CHAPTER 6

BIODIVERSITY

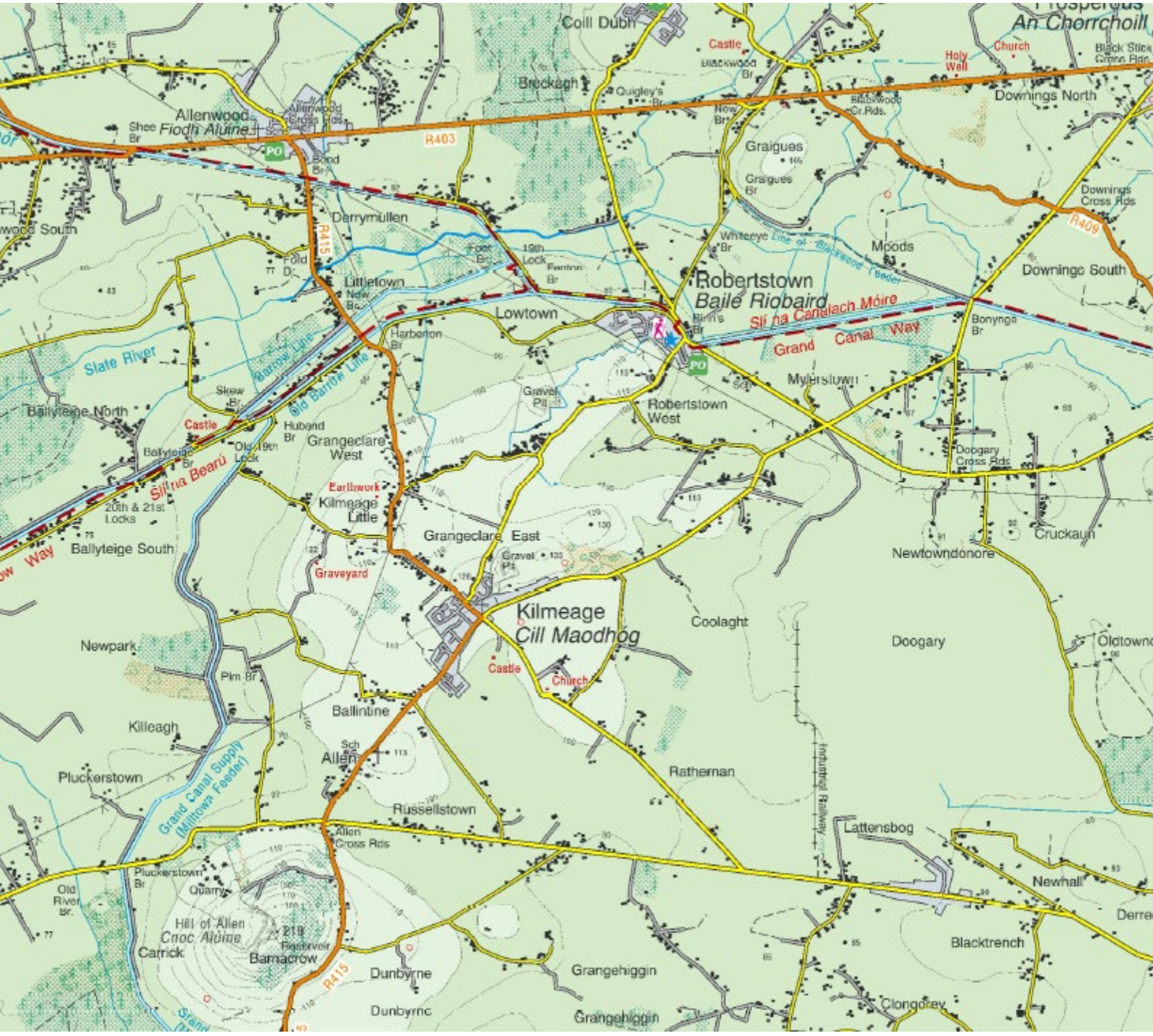

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Table of Contents

CHAPTER 6 BIODIVERSITY

Introduction

Background

6.1 This chapter provides an Ecological Impact Assessment (EcIA) undertaken by Green and Blue Ecology acting on behalf of Quarry Consulting to inform the wider Environmental Impact Assessment (EIA) process and preparation of the Environmental Impact Assessment Report (EIAR) on the likely significant impacts on biodiversity from the proposed development of a sand & gravel pit and soil recovery facility in the townland of Coolaght near Kilmeague, Co, Kildare (please refer to Figure 6.1).

Purpose of the Ecological Impact Assessment

6.2 The EcIA can be considered as having three main purposes:

- to provide an objective and transparent assessment of the ecological effects of the proposed development and the implications on biodiversity;
- to permit objective and transparent determination of the consequences of the proposed development in terms of national, regional and local policies relevant to nature conservation and biodiversity; and
- to demonstrate that the proposed development will meet the legal requirements relating to habitats and species.

6.3 This EcIA has been undertaken in accordance with the guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1] '*the CIEEM EcIA Guidelines'* and with respect to the Environmental Protection Agency's (EPA) guidelines for carrying out Environmental Impact Assessment Reports[2].

6.4 The assessment follows a standard approach based upon: the description of the existing baseline conditions within the application site; the determination of important ecological features; and the identification of all potentially significant ecological effects from the proposed development of a sand & gravel pit and soil recovery facility at Coolaght. The assessment also considers the likelihood of any cumulative effects, i.e. those resulting from the proposed development and other plans or projects on relevant ecological features.

6.5 Where a negative impact has been identified, suitable mitigation measures to prevent, reduce or offset the level of impact are provided, or where mitigation is not possible, enhancement and compensation measures are detailed to ensure compliance with nature conservation legislation and to address any potentially significant effects on biodiversity.

6.6 Where appropriate this Chapter also identifies how mitigation, enhancement and compensation measures will / could be delivered along with the requirements for post-construction monitoring, maintenance or management.

[1] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial , Freshwater and Coastal and Marine*. Version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

[2] Environmental Protection Agency (2022). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*. Environmental Protection Agency. Johnstown Castle Estate, Co. Wexford.

6.7 Any residual effects arising, following implementation of mitigation and enhancement measures, are then identified and assessed, with any significant effects clearly described.

Legislative and Policy Context

Legislation

6.8 Relevant legislation underpinning the conservation of designated sites, habitats and species is summarised in Table 6.1.

Table 6.1: Criteria for the Evaluation of Ecological Features

Legislation	Description
The Wildlife Act 1976 (as amended)	The Wildlife Act is the primary legislation in Ireland which protects animals, birds, plants and their habitats. It also allows the designation of Natural Heritage Areas (NHA) and statutory Nature Reserves and the regulation of hunting and controls in wildlife trading.
The Flora (Protection) Order 2022	The Flora (Protection) Order 2022 provides statutory protection to a number of rare plant species in Ireland from being wilfully cut, picked uprooted or damaged or part of the plants removed.
European Communities (Birds and Natural Habitats) Regulations 2011 (as amended)	The European Communities (Birds and Natural Habitats) Regulations 2011 transpose into national law European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) and Directive 2009/147/EC on the Conservation of Wild Birds (The Birds Directive) that provides for the designation and protection of *'European sites*' including Special Areas of Conservation (SAC) and Special Protection Area (SPA), the protection of *'European Protected Species*', and the adaptation of planning and other controls for the protection of European Sites. The regulations introduce a review procedure for plans and projects likely to significantly affect a European site, and licensing requirements for developments that may affect a European protected species

Planning Policy

National

6.9 The National Development Plan 2021-2030 sets out the infrastructure and investment priorities that underpin the implementation of the National Planning Framework. The National Development Plan details the main investment projects, programmes and priorities in Ireland during the lifetime of the Plan.

6.10 The National Planning Framework contains a set of national objectives and key principles as a framework to guide development and investment by empowering each region to lead in the sustainable planning and development of their communities.

Regional

6.11 The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the long-term spatial planning strategy for the Eastern and Midland

Region, covering the counties of Longford, Westmeath, Offaly, Laois, Louth, Meath, Kildare, Wicklow, Fingal, south Dublin and Dun Laoghaire-Rathdown and for Dublin City.

Local

6.12 Planning policy at the local level is provided by the Kildare County Development Plan 2023-2029 adopted on 9th December 2022. The Kildare County Development Plan contains a number of policies relevant to biodiversity that are summarised at Appendix 6A.

Biodiversity Planning

6.13 Ireland's National Biodiversity Plan 2023-2030[3] identifies actions towards understanding and protecting biodiversity in Ireland with the vision "*that biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally*".

