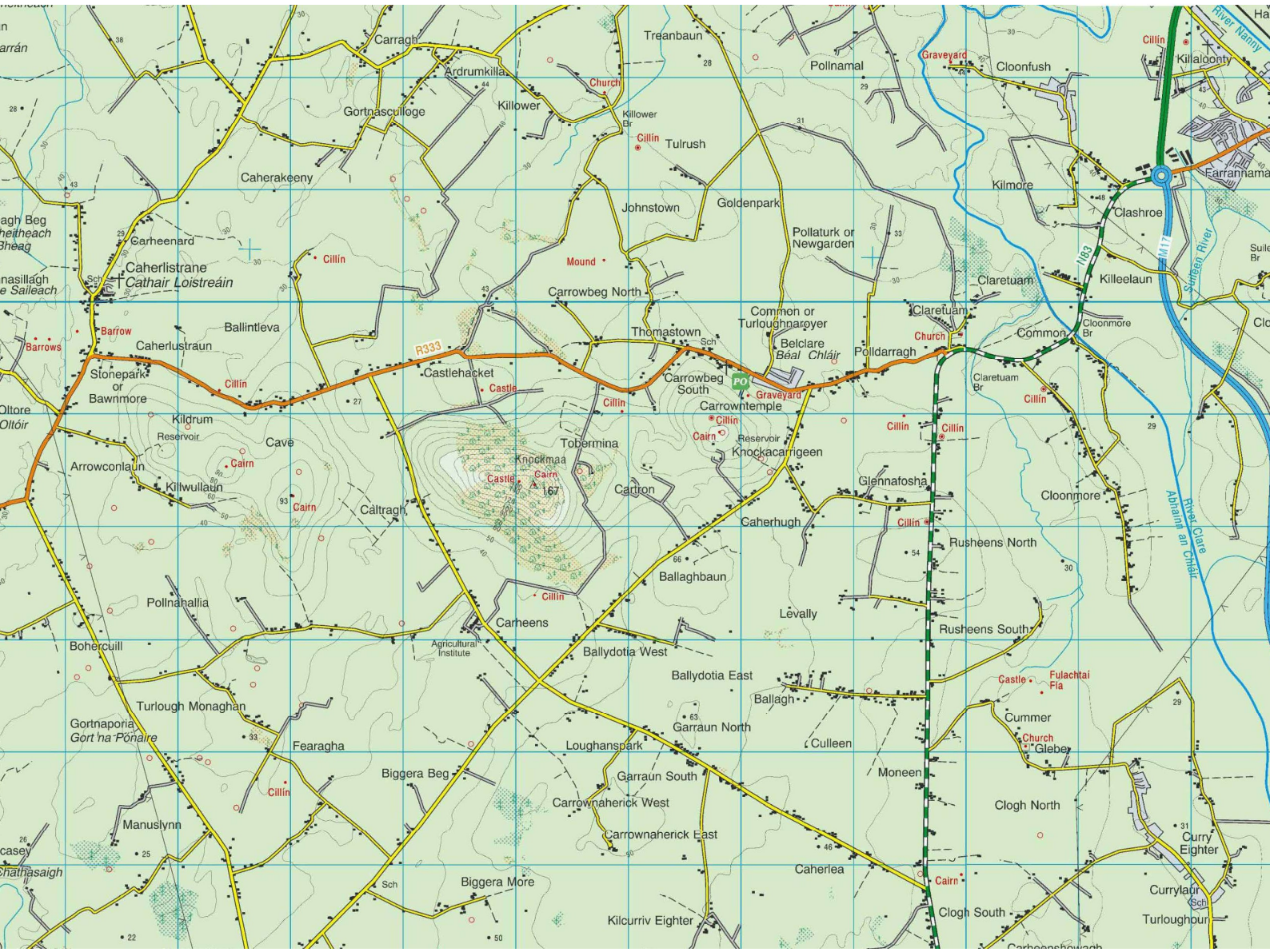
CHAPTER 6

BIODIVERSITY



JUNE 2025

QUARRY CONSULTING

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 and Mortimer Quarries Ltd 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 continued use of an existing quarry and proposed storage yard in the townland of Cartron, Belclare, Co. Galway.

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 continued use of an existing quarry and proposed storage yard at Cartron. 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.

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

---

[1] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial , Freshwater and Coastal and Marine*. Version 1.3 dated September 2024. 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.

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: Relevant Legislation

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. The Act 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 2020-2032 sets out the long-term spatial planning strategy for the Northern and Western Region, covering the counties of Cavan, Donegal, Galway, Leitrim, Mayo, Monaghan, Roscommon and Sligo.

Local

6.12 Planning policy at the local level is provided by the Galway County Development Plan 2022-2028 adopted on 28th September 2022. The Galway 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 Galway County Heritage and Biodiversity Plan 2017-2022, 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 continued use of an existing quarry and proposed storage yard at Cartron. 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 proposed 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.

[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.

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.

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 M34U and M34T).	Web-search including information held by the NPWS and the National Biodiversity Data Centre (NBDC) (https://www.biodiversityireland.ie) on 12th April 2024 and 7th December 2024.
Habitat Survey	To record and classify the habitat types and appraise on the likely presence / absence of protected species	Application site	A site visit and walkover survey by Steve Judge MCIEEM of Green & Blue Ecology on 19th April 2024. 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

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

assessment, as most species would have been active during this time and provided evidence of their presence.

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.

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

Value	Criteria
	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 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.

Value	Criteria
	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.

Assessment of Potential Impacts

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 continued use of an existing quarry and proposed storage yard at Cartron and within the wider surrounding environment.

