



6. Biodiversity

6.1 Introduction

Ecology Ireland was commissioned by Tom Phillips and Associates on behalf of Milford Quarries Ltd. to prepare the Biodiversity Chapter in relation to the proposed development and expansion of an existing inactive sandstone quarry at Redrock Quarry, Clogrennane, Co. Carlow, comprising an area of 41.86ha. This assessment is required as part of the Environmental Impact Assessment Report (EIAR) process, with the EIAR accompanying a planning application under Section 37L of the Planning and Development Act 2000, as amended.

This EclA has been prepared using 'Draft Guidelines on the Information to be contained in Environmental Impact Assessment Report (EIAR)' (EPA 2022).

The main objectives of this study were to:

- Undertake a desktop review of available ecological data for the development site and surrounding area, including a review of designated nature conservation sites potentially within the zone of influence of this project
- Describe the baseline ecological field assessment of the proposed development site in order to describe existing flora and fauna
- Evaluate the ecological significance of the proposed development site
- Assess potential impacts on the existing ecology that could arise from the proposed development
- Consider mitigation measures to eliminate or reduce potential negative impact(s) on the existing ecology arising from the extension of quarry operations and restoration of lands at Redrock Quarry, Clogrennane, Co. Carlow.

6.1.1 Statement of Authority

The survey methodology was developed by Dr Gavin Fennessy of Ecology Ireland Wildlife Consultants Ltd. (Ecology Ireland). Bird surveys were carried out by Dr Gavin Fennessy. Dr Shane Somers conducted habitat mapping, assisted with the eDNA sampling and the general baseline ecological assessment. Dr John Conaghan conducted a botanical and habitat survey. Terrestrial mammal surveys, including trail camera deployment and passive bat surveys were carried out by Dr Gavin Fennessy. This report has been prepared by Dr Gavin Fennessy and Dr Karen Mullen. Short biographies of the ecological project team are provided below.

Dr Gavin Fennessy

Dr Gavin Fennessy (BSc PhD MCIEEM) is the Director & Principal Ecologist of Ecology Ireland Wildlife Consultants, a consultant ecologist with over 25 years of experience in environmental consultancy. Dr Fennessy has contributed to and Project Managed numerous ecological impact assessment projects including EclA, EIA, AA, SEA etc. Gavin is also an experienced Expert Witness having presented expert testimony at several An Bord Pleanála Oral Hearings.



He is also an experienced lecturer and has regularly contributed to B.Sc. Env. Sc. courses at UCC.

Dr Shane Somers

Dr Shane Somers is a professional ecologist, operating on a range of projects across Ireland. Shane has a PhD in ornithology with extensive experience in a variety of ecological assessments, specialising in bird, bat and habitat surveys and assessments. Shane has experience undertaking fieldwork and technical assessments for developments such as largescale windfarms, solar farms, recreation facilities, greenways, residential and parks projects. Shane is a skilled botanist and competent in most general ecological walkover survey skills. He is familiar with the key legislations and directives in Ireland such as the Habitats and Birds Directives, Irish Wildlife Act, Floral Protection Order, Schedule III invasive species etc.

Dr Karen Mullen

Dr Karen Mullen has over 12 years of professional experience in focused wildlife surveys and habitat assessments, bat surveys and analysis, and habitat mapping. She has worked on numerous projects related to renewable energy, infrastructure, housing, and various other development projects. She is an experienced field ecologist with extensive ecological survey experience, including habitats, terrestrial mammals, and birds.

Dr John Conaghan

Dr John Conaghan is a botanical/environmental consultant with 25 years of consultancy experience, specialising in the survey and assessment of vegetation and habitats. He has undertaken survey work in a wide range of habitats throughout Ireland including fens, grasslands, bogs, woodland and coastal habitats. Over the past 25 years Dr. Conaghan has carried out a large number of vegetation/ecology surveys with the vegetation ecology of bogs/fens and the distribution of Irish rare plants, particular fields of interest.

6.1.2 Description of the Subject Site and Existing Quarry

The proposed development site is located in the townland of Clongrenan, Co. Carlow and is located approximately 6km southwest of Carlow town and approximately 3km north-west of Ballinabranna, Co. Carlow and lies immediately south of the County Laois border. The development site encompasses an existing (inactive) quarry facility and adjacent predominantly agricultural lands. The former quarry was used to extract sandstone bedrock with commercial quarrying activity ceasing in 2014, with some minor extraction activity taking place following this (refer to S177E Planning Report for further details). There is limited vegetative cover present within the existing quarry with areas of spoil and bare ground, recolonising bareground, some artificial lakes and ponds and boundary scrub. The overall landholding has a total area of 45.68ha.

The development site is surrounded by agricultural lands and one-off rural housing to the north, south, east and west. There is an area of forestry immediately adjacent to the west of



proposed development site, with forest areas are also located to the northwest and south of the proposed development site. Clogrennan Woods, a Coillte property with a long-established woodland (circa 1800's) is located 0.5km to the east. The proposed development site is accessed from the L7130 and L7134 public road to the east. An access road to the quarry branches off this local road and runs along the northern boundary of the existing quarry void.

This general area has a long association with extraction activities. The proposed development site is 1.5km east of the Bilboa, Co. Laois which is historically a coal-mining settlement while an active quarry, Clogrennane Lime Ltd. is located approximately 1.5km to the southeast of the proposed development site.

The majority of the proposed development site is located within the River Barrow surface water catchment and Hydrometric Area 14 of the Southeastern River Basin District. Part of the southwest of the proposed development site is located within the River Nore surface water catchment and Hydrometric Area 15 of the Southeastern River Basin District. EPA mapping indicates a stream (identified as Raheendoran Stream) flowing through the site before ultimately discharging into the River Barrow. However, walkover surveys and drainage mapping indicate that the course of this stream has been altered by the historic quarrying activities and no watercourses cross the existing quarry void. Water gathers in the floor of the existing quarry and drains out from an existing pond in the north of the quarry. From here the stream/quarry discharge flows to the southeast along the existing quarry access road. The drain is culverted under the access road and flows to the east where it joins the Mortarstown Stream to the east. This stream flows east and discharges into the Fushoge River just upstream of its confluence with the River Barrow.

There is no existing discharge from the quarry within the River Nore catchment. However, there is an unnamed stream c. 1.3km west of the site which connects to the Dinin River that ultimately discharges into the River Nore. It is possible that runoff from some areas in the west of the site may currently flow to the west towards the Dinin River.

6.1.3 Proposed Quarry Extension

The proposed development site consists of an area of 41.86ha within a total landholding of 45.68ha. This same site is subject to a concurrent S177E Substitute Consent Application for the existing quarry to regularise previous unauthorised development. The proposed development will consist of further quarry extraction over an area of 16.17ha to include the pre-existing quarry and additional agricultural lands with a projected lifespan of c. 20 years.

The proposed development will involve blasting, extraction and processing of rock using mobile primary crushing / screening and associated plant on the proposed quarry floor. The proposed quarry void will be extracted over 4 phases to a quarry depth of c. 300m with a proposed rate of extraction of c. 200K tonnes per annum. The proposed development will include for construction of earthen screening berms, soil storage areas and will utilise existing quarry entrance from the northern boundary linking to the L7130 local road to the east. Existing and proposed access tracks and existing settlement ponds will be utilised as part of the proposed development. The proposed development will be accompanied by a phased restoration plan.



The proposed development site is shown in Figure 6.1 and expansion is intended to be carried out in phases as outlined in Chapter 3 (see Figure 3.2) subject to An Coimisiún Pleanála's approval of the Section 177E(1A) substitute consent application for historic extraction activities.

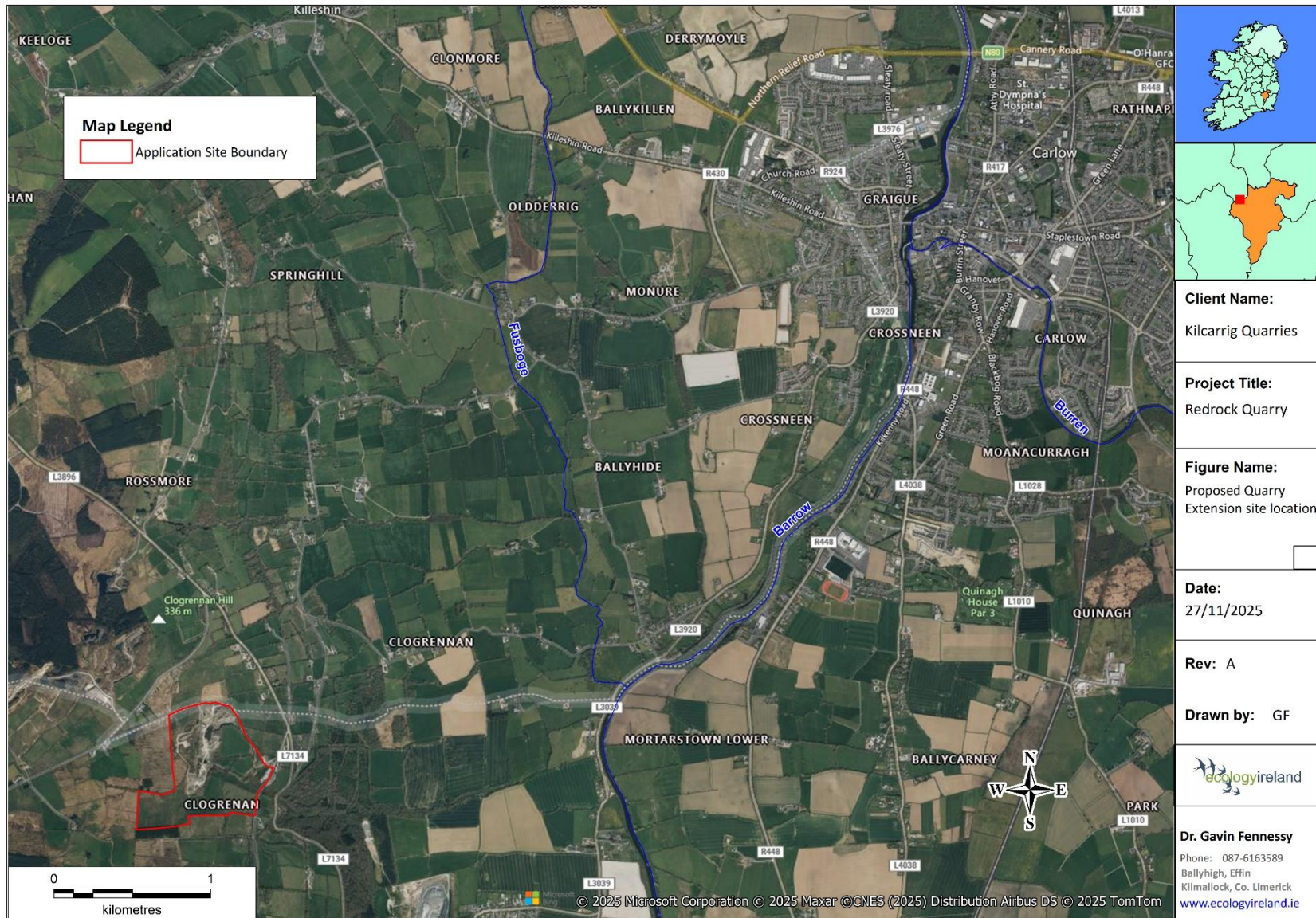


Figure 6.1 Proposed quarry extension site, southwest of Carlow town.

6.2 Methodology

This study involved undertaking a desktop review and site surveys of the proposed development site and receiving environment, including the upstream and downstream watercourses. The relevant 10km and 2km grid square that overlaps the site was identified and the following databases were reviewed for relevant information for that grid square:

- Department of Housing, Planning, Community and Local Government (DHPCLG) online land-use mapping (www.myplan.ie/en/index.html);
- Environmental Protection Agency (EPA) geoportal mapping tool (<https://gis.epa.ie/EPAMaps/>);
- National Parks and Wildlife Service protected site and species information and data (<https://www.npws.ie/protected-sites>);
- Botanical Society of Britain and Ireland (BSBI) plant distribution maps (<https://bsbi.org/recording/maps-data/distribution>);
- Bat Conservation Ireland data on bat roosts and activity;
- National Biodiversity Data Centre (www.biodiversityireland.ie); and
- Ordnance Survey of Ireland mapping and aerial photography (www.osi.ie).

Field surveys of the proposed development site were carried out between July 2025 and August 2025. The schedule of these field surveys is presented in Table 6.1.

Table 6.1 Field Survey Schedule

Date	Time	Survey	Weather	Ecologist
07/07/2025	10:00 – 15:45	Transect bird surveys, VP surveys, trail cameras and passive bat detector deployment, general walkover survey	Sunny spells, Dry, becoming more overcast Cloud 3-6/8, Wind F2, Good visibility	Gavin Fennessy
07/08/2025	09:20 – 15:00	Transect bird surveys, VP surveys, general walkover	Dry, sunny, Cloud 2/8, Wind F2-3, Good visibility	Gavin Fennessy
09/08/2025	11:15-17:00	General walkover, habitat mapping, mammal survey, bat roost survey	Dry, overcast, Temp 16°C	Shane Somers
10/08/2025	10:55-18:00	General walkover, habitat mapping, mammal survey, bat roost survey, eDNA sampling	Mostly dry, overcast, Temp 17°C	Shane Somers/Gavin Fennessy
11/08/2025	11:00 -14:45	Habitat and botanical survey	Mostly dry, brief shower, Cloud 4-7/8, Wind F1-2	John Conaghan



Date	Time	Survey	Weather	Ecologist
14/08/2025	11:45 – 15:00	Retrieve trail cameras and passive bat detectors, general walkover survey	Dry and sunny spells, Cloud 2/8, Wind F1, Good visibility	Gavin Fennessy

6.3 Desktop study

A desktop review of relevant data available for the proposed development site was undertaken reviewing previous ecological surveys from the quarry site as well as other relevant information (e.g. online ecology and environmental databases).

The National Parks and Wildlife Service (NPWS), National Biodiversity Data Centre (NBDC) and Botanical Society of Britain and Ireland (BSBI) online databases were consulted to identify any rare, protected and non-native invasive species located within the relevant national 10km and 2km grid squares encompassing the proposed development site.

The model of Bat Landscapes (Lundy *et al.* 2011), available on the NBDC website was consulted. This model is based on the relative importance of landscape and habitat associations for bat species in Ireland and the index ranges from 0 to 100, where 100 is the most suitable for bats.

6.4 Designated sites

European (Natura 2000) sites include Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's) for birds, nationally designated sites include Natural Heritage Areas (NHA's) and proposed Natural Heritage Areas (pNHA's). Designated nature conservation sites in the vicinity of the proposed development site were considered in detail as part of the terrestrial ecological assessment. Geographical Information Systems (GIS) software was used to map and measure the distance from the site boundary to nationally and European designated conservation sites. The boundary shapefiles were downloaded from NPWS in November 2025.

The potential for likely significant effects on European designated Natura 2000 sites arising from the proposed development is considered as part of a Screening for Appropriate Assessment and consequently the potential for adverse effects of the proposed project (in combination with other plans or projects) on Special Areas of Conservation and Special Protection Areas is assessed in the Natura Impact Statement that accompanies the EIAR. A nominal 15km hinterland area has been used in this assessment with reference, where appropriate, to more distant sites which may be ecologically linked with the development area. In keeping with current guidance, we consider the likely Zone of Influence (or Impact) for a proposed development and do not only consider sites out to this nominal distance of 15km. Where consideration of the Source-Pathway-Receptor (S-P-R) model indicates that there are likely significant effects which in the absence of mitigation will occur in relation to more distant sites, these are considered as part of the screening process.



6.5 Habitat and Botanical Assessment

A desktop review of botanical data available for the proposed development site was undertaken by consulting online databases to identify botanical species of interest (e.g. rare, protected) previously recorded within the relevant national grid squares that overlap the proposed development site; in this case a review was undertaken of S67, the 10km national grid square and S67R, the 2km national grid square that encompasses the site from the National Biodiversity Data Centre (NBDC) online database. A review of the Flora Protection Order (FPO) Map Viewer – Bryophytes database as held by the NPWS was also reviewed (November 2025).

As summarised in Table 6.1, the initial habitat mapping and botanical survey was undertaken on 8th, 9th and 10th August 2025. The habitat and flora site assessment was carried out in accordance with current Irish habitat survey guidelines.