6.14 Local Biodiversity Action Plans have been produced by some County Councils, among them the County Kildare Biodiversity Plan 2009-2014, which identify programmes of action to protect and enhance biodiversity at a local level.

Assessment Methodology and Significance Criteria

Area of Study

6.15 The area of study was defined on a spatial scale at which ecological features could be affected by the proposed development of a sand & gravel pit and soil recovery facility at Coolaght. This included all the land lying within the application site as well as ecologically sensitive features within the wider surrounding area with the potential to be directly or indirectly affected by the development.

6.16 Based on size and nature of the proposed development and the local landscape it is considered that the maximum extent of any potential zone of influence over which ecological features may be affected by biophysical changes as a result of the proposed development and associated activities would not extend beyond 2km from the boundary of the application site.

Establishing Baseline Ecological Conditions

6.17 Baseline ecological data was collated through a combination of desk-based studies and field survey consistent with current standard methodologies and published guidelines. The scope of the ecological field surveys was defined on the basis of known and potential ecological interest within the area of study, and best practice[4].

6.18 Table 6.2 provides a summary of the ecological scope of works and the methods used to establish the ecological baseline conditions within the study area.

6.19 Over and above the scope of works in Table 6.2, it was deemed that no other specialist surveys were necessary in respect to the habitats present at the application site and their potential to support protected species.

[3] National Parks and Wildlife Service (2023). Ireland's 4th *National Biodiversity Plan 2023-2030*. Government of Ireland.

[4] Institute of Environmental Assessment (1995). *Guidelines for Baseline Ecological Assessment*. Chapman and Hall (E & F N Spon), London.

Table 6.2: Ecological Scope of Works and Methodologies

Study / Survey	Scope of Works	Study Area	Methodology
Desk-based study	Statutory and non-statutory designated sites	All sites within a 2km radius of the application site	Web-search including the National Parks and Wildlife Service (NPWS) interactive mapping facility (https://www.npws.ie).
	Protected, rare and notable species	2km grid squares encompassing the application site (grid square N72W).	Web-search including information held by the NPWS and the National Biodiversity Data Centre (NBDC) (https://www.biodiversityireland.ie) on 5th April 2023 and reviewed on 26th July 2023.
Habitat Survey	To record and classify the habitat types and appraise on the likely presence / absence of protected species	Application site	Initial site visit and walkover survey by Steve Judge MCIEEM of Green & Blue Ecology on 6th April 2023. Standard approach to the classification and mapping of habitats in accordance with Fossitt (2000)[5] to Level 3 and target notes where applicable to describe any feature of particular ecological interest. Extension of Habitat Survey method to include an assessment of habitats for evidence of, or their potential to support protected, rare or notable species (including mammals, birds, reptiles, amphibians and invertebrates) and any other important ecological feature that may require mitigation or an ecologically sensitive design in respect of the proposed development.

Uncertainty of Data and Limitations

6.20 The lack of evidence of any one particular protected species does not necessarily preclude its presence at the site either at this current time or in the future. It is considered however, that the timing of the site visit was suitable for protected species and their habitat-based assessment, as most species would have been active during this time and provided evidence of their presence.

[5] Fossitt, J.A. (2000). *A Guide to Habitats in Ireland*. Reprint 2007. The Heritage Council, Kilkenny, Ireland.

Assessment Methodology

Determining Ecological Importance

6.21 In accordance with the CIEEM guidelines only ecological features (habitats, species, ecosystems and their functions/processes), which are considered to be important and potentially affected by the project should be subject to detailed assessment. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable.

6.22 CIEEM suggest that to ensure a consistency of approach, ecological features (designated sites, habitats and species) are valued in accordance with their geographical frame of reference. For the purpose of this assessment the geographical frame of reference defined by Transport Infrastructure Ireland[6] has been used, as detailed below:

- International;
- National;
- County;
- Local (higher); and
- Local (lower).

6.23 Some features can already be recognised as having ecological value, for example they may be designated as statutory or non-statutory nature conservation sites. Other ecological features may require an evaluation based upon their previously un-assessed biodiversity value and professional judgement. A summary of the criteria used in the evaluation of designated sites, habitats and species is provided in Table 6.3.

Table 6.3: Criteria for the Evaluation of Ecological Features

Value	Criteria
International	An internationally designated site or proposed site including SAC, Site of Community Importance (SCI), SPA, or Ramsar site, or an area which has been determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. World Heritage Sites, where the ecological feature assessed is an intrinsic part of the natural heritage value that led to the designation. An intrinsic part of the core area of a designated Biosphere Reserve. Undesignated sites containing 'best examples' of Annex I habitats under the EU Habitats Directive. Major designated salmonid waters. A resident or regularly occurring population of an internationally important bird species listed in Annex I and/or referred to in Article 4(2) of the EU Birds Directive and/or a species of animal or plant listed in Annex II and/or IV of the EU Habitats Directive and which is threatened or rare in and which is threatened or rare in Ireland or of uncertain conservation status or of global conservation in the

[6] NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. Revision 2. National Roads Authority, Dublin.

Value	Criteria
	National Biodiversity Plan. A resident or regularly occurring nationally significant population or of any internationally important species representing greater than 1% of its international population.
National	A nationally designated site or proposed as a National Heritage Area (NHA) or statutory Nature Reserve or Refuge for Flora and Fauna, or an area fulfilling the criteria for designations, irrespective of whether or not it has yet been notified. Undesignated sites containing good examples and viable areas of Annex I habitats under the EU Habitats Directive. A resident or regularly occurring population (>1% of the national population) of a nationally important species which is protected under the Wildlife Acts as amended or listed on a relevant Red Data list.
County	Areas identified as Areas of Special Amenity, subject to a Tree Preservation Order or Area of High Amenity where designated on the basis of their ecological value. Site containing area or areas of habitat types listed in Annex I of the EU Habitats Directive that do not fulfil the criteria for valuation of International or National importance. A resident or regularly occurring locally significant population (>1% of the county population) assessed of importance of a county important species and/or a species protected under the Wildlife Acts or listed in Annex I of the EU Birds Directive, Annex II and/or IV of the EU Habitats Directive or on a relevant Red Data list assessed to be important at County level. County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified within the NBP and/or Local Biodiversity Action Plan. Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local (higher)	Locally important populations of priority species or habitats or natural heritage features identified in any Local Biodiversity Action Plan. A resident or regularly occurring locally significant population (>1% of the local population) and/or a species protected under the Wildlife Acts or listed in Annex I of the EU Birds Directive, Annex II and/or IV of the EU Habitats Directive or on a relevant Red Data list assessed to be important at the Local level. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality. Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
Local (lower)	Sites containing small areas of semi-natural habitat or features that are of some local importance for wildlife.

6.24 The assessment of potential ecological impacts has been carried out in accordance with the guidelines published by CIEEM and EPA and be summarised as:

- the identification of the range of potential impacts that may arise from the proposed development;
- the consideration of the systems and processes in place to avoid, reduce and mitigate the possible effects of these impacts;
- the identification of opportunities for ecological enhancement within the development;
- an assessment of the residual impacts, following consideration for the implementation of avoidance, mitigation and enhancement measures; and
- where necessary the identification of compensation required to offset any residual effects.

6.25 Table 6.4 provides a summary of the criteria used to evaluate the residual impacts and assess the significance of any such impact.

Table 6.4: Key Considerations when Characterising Impacts

Value	Criteria
Direction of impact	Positive (a change that improves the quality of the environment) or Negative (a change which reduces the quality of the environment)
Probability of occurring	Broadly defined on 4 levels: Certain (95% chance or higher), Probable (above 50% but below 95%), Unlikely (above 5% but less than 50%) and extremely unlikely (less than 5%)
Magnitude	Size, amount, intensity and volume of any impact on any particular feature including any severity of effect, based on EPA's guidance, as imperceptible, slight, moderate, significant and profound.
Duration	Effects may be described, based on EPA's measures, as short (1 to 7 year), medium (7 to 15 years) or long-term (15 to 60 years) and permanent or temporary in ecological terms (e.g. within the lifetime of the species affected).
Frequency of timing	The number of times an activity will occur and timing of an activity
Reversibility	Whether or not the effect can be reversed from spontaneous recovery or which may be counteracted by mitigation within a reasonable timescale

6.26 Impacts are defined as being negative or positive. The term '*significant*' is independent of the value of the receptor. A significant impact is defined as an impact on the integrity of a defined ecosystem, and/or an action that undermines the conservation objectives (either specific or broad) of an important ecological feature.

