January 2025

EIAR – Volume 3 - Appendices

Proposed Quarry Re-Commencement & Extension

Part 2

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

EIAR – Volume 3 - Appendices

Proposed Quarry Re-Commencement & Extension

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APPENDICES

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APPENDIX 6

Appendix 6-1

January 2025

Restoration Plan

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

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Job Number: E2123

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Checked By: Sarah de Courcy **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	29/01/25	Report	Final	SL	SDC	DH

Restoration Plan

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

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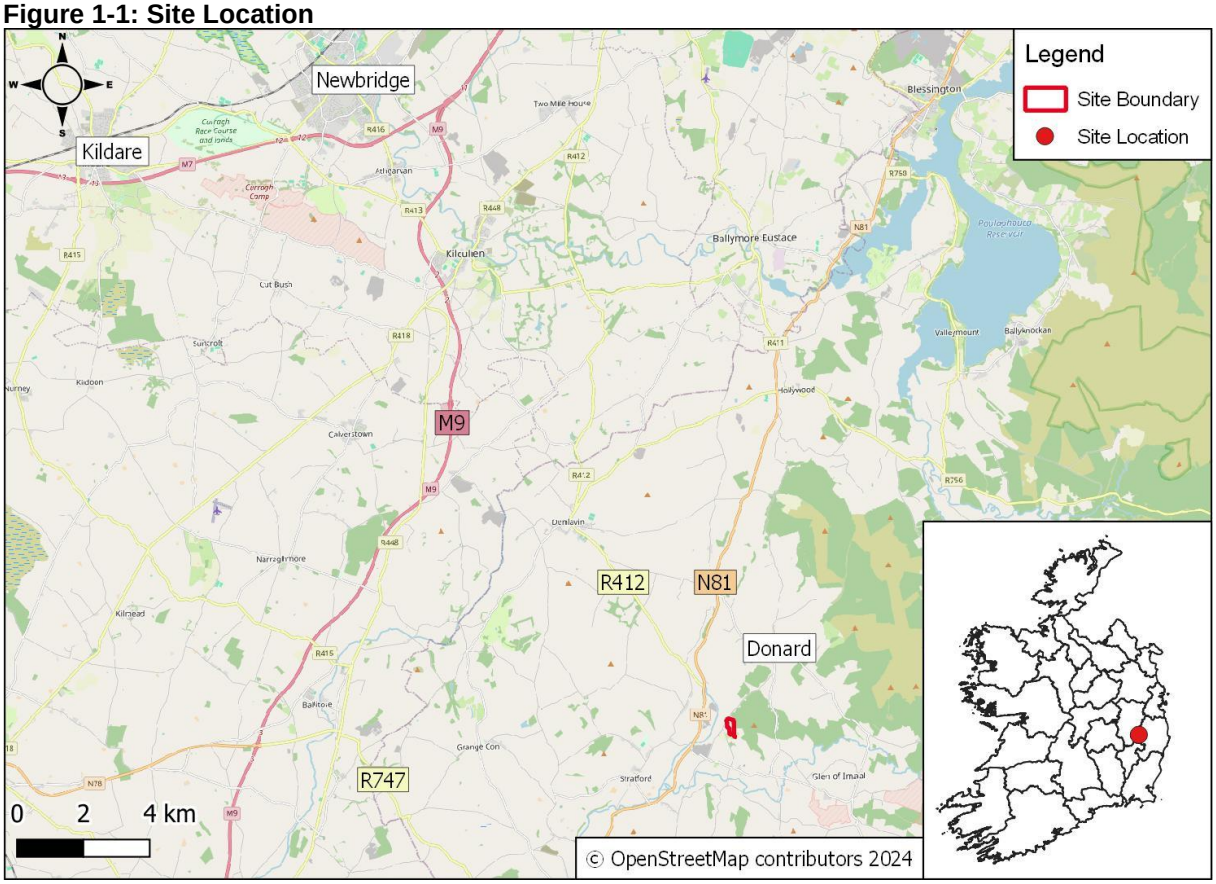
1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') was commissioned by Herbie Stephenson Limited ('the Applicant') to prepare a Restoration Plan in support of a planning application to Wicklow County Council ('WCC') for the proposed re-commencement of quarrying at an old rock quarry in Deerpark, Donard, Co. Wicklow, to a level of 165 metres above Ordnance Datum ('mAOD'), along with the extension of the quarry into reserves to the south and east of the old quarry (the 'Proposed Development').

The Proposed Development will be located on a site that is circa ('ca.') 8.1 hectares ('ha') in size within the townland of Deerpark and Donaghmore Co Wicklow (Ordnance Survey Ireland Grid Reference ITM 692022, 695358). Refer to the redline boundary presented in Figure 1-1 below for context ('the Site'). The Site is located ca. 2.4km southwest of Donard.

Figure 1-1: Site Location



1.1 Purpose

The management measures described in this Restoration Plan are based on the ecological baseline survey works undertaken as part of the ecological assessment of the Site and wider landholding as outlined in Chapter 6 – Biodiversity in the EIAR prepared in support of this planning application.

This Restoration Plan includes ecological enhancement measures and has taken full cognisance of protected and notable species that have the potential to be present within the area after the closure of the Site.

1.2 Statement of Authority

The Restoration Plan was prepared under the direction of Dyfrig Hubble, Associate Director of Ecology, who provided peer review and support to the project.

Dyfrig Hubble has a B.Sc. (Hons) Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 18 years' experience working in the ecological consultancy sector including habitat appraisals and specialist species-specific surveys. Dyfrig has extensive experience in the preparation of Habitat Engagement / Restoration Plans and Habitat Management Plans for various projects within both the UK and Ireland.

1.3 Methodology

This Restoration Plan has been prepared in accordance with best practice guidelines and legislation including:

- Wildlife Habitats & the Extractive Industry - Guidelines for the Protection of Biodiversity within the Extractive Industry [1]; and,
- Environmental Management in the Extractive Industry (Non-Scheduled Minerals) [2].

1.4 Overview of Quarry Restoration

Quarries can be of very high value for nature conservation and are often termed biodiversity hotspots. Mineral extraction creates a large variety of landscapes and habitats which support numerous floral and faunal species. Over the years, biologists have generated an abundance of evidence highlighting the importance of quarries for rare floral species such as red hemp nettle, insects such as bumble bees and dragonflies, and bird species such as sand martin and ringed plover.

Until recently, many quarry rehabilitation strategies were aimed at producing vegetation cover as quickly as possible. However, allowing plants to naturally colonise bare ground and other quarry habitats is now recognised as an important element of quarry rehabilitation. Quarries provide excellent opportunities for natural regeneration and natural habitat conservation.

Studies have shown that the natural regeneration of quarries allows for the development of natural landscapes with increased biodiversity and species preservation compared with the 'classic' regeneration of quarries via the planting of vegetation cover.