Habitats were described and mapped following the standard scheme for classifying habitats in Ireland (Fossitt, 2000). The dominant plant species were recorded, and habitats were classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as corresponding Annex 1 habitats. Relative abundance of plant species was estimated using the DAFOR scale. The scientific names for plant species use nomenclature given in An Irish Flora (Parnell & Curtis 2012). Incidental sightings of other taxonomic groups were also recorded.

The conservation status of habitats and flora was considered in respect of the following: Irish Red Data Book for Vascular Plants (Wyse Jackson *et al.* 2016); Red List of Bryophytes (Lockhart *et al.* 2012); Flora Protection Order (2022); the EU Habitats Directive (92/43/EEC). Evaluation of the habitats present in terms of their ecological value was assessed using criteria amended from NRA (2009) and Nairn and Fossitt (2004).

6.6 Environmental DNA (eDNA)

To further validate site surveys and to detect any cryptically-low populations of protected and or rare aquatic species within the survey area, a composite water sample was collected from survey site at three pond locations within the development site (see Figure 6.2). This sample was analysed for white-clawed crayfish (*Austropotamobius pallipes*), Common frog (*Rana temporaria*), European eel (*Anguilla anguilla*) and Smooth Newt (*Lissotriton vulgaris*) environmental DNA (eDNA).

In accordance with laboratory guidance, a composite (500ml) water sample was collected from the sampling point, maximising the geographic spread of the sample (20 x 25ml samples at each site), thus increasing the chance of detecting the target species' DNA. The composite sample was filtered and fixed on site using a sterile proprietary eDNA sampling kit. The sample was stored at room temperature and sent to the laboratory for analysis within 48 hours of collection. A total of n=12 qPCR replicates were analysed for each sample. Given the high sensitivity of eDNA analysis, a single positive qPCR replicate is considered as proof of the species' presence (termed qPCR No Threshold, or qPCR NT). Whilst an eDNA approach is not currently quantitative, the detection of the target species' DNA indicates the presence of the species at and/or upstream of the sampling point.



Figure 6.2 Sampling locations for eDNA.



6.7 Terrestrial Fauna

6.7.1 Non-volant Mammals

Records of sightings and signs of non-volant mammals were recorded during the baseline ecological walkovers and dedicated mammal walkover surveys at the site. Surveys included a walkover of the proposed development site, identifying mammal species or signs of mammal activity seen (e.g. droppings, tracks, burrows etc.) and recording observations using field notes and/or handheld GPS units. All parts of the proposed development site were walked with particular focus on the field boundaries and areas with soft ground and/or vegetative cover. Techniques used to identify mammal activity followed recognised guidelines (e.g. Clark 1988, Sutherland 1996, Bang & Dahlstrom 2004 and JNCC 2004).

In addition, five digital trail cameras which take photographs and/or video when triggered by heat or motion, were also deployed at five locations to record mammal activity within the proposed development site during July and August 2025 (as summarised in Table 6.1). The locations at which trail cameras were deployed at the proposed development site is shown in Figure 6.3.

A desktop study of non-volant mammal data was also undertaken by consulting the NBDC online mapping database to identify species historically recorded within the relevant 10km and 2km national grid squares overlapping the development site. The conservation status of mammals was considered in respect of the following: EU Habitats Directive; Irish Wildlife Acts (1976 - 2012 as amended); and Red List of Terrestrial Mammals (Marnell *et al.* 2019).

6.7.2 Bat survey

There is a general lack of vegetative cover or suitable roost features for bats within the existing quarry site. Elsewhere with the extension area the field boundaries are of variable quality but are typically intensively managed and unattractive for roosting bats. However, there are areas of suitable foraging habitat within the development site. To assess the occurrence of bats within the development site, five full-spectrum passive bat detectors (Wildlife Acoustics SM4BAT) were deployed in July and August 2025 (Table 2.1 and Figure 6.3).

The purpose of this survey was to record bat activity in the area from which information on species composition, relative abundance and landscape usage could be derived. Species identification was aided by post hoc sonogram analysis using Wildlife Acoustics' Kaleidoscope Professional software (v. 5.6.3).

A desktop survey of the bat species recorded historically within the 2km and 10km grid squares which overlaps the proposed development site was carried out. A review of The Model of Bat Landscapes (Lundy *et al.* 2011) identifies a habitat suitability index for bat species in Ireland and the proposed development site is encompassed in one 10km grid square. In addition, data on the known bat roosts from the local area and species identified in other studies in this area were sourced from Bat Conservation Ireland. The conservation of Bat species was considered. All Irish bat species and their breeding, roosting and resting locations are legally



protected under both the Irish Wildlife Acts (1976-2010) and as Annex IV species in the EU Habitats Directive (92/43/EEC).

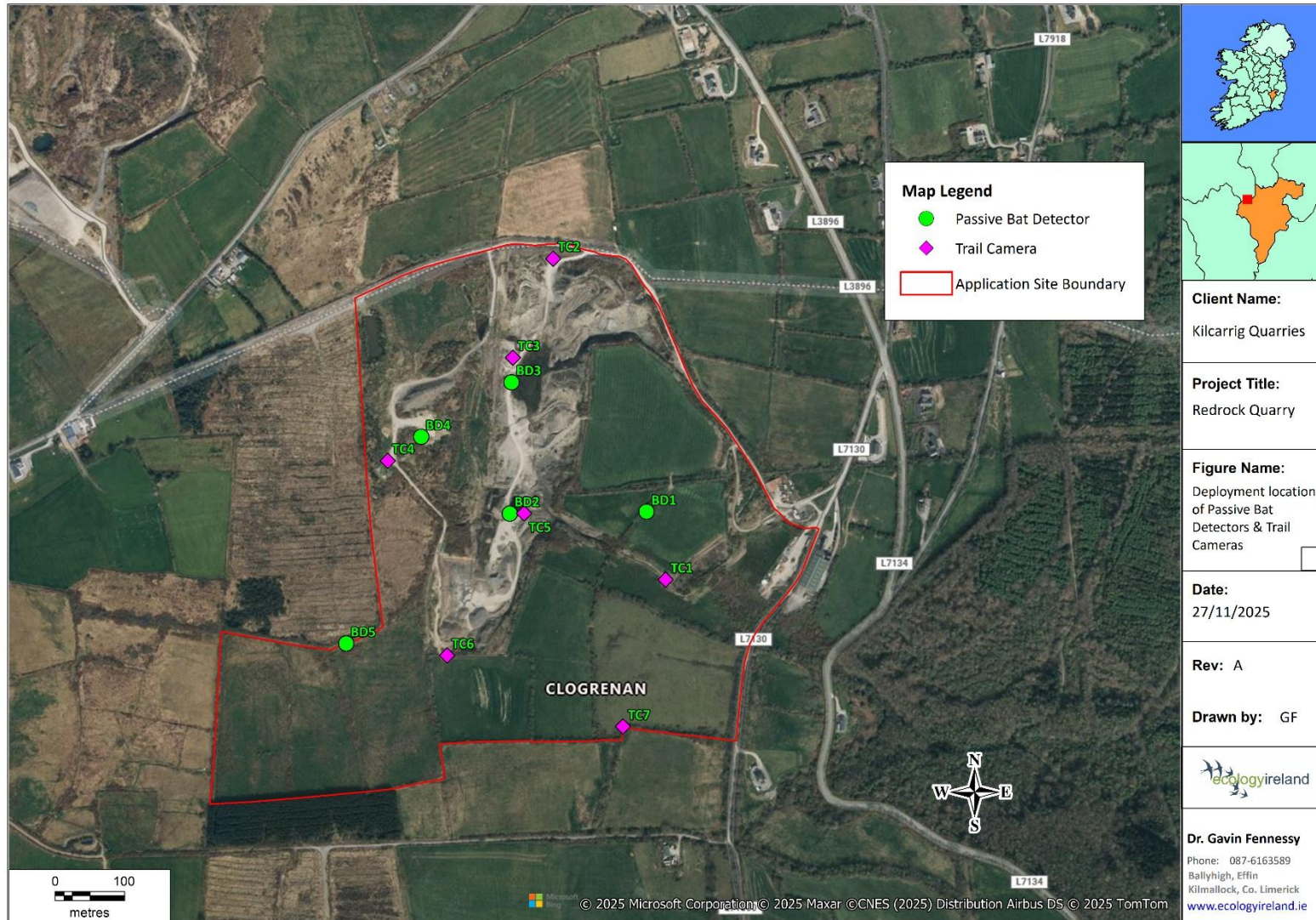


Figure 6.3 Deployment location of trail cameras and passive bat detectors.

6.7.3 Avian assessment

There is a general paucity of vegetative cover within the application site which limits the attractiveness of many of the habitats present for bird species. The habitats present include those within the inactive quarry and areas of agriculture with field boundaries of variable quality

However, quarrying also creates habitats that are known to be attractive to certain species that use rock-faces to roost and nest. During each of the site visits a record was maintained of all avian species seen or heard in this area, including species observed in flight, commuting across the existing quarry. Field surveys were undertaken using appropriate survey equipment as required (e.g. GPS units, binoculars, telescope, notebooks etc.) and during suitable weather conditions.

Six dedicated bird transects, each of c. 500m in length were each surveyed in July and August 2025 (Figure 6.4). The number of each species seen/heard within 100m of the transect line were recorded. If a bird was only recorded more than 100m from the transect line, the bird was recorded as (P) present. Care was taken to minimise double-counting individuals in general, with counts focused on adult birds only, where possible, in line with standard transect survey practices (e.g., Countryside Bird Survey). Notes were also made of any observations of particular interest made during the transect and point count surveys.

A number of dedicated short Vantage Point watches (each c. 30minutes in duration) were used to scan the quarry faces within the existing quarry and to record the potential presence and use of the development area by Peregrine Falcon (*Falco peregrinus*) and also to record the general bird community present.

The primary purpose of these watches was to record the presence and activity of birds that appeared to be roosting or breeding within the quarry itself. A key focus of these summer surveys was to identify any raptor species using the quarry. In the event that a nest of a target species was located, this nest was watched from a safe distance using a high-magnification telescope to record the activity and confirm the status of the nesting attempt. All bird species seen or heard at the site during the proposed development site walkover and short VP surveys were noted. Any behaviours indicative of breeding or roosting on or in the vicinity of the site were recorded. The observations made during these VP watches was supplemented by the record made of all bird species seen or heard during the baseline ecological walkovers and from the analysis of the trail cameras deployed at the site.

In addition to the field surveys, a desktop study was also undertaken by consulting the National Biodiversity Data Centre (NBDC) online mapping database to identify additional avian species historically recorded within the relevant 2km and 10km national grid squares overlapping the proposed development site. The conservation status of bird species was considered in respect of the following: Irish Wildlife Acts (1976 – 2012 as amended); Birds of Conservation Concern in Ireland (BoCCI) Red, Amber and Green lists (see Gilbert *et al.* 2021); EU Birds Directive (2009/147/EC) Annex I list.

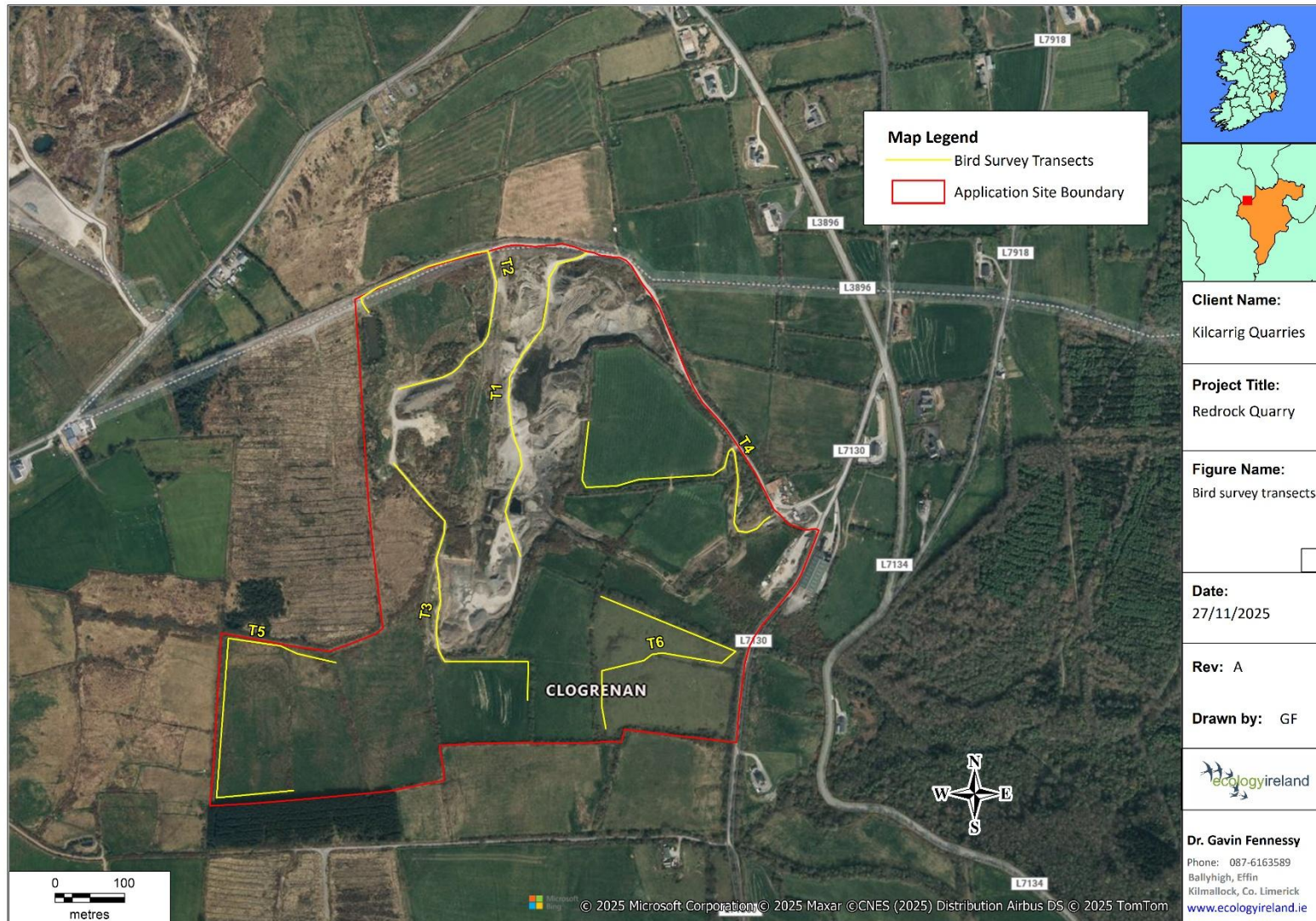


Figure 6.4 Location of bird survey transects.



6.7.4 Other taxa

Observations of other terrestrial taxa casually noted during other biodiversity surveys were also included as part of this assessment. A desktop study of other terrestrial taxa was also undertaken by consulting the NBDC online database to identify additional other taxa species that are legally protected previously recorded within the relevant 2km and 10km national grid squares overlapping the site.

The conservation status of other taxa was considered in respect of the following: Irish Wildlife Acts (1976 - 2012 as amended); Irish Red List for Butterflies (Regan *et al.* 2010); Irish Red List for Damselflies & Dragonflies (Nelson *et al.* 2011); Irish Red List for Amphibians, Reptiles & Freshwater Fish (King *et al.* 2011); Irish Red List for Non-Marine Molluscs (Byrne *et al.* 2009) and Regional Red List of Irish Bees (Fitzpatrick *et al.* 2006); EU Habitats Directive.

6.8 Results

6.8.1 Designated Conservation Sites

The proposed development site does not lie within any EU Natura 2000 site or nationally designated site. The closest European designated site is the River Barrow & River Nore SAC (002162), located a minimum of 2.1km from the proposed development site (Figure 6.5). This is the only Natura 2000 site located within 15km of the proposed development. The minimum distance overland from the application site boundary to European and Nationally designated sites in the wider area is presented in Table 6.2.

A total of 8 nationally designated conservation sites are located within 15km of the proposed development (Table 6.2; Figure 6.6). The closest of the nationally designated sites is Coan Bogs NHA (002382) located 5.0km from the application site. Seven pNHA's occur within 15km of the development site, the closest of these being Cloghrick Wood pNHA (000806) 3.4km from the application site boundary.

A summary of the qualifying interests of the River Barrow & River Nore SAC is provided in Table 6.3.