6.27 Where a potential negative impact has been identified, mitigation, enhancement and/or compensatory measures have been formulated using best practice techniques and guidance to prevent, reduce or offset a significant effect. The degree of confidence in the

likely success of mitigation or compensation, based upon published studies and the experience of the assessor, is also made and any uncertainties are clearly expressed.

6.28 The final part of the assessment is to determine the significance of the residual ecological impacts of the proposed development and also describe the implications of these operations from a legal perspective.

Avoidance, Mitigation, Compensation and Enhancement

6.29 A sequential process has been adopted to avoid, mitigate and compensate for ecological impacts. This is often referred to as the 'mitigation hierarchy'.

6.30 It is important for the EIAR 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.

Assessment of Cumulative Impacts

6.31 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a particular location. This EcIA assesses the potential cumulative impacts from the proposed development with other projects which could include:

- 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.

Baseline Conditions

6.32 This section provides an overview of the existing ecological baseline conditions at the application site of the proposed sand & gravel pit and soil recovery facility at Coolaght and within the wider surrounding environment.

General Site Description

6.33 The site is located in the townland of Coolaght, Kilmeague, Co. Kildare, situated approximately 900m northeast of the centre of Kilmeague village. The site is 8.8km north of Newbridge and 11km northwest of Naas (see Planning Drawing 1).

6.34 The application site for the sand & gravel pit covers 13.2 hectares (ha) with a proposed extraction area of 8.65 ha. The application site comprises blocks of mixed plantation woodland that was planted between 2002 and 2004 on former agricultural land.

6.35 The surrounding landscape is characterised by mixed agricultural land comprised of relatively large fields with hedgerow / treeline boundaries and interspersed by small blocks of woodland and remnant raised bogs. The Grand Canal provides a significant landscape feature to the north and west of the application site. The largest local urban population is the village of Kilmeague with other smaller rural settlements and dispersed properties scatter along the roads and lanes that cross this area.

Designated Sites

6.36 The application site is not subject to any statutory or non-statutory nature conservation designations (SAC, SPA, NHA, Nature Reserve or pNHA).

6.37 Within a 2km radius of the application site there is one designated site, namely the Grand Canal pNHA. The location of this non-statutory designated site in relation to the application site is shown in Figure 6.1-and its summary details presented in Table 6.5.

Table 6.5: Designated Sites

Designated Site	Reason for Importance / Designation	Location Relative to Application Site at Closest Point	Level of Value
Grand Canal pNHA [site code 002104]	The Royal Canal is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. The Grand Canal pNHA comprises the canal channel and the banks on either side of it. The canal supports important habitats such as hedgerows, tall herbs, calcareous grassland, reef fringe, open water, scrub and woodland. Diverse ranges of species use the site including the Annex II species such as otter (*Lutra lutra*) and white-clawed crayfish (*Austropotamobius pallipes*).	1.32 km north northeast	National

Habitats

6.38 The habitat types recorded within the application site based on the classification as defined by Fossitt (2000) are presented in Table 6.6.

Table 6.6: Habitat Types Recorded in the Application Site

Level 1 Habitat Hierarchy	Level 2 Habitat Hierarchy	Level 3 Habitat Hierarchy	Area / Length
G-- Grassland and marsh	GA – Improved grassland	GA1 - Improved agricultural grassland	0.04ha
	GS – Semi-natural grassland	GS2 – Dry meadows and grassy verges	0.80ha
W – Woodland and scrub	WN – Semi-natural woodland	WN2 – Oak-ash-hazel woodland	0.06ha
	WD – Highly modified non-native woodland	WD1 – (Mixed) broadleaved woodland	10.02ha
		WD4 – Conifer plantation	1.52ha
	WS – Scrub / transitional woodland	WS1 – Scrub	0.31ha
	WL – Linear woodland / scrub	WL1 - Hedgerows	424m
E – Exposed rock and disturbed ground	ED – Disturbed ground	ED3 – Recolonising bare ground	0.25ha
B – Cultivated and built land	BL – Built land	BL3 – Buildings and artificial surfaces	0.20ha

6.39 Figure 6.2 shows the location and extent of the habitats recorded at the application site and important habitats and other features identified immediately adjacent the application site. A summary description and ecological evaluation of each habitat and other key features is provided in Table 6.7.

Table 6.7: Description and Evaluation of Habitats and Other Features

Habitat Feature	Description	Location	Level of Value	Rationale
Grassland and Marsh				
GA1 - Improved agricultural grassland	*GA1 – Improved agricultural grassland* is present in a field located adjacent the site entrance with a sward dominated by Perennial rye-grass (*Lolium perenne*) with some red clover (*Trifolium pratense*) and Dandelion *(Taraxacum officinale agg.*) also present.	Application site	Local (lower)	A common and widespread habitat comprising with little botanical interest and low ecological and nature conservation value.
GS2 – Dry meadows and grassy verges	*GS4 - Dry meadows and grassy verges* habitat is found in areas unplanted with trees, i.e. under a 33kV powerline, and typically forms a mosaic with, and evidence of transition to *WS1 – Scrub* dominated by Bramble (*Rubus fruticosus* agg.). The grassland sward is dominated Cock's-foot (*Dactylis glomerata*) and Yorkshire-fog (*Holcus lanatus*) with some Sweet Vernal-grass (*Anthoxanthum odoratum*) also locally present. The herbaceous component includes: Daisy (*Bellis perennis*), Rosebay Willowherb (*Chamerion angustifolium*), Creeping Thistle (*Cirsium arvense*) Spear Thistle (*Cirsium vulgare*), Hogweed (*Heracleum sphondylium*), Ribwort Plantain (*Plantago lanceolata*), Creeping Buttercup (*Ranunculus repens*), Common Sorrel (*Rumex acetosa*), Broad-leaved Dock (*Rumex obtusifolius*), White Clover (*Trifolium repens*), Red Clover (*Trifolium pratense*) and Common Nettle (*Urtica dioica*). Bracken (*Pteridium aquilinum*) is locally frequent along with the Springy Turf-moss (*Rhytidiadelphus squarrosus*).	Application site	Local (lower)	A typically common and widespread habitat comprising rank grassland with little botanical interest and generally of low ecological and nature conservation value. Due to the size, extend and fragmentation of this habitat it provides limited opportunities for wildlife.

Habitat Feature	Description	Location	Level of Value	Rationale
Woodland and Scrub				
WN2 – Oak-ash-hazel woodland	A narrow strip of *WN2 – Oak-ash-hazel woodland* habitat is present along the north- eastern edge of the application site and which extends along its northern edge dominated by Hazel (*Corylus avellana*) historically coppiced with Elder (*Sambucus nigra*) and Hawthorn (*Crataegus monogyna*) also present. The ground flora is dominated by a carpet of Bluebell (*Hyacinthoides non-scripta*) with Lords and Ladies (*Arum maculatum*), Lesser Celandine (*Ficaria verna*), Wood Avens (*Geum urbanum*), Ground-ivy (*Glechoma hederacea*), Ivy (Hedera Hibernica), Wood Dock (*Rumex sanguineus*), and Primrose (*Primula vulgaris*) also present as well as Male Fern (*Dryopteris filix-mas*) and Swan's-neck Thyme-moss (*Mnium hornum*).	Application site and along its northern boundary	Local (higher)	A typically common and widespread native woodland listed as being important in the County Kildare BAP. Although the woodland habitat does not have any mature or semi-mature canopy trees it supports a good diversity of ground flora associated with this habitat-type.
WD1 – (Mixed) broadleaved woodland	*WD1 (Mixed) broadleaved woodland* is present across much of the application site ranging in age from 20-25 years old. The woodland planting is typically dominated by Ash (*Fraxinus excelsior*), most of which exhibit signs of infection from *Hymenoscyphus fraxineus*, but with varying amounts of other broadleaved species including: Sycamore (*Acer pseudoplatanus*), Silver Birch (*Betula pendula*), Beech (*Fagus sylvatica*) and Pedunculate Oak (*Quercus robur*). Coniferous species present include: European Larch (*Larix decidua*), Scot's Pine (*Pinus sylvestris*) and Sitka Spruce (*Picea sitchensis*). The ground flora under the dense canopy includes: Cow Parsley (*Anthriscus sylvestris*), Lords and Ladies, Lesser Celandine, Cleavers (*Galium aparine*), Herb-robert (*Geranium robertianum*), Wood Avens, Ivy and Common Nettle as well as bramble throughout.	Application Site	Local (Lower)	A non-native woodland with many of the ash trees showing signs of ash dieback caused by the *Hymenoscyphus fraxineus* fungus. Habitat providing opportunities for a range of species, i.e. birds and invertebrates, but is unlikely to be important to any particular species due to the age of the woodland.