The aim of any natural rehabilitation plan is to restore ecological balance and to produce self-sustaining plant and wildlife communities and habitats. Old quarry sites can create both terrestrial and wetland habitats for wildlife, significantly contributing to Ireland's biodiversity goals.

This Restoration Plan provides detailed guidance for the rehabilitation of the Site to enhance its nature conservation value, specifically in terms of its capacity to support breeding / nesting raptors commonly associated with quarries by allowing natural erosion of aggregate faces. This Restoration Plan will seek to balance areas of natural regeneration with re-planted areas and retained ponds.

1.5 Structure of the Restoration Plan

The structure of this Restoration Plan is as follows:

- Site Analysis: provides contextual detail;
- Restoration Plan: details the rehabilitation works proposed for the Site and wider landholding; and,
- Monitoring and Aftercare: provides details regarding the monitoring and review of the plan as the rehabilitation strategy progresses.

2 SITE ANALYSIS

2.1 Existing Site

The Site and wider landholding encompass agricultural fields and the historic quarry area. The agricultural fields were utilised as pastures and were bound by a combination of stonewalls, scrub, treelines and adjacent Coillte woodlands. No drainage ditches or water features were present within the Site at the time of survey; however, a small area of wet grassland was identified.

The historic quarry area was characterised by vegetated margins and disturbed / recolonising ground. The historic quarry area was framed by steep banks and quarry faces which have become overgrown with scrub. Only the upper ledges of the eastern quarry face remained exposed.

The Site is bound by Coillte Woodland to the east and an unnamed local road to the west. The local area is characterised by one-off residential dwellings, farm holdings and agricultural land.

There are two large scale developments within 2km of the Site identified under WCC Planning Ref: 20/1291 (importation of inert soil and stones for use in site restoration of an extracted area) and WCC Planning Ref:20/1117 (importation of inert soil and stones for use in site restoration of an extracted area).

2.2 Ecological Context

2.2.1 Habitats

The following habitats were identified on-site using Fossitt's, '*A Guide to Habitats in Ireland*' [3]:

- Improved Agricultural Grassland (GA1);
- Treelines (WL2);
- Stone Walls and Other Stonework (BL1);
- Spoil and Bare Ground (ED2);
- Recolonising Bare Ground (ED3);
- Scrub (WS1);
- Mixed Broadleaved Woodland (WD1); and,
- Dense Bracken (HD1).

The following habitats were identified outside the Site boundary within the lands under ownership interest:

- Improved Agricultural Grassland (GA1);
- Wet Grassland (GS4);
- Scrub (WS1);
- Dense Bracken (HD1);
- Treelines (WL2); and,
- Stone Walls and Other Stonework (BL1).

These were a continuation of the habitats found on-site and are presented in Figure 2-1.

Figure 2-1: Habitat Map

2.2.2 Species

The following species were identified on-site and within the lands under owner interest (either directly through sight or sound, or indirectly through prints, scats or other field evidence) during the field surveys in 2023. These include species identified by external surveyors within 5km of the Site.

Table 2-1: Species identified during Field Surveys

Common Name	*Scientific Name*	Designation
Amphibians		
Common Frog	*Rana temporaria*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex V Species
Birds		
Barn swallow	*Hirundo rustica*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Blackbird	*Turdus merula*	Birds of Conservation Concern – Green List
Blackcap	*Sylvia atricapilla*	Birds of Conservation Concern – Green List
Blue tit	*Cyanistes caeruleus*	Birds of Conservation Concern – Green List
Buzzard	*Buteo buteo*	Birds of Conservation Concern – Green List
Chaffinch	*Fringilla coelebs*	Birds of Conservation Concern – Green List
Chiffchaff	*Phylloscopus collybita*	Birds of Conservation Concern – Green List
Coal Tit	*Periparus ater*	Birds of Conservation Concern – Green List
Dunnock	*Prunella modularis*	Birds of Conservation Concern – Green List
Goldcrest	*Regulus regulus*	Birds of Conservation Concern – Amber List
Goldfinch	*Carduelis carduelis*	Birds of Conservation Concern – Green List
Great spotted woodpecker*	*Dendrocopos major*	Birds of Conservation Concern – Green List
Great tit	*Parus major*	Birds of Conservation Concern – Green List
Greenfinch	*Chloris chloris*	Birds of Conservation Concern – Amber List
Grey heron*	*Ardea cinerea*	Birds of Conservation Concern – Green List
Hooded crow	*Corvus cornix*	Birds of Conservation Concern – Green List
Herring gull	*Larus argentatus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
House martin	*Delichon urbicum*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List

Common Name	***Scientific Name***	**Designation**
Jackdaw	*Coloeus monedula*	Birds of Conservation Concern – Green List
Jay*	*Garrulus glandarius*	Birds of Conservation Concern – Green List
Kestrel*	*Falco tinnunculus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Lesser black-backed gull	*Larus fuscus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Long-eared owl*	*Asio Otus*	Birds of Conservation Concern – Green List
Long-tailed tit	*Aegithalus caudatus*	Birds of Conservation Concern – Green List
Magpie	*Pica pica*	Birds of Conservation Concern – Green List
Meadow pipit	*Anthus pratensis*	Birds of Conservation Concern – Red List
Mistle thrush	*Turdus viscivorus*	Birds of Conservation Concern – Green List
Peregrine*	*Falco peregrinus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Green List EU Bird Directive Annex I
Reed bunting*	*Emberiza schoeniclus*	Birds of Conservation Concern – Green List
Robin	*Erithacus rubecula*	Birds of Conservation Concern – Green List
Red kite*	*Milvus milvus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Rook	*Corvus frugilegus*	Birds of Conservation Concern – Green List
Sedge warbler	*Acrocephalus schoenobaenus*	Birds of Conservation Concern – Green List
Siskin	*Spinus spinus*	Birds of Conservation Concern – Green List
Skylark	*Alauda arvensis*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Song thrush	*Turdus philomelos*	Birds of Conservation Concern – Green List
Sparrowhawk*	*Accipiter nisus*	Birds of Conservation Concern – Green List
Sand martin*	*Riparia riparia*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Starling	*Sturnus vulgaris*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List

Common Name	*Scientific Name*	Designation
Swift*	*Apus apus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Treecreeper	*Certhia familiaris*	Birds of Conservation Concern – Green List
Willow warbler	*Phylloscopus trochilus*	Birds of Conservation Concern – Amber List
Woodpigeon	*Columba palumbus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Green List EU Bird Directive Annex II, Section I and Annex III Section I
Wren	*Troglodytes troglodytes*	Birds of Conservation Concern – Green List
Bats		
Common pipistrelle	*Pipistrellus pipistrellus*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex IV Species
Lesser Noctule	*Nyctalus leisleri*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex IV Species
Myotis bat species	*Myotis spp.*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex IV Species
Nathusius' pipistrelle	*Pipistrellus nathusii*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex IV Species
Soprano pipistrelle	*Pipistrellus pygmaeus*	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex IV Species
Terrestrial Mammals		
Red Fox	*Vulpes vulpes*	N/A
Invasive Species		
European rabbit	*Oryctolagus cuniculus*	Invasive Species: Medium Impact Invasive Species
Sika deer	*Cervus nippon*	Invasive Species: High Impact Invasive Species

*Species identified by External Surveyors utilising a 5km study area.