All potential pathways for impact on designated sites have been evaluated in the impact assessment both within and outside of the nominal 15km buffer area around the site. This buffer area is an arbitrary distance used to display the sites most proximate to the proposed development site. However, all sites within and outside of this 15km area are considered when assessing the potential for ecological impacts arising from the proposed development. The potential for ecological effects on sites at all distance from the proposed development is evaluated using the Source-Pathway-Receptor (S-P-R) model.

Table 6.2. Designated conservation sites within 15km of the development site boundary.

Designated Conservation Site	Site Code	Minimum Distance (km)
<i>Natura 2000 Sites</i>		
River Barrow & River Nore SAC	002162	2.1
<i>Nationally Designated Sites</i>		
Cloghrick Wood pNHA	000806	3.4
Coan Bogs NHA	002382	5.0
Mothel Church, Coolcullen pNHA	000408	8.0
Oakpark pNHA	000810	8.8
Whitehall Quarries pNHA	000855	10.8
Ballymoon Esker pNHA	000797	11.0
Ballylunan pNHA	000857	13.9



Designated Conservation Site	Site Code	Minimum Distance (km)
River Barrow Valley at Tankardstown Bridge pNHA	000858	14.1



Table 6.3 Qualifying interests of the River Barrow & River Nore SAC.

Site Name & Code	Summary Details	Minimum Distance (km)
River Barrow & River Nore (002162)	The conservation objectives of this site are to maintain the favourable conservation condition of the Annex I habitats and fauna listed as Special Conservation Interests for this SAC: • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Reefs [1170] • <i>Salicornia</i> and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] • European dry heaths [4030] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnus incanae</i>, <i>Salicion albae</i>) [91E0] • <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) [1016] • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Alosa fallax fallax</i> (Twaite Shad) [1103] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355] • <i>Vandenboschia speciosa</i> (Killarney Fern) [6985]	2.1 km

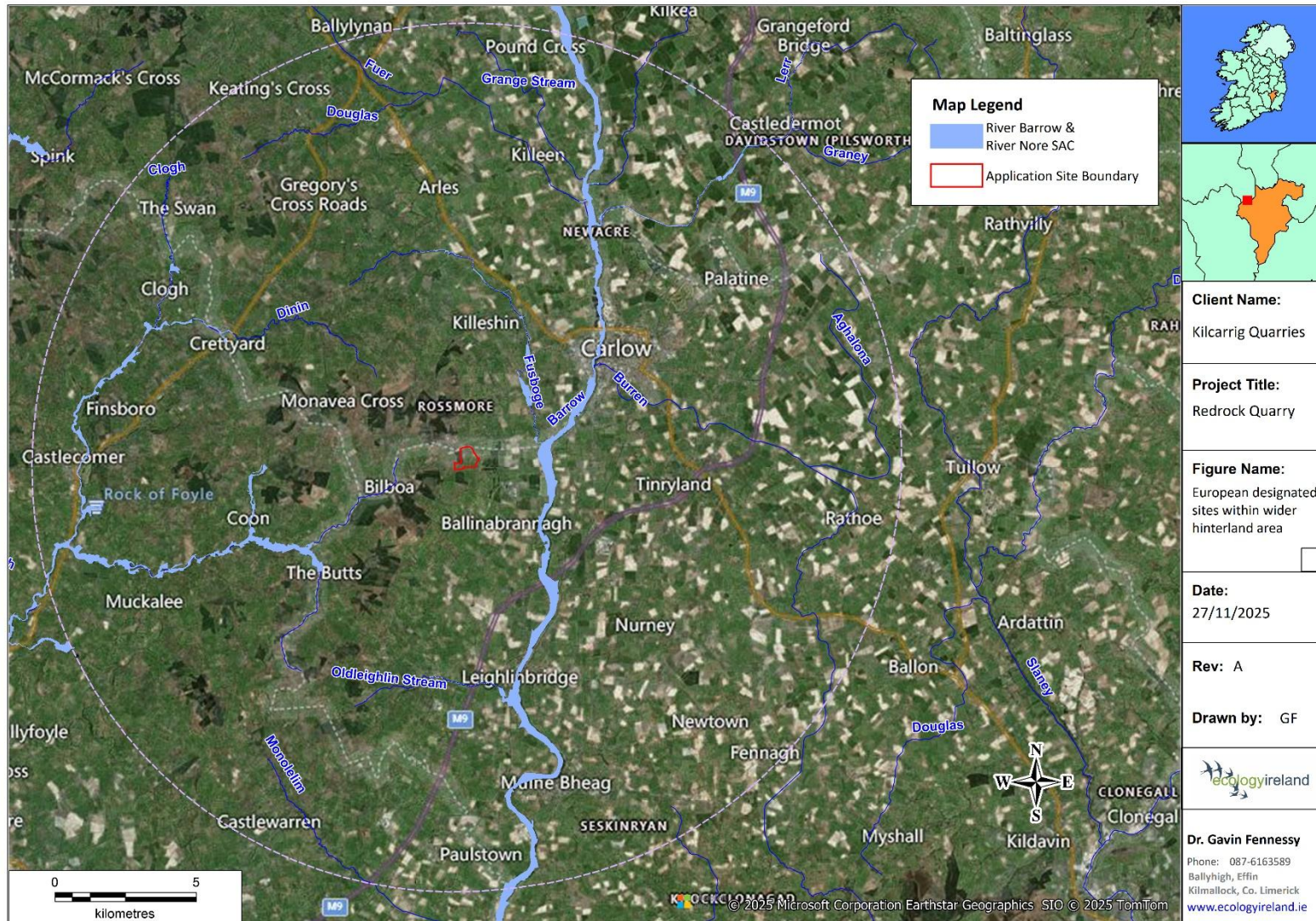


Figure 6.5 European designated sites in the wider hinterland area.

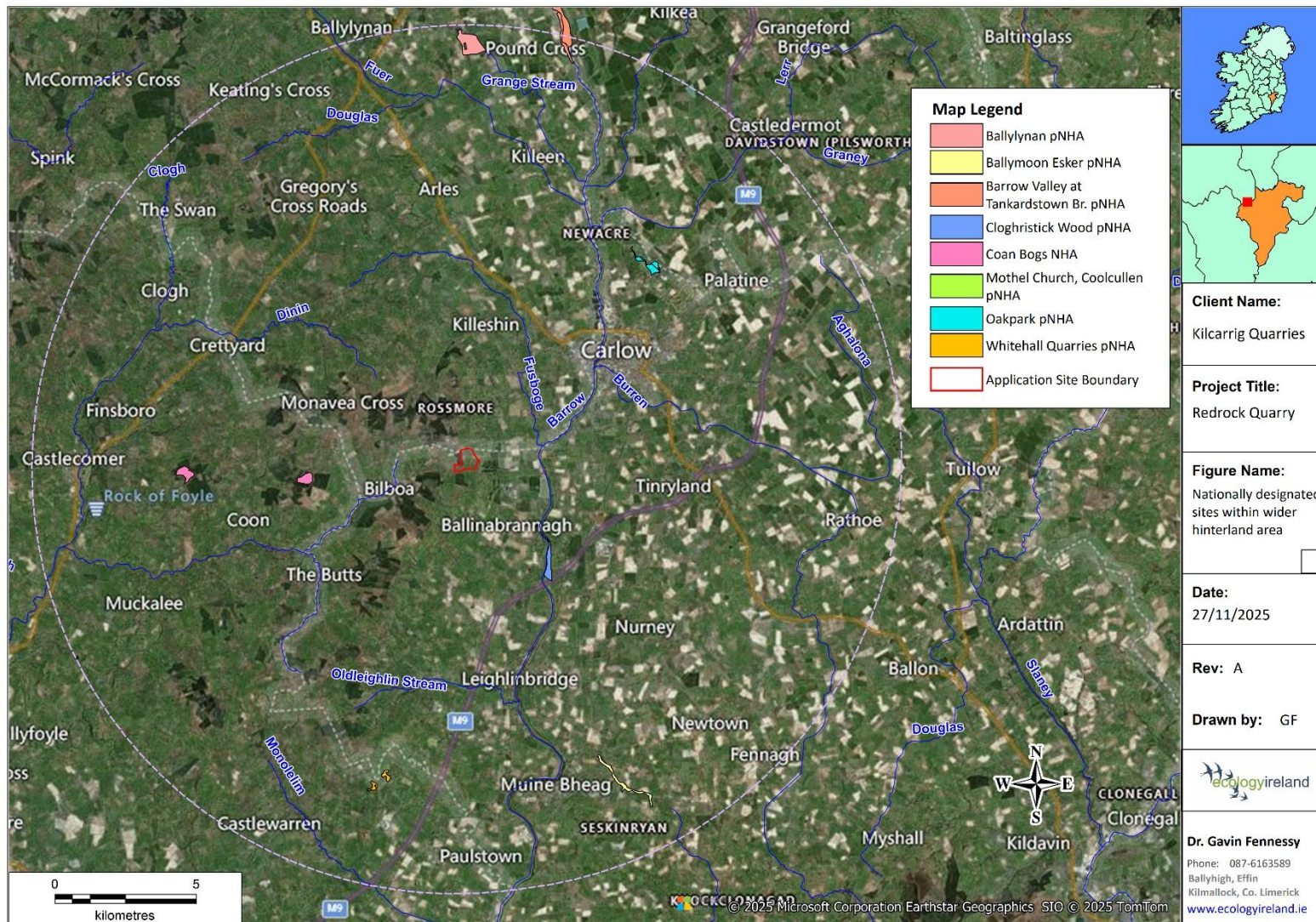


Figure 6.6 Nationally designated sites in the wider hinterland area.



6.8.2 Habitats and Flora

Desktop study

No legally protected plant species listed on the Flora (Protection) Order, 2022 or Red-listed (Wyse-Jackson *et al.* 2016) plant species have previously been recorded on the NBDC databases for the 2km grid square within which the development site is located. The NPWS FPO vascular plant and bryophyte map viewer online maps do not hold any previous records for plant species listed on the Flora Protection Order 2022 for the 10km grid square, S67. The NBDC database for the 10km grid square, S67 holds records for Fragrant Agrimony (*Agrimonia procera*), and Green Field-speedwell (*Veronica agrestis*). These species have been evaluated as 'near threatened' by Wyse-Jackson *et al.* (2016).

One invasive plant species has been recorded in the 2km grid square in which the development site is located: Cherry Laurel (*Prunus laurocerasus*). This species was not present at the proposed development site. This non-native invasive species is considered a 'risk of high impact' species (Kelly *et al.* 2013) but is not listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations or the First Schedule of the European Union (Invasive Alien Species) Regulations, 2024. Sycamore (*Acer pseudoplatanus*) which is considered a 'risk of medium impact' species (Kelly *et al.* 2013) has also been previously recorded in the 10km grid square overlapping the development site.

With regard to other non-native invasive species, no previous records of species listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations (i.e. species of which it is an offense to disperse, spread or otherwise cause to grow in any place) exist on the NBDC databases for the 2km grid square (S67R) within which the proposed development site is located. However, several invasive Third Schedule species have historically been recorded in the 10km grid square that overlaps the Development Site (Table 6.4).

Table 6.4 Third schedule invasive plant species recorded within the wider area (S67, 10km Grid Square).

Common Name	Scientific Name
Water Fern	<i>Azolla filiculoides</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Giant Hogweed*	<i>Heracleum mantegazzianum</i>
Himalayan Balsam*	<i>Impatiens glandulifera</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Nuttall's Waterweed*	<i>Elodea nuttallii</i>

*Plant species listed as an alien invasive species European Union concern (IAS Regulation 1143/2014)



No invasive alien plant species of European Union concern (IAS Regulation 1143/2014) have historically been recorded in the 2km grid square that overlaps the proposed development site, but three species have been recorded in the 10km grid square (Table 6.4). Giant Hogweed (*Heracleum mantegazzianum*), Himalayan Balsam (*Impatiens glandulifera*) and Nuttall's Waterweed (*Elodea nuttalli*) are also considered as 'high risk of impact' invasive species (NBDC website species profile, accessed 24th November 2025).

Field Survey

No habitats listed on Annex I of the EU Habitats Directive (92/43/EEC) were recorded within the proposed development site boundary. The primary habitat within the development site is Spoil and Bare Ground (ED2) which is located primarily within the quarry void. The quarry floor features a number of artificial lakes and pools (FL8). Adjacent to the areas of historic quarrying are areas of scrub (WS1) and recolonizing bare ground (ED3). Hedgerows (WL1) and treelines (WL2) are found delineating areas of improved agricultural grassland (GA1) and wet grassland (GS4) in the south and east parts of the development site. Scrub (WS1) areas are found in the west and north areas of the development site. Buildings and Artificial Surfaces (BL3) primarily consist of access roads within the development site. A map of the principal habitats present is shown in Figure 6.7.

The following habitats (with Fossitt codes; Fossitt 2000) were recorded within the proposed development site.

- Spoil and Bare Ground (ED2)
- Recolonising bare ground (ED3)
- Scrub (WS1)
- Improved Agricultural Grassland (GA1)
- Wet Grassland (GS4)
- Other artificial lakes and ponds (FL8)
- Drainage ditch (FW4)
- Hedgerow (WL1)
- Treelines (WL2)
- Buildings and artificial surfaces (BL3)
- Cutover Bog (PB4)
- Eroding/Upland Rivers (FW1)
- Marsh (GM1)
- Stone walls (BL1)
- Mixed Woodland (WD2)

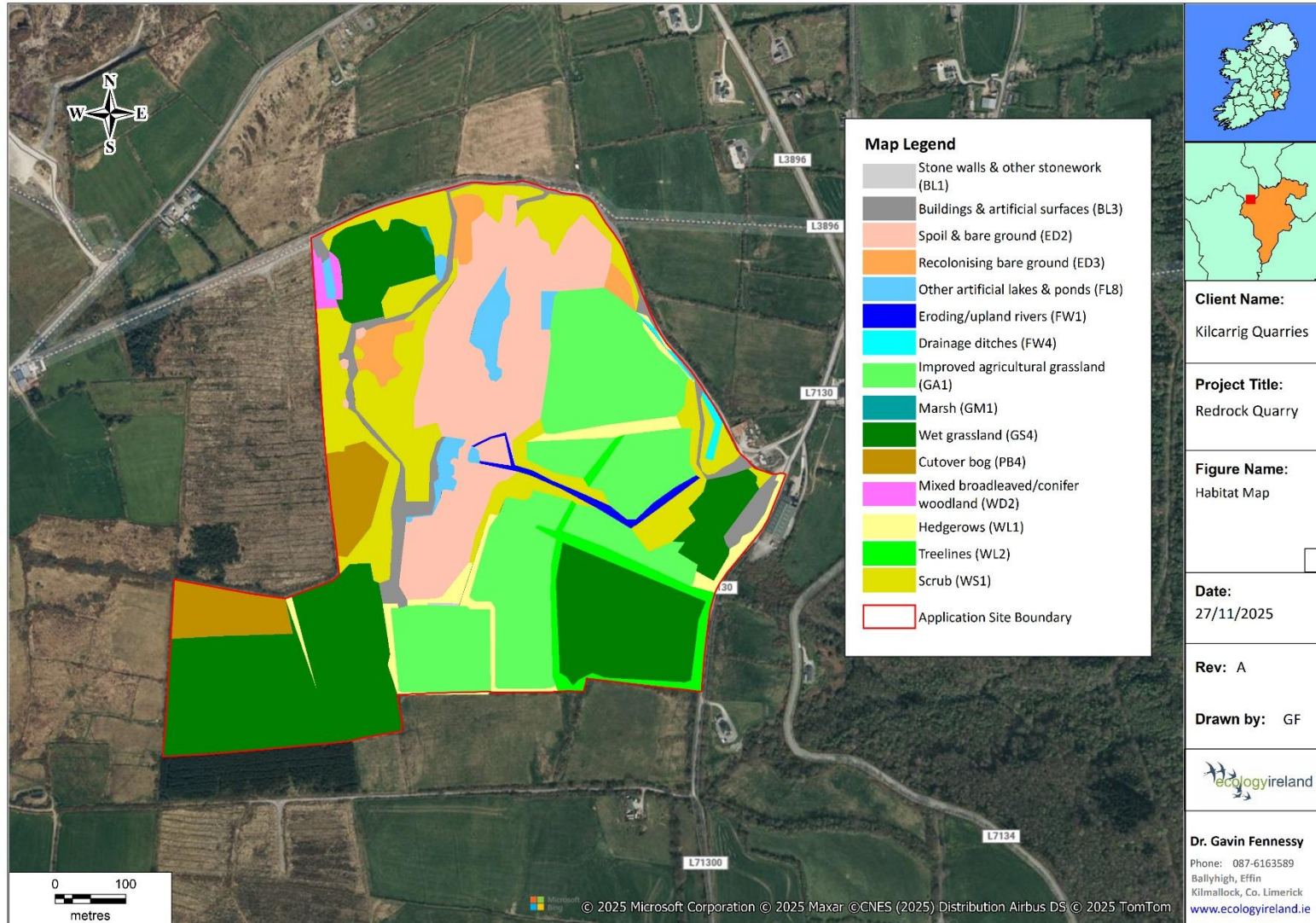


Figure 6.7 Habitat map of proposed development site.