Habitat Feature	Description	Location	Level of Value	Rationale
WD4 – Conifer plantation	Relatively small blocks of *WD4 – Conifer plantation* are found predominantly in the central part of the application site. The woodland blocks are typically comprised of monoculture planting dominated by Sitka Spruce but also include some blocks of European Larch and Japanese Larch (*Larix Kaempferia*). The ground flora is sparse but where present is similar in composition to that for the *WD1 - (Mixed broadleaved woodland* habitat.	Application site and immediate surrounding area	Local (lower)	A typically common and widespread habitat comprising of blocks of monoculture tree species. Habitat providing opportunities for a range of species, i.e. birds and invertebrates, but is unlikely to be important to any particular species due to the age of the woodland.
WS1 – Scrub	*WS1 – Scrub* habitat is typically dominated by Bramble and forms a mosaic with *GS4- Dry meadows and grassy verges* habitat. Other scrub habitat includes small patches of Grey Willow (*Salix cinerea*) and Gorse (*Ulex europaeus*) along parts of a gully feature in the south of the site.	Application site and immediate surrounding area	Local (lower)	A typically common and widespread habitat of low ecological and conservation value but which provides some but limited opportunities for birds and invertebrates.
WL1 - Hedgerows	Hawthorn dominated hedgerows are found along sections of the northern and eastern boundaries of the application site. Four hedgerows lie within the application site denoting former field boundaries. These include: two remnant hedgerows with associated banks in the south-eastern part of the site that comprises of Hazel, Hawthorn, Ash, Elder and Gorse with Primrose, Hart's-tongue Fern (*Asplenium scolopendrium*) Male Fern present on its associated bank: a hawthorn dominated hedgerow in the north-western part of the site; and another remnant Hawthorn dominant hedgerow that also has some Sycamore and Beech trees forming a field boundary before being replaced by line of Leylandii (*Cupressus x leylandii*) in the southern part and entrance to the site.	Application site and immediate surrounding area	Local (higher)	A typically common and widespread and listed as being important in the County Kildare BAP. The hedgerows on the boundaries of the application site are of historic interest as they form part of the townland boundary.

Habitat Feature	Description	Location	Level of Value	Rationale
Exposed Rock and Disturbed Ground				
ED3 – Recolonising bare ground	ED3 – Recolonising bare ground is present along the access track leading through the central part of the site. The vegetation present typical forms an extension to the *GS4 - Dry meadows and grassy verges* habitat as described above.	Application site	Local (lower)	A typically common and widespread habitat comprising rank grassland with little botanical interest and generally of low ecological and nature conservation value
Cultivated and Built Land				
BL3 - Buildings and artificial surfaces	*BL3 – Buildings and artificial surfaces* include the site of a communications mast, associated buildings and compound area and also at the entrance of the site where compacted aggregate material has laid forming part of access track into the site. Where vegetated this typically forms an extension to adjacent habitats.	Application site	Local (lower)	A common and widespread habitat with little botanical interest and low ecological and nature conservation value.

Species

6.40 Details of protected, rare and notable species records within a 2km radius of the application site (encompassing grid square N72W) were obtained during the desk-based study and during the Habitat Survey, where general observations and searches were made for the presence, or potential presence of protected, rare and/or notable species for flora and fauna.

6.41 Table 6.8 provides a summary of species of importance and an evaluation of the site for these species.

Table 6.8: Identification and Evaluation of Species

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
Flora				
Protected, rare and notable species	No records of protected, rare or notable species of flora were returned by NBDC for the search area.	During the Habitat Survey no protected, rare or notable species of flora were recorded at, or immediately adjacent the application site.	Not applicable	All reasonable likelihood of absence.
Non-native invasive species	No non-native invasive species, as listed under either the Wildlife Act 1976 (as amended) or the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) were returned by NBDC for the search area.	During the Habitat Survey no non-native invasive species were recorded as present in the application site.	Not applicable	All reasonable likelihood of absence.
Mammals				
Badger	NBDC returned one record for badger (Meles meles) within the search area and relates to a road kill animal on the L7081 road outside application site.	During the Habitat Survey an '*inactive*' badger sett comprising of two entrances was found in the south-eastern part of the application site. No other evidence or signs were found to indicate the current presence of badger (i.e. active setts, tracks, latrines, snuffle holes or hairs) within the application site, or its immediate surrounding area.	Not applicable	Not present.

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
Bat assemblage	NBDC returned no records for any bat species within the search area. The application site and its immediate surrounding area lie in an identified with a low index suitability for all bat species with a score of 22.44.	The application site does not support and buildings, structures or trees that are considered to offer potential and/or suitable bat roosting opportunities. The application site is assessed as providing low habitat suitability for commuting and foraging bats and which has limited connectivity to areas of higher habitat suitability in the wider landscape.	Local (lower)	All bat species are fully protected under the Wildlife Act 1976 (as amended) and the EC (Birds and Natural Habitats) Regulations 2011 (as amended). Site provides negligible roosting opportunities for bats. The application provides some foraging habitat for a range of bat species, but is generally of low quality. The application site is unlikely to be important or critical to any particular species of bat, or for the maintenance of the local population status of any bat species.
Other mammal species	NBDC returned one record for rabbit (*Oryctolagus cuniculus*) within the 2km search area.	During the Habitat Survey evidence of rabbit and fox (Vulpes vulpes) were recorded within the application site. Whilst the site has the potential to support a number of other small mammals, no evidence was found to indicate the presence of any other protected species of mammal.	Local (lower)	Site provides some localised value to small mammals but is not likely to be critical in maintaining the local population status of any particular species
Birds				
Bird assemblage	NBDC returned records for two species of birds for the search area. None of these species are listed under Annex I of the EU Birds Directive	The habitats present in the application site provide opportunities for a range of birds associated with mixed plantation woodland habitats. During the Habitat Survey a total of ten	Local (lower	Protected under the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000. The application site provides breeding and foraging opportunities for a range of

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
		species of birds were recorded visually and/or aurally at and in the vicinity of the application site. Of the species recorded none are listed under Annex I of the EU Birds Directive. One of the bird species recorded is red listed[7] and none are amber listed[8] Birds of Conservation Concern in Ireland (BoCCI)[9]. A full list of the birds recorded during the Habitat Survey and their conservation status is provided at Appendix 6B.		typically common and widespread species but is not likely to be important or critical for any particular individual species or local populations of birds given the availability of alternative habitat in the wider surrounding area.
Reptiles				
Common lizard	NBDC returned no records for common lizard (*Zootoca vivipara*) within the search area.	Although common lizard is a species that can be found in wide range of habitats, the application site provides sub-optimum habitat for this species. No common lizards were observed during the Habitat Survey and it is considered that this species is not likely to be present at this site.	Not applicable	All reasonable likelihood of absence

[7] Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a s substantial recovery

[8] Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose populations has declined historically but made a substantial recovery; rare breeders; and those with international important or localised populations.

[9] Gilbert G, Stanbury A and Lewis L. (2021). *Birds of Conservation Concern in Ireland 2020 –2026*. Irish Birds 43: 1–22

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
Amphibians				
Common Frog and Smooth Newt	NBDC returned no records for common frog (*Rana temporaria*) or smooth newt (*Lissotriton vulgaris*) within the search area.	The application site and the immediate surrounding area does not provide any potential breeding habitat for amphibians. During the Habitat Survey no amphibians were recorded and it is considered not likely that common frog and smooth newt are present at this site.	Not applicable	All reasonable likelihood of absence
Invertebrates				
Invertebrates	NBDC did not return any records for any other rare or notable species of invertebrates within the search area	During the Habitat Survey no rare or notable species of invertebrate were observed within the application. Whilst no site is without invertebrate interest, it is considered not likely, given the habitat types, that the application site would support any protected invertebrate species.	Local (lower)	The site provides potential habitat for a wide range of invertebrates but is unlikely to be important or critical to any particular species or taxonomic group given the availability of alternative habitat in the wider surrounding area.
Other Important Species				
Other species not identified above	NBDC did not return any records for any other rare or notable species within the search area	During the Habitat Survey, no other protected, rare or notable species were recorded. Though the application site may support low numbers of common and widespread species it is considered highly unlikely that any other specially protected species would be present based on the habitats present.	Not applicable	All reasonable likelihood of absence

Summary of Important Ecological Features

6.42 In accordance with the CIEEM guidelines only ecological features considered to be important should be carried forward to any detailed assessment. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable. Therefore where receptors have been evaluated at a value of '*Local (lower)*' no further assessment is deemed necessary as the impact on these receptors is not likely to be of significance. However, where protected species are present and there is a potential for a breach in wildlife legislation then these species are considered as important ecological features regardless at what level they have been evaluated.