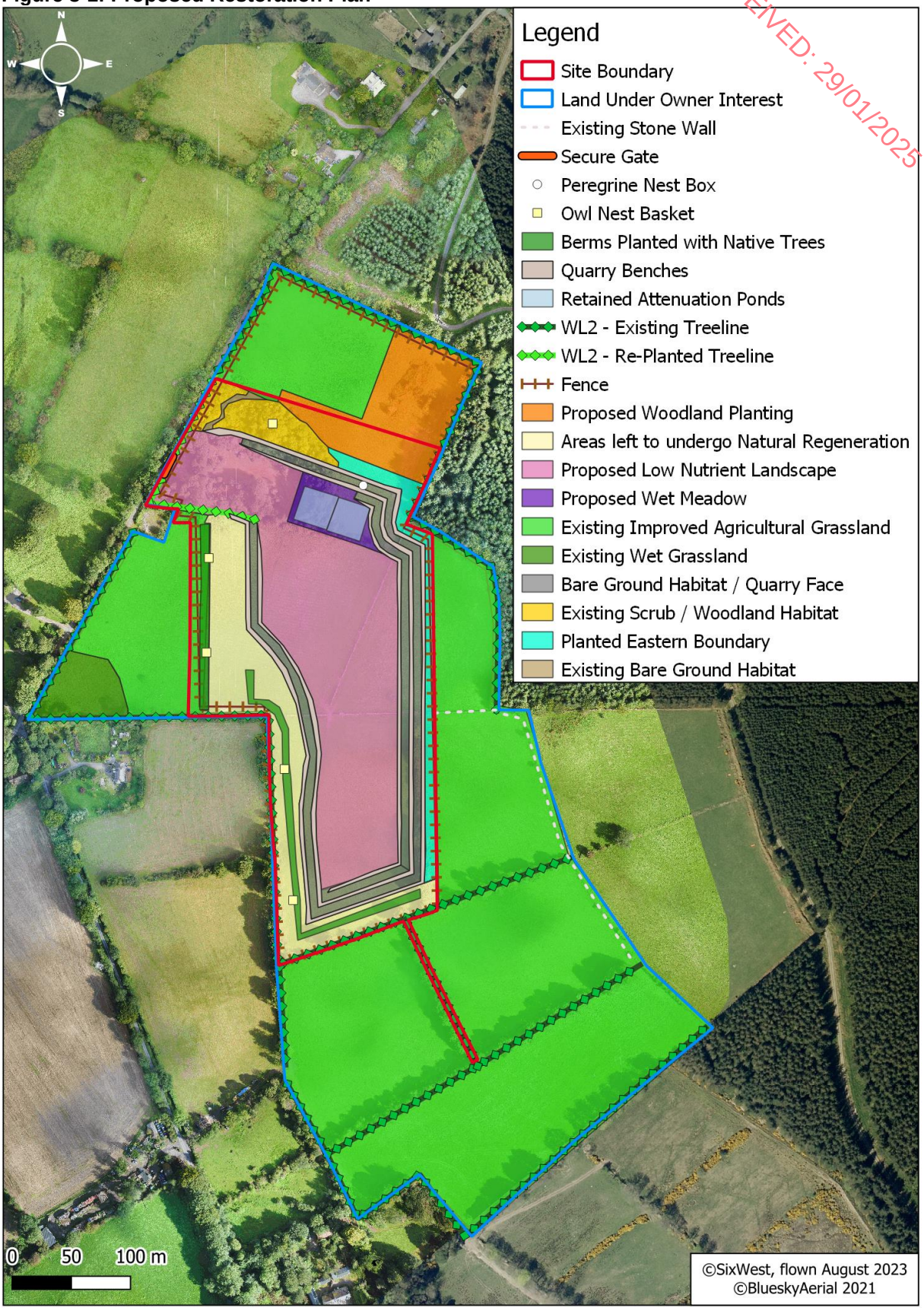
3 RESTORATION PLAN

This Restoration Plan can be divided into four distinct phases:

- Phase 1 – Construction / Site Preparation;
- Phase 2 – Operations;
- Phase 3 – Site Closure and Safety Preparation; and,
- Phase 4 – Habitat Creation and Maintenance.

It should be noted that the phases in this Restoration Plan are distinct from the three phases of operations which are detailed in Chapter 3 of the EIAR. The proposed final restoration of the Site is presented in Figure 3-1.

Figure 3-1: Proposed Restoration Plan



3.1 Phase 1 – Construction / Site Preparation

The first stage of the Restoration Plan will happen at the construction stage. This will involve vegetation removal, ground clearance and soil stripping works. In tandem with these preparation works the historic quarry area adjacent to the local road will be improved to provide for a modern site entrance with suitable parking, weighbridge, wheel wash and office / welfare infrastructure. These works will result in the removal of ca. 453m of treelines, 0.14ha of scrub and ca. 0.56ha of woodland.

3.1.1 Proposed Woodland Planting

Given the loss of woodland and scrub habitats on-site, a ca. 1.03ha woodland area will be planted to the north of the Site within the lands under owner interest. This habitat will be planted during the construction phase / site preparation phase of the Proposed Development, prior to the removal of vegetation on-site. The early planting of this habitat will aid its establishment during operations and will ensure that nesting and foraging opportunities are maintained for birds and mammals in the long term.

All planting will consist of native or naturalised species that are prevalent in the immediate area and will provide a source of food for a variety of species throughout the year. For example, the foliage and seeds from beech trees are eaten by a variety of species and acorns from oak trees are known to be a valuable food source. In addition, as these trees mature and develop cracks and crevices in the bark, they will provide roosting opportunities for hole-nesting birds, bats and other wood-boring insects. Refer to Table 3-1 below for details on a suitable woodland species mix.

Advanced nursery stock will be used as part of the planting mix. Trees and shrubs will be planted directly into square tree pits. The tree pits will be at least 100mm greater than the root system, with the depth not exceeding the root ball. Pit will be backfilled with a mix of topsoil, planting compost and polymer granular. The planting will occur within the first available season (November to March), and any trees that fail to become established within 5 years of planting will be replaced by trees of a similar size / species within the next planting season.

It is considered that the existing seed bank in the improved agricultural grassland field will be instrumental in natural succession processes and additional species from the seedbank will develop to form an understorey for this woodland area.

Table 3-1: Example Woodland Species Mix

Common Name	***Scientific Name***
Woodland Trees (Upper and Lower Canopy)	
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestrus*
Beech	*Fagus sylvatica*
Ash	*Fraxinus excelsior*
Downy Birch	*Betula pubescens*
Holly	*Ilex aquifolium*
Hawthorn	*Crataegus monogyna*

3.2 Phase 2 – Operations

3.2.1 Creation and Planting of Berms

The topsoil and overburden from the ground clearance / soil stripping activities will be used to create berms during Phase 1 and 2 of the Proposed Development.