Figure 6.7 shows the inactive quarry itself is now primarily classified as ‘Spoil and bare ground’ (ED2; Plate 6.1). This area features many heaps of spoil, including sand, gravel and cobbles of different consistencies, particularly at the northeastern section and southern end of the quarry. While the quarry floor is gradually being colonised by shrubs, grasses and rushes, these areas are below the 50% threshold for ‘Recolonising bare ground’ (ED3).



Plate 6.1. Quarry floor (ED2)

Around the edges of the quarry floor, the habitat ED2 grades into ED3 with Sitka spruce, *Salix* sp. and gorse (*Ulex europaeus*) invading from the margins (Plate 6.2).



Plate 6.2 Quarry edges (ED3)

The quarry floor features a number of ‘artificial lakes and ponds’ (FL8) (Figure : Ponds 1-5 see Figure 6.8) colonised by bulrush (*Typha latifolia*), soft rush (*Juncus effusus*) and water horsetail (*Equisetum fluviatile*), as well as broad-leaved pondweed (*Potamogeton natans*) which dominates in the deeper waterbodies.



Plate 6.3 Ponds.

A seep in the southwestern wall of the site may be a subterranean stream or rainfed groundwater (Plate 6.4). This seep feeds a small marshy area in the southwest corner of the quarry floor which drains into one of the larger ponds (Figure 6.8: Pond 3).



Plate 6.4 Seep and stream.

A small stream with a very low flow rate at the time of surveying (Figure 6.8: Stream), drains the deepest pond (Figure 6.8: Pond 4) and exits the quarry through a narrow-overgrown gorge in the east wall of the quarry and continues flowing east downhill towards the River Barrow. This is likely the Rahendoran watercourse.



Plate 6.5 Gorge and stream.

This watercourse appears to be bunded about 170m east of its exit from the quarry (Figure 6.8: Bunded area). An area of scrub has formed on and around the bund. Below the bund is a heavily waterlogged 'wet grassland' (GS4) dominated by *Juncus effusus* possibly formed due to water seeping through the bund.



Plate 6.6 Scrub on bund.



Plate 6.7 Wet grassland below bund.

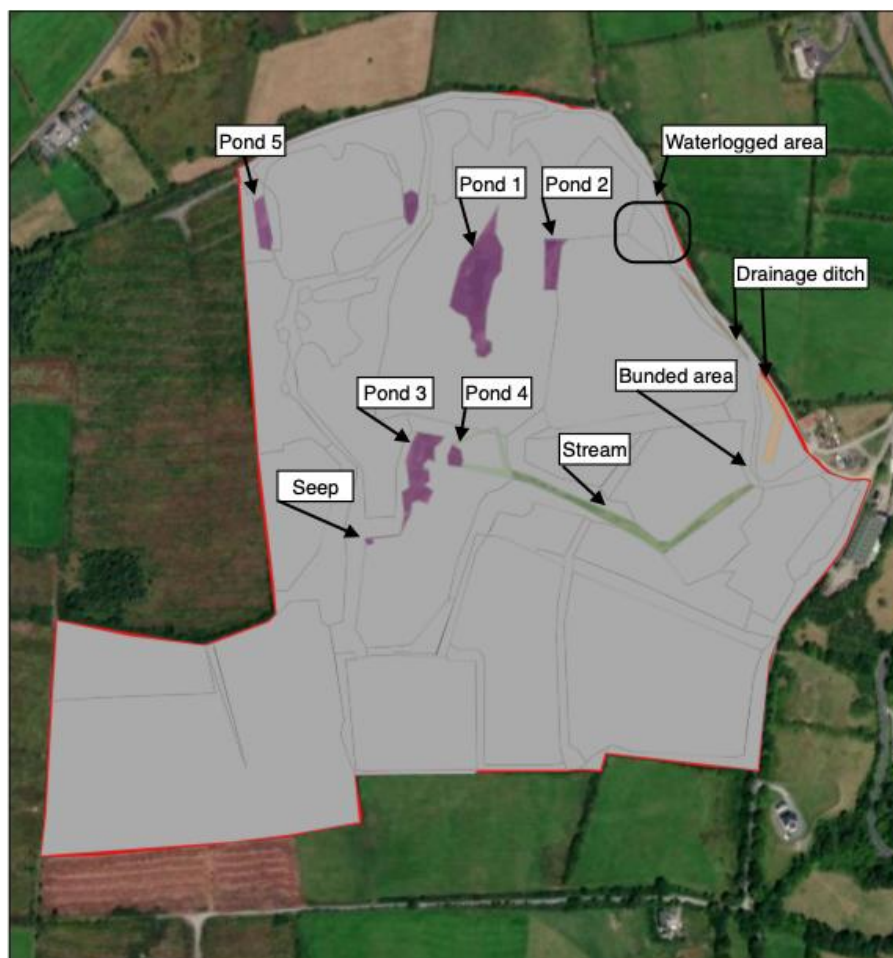


Figure 6.8 Map of labelled watercourses and water features on site.

The south and east of the site, outside of the quarry itself, consists of farmland, and is a mixture of GS4 and 'improved grassland' (GA1) separated by hedgerows and treelines of hawthorn (*Crataegus monogyna*), sessile oak (*Quercus petraea*), *Salix sp.*, and holly (*Ilex aquifolium*). This grassland was being grazed by cattle during the survey.



Plate 6.8 Grazed grassland with areas of GS4 and GA1.

A small area of BL1, all that remains of a drystone wall field boundary, separating the grassland at the southern end of the site from the quarry (Plate 6.9).



Plate 6.9 Drystone wall (BL1) at field boundary.

A drainage ditch (FW4, Figure 6.8, Drainage ditch) flows south along the external access track into a culvert and ultimately into the bunded area. Though it was not apparent during the survey due to the dry conditions and overgrown nature of the particular area, aerial imagery indicates that the large flooded area in the northern section of the quarry (Figure 6.8, Pond 1)

connects to the smaller pond directly east of it (Figure 6.8, Pond 2) and the waterlogged area of ED3 further east (Figure 6.8, Waterlogged area). These waterbodies may then drain via the drainage ditch which flows down to the bunded area. These waterbodies are likely only hydrologically connected during wet periods. This drainage ditch is heavily overgrown with brambles and scrub, but water was audibly flowing in it. Given the volume of water that appeared to be flowing through it, it is suspected that there is an additional contributory source of water other than the waterlogged area of ED3.

The northwest of the site contains an artificial pond (FL8, Figure 6.8, Pond 5), dominated by pondweed, that appears very anoxic (Plate 6.10). This pond appears to be rainfed and unconnected to any other watercourse. This pond is surrounded by a small area of mixed woodland (WD2), featuring frequent Sitka spruce and *Salix sp.*



Plate 6.10 Pond 5.

To the east of the pond is a large area of GS4 with frequent Yorkshire fog (*Holcus lanatus*), and abundant soft rush and creeping buttercup (*Ranunculus repens*; Plate 6.11).



Plate 6.11 Wet Grassland (GS4).

This area also contains a small marshy area (GM1) with abundant Bulrush, occasional Soft-rush and frequent Water Horsetail (Plate 6.12).



Plate 6.12 Marsh (GM1).

The wet grassland is surrounded by gorse, Sitka spruce and *Salix sp.* scrub. There is an area of revegetated 'cutover bog' (PB4) which has developed into a heath-like or wet grassland type habitat. This area is largely Purple moor grass (*Molinia caerulea*) dominated with patches of

soft rush on peaty soil. This area also has frequent ling heather (*Calluna vulgaris*) and tormentil (*Potentilla erecta*), as well as abundant tufted hairgrass (*Deschampia flexuosa*).



Plate 6.13 Cutover bog.

The southwest of the site appears to be revegetated cutover bog that has largely developed into a wet grassland dominated by soft rush with scattered shrubs of gorse and hawthorn. This area features abundant creeping buttercup (*Ranunculus repens*), creeping bent (*Agrostis stolonifera*), common bent (*Agrostis capillaris*) and sharp-flowered rush (*Juncus acutifloris*). The northwest corner of this grassland retains more heath-like or bog-like features, this area contains *Sphagnum* and *Polytrichum* moss, as well as ling heather, purple moor grass and tormentil which indicates a peaty character to the soil. This area contains some occasional patches of Devils-bit scabious (*Succisa pratensis*).



Plate 6.14 Southwest corner, wet grassland and bog.



6.8.3 Aquatic ecology

Desktop study

A comprehensive desktop review of available data from the National Parks and Wildlife Service (NPWS), National Biodiversity Data Centre (NBDC), Inland Fisheries Ireland (IFI), National Crayfish Plague Surveillance Programme (NCPSP), and Environmental Protection Agency (EPA) for the 10km grid square containing the development site identified a low number of records for rare and or protected aquatic species (Table 6.5).

Smooth Newt, *Lissotriton vulgaris* is a protected species under Schedule 5 of the Wildlife Act and under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Common Frog, *Rana temporaria* is a protected species under Schedule 5 of the Wildlife Act and is listed under Annex V of the EU Habitats Directive (92/43/EEC). White-clawed Crayfish, *Austropotamobius pallipes* is listed under Annex II and Annex V of the EU Habitats Directive (92/43/EEC).

Table 6.5. Aquatic species records held by the NBDC database for the 10km grid square overlapping the development site.

Common Name	Scientific Name	Conservation Status
Common Frog	<i>Rana temporaria</i>	Protected under Irish Wildlife Acts; EU Habitats Directive Annex V
Smooth Newt	<i>Lissotriton vulgaris</i>	Protected under Irish Wildlife Acts; Appendix III of the Bern Convention
White-Clawed Crayfish	<i>Austropotamobius pallipes</i>	Protected under Irish Wildlife Acts; EU Habitats Directive Annex II & V (strict protection).

Field Surveys

Samples were taken from the ponds across the existing quarry site (Figure 6.2) and sent for lab analysis for eDNA of cryptic species. Both Smooth Newt and Common Frog were detected via eDNA sampling within the development site (Table 6.6; Appendix 6.1). Smooth Newt was detected at all three sampling locations, while Common Frog was detected at one sampling location. These results are considered as evidence of the presence of Common Frog at Pool 1 sampling location and Smooth Newt being present at all three sampling locations. The results were negative for White-clawed crayfish (*Austropotamobius pallipes*) and European eel (*Anguilla anguilla*).



During walkover surveys of the development site, Common Frog was also observed at the edge of the large pool within the quarry basin on July 7th, 2025, and in wet grassland habitat, immediately southwest of the development site on July 7th and August 7th 2025.

Table 6.6 eDNA results from the development site (see also Appendix 6.1).

Common Name	Scientific Name	Pool 1 (FK3416)	Pool 2 (FK317)	Pool 3 (FK3419)
		Positive qPCR Replicates (n=12)		
Common Frog	<i>Rana temporaria</i>	4		
Smooth Newt	<i>Lissotriton vulgaris</i>	8	11	12

6.8.4 Non-volant Mammals

Desktop study

Table 6.7 shows the non-volant mammal species recorded historically in the 10km grid square (S67) and 2km grid square (S67R). The species recorded in the 10km grid square include Badger (*Meles meles*), Irish Stoat (*Mustela erminea* subsp. *hibernica*), Pine Marten (*Martes martes*) and Red Squirrel (*Sciurus vulgaris*), with only Pine Marten recorded in the 2km grid square. Otter (*Lutra lutra*) is the only Annex II/IV non-volant mammal species recorded historically in the overlapping 10km grid square.

Two species listed on the EU Invasive Alien Species (IAS) list have been recorded in this area, American Mink (*Neovison vison*) and Grey Squirrel (*Sciurus carolinensis*). Both of these species are considered high impact invasive species at national level (subject to Regulations 2011 S.I. No. 477/2011 (Ireland)).

Table 6.7 Non-volant mammal species records held by the NBDC database for the 10km [and 2km] grid squares overlapping the proposed development site.

Common Name	Scientific Name	Grid Squares	Conservation Status
American Mink	<i>Neovison vison</i>	S67	EU Invasive Alien Species Union (IAS) List (approved 2025; enters into force 7 Aug 2027). Not protected under Irish Wildlife Acts.
Badger	<i>Meles meles</i>	S67	Protected under Irish Wildlife Acts (Schedule 5). Not listed on EU Habitats Directive Annexes.



Common Name	Scientific Name	Grid Squares	Conservation Status
Greater White-toothed Shrew	<i>Crocidura russula</i>	S67	No specific legal protection under Irish Wildlife Acts or EU Habitats Directive.
Grey Squirrel	<i>Sciurus carolinensis</i>	S67, S67R	EU IAS Union List (since 2016). Not protected under Irish Wildlife Acts.
Hedgehog	<i>Erinaceus europaeus</i>	S67	Protected under Irish Wildlife Acts (Schedule 5). Not listed on EU Habitats Directive Annexes.
Irish Hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>	S67	Protected under Irish Wildlife Acts (Schedule 5); EU Habitats Directive Annex V (game species; open season under licence).
Irish Stoat	<i>Mustela erminea</i> subsp. <i>hibernica</i>	S67	Protected under Irish Wildlife Acts (Schedule 5). Not listed on EU Habitats Directive Annexes.
Otter	<i>Lutra lutra</i>	S67	Protected under Irish Wildlife Acts (Schedule 5); EU Habitats Directive Annex II & IV (strict protection).
Pine Marten	<i>Martes martes</i>	S67, S67R	Protected under Irish Wildlife Acts (Schedule 5); EU Habitats Directive Annex V.
Pygmy Shrew	<i>Sorex minutus</i>	S67	Protected under Irish Wildlife Acts (Schedule 5); not listed on EU Habitats Directive Annexes.
Rabbit	<i>Oryctolagus cuniculus</i>	S67	No specific legal protection under Irish Wildlife Acts or EU Habitats Directive.
Red Fox	<i>Vulpes vulpes</i>	S67	No specific legal protection under Irish Wildlife Acts or EU Habitats Directive.
Red Squirrel	<i>Sciurus vulgaris</i>	S67	Protected under Irish Wildlife Acts



Common Name	Scientific Name	Grid Squares	Conservation Status
			(Schedule 5); not listed on EU Habitats Directive Annexes.
Wood Mouse	<i>Apodemus sylvaticus</i>	S67	No specific legal protection under Irish Wildlife Acts or EU Habitats Directive.

Field surveys

There were few direct sightings made of non-volant mammals during the site walkovers. Irish Hare was observed on several occasions within the inactive quarry. Hare droppings were widespread and frequent. Occasional Fox scat was recorded along the internal tracks and bare ground.

Analysis of the trail cameras deployed at the site is summarised in Table 6.8. In general, low levels of non-volant mammal activity was detected, with most species infrequently recorded. Unsurprisingly, the most regularly recorded species was Irish Hare, which was noted at each of the deployment locations (Plate 6.15). There were small numbers of records of Brown Rat and Fox (Plate 6.16). There were also a small number of records of a small unidentified mammal, possibly a Wood Mouse, *Apodemus sylvaticus*.

No evidence of Otter was found, and the development site is generally unsuitable for Otter. There is no significant watercourse within or closely adjacent to the proposed development site and the habitats present at the development site and adjoining lands are relatively unattractive for this species.

Although no evidence of Badger (*Meles meles*) was recorded in the proposed development site during the suite of surveys conducted for this report, surveys conducted previously within the proposed development site in 2023 and 2024, recorded Badger signs. Badger tracks and scat were recorded at the proposed development site, along with well-developed trails. No sett was identified within the proposed development site (Donovan 2024).

Given the lack of breeding and resting places for non-volant mammal species the development site is assessed of local importance (lower).



Plate 6.15 Irish Hare was the most frequently recorded non-volant mammal at the site.



Plate 6.16 Fox carrying Pheasant recorded on the trail camera.



Table 6.8 Results of the trail camera analysis.