General Site Description

6.33 The application site is located in the townland of Cartron approximately 1.1km south west of the village of Belclare and 5.6km south west of the town of Tuam, Co Galway (please refer to Figure 6.1).

6.34 The application site covers approximately 16.3 hectares (ha), that comprises an existing operational quarry use for the extraction of limestone but with a number of manufacturing facilities also present at the site including a concrete batching plant and asphalt plant.

6.35 The existing quarry void has faces rising up to a height of 30m and is used for the extraction of limestone using conventional drilling and blasting techniques. The limestone is then processed (crushing and screening) to produce aggregates for construction purposes.

6.36 The surrounding landscape is characterised by agricultural land comprised of fields under permanent pasture typically enclosed with stone walls but with some hedgerow boundaries interspersed by relatively small blocks of woodland and scrub as well as patches of bog to the north and east. A number of turloughs are also present indicative of the karst landform in this area. Another quarry operated by a third party adjoins the application site to the north and north west.

6.37 The River Clare flowing in a northerly direction, approximately 4.5km east of the application site, forms a prominent landscape feature along with the Knockmaa Hill with its woodland and exposed limestone rising up to a height of 180 mOD, approximately 500m west of the application site.

6.38 The largest local urban population is the town of Tuam with other smaller rural settlements and ribbon development along the roads and lanes that cross this area.

Designated Sites

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

6.40 Within a 2km radius of the application site there are no statutory designated sites and two non-statutory designated sites. Figure 6.1 shows the location of designated sites in relation to the application site and summary details of these designated sites is 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
Non-statutory Designated Sites			
Knockmaa Hill pNHA [001288]	A prominent limestone knoll rising up to a height of 180m and covered with deciduous woodland. Towards the summit of the hill there is an area of limestone pavement and heath. Knockmaa Hill is of interest because of it is a good example of deciduous woodland on thin limestone soil that are rare in this part of the country. The occurrence of species-rich limestone pavement vegetation adds to the interest of the site.	172m west	National
Belclare Turlough pNHA [000234]	A turlough the is completely dry during the summer months, that is mainly agriculturally improved grassland but with influence of peat in its north east corner adjacent to exposed limestone rock and scrub. Belclare Turlough is a noted bird site attracting wintering wildfowl and waders.	1.24 km north northeast	National

Habitats

6.41 The application site comprises an active quarry used for the extraction and processing of limestone, which supports a range of sub-habitat types created through quarrying operations.

6.42 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
E – Exposed rock and disturbed ground	ED – Disturbed ground	ED4 – Active quarries and mines	15.09ha
W – Woodland and scrub	WS – Scrub/transitional woodland	WS1 – Scrub	1.21

6.43 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
Exposed Rock and Disturbed Ground				
ED4 – Active quarries and mines	*ED4 – Active quarries and mines* is present throughout the application site, but which comprises a number of sub-habitat types created as a result of the quarrying operations including: *ER2 – exposed calcareous rock* forming the walls of the quarry; *ED2 – Spoil and bare ground* predominantly on the floor of the quarry and access tracks around the quarry site; *GS2 – Dry meadows and grassy verges* on berms in the south east corner of the site; *WL1 – Hedgerows / WL2 Treelines* along the eastern and southern boundaries; *WS1 – Scrub* in the northern part of the site; and *BL3 Buildings and artificial surfaces* that include the access road, site office and a variety of sheds, a concrete plant and asphalt plant. The active part of the quarry is largely devoid of vegetation due to high levels of disturbance. *ED2 – Spoil and bare ground* is found in less disturbed areas along the margins of the access track and associated low berm running along the eastern, southern and parts of the western edge of the quarry void. Species present include: Buddleja (*Buddleja davidii*) Oxeye Daisy (*Leucanthemum vulgare),* Ribwort Plantain (*Plantago lanceolata*), Goat Willow (*Salix caprea*), Autumn Hawkbit (*Scorzoneroides autumnalis*), Dandelion	Application site	Local (lower)	An anthropogenic habitat created through quarrying that has poor botanical interest and offering limited opportunities for wildlife.

Habitat Feature	Description	Location	Level of Value	Rationale
	(*Taraxacum officinale* agg.), Colt's-foot (*Tussilago farfara*). *GS2 – Dry meadows and grassy verges*, present on a berm in the south east corner of the application site showing transition to *WS1 – Scrub*. The grassland has a sward dominated by Cock's-foot (*Dactylis glomerata*) and Yorkshire-fog (*Holcus lanatus*) with some Soft Rush (*Juncus effusus*) and Hard Rush (*Juncus inflexus*) also present. Other species present include: Daisy (*Bellis perennis*), Rosebay Willowherb (*Chamaenerion angustifolium*), Herb-Robert (*Geranium robertianum*), Tutsan (*Hypericum androaemum*), Ribwort Plantain, and Common Figwort (*Scophularia nodosa*). The scrub element includes Buddleja, Bramble (*Rubus fruticosus* agg.) and Gorse (*Ulex europaeus*). *WL1 – Hedgerows* / *WL2 – Treelines* run along the eastern and southern boundary of the application site. A treeline of Lawson Cypress *(Chamaecyparis lawsoniana)* runs along the entire extent of the eastern boundary, except for the entrance to the site, and halfway along the southern boundary. The ground flora is limited but where present includes: Cocks-foot, Red Fescue (*Festuca rubra*), Ivy Common Ragwort (*Senecio jacobaea*), Red Clover (*Trifolium pratense)* and Bush Vetch (*Vicia sepium*).			