The subsoils will be deposited first and subsequently built up until the desired height is reached. The topsoil will be placed on top of the subsoils, which will be a minimum thickness of ca. 0.2m to allow for planting / seeding. The first berm will be ca. 157m long and the second berm will be ca. 356m long. The combined length of these berms is 513m. These berms will be 3m high and 11m wide. The berms will provide a larger area for vegetation to become established, given their 11m width.

The berms will be planted with a planting mix, as detailed in Table 3-2 below. As per the woodland planting, advanced nursery stock will be used as part of the planting mix. The planting will occur within the first available season (November to March), and any trees that fail to become established within five years of planting will be replaced by trees of a similar size / species within the next planting season.

Table 3-2: Berm Planting Mix

Common Name	**Scientific Name**
High Canopy – Dominants (20%)	
Ash	*Fraxinus excelsior*
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestris*
Low Canopy – Sub-dominants (20-25%)	
Alder	*Alnus glutinosa*
Downy birch	*Betula pubescens*
Rowan	*Sorbus aucuparia*
Understory and Fringe – Higher Shrubs (20-40%)	
Bird Cherry	*Prunus padus*
Elder	*Sambucus nigra*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Hawthorn	*Crataegus monogyna*
Goat willow	*Salix caprea*
Understorey and Edge – Lower Shrubs (15-25%)	
Blackthorn	*Prunus spinosa*
Dog-rose	*Rosa canina*

Common Name	Scientific Name
Spindle	*Euonymus europaeus*

3.2.2 Planting of Eastern Boundary

The boundary habitats atop the proposed eastern quarry face will be planted with trees and scrub vegetation. An area of ca.0.393ha will be planted. A ca. 1-2m setback will be implemented between the proposed quarry area and the eastern boundary planting. However, it is expected that this ca.1-2m setback area will become vegetated overtime as the planted area extends into these habitats to form a wider / larger habitat. The eastern boundary will be planted with the same native species mix used for the berm planting as outlined in Table 3-2 above. The planting of this area will provide an additional barrier between the quarry and adjacent lands.

3.2.3 Creation of Water Management Ponds

Two attenuation ponds (each ca. 2500m^3 in size) will be developed during Phase 1 of Operations. These ponds will be ca. 3m lower than the pit floor and will allow for quarry floor water to flow into the first pond. The flow of water will be controlled from the first pond into the second pond.

3.2.4 Protection of Retained Hedgerow / Treelines

A minimum buffer of 5m will be maintained between the retained treelines and areas of disturbance i.e. the proposed extraction area and the proposed berms. This buffer will be extended as required to include the full crown extent of the retained trees.

3.2.5 Stockpiling of Material for Restoration

As outlined in Section 3.2.1 above, the topsoil and overburden from the ground clearance / soil stripping activities will be used to create berms during Phase 1 and Phase 2 of the Proposed Development.

To minimise the area of exposed ground, the removal of soils and overburden will be done on a phased basis, as required by the quarry operator. All additional topsoil and subsoil arising from operations will be stored in temporary stockpiles and sown with perennial rye grass (*Lolium perenne)* seeds to prevent dust and to bind the soil. These temporary stockpiles will be utilised to restore the Site in phases.

3.2.6 Proposed Low Nutrient Habitat

After each phase of operations, the topsoil, subsoil and overburden (stored in temporary grassed embankments) will be spread across the quarry floor. These areas will be allowed to naturally regenerate from the seedbank within the material onsite and from sources in the surrounding area. No additional soil will be imported or spread in this area.

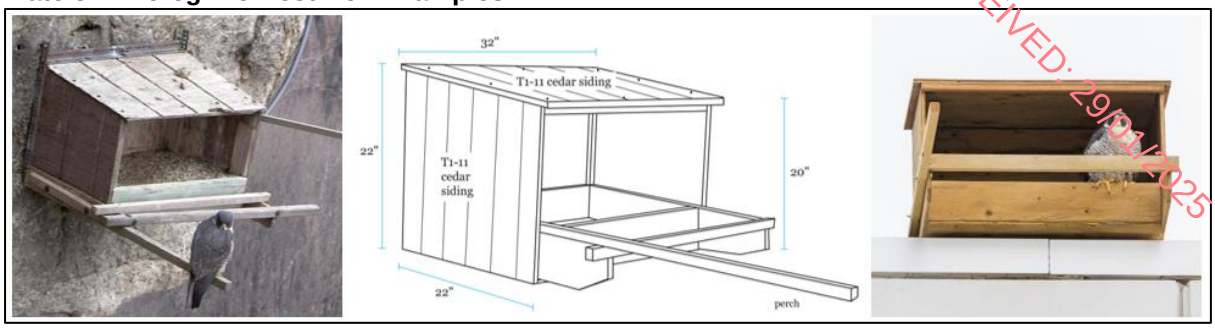
It is envisaged that pioneer species will colonise this low-nutrient habitat, and natural regeneration processes will take place within the quarry floor.

3.2.7 Proposed Peregrine Nest Box and Natural Ledges

It is proposed to install a peregrine falcon nest box along the northeast quarry face once Phase 1 is complete. This will provide suitable nesting habitat for peregrine falcons within the Site on an inactive face as operations progress.

The nest box will be designed to attract peregrine falcons. It will have a gravel base, three supporting walls and a roof, refer to Plate 3-1 for examples. The exact location will be specified by the Ecological Clerk of Works ('ECoW').

Plate 3-1: Peregrine Nest Box Examples



In addition, it is proposed to create natural ledges, where possible as part of the operational phase of the Proposed Development.

3.2.8 Proposed Long-eared Owl Nest Baskets

It is proposed to install at least five long-eared owl nests baskets in treelines west of the Site and within the existing woodland scrub area west of the quarry face; these locations are indicative but will be confirmed by the ECoW.

The proposed restoration of woodland to the north of the quarry will take time to develop and hence unlikely to host species such as long-eared owl in the short-medium term. Hence the supplemental installation of alternative nesting sites in the immediate term, prior to or during the construction phase.

Plate 3-2: Long-Eared Owl Nest Baskets

The growth and establishment of this woodland over the lifetime of the development will provide further opportunities for nesting long-eared owl in the long-term, but in the short-term artificial nest sites require to be provided.

3.3 Phase 3 – Site Closure and Safety Preparation

Following the cessation of quarrying activities, the Site will be decommissioned within a 3–4-month period.

All plant and equipment will be removed. Boundary treatments will be inspected. Perimeter fencing / signage will be erected where necessary to prevent unauthorised access from members of the public.

Waste considered unsuitable for re-use or recycling, which includes, inter alia, domestic waste, will be disposed of off-site by an appropriately permitted waste contractor at a suitable permitted facility.