Common Name	Scientific Name	TC1	TC2	TC3	TC4	TC5	TC6	TC7
Irish Hare	<i>Lepus timidus hibernicus</i>	3	5	9	7	4	11	
Fox	<i>Vulpes vulpes</i>		1	5	10	2	4	3
Brown Rat	<i>Rattus norvegicus</i>			2			3	3
Unid. Small Mammal		1		1				2
Blackbird	<i>Turdus merula</i>		2	1			6	
Pheasant	<i>Phasianus colchicus</i>	1			3		2	1
Moorhen	<i>Gallinula chloropus</i>			2				
Wren	<i>Troglodytes troglodytes</i>	2			2			
Chaffinch	<i>Fringilla coelebs</i>				1			
Hooded Crow	<i>Corvus cornix</i>		1	2		1		4
Goldfinch	<i>Carduelis carduelis</i>					2		
Mallard	<i>Anas platyrhynchos</i>			1				

*TC1-TC4 and TC6 were active from 07/07/2025 to 07/08/2025 and TC5 and TC7 were active from 07/08/2025 to 14/08/2025

6.8.5 Bat Assessment

Desktop Study

No species of bats have been recorded in the 2km (S67R) grid square while eight species were recorded in the 10km (S67) grid square in which the development site is located. The Model of Bat Landscapes (Lundy *et al.* 2011) recorded a Moderate – High value for All Bats (Index: 22.44 and 35.78) within the two 10km grid squares that overlap with the development site. The development site is outside of the normal range for Lesser Horseshoe Bat (*Rhinolophus hipposideros*). The landscape also has a low suitability for Nathusius' Pipistrelle (*Pipistrellus nathusii*) (Index: 0 and 4). The habitat suitability index for 'All bats' and for each individual species of bat is presented below (See Table 6.9 below). The index ranges from 0 to 100, with 100 being most suitable for bats. The landscape model indicates that the area is most suitable for Common pipistrelle (*Pipistrellus pipistrellus*), Brown Long-eared Bat (*Plecotus auritus*), Leisler's Bat (*Nyctalus leisleri*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*).

Table 6.9 Bat Landscape Suitability Index for the proposed development site and the surrounding area.

Common Name	Scientific Name	Suitability Score	Suitability Score
Soprano pipistrelle*	<i>Pipistrellus pygmaeus</i>	28	45
Brown long-eared bat*	<i>Plecotus auritus</i>	34	51
Common pipistrelle*	<i>Pipistrellus pipistrellus</i>	38	54



Common Name	Scientific Name	Suitability Score	Suitability Score
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	0	0
Leisler's bat*	<i>Nyctalus leisleri</i>	24	48
Whiskered bat*	<i>Myotis mystacinus</i>	36	32
Daubenton's bat*	<i>Myotis daubentonii</i>	14	43
Nathusius' pipistrelle*	<i>Pipistrellus nathusii</i>	0	4
Natterer's bat*	<i>Myotis nattereri</i>	28	45

*Bat Species historically recorded in the S67 grid square (NBDB, accessed November 24 2025)

Field study

None of the structures present on site are attractive for roosting bats. Although there is treeline habitat present within the development site, trees were typically scrubby, with a general lack of mature trees within that habitat which could accommodate roosting bats. The quarry faces were observed to have crevices and fissures, but these appeared to be relatively weathered and unsuitable for roosting bats.

The development site contains area of good foraging habitat with multiple flooded areas, pools, wet grassland, boggy areas and areas of scrub which are attractive to feeding bats. The area is also unlit so is likely to be suitable for species that are less tolerant of nighttime illumination such as Brown Long-eared bat, Whiskered bat, Natterer's bat, and Daubenton's bat. Pools are likely to attract Daubenton's bats. The area is well connected to the surrounding area via mature hedgerows and treelines, as well as the Rahendoran watercourse which connects to the mature Clogrennan woodland to the east of the development site, which may also contain suitable roosting habitat. The River Barrow lies approximately 2.5km to the east which also likely provides important foraging and commuting habitat for bats in the wider area.

Analysis of the passive bat detectors deployed at the development site confirmed the presence of at least 5 species (Table 6.10). The most regularly recorded bat species at the development site were Leisler's Bat, Common Pipistrelle and Soprano Pipistrelle. These are the three most common and widespread bat species in Ireland (Roche *et al.* 2014).

There were a small number of records of Daubenton's Bat (*Myotis daubentonii*) and many of the other faint *Myotis* sp. calls detected may also have been of this species. The only other species confirmed to be present was Brown Long-eared Bat, (*Plecotus auritus*) with a small number of registrations.



Table 6.10 Analysis of the analysis of the passive bat detectors deployed at the site.

Common Name	Scientific Name	BD1	BD2	BD3	BD4	BD5
Dates of Deployment		7-14 Aug	7-25 July	7-31 July	7 July-3 Aug	7-14 Aug
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	346	1205	3762	417	1025
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	153	197	994	266	199
Leisler's Bat	<i>Nyctalus leisleri</i>	70	218	409	328	97
Brown Long-eared Bat	<i>Plecotus auritus</i>	3		8	4	5
Daubenton's Bat	<i>Myotis daubentonii</i>	6	3	26	3	
<i>Myotis</i> sp.		4	9	9	5	7

6.8.6 Avian assessment

Desktop study

Table 6.11 shows the bird species recorded historically in the 2km grid square (S67R) that overlaps the development site. A total of 4 avian species has been recorded from this grid square, including one Red-listed species, Kestrel, *Falco tinnunculus* and one Amber-listed species, Woodcock, *Scolopax rusticola* (Gilbert *et al.* 2021). Unsurprisingly, a much larger list of avian species (92 species) has been recorded historically within the overlapping 10km Grid Square (S67) with 19 of the species Red-listed and 24 of the species currently Amber-listed (Table 6.12).

Table 6.11. Summary of bird species recorded in 2km grid square (S67R).

Common Name	Scientific Name
Buzzard	<i>Buteo buteo</i>
Cuckoo	<i>Cuculus canorus</i>
Kestrel^	<i>Falco tinnunculus</i>
Woodcock*	<i>Scolopax rusticola</i>

^ Red-listed species * Amber-listed species (Gilbert *et al.* 2021)

Table 6.12 Red and Amber-listed bird species recorded in the wider 10km Grid Square.

Common name	Scientific name
Barn Owl^	<i>Tyto alba</i>
Black-tailed Godwit^	<i>Limosa limosa</i>
Corncrake^	<i>Crex crex</i>
Curlew^	<i>Numenius arquata</i>
Golden Plover^	<i>Pluvialis apricaria</i>
Goldeneye^	<i>Bucephala clangula</i>



Common name	Scientific name
Grey Partridge^	<i>Perdix perdix</i>
Grey Wagtail^	<i>Motacilla cinerea</i>
Kestrel^	<i>Falco tinnunculus</i>
Lapwing^	<i>Vanellus vanellus</i>
Meadow Pipit^	<i>Anthus pratensis</i>
Red Kite^	<i>Milvus milvus</i>
Redwing^	<i>Turdus iliacus</i>
Shoveler^	<i>Spatula clypeata</i>
Snipe^	<i>Gallinago gallinago</i>
Stock Dove^	<i>Columba oenas</i>
Swift^	<i>Apus apus</i>
Woodcock^	<i>Scolopax rusticola</i>
Yellowhammer^	<i>Emberiza citrinella</i>
Black-headed Gull*	<i>Chroicocephalus ridibundus</i>
Brambling*	<i>Fringilla montifringilla</i>
Coot*	<i>Fulica atra</i>
Cormorant*	<i>Phalacrocorax carbo</i>
Goldcrest*	<i>Regulus regulus</i>
Greenfinch*	<i>Chloris chloris</i>
Hen Harrier*	<i>Circus cyaneus</i>
House Martin*	<i>Delichon urbicum</i>
House Sparrow*	<i>Passer domesticus</i>
Kingfisher*	<i>Alcedo atthis</i>
Lesser Black-backed Gull*	<i>Larus fuscus</i>
Linnet*	<i>Linaria cannabina</i>
Mallard*	<i>Anas platyrhynchos</i>
Merlin*	<i>Falco columbarius</i>
Mute Swan*	<i>Cygnus olor</i>
Sand Martin*	<i>Riparia riparia</i>
Skylark*	<i>Alauda arvensis</i>
Spotted Flycatcher*	<i>Muscicapa striata</i>
Starling*	<i>Sturnus vulgaris</i>
Swallow*	<i>Hirundo rustica</i>
Teal*	<i>Anas crecca</i>
Tree Sparrow*	<i>Passer montanus</i>
Wigeon*	<i>Mareca penelope</i>
Willow Warbler*	<i>Phylloscopus trochilus</i>

^ Red-listed * Amber-listed (Gilbert et al. 2021).



Field study

A total of 44 bird species were either recorded within 100m of the observer during the dedicated transect surveys or additionally recorded outside of 100m or casually noted during other site walkover surveys.

Table 6.13 shows the species recorded during the transect surveys during the summer period. Peak counts were relatively low in general, bar the peak count of 15 for Sand Martin. During the surveys on 8th and 9th of August 2025, active Sand Martin nest burrows were recorded in gravel spoil heaps in the north end of the quarry with at least 10 nest entrances visible.

Five species recorded are Red-listed or Annex I listed of high conservation concern and included Grey Wagtail (*Motacilla cinerea*), Kestrel (*Falco tinnunculus*), Meadow Pipit (*Anthus pratensis*), Swift (*Apus apus*) and Snipe (*Gallinago gallinago*).

Kestrel was recorded during the transect surveys and was also observed in the development site incidentally during other walkover surveys on the following dates: August 9, 10 and 11 2025. Kestrel is currently Red-listed due to significant population declines in Ireland in recent decades. Meadow Pipit, another species on the Red-list was recorded across three of the transects. Meadow Pipit is a common and widespread species whose population has substantially recovered since a significant decline likely to have been caused by a high winter mortality during the severe winter of 2009/2010 and 2010/2011 (www.birdwatchireland.ie). Grey Wagtail, one of the species recorded is Red-listed of high conservation concern in Ireland at present due to a significant decline in its breeding situation (see Gilbert *et al.* 2021). As Grey Wagtail is ecologically associated with watercourses, the study site may contain suitable foraging habitat. Grey Wagtail tend to nest close to the riverbank and fast flowing water. Swift and Snipe are also Red-list species due to severe decline in their breeding populations; however, these two species were recorded in very low numbers within the development site.

Ten species Amber-listed (of moderate conservation concern) species in Ireland were recorded within the development site: Coot (*Fulica atra*), Cormorant (*Phalacrocorax carbo*), Goldcrest (*Regulus regulus*) House Martin (*Delichon urbicum*), Lesser Black-backed Gull (*Larus fuscus*), Linnet (*Linaria cannabina*), Sand Martin (*Riparia riparia*), Starling (*Sturnus vulgaris*), Swallow (*Hirundo rustica*) and Willow Warbler (*Phylloscopus trochilus*).

Goldcrest, House Martin, Linnet, Starling and Swallow are of moderate conservation concern as their European conservation status is unfavourable (see Gilbert *et al.* 2021). Hedgerow/treeline features at the site would support feeding opportunities for these species in general, and nesting for Goldcrest and Linnet. Nesting opportunities for House Martin, House Sparrow, Starling and Swallow would typically be associated with buildings within the in the surrounding area. Coot was observed during transect surveys and a juvenile Coot was also observed during walkover surveys within the pond in the quarry basin, on 9 and 10th August 2025, indicating breeding within the development site.



Other bird species observed during walkover surveys include: House Sparrow (*Passer domesticus*) and Mistle Thrush (*Turdus visivorus*). A female Mallard (*Anas platyrhynchos*) with ducklings was observed in the pond above the quarry basin in the northeast corner of the development site on 9th and 10th August 2025.

Although not observed during transect surveys, Peregrine Falcon (*Falco peregrinus*), an Annex 1 listed species, was recorded on several occasions during other ecological surveys of the development area. Peregrine Falcon is a species that frequently nests and roosts at quarry sites as the steep rock-faces mimic natural sea-cliffs which are a preferred habitat. Peregrine Falcon was observed on the following dates: July 7, August 8, August 9, and August 14 2025. The Peregrine Falcon recorded during surveys appeared to be an adult male. The presence of whitewash on the cliff within the development site indicates a roost might be present that is used regularly by this bird. However, there is no evidence of current or recent historical nesting.

Brian O'Connor (NPWS Conservation Ranger) was contacted and it was confirmed that NPWS staff had visited the quarry in April 2025. Although Peregrine Falcon and signs of previous usage of the site (whitewash) were recorded it was confirmed that nesting was not suspected at the inactive quarry site. The quarry appears to be used as an occasional roosting and prey-handling site.

Most bird species are protected under the Irish Wildlife Act (1976 as amended), where it is an offence to hunt, interfere with or destroy their breeding or resting places (unless under statutory licence/permission).

Table 6.13 Peak counts of birds recorded during transect surveys and VP surveys at the Site. 'P' indicates a record of the species >100m from the site boundary.

Common Name	Scientific Name	T1	T2	T3	T4	T5	T6
Blackbird	<i>Turdus merula</i>	1	2		3	1	3
Blackcap	<i>Sylvia atricapilla</i>		1			1	
Blue Tit	<i>Cyanistes caeruleus</i>		1		1	1	2
Buzzard	<i>Buteo buteo</i>				P		1
Chiffchaff	<i>Phylloscopus collybita</i>		2	2		2	1
Coal Tit	<i>Periparus ater</i>		1			2	
Coot*	<i>Fulica atra</i>	1					
Cormorant*	<i>Phalacrocorax carbo</i>				1		
Dunnock	<i>Prunella modularis</i>				1		
Goldcrest*	<i>Regulus regulus</i>		1	1		4	
Goldfinch	<i>Carduelis carduelis</i>	3		2			3
Grasshopper Warbler	<i>Locustella naevia</i>			1		1	
Great Tit	<i>Parus major</i>		1		1		
Grey Wagtail^	<i>Motacilla cinerea</i>	1					
House Martin*	<i>Delichon urbicum</i>	2					
Jackdaw	<i>Corvus monedula</i>	2	1	6	2		3
Kestrel^	<i>Falco tinnunculus</i>	1		1			
Lesser Black-backed Gull*	<i>Larus fuscus</i>	1		1			
Linnet*	<i>Linaria cannabina</i>	4					



Common Name	Scientific Name	T1	T2	T3	T4	T5	T6
Magpie	<i>Pica pica</i>		1	2	3	2	1
Meadow Pipit^	<i>Anthus pratensis</i>		2	2		4	
Moorhen	<i>Gallinula chloropus</i>	2					
Peregrine Falcon	<i>Falco peregrinus</i>	1		1			
Pheasant	<i>Phasianus colchicus</i>			1	P	1	2
Pied Wagtail	<i>Motacilla alba</i>	2	1				
Raven	<i>Corvus corax</i>	1		1		1	
Reed Bunting	<i>Emberiza schoeniclus</i>	1					
Robin	<i>Erithacus rubecula</i>	1	3	2	1	2	2
Rook	<i>Corvus frugilegus</i>	2	1	3	4		5
Sand Martin*	<i>Riparia riparia</i>	15	4				
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	2					
Snipe^	<i>Gallinago gallinago</i>	1		1		4	1
Song Thrush	<i>Turdus philomelos</i>		1	P	1	1	
Starling	<i>Sturnus vulgaris</i>	2	3		5		8
Stonechat	<i>Saxicola rubicola</i>		1			2	
Swallow*	<i>Hirundo rustica</i>	8	2	1	3		5
Swift^	<i>Apus apus</i>	1					1
Willow Warbler*	<i>Phylloscopus trochilus</i>	1	3	4	2	1	3
Woodpigeon	<i>Columba palumbus</i>	2	4	4	9	2	5
Wren	<i>Troglodytes troglodytes</i>	2	2	1	2	3	2
Snipe	<i>Gallinago gallinago</i>	1		1		4	1

^ Red-listed species

* Amber-listed species

6.8.7 Other taxa

Desktop study

The NBDC database for the 10km grid square that overlaps with the development site was queried for records of other rare or protected species that were not included in the preceding sections. Four butterfly species of conservation concern have been recorded from this 10km grid square: Marsh Fritillary (*Euphydryas aurinia*), Dingy Skipper (*Erynnis tages*), Small Heath (*Coenonympha pamphilus*), and Wood White (*Leptidea* sp.; Table 6.14). Marsh Fritillary is listed under Annex II of the EU Habitats Directive (92/43/EEC) and is listed as 'Vulnerable' under the Irish Red-List of Butterflies, indicating a high risk of extinction (Reagan *et al.*, 2010).