Habitat Feature	Description	Location	Level of Value	Rationale
	A remnant section of *WL1 – Hedgerow* forms the rest of the southern boundary comprised of Hazel, Common Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*), Goat Willow and Bramble. Ground flora includes Ivy (*Hedera helix),* Primrose (Primula vulgaris) Common Dog Violet (*Viola rivinianna*) and Bush Vetch.			
Woodland and Scrub				
WS1 - Scrub	An area of *WS1 – Scrub* is also located in the north eastern part of the application site where the storarge yard is proposed. The scrub comprises of Hazel (*Corylus avellana*), Goat Willow, Bramble and Gorse with a ground flora comprising of species present in the *ED2 – Spoil and bare ground* and *GS2 – Dry meadows and grassy verges* habitats within the active quarry.	Application site	Local (lower)	A typically common and widespread habitat providing some opportunities for wildlife but is relatively small and isolated.

Species

6.44 Details of protected, rare and notable species records within a 2km radius of the application site (encompassing grid squares M34T and M34U) 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.

6.45 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 species of flora were returned by NBDC for the search area. Records for six notable bryophyte species were returned for the search area including: White Earwort (*Diplophllyum albicans*), Slender Ditrichum (*Ditichum gracile*), Spiral Extinguiser-moss (*Encalypta streptocarpa*), Great Plait-moss (*Hypnum lacunosum* var. *lacunosum*), Rough Earwort (*Scapania aspera*), Green-tufted Stubble-moss (*Weissia controversa* var. *controversa*) that are Red Listed as Least Concern[7]. None of these records relate to the application site.	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 listed in the	During the Habitat Survey no non-native invasive species were recorded as present in the application site.	Not applicable	All reasonable likelihood of absence.

[7] Lockhart, N., Hodgetts, N. & Holyoak, D. (2012*). Ireland Red List No.8: Bryophytes*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland..

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
	First Schedule under The European Union (Invasive Alien Species) Regulations 2024 were returned by NBDC for the search area.			
Mammals				
Badger	No records for badger (*Meles meles*) were returned by NBDC for the search area.	During the Habitat Survey no evidence of badger setts or other signs of badger were found to indicate the presence of badger (i.e. tracks, latrines, snuffle holes or hairs) within the application site, or its immediate surrounding area.	Not applicable	Not present.
Bat assemblage	NBDC returned solitary records for two species of bat including: Leisler's bat (*Nyctalus leisleri*) and common pipistrelle (*Pipistrellis pipistrellis sensu stricto*) within the search area. The majority of the application site and its immediate surrounding area lie in an identified with a moderate index suitability for all bat species with a score of 29.78. The north eastern part of the application site is identified as having a low index suitability of 28.11.	The application site does not support any buildings, structures, trees or features (i.e. fissure or crevices in the quarry walls) 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 whist is poorly connected to areas of higher suitability for bats in the wider landscape, for example Knockmaa Hill.	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 and low quality foragaing habitat. 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.

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
Other mammal species	NBDC returned one record for hedgehog (*Erinaceus europaeus*) otter (*Lutra lutra*), pine marten (*Martes martes*) and red squirrel (*Sciurus vulgaris*) within the 2km search area. The records for pine marten and red squirrel relate to Knockmaa Hill.	The application site does not support suitable habitat for pine marten and red squirrel. During the Habitat Survey no mammals were observed within the application site. Whilst the peripheries of the site has the potential to support a number of other small mammals, no evidence was found to indicate the presence of any 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 eight species of birds for the search area including greater white-fronted goose (*Anser albifrons*) a species listed under Annex I of the EU Birds Directive. Historically, peregrine falcon (*Falco peregrinus*) also listed under Annex I of the EU Birds Directive has been recorded at the quarry..	The habitats present in the application site provide opportunities for a range of birds associated with farmland and those species that utilised quarry sites. During the Habitat Survey a total of nine species of birds were recorded visually and/or aurally at and in the vicinity of the application site. None of the species recorded are listed under Annex I of the EU Birds	Local (lower)	Protected under the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000. The application site provides limited breeding and foraging opportunities for birds except those typically associated with quarries and is not likely to be important or critical for any particular individual species or local populations of birds.

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
		Directive, red listed[8] or amber listed[9] Birds of Conservation Concern in Ireland (BoCCI)[10]. During the survey no evidence was recorded to indicate the presence of and breeding by peregrine falcon. A full list of the birds recorded during the Habitat Survey and their conservation status is provided at Appendix 6B.		
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

[8] 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
[9] 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.
[10] 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	NBDC returned no records for common frog (*Rana temporaria*) within the search area.	The application site and the immediate surrounding area supports sub-optimal breeding and terrestrial habitat for common frog. During the Habitat Survey no evidence was found to indicate the presence of common frog in the application site.	Not applicable	All reasonable likelihood of absence
Smooth Newt	NBDC returned no records for smooth newt (*Lissotriton vulgaris*) within the search area.	The application site and the immediate surrounding area supports sub-optimal breeding and terrestrial habitat for smooth newt. During the Habitat Survey no evidence was found to indicate the presence of smooth newt in the application site.	Not applicable	All reasonable likelihood of absence
Invertebrates				
Invertebrates	NBDC returned one record for a notable species of invertebrate, namely the large red-tailed bumble bee (*Bombus (Malanobombus) lapidarius*) red listed as Near	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 or notable 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.

Species	Desk-based Study	Description of Use or Likely Use of the Application Site	Level of Value	Rational
	Threatened[11] that relates to Knockmaa Hill.			
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

[11] Ú. Fitzpatrick, T.E. Murray, A. Byrne, R.J. Paxton & M.J.F. Brown (2006). *Regional Red List of Irish Bees*. Higher Eduction Authority.