6.43 Based on the above, the identified important ecological features with the potential to be affected by proposed sand & gravel pit and soil recovery facility at Coolaght and carried forward for further ecological impact assessment are detailed in Table 6.9.

Table 6.9: Identified Important Ecological Features

Key Feature	Important Ecological Feature	Evaluation
Designated sites	Grand Canal	National
Habitats	WN2 – Oak-ash-hazel woodland	Local (higher)
	WL1 - Hedgerows	Local (higher)
Species	Bats	Local (lower)
	Bird assemblage	Local (lower)

Potential Effects

6.44 This section assesses the ecological impacts from the proposed sand & gravel pit and soil recovery facility at Coolaght on important ecological features identified from the preliminary desk-based study, baseline surveys and evaluation of the ecological features. Both qualitative and quantitative information has been used to identify likely significant ecological impacts, including the positive, negative, direct, indirect and the cumulative environmental effects.

6.45 To assess the effects of the proposed scheme it is essential that the impacts that could arise are identified and characterised. The impacts that require consideration in the EcIA are based upon knowledge of the proposed development and of the important ecological features. This can only be undertaken with a thorough understanding of ecological processes and how flora and fauna react to the range of impacts that could occur.

Proposed Development

6.46 A detailed description of the development is presented in Chapter 3 of the EIAR, but in summary the project relates to a planning application for the development of a sand & gravel pit and soil recovery facility in the townland of Coolaght. Planning permission is specifically sought for the following:

- the removal of woodland, vegetation and overlying soils / subsoils;
- the extraction of sand and gravel on a phased basis from an area of c.8.65 ha to a final floor level at 95m above Ordnance Datum (OD);
- the infilling of the lands using inert waste on a phased basis following and during the extraction of sand and gravel;
- the restoration of the lands back to original ground level and the establishment of native woodland planting; and
- all related ancillary development and associated site works including: processing (crushing, screening and washing) and stockpiling of materials; installation of infrastructure for the management of water on site; and all other related activities.

Identification and Characterisation of Potential Impacts

6.47 The potential ecological impacts from the proposed sand & gravel pit and soil recovery facility at Coolaght fall into two main categories:

- impacts arising from the operation of the sand & gravel pit and soil recovery facility (operational phase); and
- impacts arising from the restoration of the site (post-operational phase).

6.48 No distinction has been made between any preparation of the site (construction phase) and the operational phase as any stripping of vegetation and top-soils / overburden will be carried out on a phased approach and on a '*as required*' basis as part the phasing of the overall development and as such is considered to form part of any on-going extraction of sand and gravel at this site. However, it is likely that all the woodland lying above the proposed mineral extraction area will be commercially clear-felled.

Potential Impacts and Interaction with Important Ecological Features (Operational Phase)

6.49 The sources of potential impacts arising from the proposed development of the sand & gravel pit and soil recovery facility at Coolaght and the relevant important ecological features which are likely or have the potential to be directly or indirectly affected from any particular impact source based on the potential zone of influence of the development, in the absence of mitigation are outlined in Table 6.10.

Table 6.10: Sources of Potential Impacts and Important Ecological Potentially Affected

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
Habitat loss, damage and fragmentation	Habitat loss involves the direct destruction or physical take-up of vegetation, or the removal of other structures with conservation interest. Habitat loss may also occur indirectly as a result of a change in land-use or water management, for instance the drying-up of ponds or through induced successional events leading to a change in habitat type. Habitat fragmentation is concerned with spatial	Oak-ash-hazel woodland Hedgerows Bats Bird

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
	processes, such as negative edge effects (e.g. colonisation by 'aggressive' species or successional changes) and dispersal problems that can become increasingly severe as habitat is lost and remaining habitat is divided into smaller units. Fragmented habitats are likely to be more vulnerable to external factors that may have a negative effect upon them; e.g. disturbance, and may be less resilient to change (including climate and management change) than connected habitats because colonising species may be unable to reach the habitat to re-colonise in the event of species loss. Habitat loss can have a direct impact on individual populations and assemblages of species result in the direct loss of individuals or populations of animal species, or indirectly by increasing levels of stress placed upon populations of some species through negative edge effects (e.g. predation pressure) and dispersal problems that can become increasingly severe as habitat is lost and remaining habitat is divided into smaller units. The zone of influence of the proposed development is assessed to be restricted to the application site and immediate adjacent areas only.	
Disturbance from human activity, noise and vibration	Increases in disturbance, as a result of human activity can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing. The response of individual species to increased levels of human disturbance will depend upon a number of factors including the sensitivity, reproductive status, previous exposure to human disturbance, behaviour during the event, species tolerance to disturbance, location in relation to the source, availability of alternative nearby habitat, and environmental factors (i.e. topography, vegetation and atmospheric conditions which can influence noise levels). The level of disturbance will also be dependent upon the existing ambient noise levels and maximum noise levels. <u>Noise</u> It is generally accepted that for noise, certain species or groups of species can be impacted upon up to a distance of up to 300m from its source for high level and discontinuous disturbance with these distances	Bird assemblage

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
	reducing for low level and/or continuous disturbance levels. Evidence suggests that in general wildlife, with the exception of the most sensitive species, will adjust and tolerate long-term increases in low-medium-level and continuous noises. Guidance published under AQTAG09[10] indicates that where noise levels are below 80dB LA_{max} and 55dB $LA_{eq,1hr}$ as measured at a nest site for birds or other feature used by wildlife it is considered unlikely that it will have an adverse impact on any such species. <u>Visual Disturbance</u> Visual disturbance from human activity can include the movement of people, machinery and plant and which can result in the disturbance of species by causing increased anxiety and flight due to perceived danger. The response to visual disturbance is highly variable between species, threat type and habituation to human contact and can typically range from 50 to 500m although for many species this is generally below 300m in open situations.	
Dust deposition	The stripping and stockpiling of soils and overburden, the extraction of sand and gravels, backfilling pit voids with inert soil and stone, traffic movements and other associated works all have the potential to generate dust. Literature suggests that the most sensitive species are affected by dust deposition at levels above 1000 $mg/m^2/day$[11] which is five times greater than the level at which most dust deposition may start to cause a perceptible nuisance to humans. Fugitive dust from mineral sites is typically deposited within 100-200m of the source; the greatest proportion of which, comprising larger particles (greater than 30 microns) is deposited within 100m[12]. Where large amounts of dust are deposited on vegetation over a long time-scale (a full growing season for example) there may be some adverse effects upon plants	Oak-ash-hazel woodland Hedgerows

[10] Ormerod, L., Goodlad, N. and Horton, K. (2005). A*QTAG09 – Guidance on the Effects of Industrial Noise on Wildlife*. Air Quality Technical Advisory Group

[11] Farmer, A.M. (1993). *The Effects of Dust on Vegetation – A Review. Environmental Pollution* Vol.79, Issue 1, Pages 63-75

[12] Department of the Environment (1995). *The Environmental Effects of Dust from Surface Mineral Workings. Volume 1: Summary Report & Best Practice Guides.* HMSO.

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
	restricting photosynthesis, respiration and transpiration. Furthermore it can lead to phytotoxic gaseous pollutants penetrating the plants. The overall effect would be a decline in plant productivity, which may then have indirect effects on the quality of the surrounding habitats and associated fauna. The amounts of dust deposited and its effects are also dependent upon weather conditions as in wet weather less dust will be generated and that which has been deposited upon foliage is likely to be washed off. In accordance with guidance produced by the UK Institute of Air Quality Management (IAQM)[13] an assessment of the effects of dust will normally only be required where an ecological receptor occurs within 250m of sand and gravel extraction operations, or 400m for hard rock quarries. In addition, IAQM guidance for assessing the risk of dust based on emission class and sensitivity of ecological receptors[14] advises an assessment of the effects of dust from earthworks (stripping of soils / overburden) and trackout (movement of vehicles) will only be required where an ecological receptor occurs within 50m of the boundary of the site or 50m of routes used by heavy duty vehicles (HDVs) on public highways up to 500m from the site entrance.	
Alterations to hydrogeological and hydrological conditions	Abstraction of groundwater or de-watering operations can result in the drawdown of groundwaters. The extent of the effects of drawdown can be influenced by local geology, soils, topography and climate. Changes in localised groundwater levels or in aquifers as a result of extraction of minerals can have direct and indirect ecological impacts on groundwater dependent terrestrial ecosystems (GWDTE) and associated species as well as on surface waters where groundwaters have hydraulic connectivity with any surface waters. The potential zone of influence of the proposed development will be dependent upon a number of factors related to the existing hydrogeological conditions at this site and the rate of any groundwater	Grand Canal pNHA

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

[14] Holman et al (2014). *IAQM Guidance on the Assessment of Dust from Demolition and Construction*. Institute of Air Quality Management, London

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
	abstraction.	