3.4 Phase 4 – Habitat Creation

3.4.1 Re-planting of Treelines

Following the competition of the operational phase and the spreading of material on the quarry floor, two treelines removed during the ground clearance works / operations will be re-introduced / re-planted within the western portion of the Site. These treelines will be planted with the same native mix utilised for the berm planting on-site. Refer to Table 3-2 for details. Topsoil and subsoils stored in temporary berms onsite will be utilised to support the proposed planting of these treelines.

3.4.2 Retention and Enhancement of Ponds

As mentioned above in Section 3.2.3, two attenuation ponds will be constructed as part of the Proposed Development.

3.4.2.1 Aquatic and Marginal Planting

Planting of marsh vegetation around the ponds will jump-start the plant establishment process, which will lead to earlier colonisation of wetland species such as aquatic invertebrates, amphibians, and birds. New plant material will be sourced from suppliers who specialise in the provision of local seeds and plant materials. Each of the plant specimens will be checked prior to planting to avoid the transfer of fish or material from undesirable plants.

Aquatic vegetation will be planted either in containerised baskets or the substrate, depending on the type of liner used. Plants will be planted into soil in the baskets in groups of between 5 and 8 individuals of the same species. The container will then be sited in the water at a depth of no more than 750mm.

Marginal vegetation will be plug-planted. Planting will be in groups of the same species, with individual plants spaced about 300mm apart. The exact location of the aquatic and marginal vegetation will be determined by an experienced ecologist and only after the ponds have been built. This is to allow the ecologist to assess the exact conditions that have been created and thus to ensure that the planting is sited in the most appropriate location possible and additional soils are introduced as required to facilitate the successful establishment of these species.

Table 3-3 presents the mix of marginal and aquatic plants which would be suitable for use within the ponds.

Table 3-3: Planting mix for Ponds and Marginal Mix for Banks

Common Name	Scientific Name
Aquatics	
Pond water crowfoot	*Ranunculus peltatus*
Pondweeds	*Potamogeton natans, or perfoliatus*
Common hornweed	*Ceratophyllum demersum*
Frog bit	*Hydrocharis morus-rane*
Lesser water parnsip	*Berula eracta*
Water-starwort	*Callitriche platycarpa*
Marginals	
Soft rush	*Juncus effusus*

Common Name	Scientific Name
Arrow-head	*Sagittaria sagittifolia*
Water mint	*Mentha aquatica*
Reed sweet-grass	*Glyceria maxima*
Branched bur-reed	*Sparganium erectum*
Meadowsweet	*Filipendula ulmaria*
Ragged robin	*Lychnis flos-cuculi*
Water forget-me-not	*Myosotis scorpioides*
Yellow flag iris	*Iris psedudacorus*
Water plantain	*Alisma plantago-aquatica*
Marshmallow	*Althaea officinalis*

3.4.2.2 Adjacent Terrestrial Planting / Wet Meadow Mix

The outer margins of the ponds will be planted with a wet meadow mix (species for potential inclusion are specified in Table 3-4). The seed mix will be locally sourced. Seeding will take place in either spring or autumn and will simply comprise broadcasting the seeds in an appropriate quantity throughout the identified zone. Further soil spreading / penetration will occur as required.

The ecologist will assess the exact conditions that have been created after operations have ceased to ensure an appropriate seed mix is sown in the area surrounding the ponds. Table 3-4 contains a wet meadow mix example. This mix will be utilised should the conditions allow it.

Table 3-4: Wet Meadow Mix Example

Common Name	Scientific Name
Grasses	
Marsh Foxtail	*Alopecurus geniculatus*
Sweet vernal grass	*Anthoxanthum odoratum*
Tufted hair grass	*Deschampsia cespitosa*
Meadow fescue	*Festuca pratensis*
Red fescue	*Festuca rubra*
Rough meadow grass	*Poa trivialis*
Sedges	
Glaucous sedge	*Carex flacca*
Hairy sedge	*Carex hirta*

Common Name	Scientific Name
Herbs	
Sneezewort	*Achillea ptarmica*
Bugle	*Ajuga reptans*
Marsh marigold	*Caltha palustris*
Cuckooflower	*Cardamine pratensis*
Meadowsweet	*Flipendula ulmaria*
Square stalked St. John's wort	*Hypericum tetrapterum*
Autumn hawkbit	*Leontodon autumnalis*
Greater bird's foot trefoil	*Lotus pendunculatus*
Gypsywort	*Lycopus europaeus*
Ragged robin	*Lychnis flos-cuculi*
Common fleabane	*Pulicaria dysenterica*
Lesser spearwort	*Ranunculus flammula*
Creeping buttercup	*Ranunculus repens*
Great burnet	*Sanguisorba officinalis*
Marsh woundwort	*Stachys palustris*

3.4.3 Steep-sided Slopes

Rock faces in quarries can serve as breeding sites for cliff breeding bird species. The proposed operations will be undertaken in a way that promotes the creation of natural ledges. In addition, the quarry benches will be retained and allowed to erode naturally once operations have ceased. This will enable the continual creation of bare and disturbed ground through erosion and slippage.

Peregrine Falcon

These retained benches have the potential to provide peregrine falcons with appropriate ledges for nest sites. Therefore, following the cessation of quarrying works, peregrines will be able to utilise multiple areas within the Site for breeding purposes.

3.4.4 Bare Ground Habitat

All the upper haul routes and the space between the retained quarry benches be left as bare and disturbed ground. Bare and disturbed ground will provide the basis for natural regeneration at the Site. It is envisaged that pioneer species will colonise these open areas, creating a highly diverse range of specialist flora and fauna.

The bare ground on-site will also be important for a suite of invertebrates which use open areas for nesting, chasing after prey and basking. Examples of invertebrates that utilise bare ground habitats include solitary bees, butterflies and moths.

4 IMPLEMENTATION AND AFTERCARE

4.1 Proposed Low Nutrient Habitat

A programme of observation and maintenance, including wetting during periods of dry weather, will be followed to ensure the successful establishment of a biodiverse botanical community along the quarry floor of varying sward heights.

4.2 Berm and Woodland Planting

The berms will be planted with a triple staggered row of native species to provide a well-structured linear habitat and dense screening. A height of 3-4m will be established along all berms after 2-3 years (3-4 growing seasons).

It is proposed that the woodland area be fenced off during the establishment phase. Without the intrusion of foraging wildlife at this time, it is envisaged that additional species from the seedbank may develop. The fence surrounding this woodland area will be removed after a period of 5 years.

Annual inspections of the trees will take place for a period of five years to ensure tree health and establishment. Trees that fail to become established within 5 years of planting will be replaced by trees of a similar size and species within the next planting season.

All pruning / management should take place outside of the nesting and breeding bird season, typically March 1st to August 31st.

