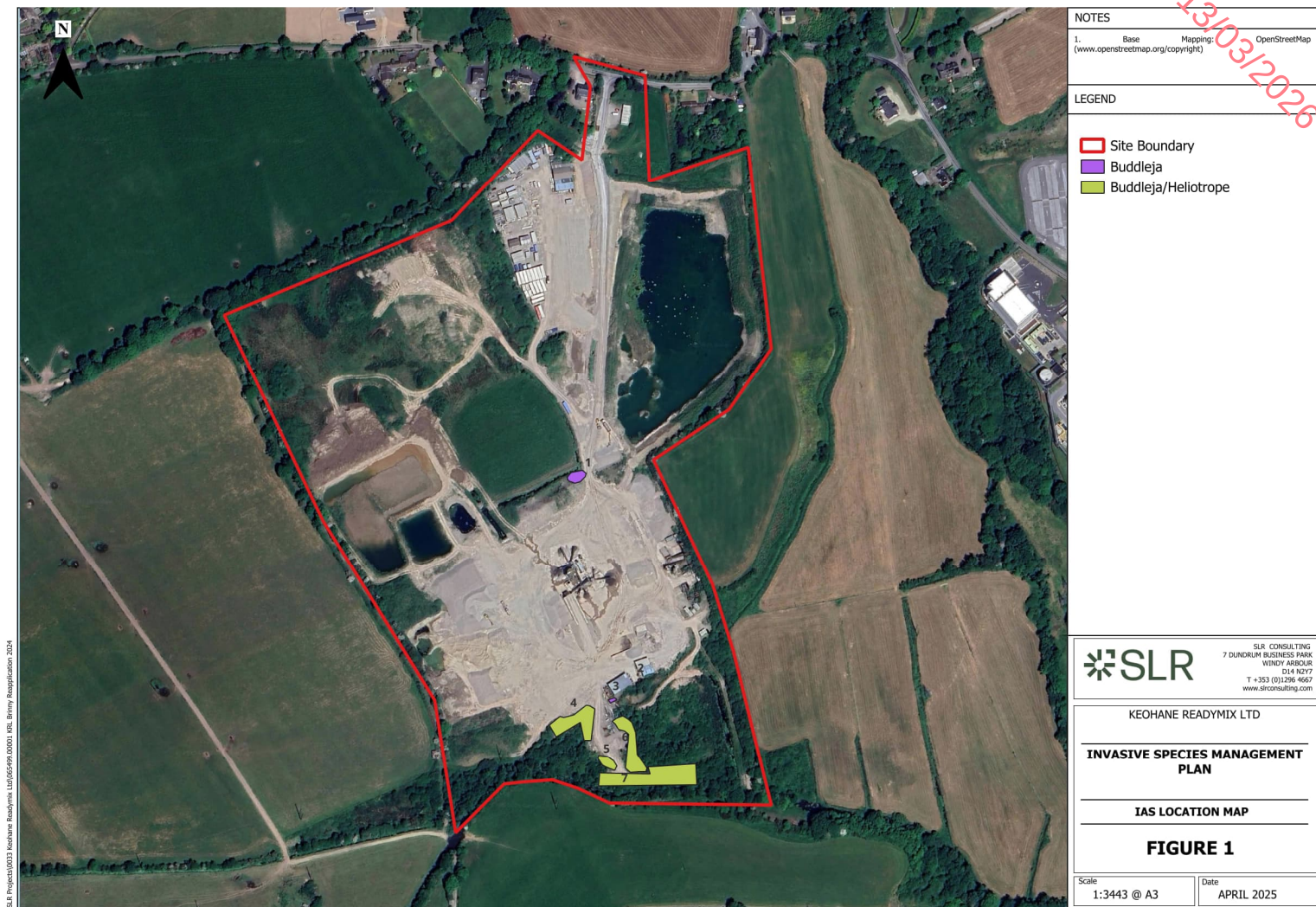
Photograph 6: Stand of winter heliotrope (left of photograph) growing along woodland edge (Area 4; Photograph taken facing south)



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Appendix B Figures

Figure 1: Locations of IAS within the Project Site



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