Summary of Important Ecological Features

6.46 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.

6.47 Based on the above, the identified important ecological features with the potential to be affected by the proposed continued use of the existing quarry and proposed storage yard at Cartron 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	Knockmaa Hill pNHA	National
	Belclare Turlough pNHA	National
Species	Bird assemblage	Local (lower)

Potential Effects

6.48 This section assesses the ecological impacts from the proposed continued use of the existing quarry and proposed storage yard at Cartron 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.

6.49 To assess the effects of the proposed development 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

6.50 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 proposed continued use of the existing quarry and proposed storage yard at Cartron within an overall application area of c. 15.09ha. Planning permission specifically sought for the following:

- Continued use of the existing quarry (granted under Planning Ref. File No.: 06/2275 and ABP Ref.: PL07.222783), including drilling, blasting, crushing, processing, and

stockpiling of materials within a total site area of 15.09 hectares to the permitted depth of 33m OD.

- Continued use of existing permitted structures and facilities, including:
  - Weighbridge and wheelwash with side and overhead spray bars.
  - Office and staff facilities building and carpark provision (Ref. 17512).
  - Asphalt plant (Ref. 15104), concrete batching plant (Ref. 20419), maintenance shed (Ref. 141295), aggregate shed, ESB substation (Ref. 191964), crushing and screening plant, and stock bays (Ref. 062275 & 21442).
  - Associated site infrastructure.
- Construction of a new quarry storage yard (c. 1.09 Ha.) to the east of the existing quarry.
- Relocation of the existing permitted sheds (Plan Ref File No. 141295) to area beside proposed storage yard area.
- Importation of soil and stone (both waste and non-waste) for site restoration purposes and selected construction and demolition waste for recycling to preserve natural aggregate resources, subject to the necessary authorisations.
- The proposed development will facilitate the continued operation and restoration of the site, with the operational life of the quarry ceasing upon resource exhaustion, followed by restoration to agricultural and natural uses using imported material.

6.51 The proposed development is within an overall application area of c. 16.3 hectares and is for a total period of 35 years (the extraction operational period is for 33 years and the importation of materials for restoration is for a further 2 years).

Identification and Characterisation of Potential Impacts

6.52 The potential ecological impacts from the proposed continued use of the existing quarry and the development of a new storage yard at Cartron fall into three main categories:

- Impacts arising from the proposed construction activities, specifically the stripping of vegetation, topsoil and overburden, and the reduction of ground levels in the proposed storage yard area;
- Impacts arising from the continued operation of the limestone quarry (operational phase); and
- Impacts arising from the phased restoration of the site (post-operational phase).

6.53 The current consented quarrying operations have already resulted in the stripping of nearly all vegetation, topsoils and overburden, and the extraction and processing of rock to the permitted depth of 33m OD in much of the quarry. As such, no additional preparation works are required within the active quarry void for continued extraction. However, preparation works will be required in the proposed storage yard area, which remains vegetated and at existing ground level. These works will include the clearance of vegetation, stripping of topsoil and subsoil, and ground level reduction to achieve the intended yard layout. These actions constitute a short-term construction phase and have the potential to result in ecological impacts that must be assessed and mitigated accordingly.

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

6.54 The sources of potential impacts arising from the proposed continued use of the existing quarry and proposed storage yard at Cartron 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.

6.55 The continued use of the existing quarry will not result in any loss of habitat within the application site over and above that has already been consented through existing planning permissions and which was previously assessed in previous Environmental Impact Assessment carried out to inform all such planning applications.

6.56 The development of the asphalt and concrete batching plants were subject to assessments as part of their respective planning applications (Planning Reference 15104 and 20419 respectively). The continued use of these will not result in any change in baseline conditions or any air emissions licence and therefore it is considered that there is not a requirement to undertake any further assessment on emissions to air.

6.57 Where protected species are present, the quarry has an existing responsibility to ensure that all consented quarrying operations comply with relevant statutory legislation to ensure the protection of these species for example breeding birds.

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

Impact Source	Nature of Impact	Important Ecological Feature Potentially Affected
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	Knockmaa Hill pNHA Bird assemblage

	up to a distance of up to 300m from its source for high level and discontinuous disturbance with these distances 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[12] 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. <u>Vibration</u> Any blasting operations have the potential to generate vibration. Studies into the effects of blasting on nesting falcons indicate that quarry blasting initiated flight up to 500m from the point source of any blast. The maximum distances at which vibration from other operational sources may be just perceptible to humans is between 30 to 50m from its source and this is likely to be similar for most groups of species. Whilst it is generally recognised vibration can disrupt wildlife the effect of vibration are usually masked by other disturbance and noise. It is likely that any species sensitive to increase noise will also be sensitive to vibration whilst less sensitive species to noise are likely to tolerate levels of vibration.	
Dust deposition	The stripping and stockpiling of soils and overburden, the extraction of rock, traffic movements and other associated works have the potential to generate dust.	Knockmaa Hill pNHA

[12] Ormerod, L., Goodlad, N. and Horton, K. (2005). *AQTAG09 – Guidance on the Effects of Industrial Noise on Wildlife.* Air Quality Technical Advisory Group

	Traffic movements, the extraction, handling and stockpiling of aggregates and other associated works have the potential to generate dust. Literature suggests that the most sensitive species area to be affected by dust deposition at levels above 1000 mg/m2/day[13] 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 extraction 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[14]. 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 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)[15] 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 the sensitivity of ecological receptors[16] advises an assessment of the effects of dust from earthworks (stripping of peat /I soils / overburden) and trackout (movement of vehicles) will normally only be required where an ecological receptor occurs within 50m boundary of	