4.3 Ponds / Wetland Habitat

The new ponds will be subject to monitoring in years 1, 3 and 5, following the alterations of the decommissioned settlement ponds. The monitoring will confirm the success of the planting and habitat creation works. The survey will also confirm if amphibians, invertebrates or other wildlife are using these newly created waterbodies. This information will be used to shape recommendations / management works for these ponds.

Extensive management of pond vegetation can be damaging to pond health [4]. However, where emergent plants cover more than half of the pond surface, this should be reduced to a quarter [5]. The management of emergent vegetation will be undertaken outside of the nesting bird season (March 1st to August 31st) to avoid disturbing any breeding birds or amphibians which are utilising the wetland area. The removal of emergent vegetation will be carried out across the varying water depths in each pond to ensure that species within each vegetation zone are retained [6]. Any vegetation removed will be left on the pond bank to allow any potential wildlife in its folds to navigate back to the waterbody [7]. After a few days, this vegetation will be removed to ensure nutrients do not leach into the water as the plant material decays [6]. In relation to marginal plants / trees, no more than 25% will be removed over a 3-year period and no more than 10% in any given year [4] [5].

4.4 Peregrine Falcon Monitoring

An annual peregrine falcon monitoring programme will be established during the construction and extraction phases of the Proposed Development to establish the potential effects, if any, of the Proposed Development on peregrine falcon. It should also be established if peregrine falcon occupy the Site during the winter. This monitoring programme should be undertaken by a suitably qualified raptor expert in liaison with quarry operators and the National Park and Wildlife Service ('NPWS').

4.5 Restoration Success Monitoring

The ECoW will conduct an annual review of the Site's restoration plan. The annual review will involve a walkover of the Site to obtain species records of flora and fauna utilising the restored areas on-site, including the potential presence of invasive species.

A report will be submitted to WCC each year detailing the progress of the restoration plan and outlining any additional works required. Following a period of five-years, a review will be undertaken to assess the requirements for further works and / or monitoring.

5 REFERENCES

[1] DoAHG, "Wildlife, Habitats & the Extractive Industry," Department of Arts, Heritage and the Gaeltacht, Dublin, 2007.

[2] EPA, "Environmental Management in the Extractive Industry," Environmental Protection Agency, Wexford, 2006.

[3] J. A. Fossitt, A Guide to Habitats in Ireland, Dublin : The Heritage Council, 2000.

[4] Freshwater Habitats Trust, "Manage Your Pond," 2022. [Online]. Available: https://freshwaterhabitats.org.uk/projects/flagship/pond-management-info/.

[5] GOV.UK, "Guidance: Maintain and Enhance Ponds and Lakes," Department for Environment, Food and Rural Affairs, 2021. [Online]. Available: https://www.gov.uk/guidance/maintain-and-enhance-ponds-and-lakes?msclkid=bf259630b5af11ecb18fbebb54fe7d7b#how-to-maintain-and-enhance-ponds.

[6] Natural England, "Natural England Technical Information Note TIN079: Illustrated guide to ponds and scrapes," Natural England, 2010.

[7] Shire Group of IDBs, "IDB Biodiversity Action Plan Guidance Note: Pond Management," Shire Group of IDBs, Doncaster, 2022.

APPENDIX 6-2

January 2025

Bat Report

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

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Job Number: E2123

Prepared By: Stephanie Lonergan **Signed:** S. Lonergan

Checked By: Sarah de Courcy **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	29/01/25	Report	Final	SL	SDC	DH

Bat Report

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

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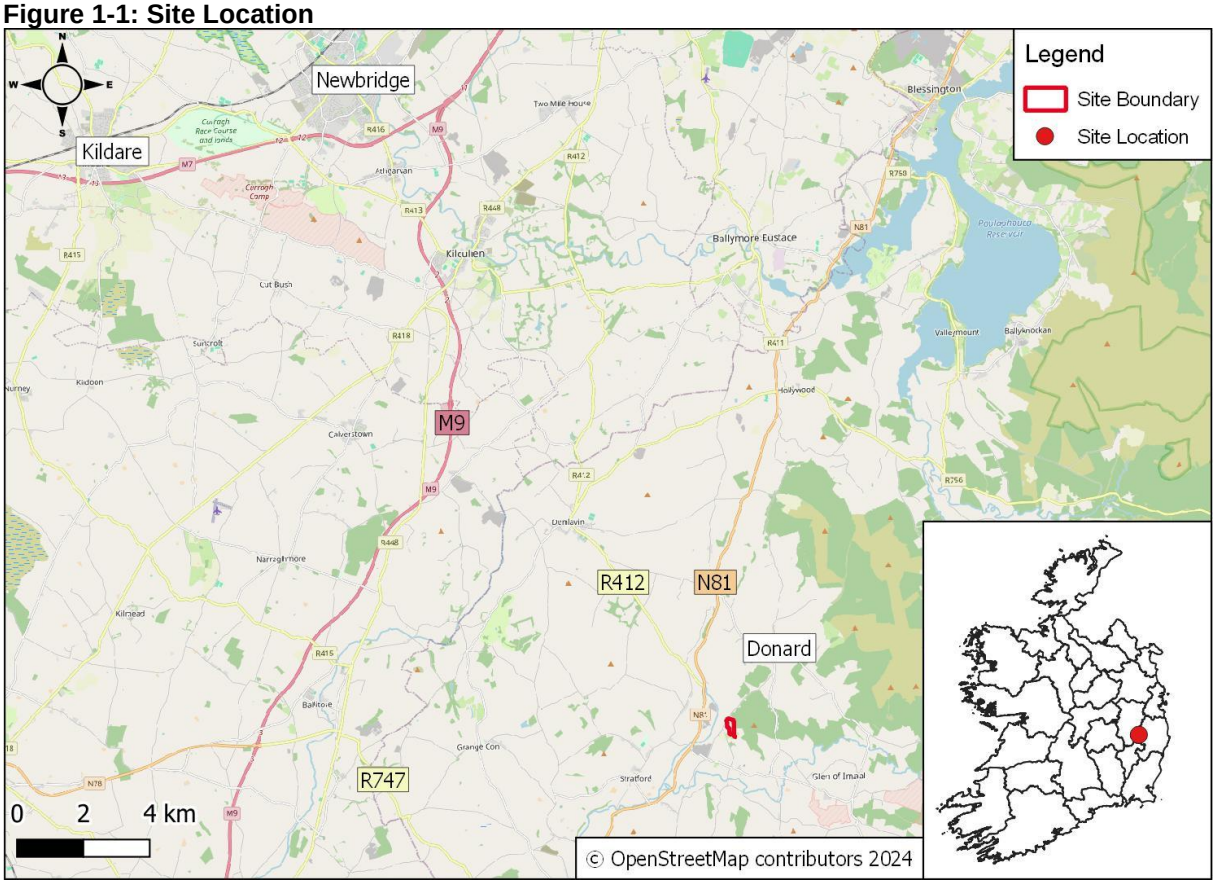
1 INTRODUCTION

This Bat Survey Report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of Mr. Herbie Stephenson ('the Applicant'), to present the findings of bat surveys undertaken at the site for the proposed re-commencement of quarrying at an old rock quarry in Deerpark, Donard, Co. Wicklow, to a level of 165 metres above Ordnance Datum ('mAOD') along with the extension of the quarry into reserves to the south and east of the old quarry (the 'Proposed Development').