Potential Impacts and Interaction with Important Ecological Features (Post-Operational Phase)

6.50 On completion of backfilling of the sand & gravel pit to original ground levels, the application site will be restored back to original ground levels of 100 – 130m above OD and native woodland.

6.51 No sources of potential significant adverse impacts are considered likely on important ecological features over and above those arising during the operational phase of the proposed development. The restoration of the site is likely to have a positive and beneficial effect on wildlife as opposed to the backfilling operations (operational phase). The level and significance of any effects cannot be quantified at this current time for any individual or groups of species but are likely to be beneficial and positive at a Local (lower) value. As the effects from the restoration are considered likely to be generally positive, no further assessment is deemed necessary in respect of the post-operational phase.

Assessment of Effects and Mitigation Measures

6.52 Table 6.11 details the assessment of predicted effects on the identified and relevant important ecological features from the proposed development of the sand & gravel pit and soil recovery facility and mitigation measures to prevent, reduce or offset any potential effects.

Table 6.11: Assessment of Effects on Identified and Relevant Important Ecological Features (Operational Phase)

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
Grand Canal pNHA		
Alterations to hydrogeological and hydrological conditions	<u>Assessment of Effects</u> The Grand Canal is not defined as a GWDTE. The sand & gravel pit will be worked dry above the underlying groundwater table (c.4m above the local water table). Based on the anticipated water requirements and groundwater abstraction rates off 50-60m^3 per day for use by the sand and gravel pit the zone of influence of any drawdown in groundwater levels are not anticipated to extend beyond the boundary of the application site. Therefore no effects are predicted on the Grand Canal pNHA even if there was any hydraulic connectivity between the groundwater table and the surface waters of this canal.	Not significant
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Oak-ash-hazel woodland		
Habitat loss, damage and fragmentation	<u>Assessment of Effects</u> The development of the sand & gravel pit and soil recovery will result in <0.06ha of hazel coppice associated with the *WN2 – Oak-ash-hazel* woodland. This loss of woodland represents <5% of the overall woodland and will not impact of the integrity of the *WN2 – Oak-ash-hazel* woodland along the northern boundary of the application site.	Not significant
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Dust deposition	<u>Assessment of Effects</u> The Oak-ash-hazel woodland is assessed as being a receptor of low sensitivity to dust. Dust deposition levels from the development of the sand & gravel pit and soil recovery facility are not predicted	Not significant

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
	to exceed the limit values of 350 mg/m2/day and which will comply with the limit values set in Department of the Environment, Health & Local Government (DoEHLG)[15] and Environmental Protection Agency (EPA) guidelines for the quarrying sector. At these levels the deposition of dust from both the mineral extraction operations and the operation of the soil recovery facility are not predicted to be at levels or of a reactive nature where it is anticipated that there will be any adverse effects on the trees, shrubs or the ground flora of the Oak-ash-hazel woodland.	
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Hedgerows		
Habitat loss, damage and fragmentation	<u>Assessment of Effects</u> All of the hedgerows of historical importance along the boundaries of the application site will be retained as part of the sand and gravel pit development and no direct or indirect habitat loss, damage or fragmentation of these habitats is predicted. The proposed development of the sand and gravel pit however, will result in the direct loss of c.217m of species-poor hawthorn dominated hedgerow habitat in the north-western part of the application site.	Significant at Local (higher) level
	<u>Mitigation</u> It will not be possible to mitigate against the loss of the hedgerow that lies within the proposed mineral extraction area.	Significant at Local (higher) level
Dust deposition	<u>Assessment of Effects</u> The hedgerows are considered to be of low sensitivity to dust are at a low risk from dust deposition. As detailed previously for the Oak-ash-hazel woodland the deposition of dust from the development of the sand & gravel pit and soil recovery facility is not predicted to be at levels or of a reactive nature where it is anticipated that	Not significant

[15] DOEHLG (2004). *Quarries and Ancillary Activities, Guidelines for Planning Authorities*. Department of the Environment, Health & Local Government.

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
	there will be any adverse effects on the trees, shrubs or the ground floras of these features to be retained along the boundaries of the site.	
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant. However, consideration for the protection of these hedgerows will be considered as part of the construction of any screening berm to the south-eastern corner of the sand and gravel pit.	
Bats		
Habitat loss, damage and fragmentation	<u>Assessment of Effects</u> The proposed development of the sand & gravel pit and soil recovery facility will not result in any known feature used by roosting bats or with the potential to be used by bats. The proposed development of the sand & gravel pit will result in the direct loss, damage and disturbance of c.9.78 ha of woodland habitat is not likely to result in the loss of any critical or important foraging habitat, based on the woodland structure, or cause any fragmentation of commuting habitat for any species of bat given the availability of higher quality habitats throughout the wider surrounding area.	Not significant
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Ground Nesting Birds		
Habitat loss, damage and fragmentation	<u>Assessment of Effects</u> The development of the sand & gravel pit will result in the loss of c.9.78 ha of woodland habitat with the potential to be used by birds for breeding and foraging purposes. However, it is considered that the surrounding area has sufficient carrying capacity to accommodate any displaced birds. It is therefore assessed that the loss of habitats is not likely to adversely affect the local population status of any birds species as a direct or indirect result of the proposed development of the sand & gravel pit and soil recovery facility at Coolaght.	Not significant

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
	<u>Mitigation:</u> No specific ecological mitigation is required as impact is assessed as not significant. However, mitigation measures are required to ensure compliance with Wildlife Act 1976 (as amended) prohibiting the killing, injuring or taking; the damage, destruction or taking of nests in use or being built; and the taking or destruction of eggs, where any nest sites are found to be present in areas proposed to be stripped of vegetation. To avoid destruction of any such nests all trees, shrubs and ground vegetation with the potential to support nesting birds will be removed outside the bird breeding season wherever practically possible in light of good forestry practice. However, if any vegetation clearance take place during the bird breeding season (March to the end of August) the area will be inspected for any evidence of nesting activity by an experienced ecologist / ornithologist. Any identified nest will be marked and an appropriately sized exclusion zone for the relevant species delineated around all such nest site(s). No vegetation clearance will be permitted within any exclusion zone until such time as the young have fledged and left the nest. Given the likely nesting species at this site the exclusion zone is unlikely to exceed beyond a 20m radius of any nesting site.	
Disturbance from noise and human activity	<u>Assessment of Effects:</u> It is recognised that assessing the impacts of disturbance to birds is difficult and that there are no environmental standards that can be applied for birds, unlike human beings. There has been a wide range of studies into disturbance and its consequences for birds but the responses by individual and groups of birds is complex and can be dependent upon a number of environmental variables as well as between individual sites. However, it is generally accepted that noises of 70 dB (likely disturbance threshold for many bird species), or greater, can have an impact on bird species at a distance of up to 300m from its source for high level and discontinuous disturbance. Certain species of birds are likely to be more vulnerable to noise and visual disturbance than others. Analysis of the responses of certain bird species to disturbance has found that passive, low-level and continuous disturbance is likely to lead to habituation by birds to such disturbance, whereas active, high level and	Not significant

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
	discontinuous disturbance is likely to lead to the displacement of some bird species from the disturbed area except for only the very tolerant species[16]. Whilst some displacement may occur up to 50m from the source of any noise it is considered that this is highly unlikely to have a significant effect on the overall population status of any such bird species within the wider surrounding area given that none of the bird species recorded at the site are considered to be particularly sensitive to noise and/or visual disturbance.	
	<u>Mitigation:</u> No specific ecological mitigation is required as impact is assessed as not significant.	

[16] Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V. And Barker, M.A. (1992). *Examination of the Effects of Disturbance on Birds with Reference to its Importance in Ecological Assessments*. Journal of Environmental Management Vol 36 pp 253-286

Ecosystem Services

6.53 The woodland in the application site provides some supporting, provisioning and regulating ecosystem services. However, because of the *Hymenoscyphus fraxineus* fungal disease the value of the broadleaved woodland is limited and would diminish over the short-medium term. Similarly the coniferous plantation woodland was likely planted as a commercial crop therefore without the sand and gravel pit would be clear-felled in the medium term.