[13] Farmer, A.M. (1993). *The Effects of Dust on Vegetation - A Review*. Environmental Pollution Vol.79, Issue 1, Pages 63-75.
[14] Department of the Environment (1995). *The Environmental Effects of Dust from Surface Mineral Workings*. Volume 1: Summary Report & Best Practice Guides. HMSO.
[15] IAQM (2016). *Guidance on the Assessment of Mineral Dust Impacts for Planning*. Version 1.1 dated May 2016. Institute of Air Quality Management, London.
[16] IAQM (2024). *Guidance on Assessment of Dust From Demolition and Construction*. Version 2.2 dated January 2024. Institute of Air Quality Management, London.

	the site or 50m of routes used by heavy duty vehicles (HDVs) on public highways up to 250m from the site entrance.	
Alterations to hydrogeological 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 upon the 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 ecosystem (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, the nature of mineral extraction operations and the requirements and rates of any dewatering operations and discharge of wastewater.	Belclare Turlough pNHA
Changes in water quality (groundwater)	Contamination of groundwater can occur through the direct recharge of groundwaters close to the ground surface, or of deeper aquifers through percolation and other hydrological pathways that may affect surface waters (where there is a potential ground and surface water hydraulic connectivity).	Belclare Turlough pNHA

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

6.58 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.

6.59 The restoration of the site to agricultural land and natural habitats, occurring on a phased approached during the operation of the quarry and continuing cessation of quarrying operations, is likely to have a positive and beneficial effect on wildlife. 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

6.60 Table 6.11 details the assessment of predicted effects on the identified and relevant important ecological features from the proposed continued use of the existing quarry and proposed storage yard at Cartron 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)
Knockmaa Hill pNHA		
Disturbance from human activity, noise and vibration	<u>Assessment of Effects</u> Noise monitoring at the quarry would indicate that noise levels generated by the quarry and associated manufacturing facilities is below 55dB outside the quarry site. As the quarry floor is lowered, the quarry walls will provide an increased noise barrier resulting in lower noise levels. Noise levels are then predicted to rise through the phased restoration of the site, but are still predicted to be below 55dB until the site is restored to agricultural land and natural habitats. Monitoring of blasting operations show that the Peak Particle Velocity (PPV) of any groundborne vibration ranges from <0.5 to 1.84 mm/sec (2018-2023) and Air Over Pressure of <100 to 125 dB(L) and is below the Environment Protection Agency's (EPA) recommended levels of 12mm/s PPV. The extraction system will continue to use drilling and blasting, typically one day per month but which may increase to twice per month during periods of high demand, to fragment the limestone prior to its processing using mobile crushing and screening plant within the quarry void to produce a range of aggregate materials. The proposed continuation of quarrying operations and associated manufacturing facilities at Cartron will not result in any lateral changes in the direction of any disturbance generated by the quarrying operations or would result in an increase in levels of disturbance outside the boundaries of the quarry site. Any species present at Knockmaa Hill are likely to be habituated to noise, other human disturbance and vibration from the existing quarry. Therefore no significant effects are predicted on the status of any species which add to the interest of this designated site.	Not significant
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
Dust deposition	<u>Assessment of Effects</u> Dust deposition monitoring at the quarry would indicate dust levels generated from the quarry site and association manufacturing plants are typically below 350mg/m^2/day under guidelines published by the Department of the Environment, Heritage and Local Government (DoEHLG) for dust deposition at extraction sites[17]. The annual mean concentration of particulate matter with aerodynamic diameter of less than 10µm (PM_{10}) in 2023 was 10.86µg/m^3, with the quarry potentially contributing 5µg/m^3. The dust generated at the quarry is considered to be inert and will not result in any chemical reactions or toxicological effects to plants associated with the deciduous woodland, limestone pavement and heath habitats found on Knockmaa Hill. Knockmaa Hill pNHA and its associated habitats is assessed as a medium sensitivity receptor and with a low dust impact. This would mean that the magnitude of dust effects is negligible risk and no effects are predicted from the process contribution of PM10 to the deciduous woodland, limestone pavement and heath habitats and associated species of flora. The continuation of quarrying operations and associated manufacturing plants at this site is not predicted to result in any significant changes in baseline conditions and no effects are predicted on the structure and plant communities present at Knockmaa Hill pNHA.	Not significant
	<u>Mitigation</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Belclare Turlough pNHA		
Alterations to hydrogeological conditions	<u>Assessment of Effects</u> The quarry at Carton lies within a karstified landscape characterised by numerous karst features such as springs, swallow/sinkholes, depressions and turloughs.	Not significant

[17] DoEHLG (2004). *Quarries and Ancillary Activities - Guidelines for Planning Authorities.* Department of the Environment, Heritage and Local Government.

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
	The quarry is underlain by the Clare-Corrib Groundwater Body (GWB), that has an overall groundwater flow direction to the southwest, with all groundwater discharging to Lough Corrib 8.8km south west of the quarry. Most of the groundwater flows are in an epikarstic layer a couple of metres thick and in a zone of interconnected solutionally-enlarged fissures and conduits that extend up to 30m below this[18]. Some localised groundwater flows may also go towards the River Clare lying c. 4.6km east. With a proposed floor level of 33mOD, the quarry will continue to be worked above the groundwater table with no requirement for any surface or groundwater discharge licence. At 33mOD the quarry floor will remain at a higher elevation than Belclare Turlough pNHA (typically <30mOD). Based on a final floor level of 33mOD and with natural groundwater flows expected to be in a south westerly and easterly direction it is considered that there is no hydrogeological connectivity between the application site and Belclare Turlough pNHA. Therefore the continuation of quarrying operations at Cartron will have no effects on the hydrogeological regime of the Belclare Turlough pNHA or on its associated wintering wildfowl and wader assemblages.	
	<u>Mitigation:</u> No specific ecological mitigation is required as impact is assessed as not significant.	
Changes to water quality (groundwater)	<u>Assessment of Effects</u> As detailed above, there is no hydrogeological connectivity between the application site and Belclare Turlough pNHA. The continuation of quarrying operations at Cartron will not result in any changes in the status of groundwater at Belclare Turlough no effects on its associated habitats or wintering and wildfowl and wader assemblages.	Not significant
	<u>Mitigation:</u> No specific ecological mitigation is required as impact is assessed as not significant.	