Two species of bee, Moss Carder Bee (*Bombus muscorum*) and Red-tailed Bumblebee (*Bombus lapidarius*) were recorded from this 10km grid square and are listed as 'Near Threatened' (Fitzpatrick *et al.* 2006). One species of moth that is listed as 'Near Threatened' was recorded within the 10km grid square: Yellow Shell (*Camptogramma bilineata*) (Allen *et al.* 2016). Common Lizard (*Zootoca vivipara*) has been recorded in the 10km grid square and also four species of snail (Table 6.14).

Medium impact invasive snail species have also been recorded historically from this area: Common Garden Snail (*Cornu aspersum*) and Jenkins' Spire Snail (*Potamopyrgus antipodarum*).



Table 6.14 Other taxa of note recorded historically in 10km grid square S67

Common Name	Scientific Name	Designation
Marsh Fritillary	<i>Euphydryas aurinia</i>	Red-list Vulnerable; EU Habitats Directive Annex II (strict protection).
Dingy Skipper	<i>Erynnis tages</i>	Red-list Near Threatened
Small Heath	<i>Coenonympha pamphilus</i>	Red-list Near Threatened
Wood White	<i>Leptidea</i> sp.	Red-list Near Threatened
Moss Carder Bee	<i>Bombus muscorum</i>	Red-list Near Threatened
Red-tailed Bumblebee	<i>Bombus lapidarius</i>	Red-list Near Threatened
Yellow Shell	<i>Camptogramma bilineata</i>	Red-list Near Threatened
Common Lizard	<i>Zootoca vivipara</i>	Protected under Irish Wildlife Acts; EU Habitats Directive Annex IV; Appendix III of the Bern Convention
English Chrysalis Snail	<i>Leiostryla (Leiostryla) anglica</i>	Red-list Vulnerable
Lesser Bulin	<i>Merdigera obscura</i>	Red-list Endangered
Prickly Snail	<i>Acanthinula aculeata</i>	Red-list Near Threatened
Tree Snail	<i>Balea perversa</i>	Red-list Vulnerable

Field study

Table 6.15 summarises invertebrate species that were recorded during field visits to the development site. None of the invertebrate species recorded are rare or protected. Areas with Devil's Bit Scabious were inspected for signs of eggs or larvae of Marsh Fritillary – no evidence of the presence of Marsh Fritillary was recorded at the proposed development site.

Table 6.15 Casual observations of butterflies/moths, damselflies and dragonflies during walkover surveys.

Common Name	Scientific Name	7 July 2025	7 Aug 2025	11 Aug 2025	14 Aug 2025
Cinnabar	<i>Tyria jacobaeae</i>	X	X		X
Common Blue Butterfly	<i>Polyommatus icarus</i>	X	X	X	X
Common Blue Damselfly	<i>Enallagma cyathigerum</i>	X	X		X
Four-spotted Chaser	<i>Libellula quadrimaculata</i>	X			
Fox Moth	<i>Macrothylacia rubi</i>	X			



Common Name	Scientific Name	7 July 2025	7 Aug 2025	11 Aug 2025	14 Aug 2025
Meadow Brown	<i>Maniola jurtina</i>	X	X		X
Painted Lady	<i>Vanessa cardui</i>	X	X		X
Peacock	<i>Aglais io</i>	X	X		X
Red Admiral	<i>Vanessa atalanta</i>	X	X		X
Small Tortoiseshell	<i>Aglais urticae</i>	X	X		X
Small White	<i>Pieris rapae</i>	X	X		X
Speckled Wood	<i>Pararge aegeria</i>	X	X		X



6.9 Potential Impacts

Potential ecological impacts of the proposed development on the receiving environment are discussed below. The potential impacts are assessed based on the desktop and field surveys carried out as part of this assessment and the descriptions provided of the proposed operation-phase and post-closure phase of the proposed development.

6.9.1 Potential impacts on Designated Sites

Designated conservation sites include Natural Heritage Areas (NHAs), Proposed Natural Heritage Areas (pNHAs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Nature Reserves and other Refuges for Fauna. SACs and SPAs are European designated nature conservation sites that have been designated under the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (2009/147/EC) respectively. SACs and SPAs are collectively known as Natura 2000 sites and are legally protected by Irish law. NHAs are legally protected by the Irish Wildlife Acts (1976 as amended), but pNHAs are not and only have limited protection through recognition by planning/licensing/forestry authorities and agri-environmental schemes. Nature Reserves and Refuges for Fauna are protected under the Irish Wildlife Acts (1976-2012). Many designated sites overlap, e.g. a site can be designated as both a pNHA and SAC.

The proposed development site is not located proximate to any designated wildlife conservation site. Consideration of direct effects considers the location of the proposed development relative to the designated sites and the likelihood for elements of the development to result in significant effects within these conservation areas. In addition, the nature of the proposed works (construction, operation and site restoration) and the likelihood of these activities resulting in significant effects on the designated sites are fully considered. The Source-Pathway-Receptor model is used to evaluate the potential for effects to be conveyed to sites in the wider hinterland area.

The only Natura 2000 site hydrologically connected to the development site is the River Barrow & River Nore SAC (002162), located a minimum of 2.1km overland (>2.5km downstream) to the east of the proposed development site. The proposed development site is hydrologically connected to this SAC via the Mortarstown Stream which receives the discharge from the proposed development site. The lower reaches of this stream and the Fushoge River form part of the SAC. There is no direct hydrogeological connection between the proposed development site and the SAC due to the poor permeability of the underlying bedrock aquifer.

The Screening stage assessment is summarised in Table 6.16. The River Barrow & River Nore SAC is designated for a range of habitats and species (see Table 6.3) including a number of fish species, Otter and White-clawed Crayfish. A credible hydrological pathway exists from the quarry lands to the River Barrow.



Dust, noise or visual disturbance originating from the quarry is not a plausible pathway to this SAC due to the distances involved and intervening topography/land use. The only pathway identified with any potential to result in likely significant effects is via hydrological links to the River Barrow and River Nore SAC.

Targeted field surveys did not record regular usage of the proposed development site by any River Barrow & River Nore SAC qualifying interest species. No habitats listed as qualifying interests for the River Barrow & River Nore Special Area of Conservation (SAC) are present within the development site.

The River Nore SPA (004233) is located 22km southwest of the proposed development site. The River Nore SPA is located downgradient of the proposed development site via the Dinin River within the River Nore catchment, with only a very small area of the proposed development site located in this catchment. The length of any potential hydrological flowpath would be in excess of 30km. Additionally, there is no surface water discharge from the site to any tributary of the Dinin River. Furthermore, the proposed development site is not connected hydrogeologically with this SPA as the ground water is expected to flow to the east of the proposed development site.

The only nationally protected site hydrologically connected to the proposed development site is the Cloghristick Wood pNHA (000806), located a minimum of 3.4km overland to the southeast of the proposed development site. The flowpath between the proposed development site and Cloghristick pNHA is approximately 6km. The Cloghristick Wood pNHA is located on the eastern banks of the River Barrow downstream of the proposed development site. This pNHA includes some wet woodland adjacent to the river. No direct hydrogeological connection exists between the proposed development site and the pNHA due to the short groundwater flowpaths in the underlying aquifer.

The relevant threats and pressures that have been identified in relation to this SAC sites are summarised in Table 6.17.

Construction/Enabling works

Enabling works will involve vegetation and soil stripping, temporary haul routes and stockpiles, building of offices, weighbridges and welfare buildings, installation of the surface-water management and treatment system, and installation of the washing plant. In the absence of adequate environmental controls, these activities have potential to mobilise suspended solids and fines during rainfall. Run-off has the potential to generate short-lived turbidity and to introduce small amounts of hydrocarbons associated with plant and refuelling. Handling of concrete during removal of the separately permitted recovery facility could also, if unmanaged, release alkaline residues. The hydrological pathway forms a potential connection from on-site drainage to local watercourses and then onwards to the River Barrow. The concern at screening stage is a temporary reduction in water clarity and quality. The effects could reduce habitat suitability for species listed as protected under the River Barrow and Nore SAC. At these distances there is no credible disturbance or displacement pathway to SAC species from construction noise or visual activity at the quarry.



Table 6.16 Summary screening matrix.

Designated Conservation Site	Site Code	Qualifying/Special Conservation Interest - Habitat	Qualifying/Special Conservation Interest - Species	Minimum Distance (km)	Pathway (at screening)	Screening Conclusion
River Barrow and Nore SAC	002162	• Estuaries (1130) • Mudflats and sandflats not covered by seawater at low tide (1140) • Reefs (1170) • Salicornia and other annuals colonising mud and sand (1310) • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) (1330) • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) (1410) • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation (3260) • European dry heaths (4030) • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430) • Petrifying springs with tufa formation (Cratoneurion) (7220) • Old sessile oak woods with Ilex and Blechnum in the British Isles (91A0) • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) (91E0)	• <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) (1016) • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) (1029) • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) (1092) • <i>Petromyzon marinus</i> (Sea Lamprey) (1095) • <i>Lampetra planeri</i> (Brook Lamprey) (1096) • <i>Lampetra fluviatilis</i> (River Lamprey) (1099) • <i>Alosa fallax fallax</i> (Twite Shad) (1103) • <i>Salmo salar</i> (Salmon) (1106) • <i>Lutra lutra</i> (Otter) (1355) • <i>Vandenboschia speciosa</i> (Killarney Fern) (6985)	Overland - 2.1. Hydrological flowpath - >2.5	Yes – hydrological pathway	Screen-in
River Nore SPA	004233		• Kingfisher (<i>Alcedo atthis</i>) [A229]	Overland- 22 Hydrological flowpath - > 30	No	Screen-out



Table 6.17 Summary of known threats and pressures of relevance to the hydrologically connected SAC site.

Designated Conservation Site Name	Site Code	Qualifying/Special Interest s	Conservation Interest - Species	Key threats and pressures to consider
River Barrow and Nore SAC	002162	Estuaries (1130)	<i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) (1016)	- High inputs of nutrients into the river system from agricultural run-off and several sewage plants - Over-grazing within the woodland areas - Invasion of non-native species including Cherry Laurel (<i>Prunus laurocerasus</i>) and Rhododendron (<i>Rhododendron ponticum</i>) - Dredging within the lower reaches of the system - Land reclamations are a threat to salt meadows and associated protected species
		Mudflats and sandflats not covered by seawater at low tide (1140)	<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) (1029)	
		Reefs (1170)	<i>Austropotamobius pallipes</i> (White-clawed Crayfish) (1092)	
		Salicornia and other annuals colonising mud and sand (1310)	<i>Petromyzon marinus</i> (Sea Lamprey) (1095)	
		Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) (1330)	<i>Lampetra planeri</i> (Brook Lamprey) (1096)	
		Mediterranean salt meadows (<i>Juncetalia maritimi</i>) (1410)	<i>Lampetra fluviatilis</i> (River Lamprey) (1099)	
		Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation (3260)	<i>Alosa fallax fallax</i> (Twaites Shad) (1103)	
		European dry heaths (4030)	<i>Salmo salar</i> (Salmon) (1106)	
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)	<i>Lutra lutra</i> (Otter) (1355)	



Designated Conservation Site Name	Site Code	Qualifying/Special Conservation Interest s	Qualifying/Special Conservation Interest - Species	Key threats and pressures to consider
		Petrifying springs with tufa formation (Cratoneurion) (7220)	<i>Vandenboschia speciosa</i> (Killarney Fern) (6985)	
		Old sessile oak woods with Ilex and Blechnum in the British Isles (91A0)		
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) (91E0)		



Operational phase

During operation the quarry will perform extraction within the permitted depth, with drilling, periodic blasting, crushing and screening, washing, vehicle movements and stockpiling. Offices and weighbridges will be in daily use, and the discharge and treatment system will operate. In the absence of controls, the principal risks are chronic suspended-solid and turbidity loading in process and yard run-off, intermittent hydrocarbon inputs from plant and storage areas, and potential alkaline particulates from handling of concrete where any residual recovery operations overlap with the proposed development. The pathway remains the potential hydrological connectivity with River Barrow. The mechanism of effect is a sustained or repeated deterioration in water quality that could influence negatively SAC habitats and species.

For instance, in the absence of appropriate controls, rain-driven pulses of silt could slightly depress prey availability for Otters occurring downstream, if significant volumes of washings discharged to the local watercourses, causing an elevation in pH that could affect fish and invertebrate prey. Any such effects are likely to be local and short-lived. The predicted impact magnitude is low-to-medium in extent, localised to watercourses downstream and proximate to the proposed development and likely to be short-term/temporary, minor adverse (Local).

Restoration & Post Closure

The restoration plan for the site (Figure 6.9). Once the extraction of bedrock has ceased within the proposed extraction area, a thin layer of crushed rock will be spread over the floor of the extraction area followed by the spoil material stored in the spoil storage area and in the boundary berm. Other parts of the restored area will revert to grassland/scrubland via natural regeneration. In addition, hedgerows will be planted and stonewalls inserted across the proposed development site to reinstate the field boundaries.

The soil storage areas at the northwest and northeast of the site will be planted with native woodland species: Pedunculate Oak, *Quercus robur*, Scot's Pine, *Pinus sylvestris*, Alder, *Alnus glutinosa*, Downy Birch, *Betula pubescens*, Wild Cherry, *Prunus avium*, Crab Apple, *Malus sylvestris*, Hazel, *Corylus avellana*, Holly, *Ilex aquifolium*, Hawthorn, *Crataegus monogyna*, Blackthorn, *Prunus spinosa*, Dog Rose, *Rosa canina* and Spindle, *Euonymus europaeus*. Riparian vegetation will be planted near the remaining settlement pond and outlet towards the quarry floor. This will include Reed Sweet Grass, *Glyceria maxima*, Common Sedge, *Carex nigra*, Reed Mace, *Typha latifolia*, Lesser Reed Mace, *Typha angustifolia*, Goat Willow, *Salix caprea* and Eared Willow, *Salix aurita*.

Once quarrying operations have ceased, all site infrastructure and plant will be disassembled and removed off-site for disposal/recycling and/or resale. The wildlife pond that will be created to offset the potential loss of pond habitats during the quarrying operations to the east of the application site will be retained.



No negative effects on designated sites in Zone of Influence are expected during the restoration phase or post restoration. The local drainage controls will be in place during the restoration phase and will minimise the risk of significant mobilisation of pollutants to watercourses downstream of the site. As the landscaped features mature they will have a positive effect on local biodiversity in medium to longer term.





Requirement for NIS

Across the enabling, operational and restoration stages, the only credible pathway to the screened-in European site is hydrological. Potential effects are related to suspended solids, turbidity and trace contaminants, including hydrocarbons and alkaline residues associated with construction, quarry operations, and washing. There is no credible noise or visual disturbance pathway to the SAC, and field surveys indicate that the quarry lands are not regularly used by any QI species. On a precautionary basis, the River Barrow and River Nore SAC is 'screened-in' for further consideration in the Natura Impact Statement. An NIS accompanies the EIAR for the proposed development.

6.9.2 Potential Impacts on Habitats & Flora

No habitats listed on Annex I of the EU Habitats Directive (92/43/EEC) were recorded within the proposed development site boundary. Botanical species protected under the Flora (Protection) Order 2022, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC), or Red-listed in Ireland (Wyse-Jackson *et al.*, 2016) were not recorded during the site visits. The interior of the site is dominated by areas of spoil and bare ground, recolonising bare ground with very limited vegetative cover; small pockets of scrub and improved agricultural and wetland grassland, hedgerow sections, and drainage features occur around the margins.

The sensitivity of botanical receptors at and in the immediate vicinity of the development site is low. Across construction, operation and restoration phases of the proposed development, the potential effects are confined to additional loss and disturbance of low-value vegetation, localised dust-related suppression of growth near working areas, short-term smothering of emergent vegetation in artificial drains, and a plausible but uncertain pathway for the establishment of invasive species. On this basis, without mitigation, the overall significance is assessed as minor adverse at site level during construction and operation, moving to neutral or minor beneficial post-restoration as new marginal and terrestrial communities establish.

Construction/Enabling works

Enabling works will require further stripping and grading of the existing inactive quarry margins and relocation of site infrastructure. Within the proposed development site boundary, this equates to additional loss of low-value habitats (bare ground, ruderal/recolonising land, small areas of scrub, or farmland). No Annex I habitats are present and the scale of loss is local, permanent (for the duration of quarrying) and confined to habitats of low botanical diversity. Soil disturbance and compaction will occur during the formation of haul routes, laydown areas and stockpiles. Works will potentially disturb peripheral areas, potentially reducing botanical cover and seed bank viability in those small areas. Effects are likely to be localised and largely reversible where soils remain.