Cumulative Effects

6.54 There are no other known planning applications, activities or proposed activities at, or within close proximity to the application site that would be likely to result in any significant cumulative impacts on important ecological features, on the biodiversity of the local area at this current time. It is therefore considered that no significant cumulative ecological impacts would occur.

Ecological Enhancement and Compensation

6.55 Consideration will be made to provide some management to the retained hedgerows on the boundaries of the application site, where not owned by other third parties, supplementary planting of additional trees and shrubs to improve their biodiversity value to offset the loss of hedgerow habitat.

6.56 No further recommendations for ecological enhancement and/or compensation are deemed necessary as part of the proposed development of the sand & gravel pit and soil recovery facility at Coolaght, or to ensure compliance with wildlife legislation.

Monitoring

6.57 No specific ecological monitoring is deemed necessary during or post development of the sand & gravel pit and soil recovery facility at Coolaght.

Legal and Policy Implications

Legal Implications

6.58 The proposed development the sand & gravel pit and soil recovery facility at Coolaght has no implications for any statutory designated nature conservation sites.

6.59 The only statutory protected species with relevance to the proposed development of the sand & gravel pit and soil recovery facility are breeding birds. However, provided that appropriate mitigation strategies are put in place it will be possible for the proposed development to be carried out without the risk of breaching current wildlife legislation.

Policy Implications

6.60 Due to the location of the sand and gravel deposits and the nature of the development required to extract these minerals, it is recognised that the development of a sand & gravel pit and soil recovery facility at Coolaght, in the absence of mitigation, enhancement and/or compensation, has the potential to have a significant impact on hedgerows at a Local (higher) level and which will be in contrary to BI O26 of the Kildare County Development Plan. However, through enhancement of retained hedgerows and consideration for the planting of trees and shrubs along sections of the screening berms it is considered that the

proposed development of the sand & gravel pit and soil recovery facility at Coolaght will comply with the requirements of local planning policies relating to biodiversity.

6.61 Provided that all appropriate mitigation measures to ensure compliance with the Wildlife Act 1976 (as amended) in respect to breeding birds are implemented, it is considered that the proposed development will comply with the requirements of current national and local planning policies relating to biodiversity.

Residual Effects

6.62 A summary matrix of predicted residual impacts from the proposed development of a sand & gravel pit and soil recovery facility at Coolaght is provided in Table 6.12.

Table 6.12: Summary Matrix of Predicted Residual Impacts from the Proposed Sand & Gravel Pit and Soil Recovery Facility at Coolaght

Value	Potential Impact	Direction	Probability	Magnitude	Duration	Frequency	Reversibility	Mitigation / Compensation	Means of Delivering Mitigation / Compensation	Residual Impact
Hedgerows										
Local (Higher)	Direct loss of c.217m of habitat	Negative	Certain	Significant	Permanent	Once	Not reversible	Enhancement of retained historic hedgerows on boundaries of application and the planting of trees and shrubs along sections of the screening berms.	Planning condition	Not significant

References

- CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine*. Version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.). The Bat Conservation Trust, London.
- Environmental Protection Agency (2022). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*. Environmental Protection Agency, Johnstown Castle Estate, Co. Wexford.
- Gilbert G, Stanbury A and Lewis L. (2021). *Birds of Conservation Concern in Ireland 2020 – 2026*. Irish Birds 43: 1–22.

FIGURES

NOTES

LEGEND

- APPLICATION SITE
- 2KM RADIUS
- GRAND CANAL pNHA
- SPECIAL AREA OF CONSERVATION

QUARRY CONSULTING

PROPOSED SAND & GRAVEL PIT AND SOIL RECOVERY FACILITY AT COOLAGHT, KILMEAGUE, CO. KILDARE

DESIGNATED SITES

FIGURE 6.1

Scale 1:17,500 @ A3

Date FEBRUARY 2024

QCL-23.001

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W E
S

NOTES

LEGEND

- APPLICATION SITE

Habitats

- GA1 - IMPROVED AGRICULTURAL GRASSLAND
- GS2 - DRY MEADOWS AND GRASSY VERGES
- WN2 - OAK-ASH-HOLLY WOODLAND
- WD1- (MIXED) BROADLEAVED WOODLAND
- WD4 - CONIFER PLANTATION
- WS1 - SCRUB
- ED3 - RECOLONISING BARE GROUND
- BL3 - BUILDINGS AND ARTIFICIAL SURFACES
- WL1 - HEDGEROWS

QUARRY CONSULTING

PROPOSED SAND & GRAVEL PIT
AND SOIL RECOVERY FACILITY
AT COOLAGHT, KILMEAGUE,
CO. KILDARE

HABITAT PLAN

FIGURE 6.2

QCL-23.001

Scale 1:2,500 @ A3

Date FEBRUARY 2024

APPENDICES

APPENDIX 6A: LOCAL POLICIES RELEVANT TO BIODIVERSITY

Policy / Objective	Description
Policies	
IN P2	Ensure the protection and enhancement of water quality throughout Kildare in accordance with the EU WFD and facilitate the implementation of the associated programme of measures in the River Basin Management Plan 1028-2021 (and subsequent updates).
IN O5	Manage, protect and enhance surface water and groundwater quality to meet the requirements of the EU WFD.
IN O6	Require an undisturbed edge or buffer zone to be maintained, where appropriate, having regard to the riparian buffer zones to maintain the natural function of existing ecosystems associated with water courses and their riparian zones, and to enable sustainable public access. The width of the edge or buffer zone shall be determined during the appropriate environmental assessment such as EcIA or AA.
IN O7	Protect recognised salmonid water courses in conjunction with Inland Fisheries Ireland such as the Liffey catchment, which are recognised to be exceptional in supporting salmonid fish species
BI P1	Integrate in the development management process the protection and enhancement of biodiversity and landscape features by applying the mitigation hierarchy to potential adverse impacts on important ecological features (whether designated or not), i.e. avoiding impacts where possible, minimising adverse impacts, and if significant effects are unavoidable by including mitigation and/or compensation measures, as appropriate. Opportunities for biodiversity net gain are encouraged.
BI O1	Require, as part of the Development Management Process, the preparation of Ecological Impact Assessments that adequately assess the biodiversity resource within proposed development sites, to avoid habitat loss and fragmentation and to integrate this biodiversity resource into the design and layout of new development and to increase biodiversity within the proposed development. Such assessments shall be carried out in line with the CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.
BI O2	Require, wherever possible, the retention and creation of green corridors within and between built up urban areas and industrial scale developments to protect wildlife habitat value including areas that are not subject to public access.
BI 05	Move towards no net loss of biodiversity through strategies, plan, mitigation measures, appropriate offsetting and/or investment in Blue-Green infrastructure.
BI O6	Apply the precautionary principle in relation to proposed developments in environmentally sensitive areas to ensure that all potential adverse impacts on a designated NHA or Natura 2000 Site arising from any proposed development or land use activity are avoided, remedied, or mitigated.
BI 07	Pursue insofar as possible and practical, a policy of biodiversity net gain through strategies, plans, developments, mitigation measures, appropriate offsetting and/or investment in Blue-Green infrastructure

Policy / Objective	Description
BI P2	Seek to contribute to maintaining or restoring the conservation status of all sites designated for nature conservation or proposed for designation in accordance with European and national legislation and agreements. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs), Ramsar Sites and Statutory Nature Reserves.
BI O9	Avoid development that would adversely affect the integrity of any Natura 2000 site and promote favourable conservation status of habitats and protected species including those listed under the Birds Directive, the Wildlife Acts and the Habitats Directive, to support the conservation and enhancement of Natura 2000 Sites including any additional sites that may be proposed for designation during the period of this Plan and protect the Natura 2000 network from any plans and projects that are likely to have a significant effect on the coherence or integrity of a Natura 2000 Site.
BI O10	Ensure an Appropriate Assessment Screening, in accordance with Article 6(3) and Article 6(4) of the Habitats Directive, Section 177A of the Planning and Development Act (2001-2022) or any superseding legislation and with DEHLG guidance (2009), is carried out in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site to determine the likelihood of the plan or project having a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects and to ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest.
BI P3	Ensure that any proposal for development within or adjacent to a Natural Heritage Area (NHA), Ramsar Sites and Nature Reserves is designed and sited to minimise its impact on the biodiversity, ecological, geological and landscape value of the site, particularly plant and animal species listed under the Wildlife Acts and the Habitats and Birds Directive including their habitats.
BI 012	Require the preparation of an Ecological Impact Assessment (EcIA) by a suitably qualified professional for proposals for development within or adjacent to a Natural Heritage Area (NHA)/proposed Natural Heritage Areas (pNHA), to ensure the development is designed and sited to minimise its impact on the biodiversity, ecological, geological and landscape value of the site, particularly plant and animal species listed under the Wildlife Acts. Such assessments shall be carried out in line with the CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.
BI O14	Conserve, preserve and protect the integrity of and maintain the favourable conservation value/status within or adjacent to Ramsar Sites, Statutory Nature Reserves, Biogenetic Reserves, Wildfowl Sanctuaries, all existing and proposed NHAs. They should be designed and sited so as to minimise their impact on the ecological and landscape values of these sites under National and European legislation and International Agreements.
BI P4	Ensure that any new development proposal does not have a significant adverse impact, incapable of satisfactory mitigation on plant, animal or bird