[18] Clare-Corrib GWB: Summary of Initial Characterisation dated 2004.

Impact	Assessment of Effects	Significance of Impact Before and After Mitigation (Residual Impact)
Bird Assemblage		
Disturbance from noise and human activity	<u>Assessment of Effects:</u> The continuation of quarrying operations at Cartron is not anticipated to increase the overall levels of disturbance at the quarry or within the wider surrounding area. The direction of any disturbance is also not expected to change from current baseline. Any species recorded at the quarry and wider surrounding area are already likely to be habituated to noise, other human disturbance and vibration from the existing quarry. Therefore no significant effects are predicted on the overall population status of any bird species at and within the local surrounding area from the deepening of the existing quarry.	Not significant
	<u>Mitigation:</u> No specific ecological mitigation is required as impact is assessed as not significant.	

Ecosystem Services

6.61 The application site at this current time is not considered to provide any ecosystem services in terms of provisioning, regulating, supporting or cultural services.

6.62 Through the restoration of the site to agricultural land and natural habitats there is likely to be some provisional and regulating services provided by agricultural grassland although based on the scale and nature of the site this is likely to be limited and therefore the ecosystem services provided are not likely to be significant or important in the locality of the existing quarry site or its immediate wider surrounding area.

Cumulative Effects

6.63 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

6.64 No ecological enhancement and/or compensation is deemed necessary for the proposed continuation of use of the existing quarry and proposed storage shed at Cartron..

Monitoring

6.65 No specific ecological monitoring is deemed necessary as part of the proposed continuation of quarrying operations and the proposed storage yard at Cartron.

Legal and Policy Implications

Legal Implications

6.66 The continued use of an existing quarry and proposed storage yard at Cartron has no implications for any statutory designated nature conservation sites, important habitats and/or protected species.

Policy Implications

6.67 The continued use of an existing quarry and proposed storage yard at Cartron will be in compliance with current planning policies relating to biodiversity at national, regional and local levels..

Residual Effects

6.68 The continued use of an existing quarry and proposed storage yard at Cartron will have no will have no residual impacts on Biodiversity.

FIGURES

Turlough O'Gall pNHA

Killower Turlough pNHA

Belclare Turlough pNHA

Knockmaa Hill pNHA

Cillín

Mound

Carrowbeg North

Common or Turloughnarover

Pollaturk or Newgarden

Claretuam

Thomastown

Sch

Belclare

Béal Chláir

Polldarragh

Ch

R333

Castlehacket

Castle

Carrowbeg South

PO

Graveyard

Carrowntemple

Cillín

Cairn

Reservoir

Knockacarrigeen

Tobermina

Knockmaa

Castle

Cairn

167

Cartron

Glennafosha

Caltragh

Caherhugh

Cillín

54

66

Ballaghbaun

Cillín

Levally

Carheens

Agricultural Institute

Ballydotia West

Ballydotia East

Ballagh

63

Garraun North

Fearagha

Loughanspark

Culleen

N

W

E

S

RECEIVED: 13/06/2025

NOTES

LEGEND

APPLICATION SITE

2KM RADIUS

PROPOSED NATURAL HERITAGE AREA (pNHA)