Earthworks and traffic may elevate dust levels during the construction phase. This could lead to deposition on nearby swards, hedgerow foliage and emergent vegetation etc. which may impair photosynthesis and alter leaf surfaces where loads are high and persistent. Given the limited botanical resource on-site and relatively low conservation value of the habitats in the



adjoining intensively managed agricultural land, any effects would be likely to be highly localised and non-significant.

Short-term pulses of suspended solids from newly formed drains or tie-ins could smother macrophytes or emergent fringing vegetation within on-site ditches or ponds if transported during rainfall. No Annex I habitat is present so any effect would be episodic and likely to be highly localised.

Import of non-waste soils and stone carries a plausible, albeit low, risk of introducing viable propagules (e.g., rhizomes, seeds) of invasive or weedy species to worked margins. Establishment would first occur within the site, potentially altering the ruderal flora or colonising disturbed ditches.

Temporary lighting for enabling works could alter growth patterns of verge flora immediately adjacent to lit areas, but such effects are minor relative to other pressures and spatially limited. Given the relatively low value of the habitats at and proximate to the site, the effects are unlikely to be significant.

Potential effects on habitats and botanical species are dominated by additional loss of relatively low-value habitats, local soil disturbance, dust deposition near workfaces, and a low-likelihood introduction of non-native propagules with imported materials. No effects on Annex I habitat types or protected plant species are predicted based on the field and desktop studies undertaken.

Quarry operation

Extraction, stockpiling and traffic will commence at the quarrying activity at the proposed development site where vegetation will be frequently removed or disturbed during the extractive process. Botanical interest is likely to remain relatively low in active areas. Hedgerow sections and narrow verges at the site edge may experience periodic trimming and disturbance, with limited structural complexity.

In the absence of appropriate mitigation, repeated dust generation from drilling, blasting, crushing and haulage can suppress growth of nearby swards and affect species composition in small peripheral patches and along hedgerows, favouring dust-tolerant ruderal taxa. Effects diminish with distance from sources and are likely to be highly localised to the proposed development Site and immediate surrounding areas.

Process water and runoff (if untreated) has the potential to elevate suspended solids on-site ponds/drains, which can reduce light penetration and smother macrophyte surfaces, limiting colonisation by submerged or emergent species. Given the artificial nature of waterbodies and absence of Annex I habitats, this represents a quality effect on relatively low-value aquatic/riparian vegetation within the site.



Ongoing disturbance combined with import of non-waste soils has, in the absence of appropriate controls, the potential to create suitable niches for opportunistic and invasive plants. Potential effects remain local and low magnitude, primarily influencing ruderal and marginal vegetation immediately adjacent to working areas. No pathways to Annex I habitats, or protected plant populations have been identified.

Restoration & Post Closure

As described above and shown in Figure 6.9 the site will be substantially restored with areas of native woodland, scrub and maturing ponds and fringing riparian vegetation. As the natural revegetation and maturing landscape features develop there will be a moderate local positive effect on the value of the habitats and botanical species present in the medium to long term.

6.9.3 Potential effects on Aquatic Fauna

Enabling and Operational Phases

The quarrying activity will see the loss of areas of ponded water in the quarry basin and the creation of other settlement ponds as well as a permanent wildlife pond to the east of the application site. The loss of existing ponds is likely in the absence of mitigation to cause localised disturbance, displacement and mortality of aquatic and semi-aquatic species such as Smooth Newt. The loss of ponds could also potentially reduce the amount of suitable breeding and nursery habitat for Common Frogs and Smooth Newt. However, both of these species are well adapted to use new and ephemeral water features and it is likely that they will continue to occur locally and to use new settlement ponds and the permanent wildlife pond that will be created according to the surface water management plan.

There is some likelihood that run-off of pollutants to settlement ponds could impact upon the water quality and suitability of these ponds for sensitive aquatic invertebrates and higher organisms. The surface water management plan includes the creation of a wildlife pond feature to the east of the development site.

In the absence of appropriate mitigation there is predicted to be potential for significant negative effects on aquatic fauna at a highly localised level. Such negative effects are likely to be counterbalanced to some extent by the creation of other water features that may be attractive to species such as Common Frog and Smooth Newt. The effects are also likely to be temporary and unlikely to result in any loss of overall species diversity at local level.

Restoration & Post Closure

The restoration plan allows for the retention of a number of water features such as the permanent wildlife pond. The landscaping of the fringe of the water features with riparian vegetation will increase the suitability of these ponds for a range of species including macroinvertebrates. The predicted long-term to permanent effects on aquatic fauna is slight



to moderate positive at local level with the maintenance of habitats that will support a diversity of species.

6.9.4 Potential Effects on Non-volant Mammals

Walkovers and trail cameras recorded a number of non-volant mammal species present within the Site including Irish Hare (regular), Fox (regular), and Brown Rat. Badger was not observed during this suite of surveys, but Badger signs (tracks and scat) were previously observed within the site during surveys conducted in 2023 and 2024. No breeding or resting places of protected non-volant mammals were recorded within the site. No Otter signs were found within the Site during non-volant mammal walkovers.

The proposed application site is of generally low ecological value for non-volant mammal species. The hedgerows and treelines have some local resource value for commuting and foraging mammals and for burrowing sites. The area that provides greatest cover for small mammals is the area of scrub in the northwest of the proposed development site that will be removed to facilitate the development. This dense scrub is suitable for a range of non-volant mammals and including most likely a number of small mammals such as Brown Rat (*Rattus norvegicus*).

The loss of scrub and agricultural habitats to facilitate the proposed quarry extension will result in localised reduced foraging opportunities for mammals, particularly small mammals. The loss of scrub will reduce the availability of cover, breeding and feeding habitat for a range of small mammals (e.g. rabbit). This will predictably lead to a decline in the local foraging resource for Foxes.

Similar habitats for the range of mammal species recorded at the site are widely represented in the surrounding landscape so that any localised losses are unlikely to have a significant impact on the populations. The removal of vegetation and overburden has the potential to result in local disturbance and displacement of mammals present as well as those that occur on the site from time to time.

The phased restoration of the excavated areas is likely to create replacement habitats, attractive for certain mammals to use as these landscaped areas mature in the medium term.

Any projects with deep excavation, settlement ponds and a sump have some limited potential to entrap and drown terrestrial mammals. There is no evidence from the operational quarry that any such issues have arisen. Local mammals quickly habituate to the presence of standing water which may in fact provide foraging and drinking opportunities to certain species. Operational phase run-off of contaminants to ground and surface water could potentially impact upon aquatic habitats of importance to non-volant mammals. However, the existing water management and monitoring at the site show that there is no evidence of any significant impacts upon the local hydrology and hydrogeology.



The proposed quarry extension will lead to a localised reduction in suitable habitat at the site for a number of non-volant mammals. The general quarry activity and associated potential sources of disturbance are likely to cause some localised disturbance/displacement effects, particularly during the hours of operation. Conversely, stored overburden (berms) are likely to be attractive for burrowing mammals including Fox and Badger that are present or have been previously recorded at the site. Irish Hare is likely to persist at the site but may be dispersed to less active areas, particularly during the operating hours of the quarry.

Post closure, at restoration, the native woodland, scrub and wildlife pond fringed by landscaped features will present as relatively attractive habitat for mammals, particularly as these elements mature.

Construction/Enabling works

Set-up activities will disturb additional strips of ruderal ground at the margins of the proposed development site and increase human and vehicular activity for short periods. This is likely to cause some localised displacement of Hares and reduce the limited vegetative cover on the existing stockpiled material. The activity may see some reduction in the amount of passage of non-volant mammals through the site and disturbance associated with the movement of plant and personnel has the potential to locally displace non-volant mammals, particularly on a short-term to temporary duration. However, given the nature of the habitats present within the proposed development site these direct effects are likely to be highly localised, moderate and temporary to short term.

Quarry operation

During operation the quarry interior will remain largely unsuitable for mammals that require vegetative cover. The number of Hares present is likely to reduce, particularly in active areas. The proposed quarry extension will lead to a reduction in suitable habitat at the site for a number of non-volant mammals. Re-vegetated overburden (berms) are likely to be attractive for burrowing mammals including rabbits that are present at the site.

Similar habitats for the range of mammal species recorded at the site are widely represented in the surrounding landscape so that any localised losses are unlikely to have a significant impact on the populations. The removal of vegetation and overburden has the potential to result in localised disturbance and displacement of mammals present as well as those that occur on the site from time to time.

Occasional small hydrocarbon releases and chronic fine-sediment risk in wet weather have the potential to marginally reduce aquatic prey for Otter in connected reaches of the downstream watercourses, while an increase in site-traffic marginally increases the chance of mammal-vehicle collisions on internal tracks. In the absence of appropriate mitigation there is some likelihood of low magnitude, slight to moderate localised effects on non-volant mammals in the vicinity of the proposed development in the medium term.



Restoration and post-restoration

Backfilling and profiling will periodically displace mammals from active areas and also have the potential to generate brief pulses of silt that could temporarily decrease downstream prey availability for Otters. It is likely that the restoration plan will result in a long-term positive moderate improvement in the diversity and abundance of non-volant mammals at the Site.

6.9.5 Potential Impacts on Bats

Five species of bats were confirmed to be present locally by passive detectors: Common Pipistrelle, Soprano Pipistrelle, Leisler's, Daubenton's and Brown Long-eared Bat. Activity levels were typical of commuting and opportunistic foraging rather than concentrated roost activity. No suitable roost structures or trees were identified.

Construction/Enabling works

Limited vegetation clearance associated with the construction and enabling works will potentially slightly reduce local insect resources and shelter at least on a temporary basis. Temporary lighting, if used at night, has the potential to illuminate open quarry areas and margins, discouraging light-averse species and redistributing insects toward luminaires. In the absence of appropriate environmental controls, pulses of silt to drains could potentially reduce emergent insect availability for nearby foraging bats. In the absence of mitigation, the predicted impacts are low magnitude (slight non-significant), short-term/temporary in nature and highly localised to the Site.

Quarry operation

There will be no additional loss of habitat features of importance to bats during the operational phase. There are currently no structures present on site that are attractive for roosting bats. The bulk of the activity at the facility will occur during the hours of daylight and have minimal potential to cause any significant direct disturbance to bats.

Sustained night-time activity and lighting has the potential to reduce the use of illuminated corridors by Brown Long-eared and *Myotis* sp. bats and slightly alter prey distributions in the immediate vicinity of such lighting. However, it is understood that proposed lighting will be minimal and highly localised.

Uncontrolled discharge of fine sediment (or other pollutants) in wet periods could potentially dampen emergent insect production locally, particularly in drains, ponds and watercourses. Given the low baseline activity and absence of bat roosts in the immediate area, population-level impacts are not expected.

In the absence of mitigation, the magnitude of potential negative effects during the operational phase are predicted to be low. These effects are likely to be slight, highly localised and non-significant and in the medium to longer terms.



Restoration and post-restoration

During restoration, ongoing disturbance from vehicular activity and site lighting has the potential to temporarily reduce bat foraging activity near active works. Post restoration, the re-vegetated berms are predicted to be increasingly attractive to foraging bats and provide more sheltered flyways, benefiting the local bat community.

As the landscaped and revegetating areas of the site mature there is likely to be increasing opportunities for foraging and commuting bats. It is likely that there will be a permanent significant positive effect on the abundance of bats using the site from the medium term forwards. It is also likely that there may be an increase in roost potential as the landscaping features mature and an increase in the short-medium term in species diversity recorded at the site.

6.9.6 Potential Impacts on Birds

The proposed development site supports a modest bird community typical of farmland and disturbed ground. The lack of vegetative cover at the existing inactive quarry minimizes the potential for the proposed development to significantly reduce the breeding, foraging or nesting potential of the site for the vast majority of bird species recorded in the wider area. Although Peregrine Falcon was observed within the development site during surveys, there is no evidence of current or recent historical nesting. It is also likely that the expansion of the quarry may create additional roosting and nesting opportunities for the species.

Approximately ten Sand Martin burrows were noted in spoil heaps with high vulnerability to predation and collapse. A juvenile Coot, a Moorhen chick and a Mallard with ducklings were recorded in the proposed development area, suggesting breeding activity of these species within the site.

Construction/Enabling works

If vegetation clearance or ground reprofiling occurs during the breeding season, active nests of ground-nesting species could potentially be destroyed. Similarly, any works close to nest site locations have the potential to cause disturbance or direct mortality to breeding birds or their young. Reworking spoil during the breeding season has the potential to remove Sand Martin colonies, or lead to abandonment. Construction activity therefore has the potential to elevate the risk of breeding failure where timing of works close to sensitive species nesting locations does not avoid the breeding season.

In the absence of appropriate mitigation there is potential for significant temporary to short-term effects on the avian community present at the site. These effects are likely to be highly localised and are amenable to mitigation.

Quarry operation

Routine drilling, blasting and traffic has the potential to cause disturbance that may limit or displace nesting on active faces within the quarry. Disturbance from noise and traffic these



has the potential to cause some localised disturbance and displacement of birds. Species such as Swallow and Swift are likely to continue to forage above the quarry basin and species that are well adapted to areas of recolonising bare ground will persist at the proposed development.

The use of the stored spoil and overburden is likely to remove potential nesting habitat for species such as Sand Martin. Depending on the timing of the removal of this material there is potential for disturbance or mortality effects on birds breeding within this stockpiled material. Sparse gravel areas and recolonising bare ground may continue to attract ground nesting birds including Meadow Pipit. The settlement ponds may provide some limited areas of habitat attractive for species such as Mallard and Moorhen.

The extension of the quarry will create some additional rock face suitable for roosting and nesting birds such as Peregrine Falcon. Corvids, such as Raven are also regularly recorded breeding at quarry sites. Landscaped berms and marginal planting will provide some nesting and foraging opportunities for birds, particularly with the maturation of such features.

The loss of some open field and vegetated areas (particularly the scrub) within the application site associated with the quarry extension may result in localised medium-term disturbance effects on the bird community present, primarily through reduced feeding and nesting opportunities. However, the vegetated areas in question are of local low-moderate value for birds overall and similar habitats are widely represented in the surrounding area so that affected birds can disperse into the wider landscape.

Birds associated with aquatic habitats in the wider area could be negatively affected by a proposed development through hydrological or water quality impacts such as increased siltation, nutrient release, contaminated run-off and/or dust arising from the development works. This requires connectivity between the works area and the surrounding aquatic habitats.

In the absence of appropriate environmental mitigation, it is predicted that the potential effects on birds will be of low-medium magnitude over the medium to long term. The effects are likely to be highly localised and of slight to significant negative depending on the presence of higher conservation value species such as Peregrine Falcon.

Restoration and post-restoration

Backfilling and final profiling has the potential to disturb or remove nesting sites of birds. Following restoration, the permanent wildlife pond may be attractive for waterbirds as and the pond and revegetated berms will provide foraging habitats for aerial insectivores such as Swallow, House Martin.

Overall, local bird diversity is expected to marginally increase over the short to permanent term post restoration, particularly with the maturation of the native woodland areas. The magnitude of this effect is likely to be significant positive in the long to permanent term,



particularly if the remaining habitats continue to be attractive to the species of greatest conservation value that occur at the existing quarry.

6.9.7 Potential Impacts on Other Taxa

Butterflies and dragonflies were recorded in small numbers at the proposed development site; no rare or protected invertebrates were found on site, though some threatened species are recorded at a wider 10 km-grid scale.

Enabling and Operational Phase

The enabling and operational phases will see some losses of ponds attractive for invertebrate species. The potential impacts on semi-aquatic species such as Smooth Newt and Common Frog are discussed in Section 6.9.3. Effects mediated through loss or degradation of aquatic habitats are likely to result in temporary to short term non-significant negative effects on invertebrates and other taxa at a highly localised level during the operational phase. This will be offset to a large extent by the creation of temporary settlement ponds and the permanent wildlife pond features.

Restoration and post-restoration

Post closure the landscaping features and retained wildlife pond are likely to result in a slight to moderate permanent increase in the diversity and abundance of these taxa at a local level.

6.9.8 Do-nothing Impacts

If the proposed development is not permitted, the facility is likely to remain as an inactive quarry surrounded by predominantly agricultural pastures and some forestry. The proposed development site would remain largely unaltered as a result of the Do-Nothing Scenario. There would be no significant alteration to the existing ecological value of the proposed development site.