Full details of the description of the Proposed Development can be found in the Environmental Impact Assessment Report ('EIAR') submitted as part of the overall planning application. This Bat Report is an appendix to Chapter 6 – Biodiversity of the EIAR and should be read in conjunction with this chapter.

The Proposed Development will be located on a site covering an area of circa ('ca.') 8.1 hectares ('ha') within the townland of Deerpark and Donaghmore Co Wicklow (Ordnance Survey Ireland Grid Reference ITM 692022, 695358), refer to the redline boundary presented in Figure 1-1 below for context ('the Site'). The Site is located ca. 2.4km southwest of Donard.

Figure 1-1: Site Location



1.1 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);

- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular, any disturbance which is likely;
    (a) To impair their ability:
        (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
        (ii) To hibernate or migrate.
    (b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license must be obtained from the National Parks and Wildlife Service ('NPWS') before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including, for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.2 Statement of Authority

The bat surveys and subsequent report were undertaken and prepared by the following MOR Environmental personnel: Ms Stephanie Lonergan and Mr. Dyfrig Hubble.

Stephanie Lonergan, Environmental Consultant, has B.A. (Mod) (Hons) in Environmental Science and is a qualifying member of the CIEEM with a particular interest in bat ecology and conservation. Stephanie has completed bat ecology, identification, and mitigation courses from Chartered Institute of Ecology and Environmental Management ('CIEEM'), and has experience undertaking bat surveys and building and tree assessments within her role at MOR Environmental. Stephanie also regularly attends local bat groups and Bat Conservation Ireland training courses and events, including a bat handling, biometrics and identification course in August 2023. Stephanie has also undertaken training run by Wildlife Acoustics for analysis of bat calls in Kaleidoscope Pro Software and regularly uses this programme within her role at MOR Environmental.

Dyfrig Hubble, Associate Director - Ecologist, has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 18 years' experience working in the ecological consultancy sector including habitat appraisals and specialist species-specific surveys. Dyfrig has extensive experience in undertaking surveys for bats and in the preparation of survey reports for various projects within both the UK and Ireland.

1.3 Species Background

There are 11 recorded bat species in Ireland, nine of which are considered resident and two which are considered vagrants (Please see Table 1-1 below).

Table 1-1: Status of Irish Bat Species [1]

Bat Species	*Latin Name*	Irish status	European Status
Resident Bat Species			
Brown Long-eared Bat	*Plecotus auritus*	Least Concern	Least Concern
Common Pipistrelle	*Pipistrellus pipistrellus*	Least Concern	Least Concern
Daubenton's Bat	*Myotis daubentonii*	Least Concern	Least Concern
Leisler's Bat	*Nyctalus leisleri*	Least Concern	Least Concern
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Least Concern	Near Threatened
Nathusius' Pipistrelle Bat	*Pipistrellus nathusii*	Least Concern	Least Concern
Natterer's Bat	*Myotis nattereri*	Least Concern	Least Concern
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Least Concern	Least Concern
Whiskered Bat	*Myotis mystacinus*	Least Concern	Least Concern
Vagrants			
Brandt's Bat	*Myotis brandtii*	Data Deficient	Least Concern
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	Data Deficient	Near Threatened

1.3.1 Types of Bat Roosts

Bats were originally cave and tree-dwelling animals, but many now use buildings to roost within. Buildings are highly important as roosting sites for all Irish bat species as they use buildings for all roost types. Most significant in terms of roosts in buildings are maternity roosts, but cellars and attics can serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings [2].

Bats are social animals, and most species congregate in large colonies during the later spring / summer. These colonies consist mostly of females, with some juvenile males from the previous year. Male bats normally roost individually or in small groups meeting up with the females in the late autumn, when it is time to mate. In summer, bats seek warm, dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter

and will awake and hunt during mild nights when there are insects available, and it is energetically advantageous to forage [3].

One purpose of daytime tree or building inspections is to determine the potential of bat roosts within the survey area. Due to the transient nature of bats and their seasonal life cycle, there are a number of different type of bat roosts. Where possible, one of the objectives of the surveys is to be able to identify the types of roosts present, if any.

Bats in Ireland feed exclusively on insects, and in the summer months (May – September) they generally emerge from their roosts around sunset to feed. Bats are known to use a number of different foraging sites in the same night and move between them to locate areas of high insect concentrations. They are also known to exhibit site loyalty and will return to the same foraging sites night after night [4].

Table 1-2 below defines the various types of bat roosts.

Table 1-2: Bat roost types (definitions written by the Natural England Earned Recognition Project) [3]

Roost Type	NE Definition
Day Roost	A place where individual bats or small groups rest or shelter in the day during the summer.
Night Roost	A place where bats rest or shelter in the night but are not found in the day. May be used by a single individual on occasion, or it could be used regularly by the whole colony.
Feeding Roost	A place where individual bats, or few individuals, rest or feed for short periods during the night but are not present by day.
Transitional Roost	A place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Maternity Site	A place where female bats give birth and raise their young to independence. In some species, males may also be present in the maternity roost.
Hibernation Site	A place where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
Satellite Roost	An alternative roost found in close proximity to the main nursery colony used by a few individuals to small groups of breeding females throughout the breeding season.

1.4 Purpose of Survey Work

The implication of these legislative policies is that the Proposed Development needs to take account of the potential effects on bats. Survey work is necessary to establish whether the species are currently present in areas where suitable habitat exists and in areas where bats have previously been recorded. Survey work also enables appropriate mitigation measures to be incorporated into the design of the project and ensures that there are no adverse effects on the conservation status of the species.

Survey work was deemed necessary based on desktop surveys and suitable habitats for foraging and commuting bats being identified during the habitat survey.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the survey area. The following sources of information were reviewed:

- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date detail on conservation objectives for the European sites relevant to this assessment [5];
- Aerial mapping was reviewed to identify any habitats and features likely to be used by bats. Maps and images of the survey area and general landscape were examined for suitable foraging or commuting habitats including woodlands and forestry, hedgerows, treelines and watercourses;
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to bat species distributions and bat habitat suitability index [6]; and;
- The Terrestrial Ecology - Ecological Impact Assessment Report prepared by Delichon Ecology in November 2021 as part of the previous planning application (planning reference 21/1472) [7].

2.2 Field-Based Studies

In order to gain a full understanding of the Site and lands under owner interest, the Site and field to the north were assessed in relation to bat roosting potential, foraging habitat and potential commuting routes during the habitat survey on 8th June 2023.

An updated field survey was undertaken on 29th October 2024 to assess any potential changes onsite. This field survey was also extended to assess the potential habitats of note outside of the Site boundary and lands under owner interest, including the habitats along the proposed passing bays and widening along the haul route.