QUARRY CONSULTING

CONTINUED USE OF AN EXISTING QUARRY AND PROPOSED STORAGE YARD AT CARTRON, BELCLARE, CO. GALWAY

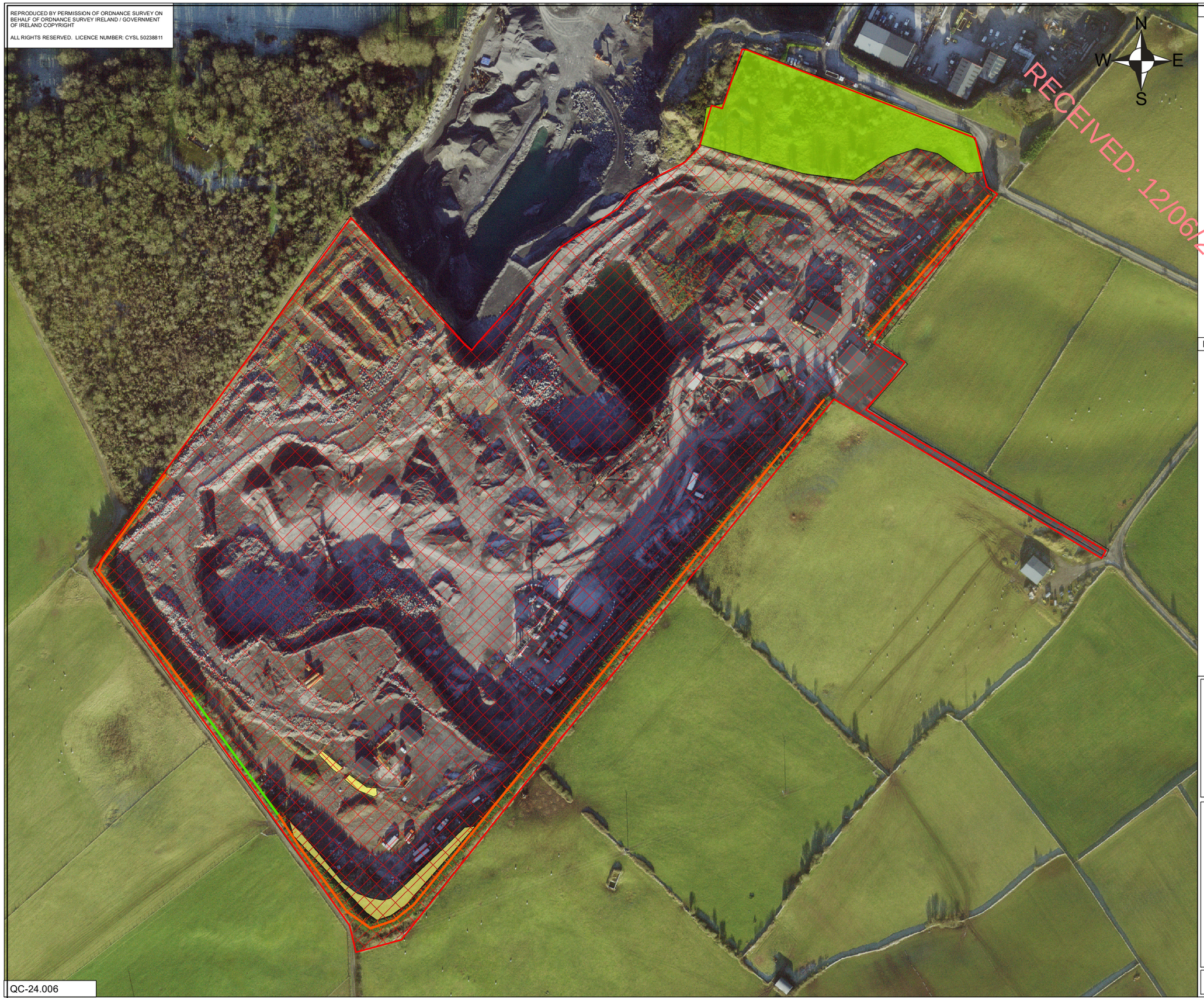
DESIGNATED SITES

FIGURE 6.1

Scale 1:18,286 @ A3

Date APRIL 2025

QC-24.006



NOTES

LEGEND

- APPLICATION SITE
- ED4 - ACTIVE QUARRIES AND MINES
- BL3 - BUILDINGS AND ARTIFICIAL SURFACES
- GS2 - DRY MEADOWS AND GRASSY VERGES
- WS1 - SCRUB
- WL1 - HEDGEROWS
- WL2 - TREELINES

QUARRY CONSULTING

CONTINUED USE OF AN EXISTING QUARRY AND PROPOSED STORAGE YARD AT CARTRON, BELCLARE, CO. GALWAY

HABITAT PLAN

FIGURE 6.2

Scale	Date
1:2,407 @ A3	APRIL 2025

QC-24.006

APPENDICES

APPENDIX 6A: LOCAL POLICIES RELEVANT TO BIODIVERSITY

Policy / Objective	Description
Natural Heritage and Biodiversity	
NHB 1: Natural Heritage and Biodiversity of Designated Sites, Habitats and Species	Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan. Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999). Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network.
NHB 2: European Sites and Appropriate Assessment	To implement Article 6 of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. All such projects and plans will also be required to comply with statutory Environmental Impact Assessment requirements where relevant.
NHB 3: Protection of European Sites	No plans, programmes, or projects etc. giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects.
NHB 4: Ecological Appraisal of Biodiversity	Ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites. Where appropriate require an ecological appraisal, for development not directly connected with or necessary to the management of European Sites, or a proposed European Site and which are likely to have significant effects on that site either individually or cumulatively.

Policy / Objective	Description
NHB 5: Ecological Connectivity and Corridors	Support the protection and enhancement of biodiversity and ecological connectivity in non-designated sites, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stonewalls, geological and geo-morphological systems, other landscape features and associated wildlife areas where these form part of the ecological network and/or may be considered as ecological corridors in the context of Article 10 of the Habitats Directive.
NHB 7: Mitigation Measures	Require mitigating measures in certain cases where it is evident that biodiversity is likely to be affected. These measures may, in association with other specified requirements, include establishment of wildlife areas/corridors/parks, hedgerow, tree planting, wildflower meadows/marshes and other areas. With regard to residential development, in certain cases, these measures may be carried out in conjunction with the provision of open space and/or play areas.
NHB 9: Protection of Bats and Bats Habitats	Seek to protect bats and their roosts, their feeding areas, flight paths and commuting routes. Ensure that development proposals in areas which are potentially important for bats, including areas of woodland, linear features such as hedgerows, stonewalls, watercourses and associated riparian vegetation which may provide migratory/foraging uses shall be subject to suitable assessment for potential impacts on bats. This will include an assessment of the cumulative loss of habitat or the impact on bat populations and activity in the area and may include a specific bat survey. Assessments shall be carried out by a suitably qualified professional and where development is likely to result in significant adverse effects on bat populations or activity in the area, development will be prohibited or require mitigation and/or compensatory measures, as appropriate. The impact of lighting on bats and their roosts and the lighting up of objects of cultural heritage must be adequately assessed in relation to new developments and the upgrading of existing lighting systems.
Water Resources	
WR1: Water Resources	Protect the water resources in the plan area, including rivers, streams, lakes, wetlands, springs, turloughs, surface water and groundwater quality, as well as surface waters, aquatic and wetland habitats and freshwater and water dependant species in accordance with the requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EC), the European Union (Water Policy) Regulations 2003 (as amended), the River Basin District Management Plan 2018 – 2021 and other relevant EU Directives, including associated national legislation and policy guidance (including any superseding versions of same) and also have regard to the Freshwater Pearl Mussel Sub-Basin Management Plans.
Wetlands, Turloughs, Watercourses	