Policy / Objective	Description
	species which are protected by law
BI O15	Ensure that any new development proposal does not have a significant adverse impact on rare and threatened species, including those protected under the Wildlife Acts 1976 and 2012, the Birds Directive 1979 the Habitats Directive 1992 and the Flora Protection Order species and any species listed under the national red lists or that could be listed on a national red list.
BI 016	Ensure appropriate species and habitat avoidance and mitigation measures are incorporated into all new development proposals.
BI 017	Require a derogation licence, where necessary, issued by the DHLGH, in the event of a proposed development impacting on a site known to be a breeding or resting site of species listed in the Habitats Directive (Annex IV species).
BI O18	Require all applications for new developments to identify, protect and sensitively enhance the most important ecological features and habitats, and incorporate these into the overall open space network, keeping free from development and to provide links to the wider Green Infrastructure network as an essential part of the design process and by making 394 provision for local biodiversity (e.g. through provision of swift boxes or towers, bat roost sites, hedgehog highways2, green roofs, etc.).
BI O22	Identify and protect areas of high nature conservation value (including but not limited to SAC/SPA/pNHA) and support the landscape features which act as ecological corridors/networks and stepping-stones, such as river corridors, hedgerows, and road verges so as to minimise the loss of habitats and features of the wider countryside which are of major importance for wild fauna and flora in accordance with Article 10 of the Habitats Directive.
BI P6	Recognise the important contribution trees and hedgerows make to the county biodiversity resource climate mitigation, resilience and adaptation.
BI O26	Prevent, in the first instance, the removal of hedgerows to facilitate development. Where their removal is unavoidable, same must be clearly and satisfactorily demonstrated to the Planning Authority. In any event, removal shall be kept to an absolute minimum and there shall be a requirement for mitigation planting comprising a hedge of similar length and species composition to the original, established as close as is practicable to the original and where possible linking to existing adjacent hedges. Ideally, native plants of a local provenance and origin should be used for any such planting. Removal of hedgerows and trees prior to submitting a planning application will be viewed negatively by the planning authority and may result in an outright refusal.
BI O27	Require the retention and appropriate management of hedgerows and to require infill or suitably sized transplanted planting where possible in order to ensure an uninterrupted green infrastructure network.
BI O28	Promote the integration of boundary hedges within and along development sites into development design so as to avoid “trapped hedges” located to the boundary of houses within the development layout. Encourage the planting of woodlands, trees and hedgerows as part of new developments and as part of the Council’s own landscaping works ideally using native plants of local

Policy / Objective	Description
	provenance and origin
BI 029	Require the undertaking of a comprehensive tree survey carried out by a suitably qualified arborist where development proposals require felling of mature trees; the tree survey shall assess the condition, ecological and amenity value of the tree stock proposed for removal as well as mitigation planting and a management scheme. It should be noted that rotting and decaying trees are an integral part of a woodland ecosystem and can host a range of fungi and invertebrates, important for biodiversity. While single or avenue trees that are decaying may be removed, others that are part of group or cluster may be subject to retention.
BI O30	Ensure a Tree Management Plan is provided to ensure that trees are adequately protected during development and incorporated into the design of new developments.
BI O34	Manage, maintain, enhance, preserve, promote, encourage, and facilitate, as far as practicable, the preservation, proper provision, and retention of the existing network of native ancient woodlands and semi- natural woodlands of amenity value especially broadleaf species.
BI 035	Protect existing woodlands and trees and substantial areas of deciduous forest which are of amenity value and/or contribute to and interact with their landscape character and ensure that proper provision is made for their protection and management.
BI P7	Recognise and promote inland waters, natural environmental assets and to protect rivers, streams and other watercourses and, wherever possible, maintain them in an open state capable of providing suitable habitats for fauna and flora while discouraging culverting or realignment.
BI O37	Ensure the protection of rivers, streams and other watercourses and, wherever possible, maintain them in an open state capable of providing suitable habitats for fauna and flora while discouraging culverting or realignment. Endeavour to re-open previously culverted streams and watercourses through any future development/redevelopment proposals.
BI 038	Require the preparation and submission of an Ecological Impact Assessment (EcIA) including, but not limited to, bat and otter surveys for developments along river or canal corridors.
BI O41	Maintain riparian buffer zones and potential uses when considering potential development and proposed development layouts within or adjacent to waterways.
BI O44	Require that expert advice is sought from a suitably qualified bat expert, in developing lighting proposals along river and stream corridors or other important locations or corridors for wildlife, to mitigate impacts of lighting on bats and other species. The use of artificial lighting shall be avoided in streamside zones and artificial lighting should be restricted unless absolutely necessary in the middle zone. LEDs should, where permitted, be warm white to minimise disturbance to wildlife.
BI O45	Ensure that any runoff from developed areas does not result in any deterioration of downstream watercourses or habitats and require that

Policy / Objective	Description
	pollution generated by a development is treated within the development area prior to discharge to local watercourses.
BI P8	Ensure that Kildare's wetlands and watercourses are retained for their biodiversity, climate change mitigation properties and flood protection values and at a minimum to achieve and maintain at least good ecological status for all wetlands and watercourses in the county by, at the latest, 2027 in line with the Water Framework Directive and Ramsar Convention.
BI O49	Protect wetland sites that have been rated A (International), B (National) C+ (County) and C (Local) importance as identified in the County Kildare Wetlands Survey 2012-2014. Any development within the zone of influence of these listed wetland sites should be subject to EcIA and where appropriate, hydrological impact assessment.
BI O50	Protect and conserve wetlands from infilling, drainage, fragmentation, degradation, and resist development that would destroy, fragment, or degrade any wetland identified as part of the County Kildare Wetland Survey 2012-2014.
BI O51	Ensure that an ecological impact assessment is undertaken in conjunction with proposals involving drainage or reclamation of identified wetlands. Impact assessment of all developments on peatlands shall consider peatland stability, carbon emissions balance, Hydrology and Ecology.
BI O56	Ensure that development proposals or activities that may impact on sensitive water habitats, in particular wetlands (identified as part of the County Kildare Wetland Survey 2012-2014, shall not be permitted without the introduction of mitigation measures agreed in writing with the Council to eliminate negative environmental impacts.
BI P9	Implement and support measures for the prevention and/or eradication of invasive species within the county and the control of noxious weeds.
BI 058	Require all development proposals to address the presence or absence of invasive alien species on proposed development sites and (if necessary) require applicants to prepare and submit an Invasive Species Management Plan where such species exist, in order to comply with the provisions of the European Communities (Birds and Natural Habitats) Regulations 2011-2015.
BI P12	Recognise the importance of Green Infrastructure in Kildare and protect this valued biological resource, the ecosystem services it provides and the contribution to climate resilience.
BI O64	Ensure the protection, enhancement and maintenance of Green Infrastructure in Kildare.

APPENDIX 6B: SUMMARY OF BIRDS RECORDED DURING THE HABITAT SURVEY (APRIL 2023)

Scientific Name	Common Name	Annex I EU Birds Directive	Red List	Amber List
Buteo buteo	Buzzard	-	-	-
Carduelis carduelis	Gold Finch	-	-	
Corvus frugilegus	Rook	-	-	-
Cyanistes caeruleus	Blue Tit	-	-	-
Parus major	Great Tit	-	-	-
Passer domesticus	House Sparrow	-	√	-
Erithacus rubecula	Robin	-	-	-
Pica pica	Magpie	-	-	-
Troglodytes troglodytes	Wren	-	-	-
Turdus merula	Blackbird	-	-	-