6.9.9 Cumulative and In-Combination Effects

In order to fully assess the potential impact of the proposed development on the receiving environment and on Natura 2000 sites in the wider area, the project must be assessed alone or in-combination with existing activities and proposed plans for the region. In general, if individual projects and plans adequately address the potential risks to the receiving environment there is significantly less risk of cumulative and in combination effects.

Plans and Projects in the wider hinterland were identified using various online resources including:

- MyPlan.ie
- Carlow County Council planning viewer



- An Coimisiún Pleanála planning viewer
- Carlow County Development Plan (2022-2028)
- Laois County Development Plan (2021-2027)

The majority of the permitted and proposed planning applications local to the site are related to the proposed construction of or modification to private dwellings or agricultural buildings. There are a number of planning applications associated with the extractive industry, many of those associated with the operation of Clogrennane Lime. In addition, planning files were reviewed in relation to recent planning applications associated with permitted underground grid cable associated with Bilboa Wind Farm (20/181) and amendments to the permitted 38kV substation (24/60170).

In addition, relevant policies such as the National Biodiversity Plan (2023-2030) were considered when evaluating the potential for significant cumulative or in-combination effects arising in relation to the proposed development. The project is consistent with local and national planning policy as set out in the accompanying planning report. Cognisance has been taken in relation to European legislation such as the Water Framework Directive.

No potential for significant cumulative or in-combination effects in relation to biodiversity were identified as part of this process.



6.10 Avoidance, Mitigation and Enhancement Measures

The mitigation measures, environmental controls and monitoring commitments described in the other Chapters of the EIAR and NIS will be fully implemented. The mitigation measures as set out in the individual chapters of the EIAR will serve to minimise the potential negative effects of the proposed development on the receiving environment. The measures related to control of emissions (dust, sediment and other water-borne pollutants, noise and light) and traffic are especially relevant to the minimising of risk to biodiversity. Where such measures are reiterated or restated here it is to further highlight the importance of implementing this mitigation. A suitably qualified Ecological Clerk of Works (ECOW) for the project will be appointed and they will supervise and monitor the delivery of the mitigation and enhancement measures throughout the operation of the facility.

6.10.1 Designated Conservation Sites

Measures to ensure that the risk of discharge of pollutants (including silt, cementitious run-off etc.) from the proposed development site, in particular to avoid significant contamination of watercourse downstream of the proposed development site will be outlined in the Environmental Management Plan (EMP) which will contain the conditions put forward in the EIAR and any conditions of planning imposed by the planning authority. The EMP will set out the working hours, traffic management and general environmental commitments that will apply during the project.

Mitigation measures to protect both groundwater and surface water quality during the Operational Phase are detailed in Chapter 8 of the EIAR. The following commitments will be effective in addressing potential negative effects on sensitive downstream habitats and species:

- Provision of a water management system which will include the installation of surface water attenuation and settlement ponds on the quarry floor to cater for water which will allow for settlement of suspended solids.
- Phased restoration will occur where the operational phase will comprise of phased extraction and the subsoil/overburden material removed from each phase will be spread over the previous phased extraction area, and vegetated as soon as possible, thus reducing the area of bedrock exposed at any given time reducing potential impacts to groundwater.
- Removal of soil/subsoil from proposed extension areas will only be carried out during periods of low rainfall.
- Prior to the commencement of construction/enabling works the entire site will be subject to a confirmatory baseline ecology survey to identify any new or existing constraints. This will include checks to confirm that there are no Third Schedule Invasive plant species. In the event that are Third Schedule Plants are present the areas where these plants are growing will be mapped and no works will be allowed to proceed in these affected areas without the implementation of an Invasive Species Management Plan.
- A site-specific protocol for blasting will be implemented which will follow the current international best practice. This protocol will be employed to mitigate the potential effects of explosives on groundwater and surface water quality during blasting operations.



- A dedicated fuelling area on concrete hardstanding will be used for all vehicle re-fuelling operations at the proposed development.
- Fuel in this dedicated fuelling area will be stored in a double skinned, bunded, above ground oil tank.
- A spill tray will be used during refuelling operations and a spill kit will be positioned beside the fuel tank in case of a spillage.
- Drainage from the refuelling area will be routed through a full hydrocarbon interceptor and then a soakaway prior to discharge to ground.
- Refuelling will be completed in a controlled manner using drip trays (bunded container trays) at all times.
- Fuel containers will be stored within existing secondary containment system, e.g. garage, bunds for static tanks or a drip tray for mobile stores.
- Containers and bunding for storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored.
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage.
- Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills.
- Only designated trained operators will be authorised to refuel plant on site.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills.
- An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill.
- Water from the wheel wash will be recycled and will not enter the settlement ponds or be discharge to surface waters.
- All plant and machinery will be serviced before being mobilised to site and major repairs will be completed off site. Emergency mechanical repairs will use spill kits kept on-site.
- All water from the site will be passed through a hydrocarbon interceptor prior to discharge.
- The proposed development will utilise an established wastewater treatment system.
- The commitments provided in the EIAR in relation to normal working hours, traffic and parking controls to reduce noise/lighting disturbance will be applied.
- The site-specific Material Assets chapter of the EIAR includes as Appendix 12.1 a Resource & Waste Management Plan (RWMP) which will be refined and implemented at operational stage as per EPA (2021) C&D Guidelines;

It is considered that with the implementation of the mitigation measures outlined above, the proposed development will not result in any likely, significant effects on groundwater and/or surface water. As a result, there will be no significant potential to affect the conditions within the designated sites hydrologically linked to the Site: River Barrow & River Nore SCA and Cloghrick Wood pNHA. A NIS accompanies this planning application and with the application of the proposed environmental controls, mitigation and monitoring, it is objectively concluded that no significant effects arising from the proposed development are likely to occur in relation to the Natura 2000 sites (i.e. River Barrow & River Nore SCA or indeed any other Natura 2000 site in the wider hinterland).



6.10.2 Habitats and Flora

- A pre-commencement survey will be carried out to confirm the absence of Third Schedule Invasive Plant species. In the unlikely event that any such species are discovered their location will be mapped and no works will be allowed to continue within the affected areas until the successful implementation of an Invasive Species Management Plan is confirmed by a suitably qualified specialist.
- Acceptance criteria to minimise the potential for import of any soil contaminated with invasive species (e.g. as part of landscaping works) will be fully implemented.
- Excavated soil/subsoil material from the extension area will be used for landscaping throughout the proposed development site and in the construction of boundary berms and will be re-vegetated with native woodland species.
- The landscaping and aftercare commitments outlined in the site restoration plan will be fully implemented. Some progressive restoration will be incorporated into the landscape plan for the site.
- All works will be carried out according to best practice with standard environmental controls in place to prevent any damaging run-off from the site (see CIRIA 2001 & 2015). The environmental control measures outlined in the EMP and the mitigation detailed in the EIAR Chapters will be fully implemented.
- Post-closure of the facility and prior to the full implementation of the final site restoration the site will be surveyed to confirm the absence of rare, protected and invasive species. A suitably qualified ecologist will advise on the correct procedures to be followed to ensure that any rare, protected or invasive species present are dealt with according to the current best practice and legislative framework.

6.10.3 Amphibians

Mitigation for Smooth Newt will consist of the provision of new suitable habitat including a new permanent wildlife pond and a licensed capture and release programme including a long-term monitoring programme. Given the partly aquatic and partly terrestrial life-cycle of Smooth Newt, mitigation will comprise of the following:

- i. identification of suitable relocation sites
- ii. creation of a new pond habitat
- iii. provision and long-term retention of suitable terrestrial habitat (rough grassland, scrub, log and stone piles) around the new pond
- iv. a licensed capture and translocation programme targeting adults, sub-adults and larvae from quarry ponds prior to their removal
- v. a three-year monitoring programme to verify establishment of a viable breeding population and to allow adaptive management of the translocation sites if required.

The capture and release programme will consist of:



- Conduct night torch-light counts and, where appropriate, bottle trapping/hand-netting during the breeding season (spring) when adults are concentrated in ponds. The aim is to collect adults, sub-adults and, where possible, egg-laden females and larvae.
- After the aquatic capture phase, careful hand searches will be conducted of suitable terrestrial refuges (stone piles, rubble, sleepers, debris) in the pond margins before those features are removed. If feasible, suitable features (e.g. stone/rubble piles) will be used to provide suitable terrestrial refuges close to the receptor area(s).
- Release captured individuals directly into the new receptor pond(s) and nearby terrestrial refuges the same night or within 24 hours.

The new pond will provide suitable habitat for Smooth Newt including the following details:

- Pond edge to include at least one area with a gentle slope of 1:10
- Pond will have a source of inflow and outflow
- Include some aquatic vegetation from existing ponds
- Pond will include larger rocks or stone refuges and some logs
- Base of the pond should be lined with pebbles/gravels
- Stock proof fence surrounding pond edge by 6m

Infilling or removal of ponds during peak larval period will be avoided. For Smooth Newt in Ireland the peak larval period in ponds is roughly mid-June to late July. Draining or infilling of the ponds will take place outside of peak breeding (June and July); preferably late autumn when ponds will hold fewer Smooth Newts and most individuals are terrestrial.

In addition, the measures outlined in Section 6.10.1 are largely those which will ensure that the risk of broadcast of pollutants to sensitive ponds within the proposed development site and sensitive downstream habitats are eliminated. These measures will also be effective in reducing the potential effects to aquatic species and habitats in the downstream watercourses.

- Mitigation measures outlined to protect water quality (as described above under the Designated Sites section) will be fully implemented.
- Biological water quality will be monitored annually upstream and downstream of the surface water discharge location.
- All requirements of the EPA for discharge of treated water from the facility will be fully observed.

6.10.4 Non-volant mammals

- The normal operational hours of the quarry facility will be 07:00 to 19:00, Monday to Saturday, except in the event of an emergency.
- A pre-construction mammal survey will be carried out by a suitably qualified ecologist immediately before the commencement of vegetation clearance. This will confirm the findings of the current study and identify any change in the usage of the site, particularly regarding the presence of any protected breeding or resting sites, in the period between



the submission of the planning application and the commencement of associated site works. If any resting or breeding places of such species are present within the works footprint this will be discussed with NPWS and any necessary derogation licences (for Annex II/IV species) will be in place prior to works. This is a purely precautionary commitment as no such breeding or resting places were recorded during the site surveys in 2025.

- Irish Hare can breed at any time of year and any areas due for clearance or significant construction works shall be walked in the week directly before such works are scheduled. In the event that a breeding site is suspected this will be marked and a trail camera erected to confirm activity. The ECoW will review the evidence and advise on any necessary exclusion of areas that need to be avoided until such time as the breeding effort has progressed or resolved. Works will only proceed in the area where a breeding site is suspected on the advice of the ECoW.
- The proposed site speed limits and hours of activity greatly reduce the risks of direct conflict with non-volant mammals.
- Site traffic will be limited to approved routes in order to limit accidental damage to potential foraging or nesting habitats.
- The lighting proposed as part of the development is minimal. Any lighting installed will be downward directed and cowled to minimise light spill. All site lighting that is not required for operation or security will be extinguished.
- Any temporary excavations on site will be fitted with an egress board and inspected prior to works.
- All edible and putrescible wastes will be stored and disposed of in an appropriate manner. Similarly, all construction materials will be stored and stockpiled at planned locations.
- No bioaccumulating pesticides will be used to control pest species on site. This will help protect the health of apex predators that may feed on non-volant mammal species including birds of prey.
- In addition, the measures outlined in Section 6.10.1 are largely those which will ensure that the risk of broadcast of pollutants to sensitive downstream habitats are eliminated. These measures will be effective in reducing the potential effects to aquatic species and habitats in the downstream watercourses.
- Mitigation measures outlined to protect water quality (as described above under the Designated Sites section) will be fully implemented.
- Biological water quality will be monitored annually upstream and downstream of the water treatment discharge location.
- All requirements of the EPA for discharge of treated water from the facility will be fully observed

6.10.5 Bats

- Although no known bat roosts will be lost as a result of the proposed works, in order to enhance bat roosting opportunities locally a minimum of 10 artificial bat roosts (bat-boxes) will be installed at suitable locations around the margins of the land-holding. As recommended in Marnell *et al.* (2022) 'woodcrete' bat boxes will be used as they are durable and long-lasting and do not require maintenance. A mixture of bat-box types will be used to



cater for seasonal and species requirements. The following products (or similar) will be installed in consultation with a suitably qualified ecologist:

- 4 x Schwegler 1FS Colony Bat Box 95
 - 4 x Schwegler 2F Universal Bat Box
 - 2 x Schwegler 2FN Bat Box 55
- Selection of locations for bat boxes will be decided with cognisance of the following:
 - Bat boxes will be installed at a minimum height of 4 meters above ground level, and in locations which are inaccessible to unaided climbing (to minimise risk of vandalism).
 - Boxes will be clustered with a minimum of two boxes on each chosen erection site.
 - Locations will be chosen which are not particularly vulnerable to artificial light or noise pollution.
 - Boxes will be installed so that they have southern or westerly aspects and preferably in locations where they will receive some direct sunlight.
 - Bat boxes will be monitored approximately 12 months following installation, Data on any confirmed roosts will be provided to the National Biodiversity Data Centre (NBDC).

6.10.6 Birds

- There will be no felling of trees, or clearance of woody vegetation, including along the margins of the site during the bird breeding season (March 1st to August 31st inclusive).
- No stockpiles with signs of nesting burrows of Sand Martin will be removed during the bird breeding season, at least until it is confirmed by the ECoW that there are no active burrows.
 - An artificial nesting colony for Sand Martin will be constructed close to the permanent wildlife pond.
 - The award-winning design of the OPW precast Sand Martin wall from the Templemore Flood Relief Scheme will be adopted (see Plate 6.). The walls are designed to stop predator access with the thickened stem and small entrance hole for the birds. The cavities within the wall widen out towards the rear for the nesting area, with removable caps fitted in the rear so that a bed of sand can be placed inside and to facilitate maintenance and monitoring.



Plate 6.16 Pre-cast Sand Martin nesting wall.

- All stockpiles will be examined prior to excavation and if the presence of breeding birds is suspected all removal of the material in the immediate area will cease pending inspection by the ECoW.
- In the even that stockpiles with the potential for nesting burrows of Sand Martin are to be worked on in the bird breeding season the ECoW will advise on measures to pre-exclude birds from nesting in areas scheduled for removal or reprofiling.
- Any areas due for minor clearance or significant construction works shall be walked in the week directly before such works are scheduled. In the event that a breeding site is suspected this will be marked and a trail camera erected to confirm activity. The ECoW will review the evidence and advise on any necessary exclusion of areas that need to be avoided until such time as the breeding effort has progressed or resolved. Works will only proceed in the area where a breeding site is suspected on the advice of the ECoW.
- Peregrine Falcon activity will be monitored annually during the operational phase, with liaison maintained with NPWS to inform the local wildlife officials of the status of Peregrine Falcon and their nests at the site.
- In the event a nesting attempt is discovered at the site, no drilling or blasting activity will be permitted within 300m of the nest site in the period April-July (inclusive) without the agreement of the ECoW, who will be present to monitor any blasting undertaken in a period when nesting Peregrines are active. The ECoW will have 'stop works' authority for high impact activities (e.g. drilling and blasting).



- Any lighting proposed as part of the development will be downward directed and cowled to minimise light spill. All site lighting that is not required for operation or security will be extinguished.
- All edible and putrescible wastes will be stored and disposed of in an appropriate manner. Similarly, all construction materials will be stored and stockpiled at planned locations.

6.11 Residual Effects

With the application of the identified mitigation measures there is no likelihood of significant negative residual impacts with respect to biodiversity during the construction, operational or restoration (and post-closure) stages of the proposed development. With the implementation of the biodiversity mitigation and enhancement measures it is likely that there will be net positive results for local biodiversity, particularly in the post-closure period.

The design and mitigation measures outlined in Chapter 8 (Hydrology and Hydrogeology) will be effective in minimising any risk to water quality downstream of the site. The accompanying NIS concludes that with implementation of the mitigation outlined that there is no potential for residual adverse impacts upon River Barrow and River Nore SAC or any other Natura 2000 sites in the wider hinterland.

Potential impacts on habitats and species at the site are regarded as significant positive locally in the long to permanent term as the restoration aims of the project are achieved.



6.12 References

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