Policy / Objective	Description
WTWF 1: Wetland Sites	Protect and conserve the ecological and biodiversity heritage of the wetland sites in the County. Ensure that an appropriate level of assessment is completed in relation to wetland habitats that are subject to proposals which would involve drainage or reclamation that might destroy, fragment or degrade any wetland in the county. This includes lakes and ponds, turloughs, watercourses, springs and swamps, marshes, fens, heath, peatlands, some woodlands as well as some coastal and marine habitats. Protect Ramsar sites under The Convention on Wetlands of International Importance (especially as Waterfowl Habitat).
Peatlands	
P1: Protection of Peatlands	Ensure that peatland areas which are designated (or proposed for designation) as NHAs, SACs or SPAs are conserved for their ecological, climate regulation, education and culture, archaeological potential including any ancient walkways (toghers) through bogs.
P2: Best Practice in Peatland Conservation and Management	Work in partnership with relevant stakeholders on all suitable peatland sites to demonstrate best practice in sustainable peatland conservation, management and restoration techniques and to promote their heritage and educational value subject to Ecological Impact Assessment and Appropriate Assessment Screening, as appropriate.
Invasive Species	
IS 1: Control of Invasive Alien Invasive Species	It is a policy objective of the Planning Authority to support measures for the prevention and eradication of invasive species.
IS 2: Invasive Species Management Plan	Ensure that proposals for development do not lead to the spread or introduction of invasive species. If developments are proposed on sites where invasive species are currently or were previously present, an invasive species management plan will be required. A landscaping plan will be required for developments near water bodies and such plans must not include alien invasive species.
Trees, Woodlands, Hedgerows and Stone Walls	
TWHS 1: Trees, Hedgerows, Natural Boundaries and Stone Walls	Protect and seek to retain important trees, tree clusters and tree boundaries, ancient woodland, natural boundaries including stonewalls, existing hedgerows particularly species rich roadside and townland boundary hedgerows, where possible and replace with a boundary type similar to the existing boundary. Ensure that new development proposals take cognisance of significant trees/tree stands and that all planting schemes developed are suitable for the specific site and use suitable native variety of trees of Irish provenance and hedgerows of native species. Seek Tree Management Plans to ensure that trees are adequately protected during development and incorporated into the design of new developments.
TWHS 2: Protection of Forestry	Protect all substantial areas of deciduous forest, other than areas of commercial forestry. Proposals for development in these areas should seek to interact with the landscape character of the forested areas and its limits while also enhancing the forested areas so as to increase biodiversity value.

Policy / Objective	Description
Eskers	
ESK 1: Protection of Eskers	Protect and conserve the landscape, natural heritage and biodiversity value of esker systems in the county. Assess applications for quarrying and other proposed developments with reference to their status of relative importance, for example, amenity, landscape and scientific value in the context of the overall esker system.
Inland Lakes, Waterways	
IW 1: Inland Waterways	(a) Protect and conserve the quality, character and features of inland waterways by controlling developments close to navigable and non-navigable waterways in accordance with best practice guidelines. (b) Preserve, protect and enhance Galway's inland lakes and waterways for their amenity and recreational resource amenity. (c) Protect the riparian zones of watercourse systems throughout the County, recognising the benefits they provide in relation to flood risk management and their protection of the ecological integrity of watercourse systems and ensure they are considered in the land use zoning in Local Area Plans. (d) The Planning Authority will support in principle the development and upgrading of the Inland Waterways and their associated facilities in accordance with legislation, best practice and relevant management strategies, key stakeholders and bodies including Waterways Ireland. (e) Ensure all abstractions of water will be subject to assessment for compliance with the requirements of Article 6 of the Habitats Directive. (f) Seek to provide additional accesses to lake shores and rivers for public rights of way, parking and layby facilities, where appropriate. (g) Developments shall ensure that adequate soil protection measures are undertaken, where appropriate, including investigations into the nature and extent of any soil/groundwater contamination.
Green and Blue Infrastructure	
GBI 1: New Developments	Require all proposals for large scale development to contribute to the protection, management and enhancement of the existing green/blue infrastructure of the County and the delivery of new green/blue infrastructure, where appropriate by including a green/ blue infrastructure plan as an integral part of any planning application. This plan should identify environmental and ecological assets, constraints and opportunities and shall include proposals which protect, manage, and enhance the development of green infrastructure resources in a sustainable manner.

APPENDIX 6B: SUMMARY OF BIRDS RECORDED DURING THE HABITAT SURVEY (APRIL 2024)

Scientific Name	Common Name	Annex I EU Birds Directive	Red List	Amber List
Columba palumbus	Wood Pigeon	-	-	-
Corvus cornix	Hooded Crow	-	-	-
Corvus monedula	Jackdaw	-	-	-
Erithacus rubecula	Robin	-	-	-
Motacilla alba	Pied Wagtail	-	-	-
Parus major	Great Tit	-	-	-
Pica pica	Magpie	-	-	-
Troglodytes troglodytes	Wren	-	-	-
Turdus merula	Blackbird	-	-	-