Bat habitats and commuting routes identified were considered in relation to the wider landscape to determine connectivity for local bat populations through the examination of aerial mapping.

The survey design was informed by previous experience and the following publications:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* [2];
- *A Conservation Plan for Irish Vesper Bats* Irish Wildlife Manual No. 20 [8];
- *Bat Mitigation Guidelines for Ireland*. Irish Wildlife Manuals, No. 25 [4] a publication by the NPWS;
- *Bat Surveys for Professional Ecologists - Good Practice Guidelines* (3rd ed.). London: The Bat Conservation Trust [9]; and,
- The Bat Survey Methodology included in the 'Terrestrial Ecology - Ecological Impact Assessment Report' prepared by Delichon Ecology in November 2021 as part of the previous planning application (planning reference 21/1472) [7].

2.2.1 Ground Level Tree Assessment

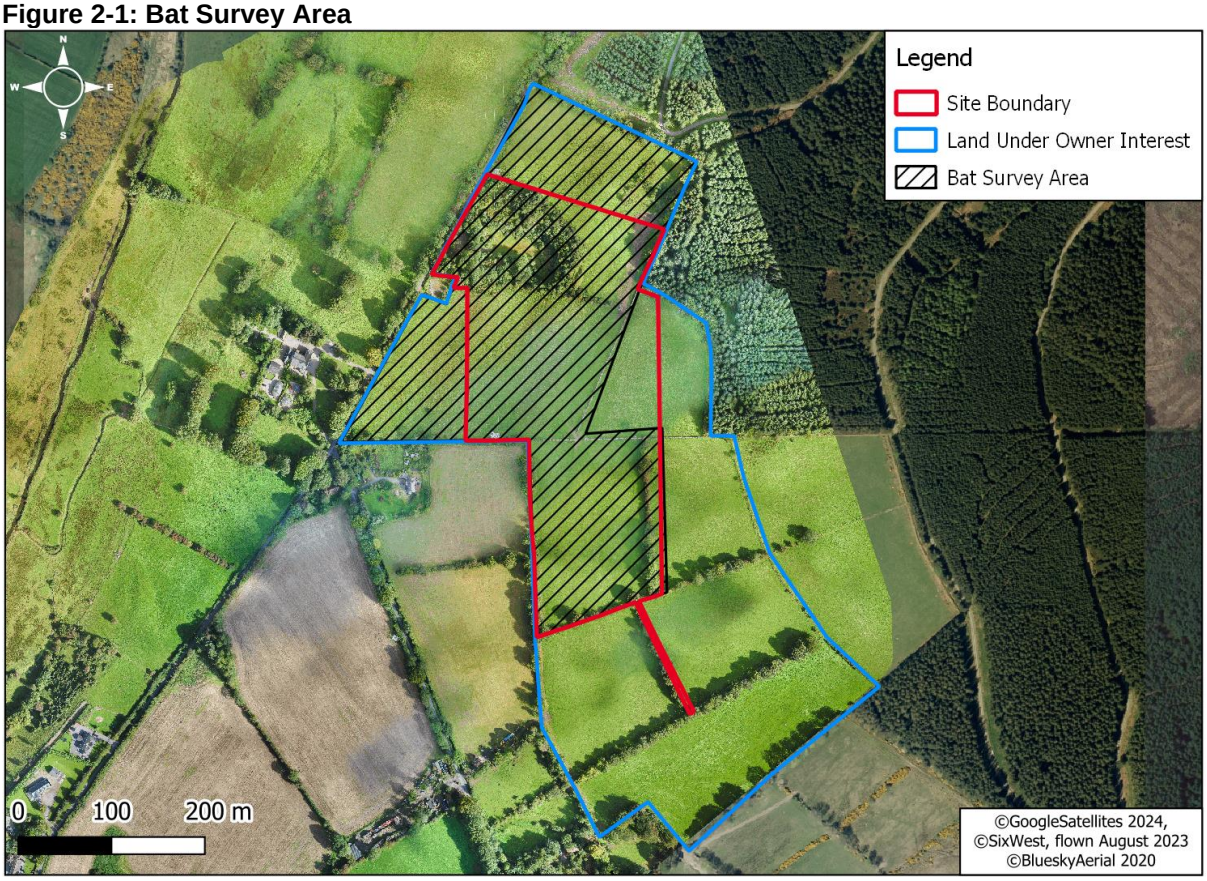
As part of the habitat survey, all trees that are due to be impacted by the Proposed Development were assessed for the presence of features that could be utilised by roosting

bats. Close-focusing binoculars and a powerful focused-beam light source were utilised. The following criteria were used:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc;
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts;
- Adjoining habitat which are likely to be important to bats, including river corridors and hedgerow / treelines within the survey area that offer a variety of potential foraging, roosting and commuting opportunities for bats; and,
- Adjoining potential roosts / known roosts identified. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

All treelines, scrub and mixed broadleaved woodland that will be removed as part of the Proposed Development were subject to transect surveys. The bordering treelines to the west and within the lands under ownership interest were also surveyed - see Figure 2-1 below for more details. The lands within the eastern portion of the Site were not considered to have any bat roost potential and, therefore, were not included in the Survey Area for the transects.

Figure 2-1: Bat Survey Area



2.2.2 Dusk Activity Survey

The treelines within and bordering the Site and lands under ownership interest were identified as providing landscape connectivity / suitable commuting and foraging habitats for bats. In addition, the areas of scrub and grassland fields were identified as suitable foraging habitats for bats. These habitats have the potential to be lost or disturbed as a result of the Proposed Development and therefore, it was deemed necessary to undertake further assessment in relation to bats.

A dusk activity survey took place within the survey area on 19th July 2023. This survey was conducted by three MOR Environmental Ecologists. The dusk activity survey commenced 15 minutes before sunset and ended two hours after sunset, therefore encompassing the typical emergence times of Irish bat species. As these surveys aimed to establish activity levels within the survey area, no vantage points were used.

The surveyors followed three pre-determined transects (T1, T2 and T3). T1 covered the northwest treeline which will be partially removed, and the northeast portion of scrub / mixed broadleaved woodland that will be removed. T2 covered the southern portion of scrub, mixed broadleaved woodland and the central stone wall which will be removed. T3 covered the stone wall to the south and southeast treeline which will be removed. T3 also encompassed the southern and southwest treeline, which will be retained as part of the Proposed Development. Refer to Figure 2-2 below for details of the transect routes walked during the surveys.

These transects aimed to capture bat activity levels within the wider survey area and to determine what areas within the survey area are important habitats for bats.

A combination of visual observation and listening to ultrasonic bat calls using an Echo Meter Touch2 Pro (Apple IOS) were used throughout the transect survey. Bat calls were recorded using this Echo Meter Touch2 Pro and stored on the EchoMeter App.

2.2.3 Dawn Re-Entry / Activity Survey

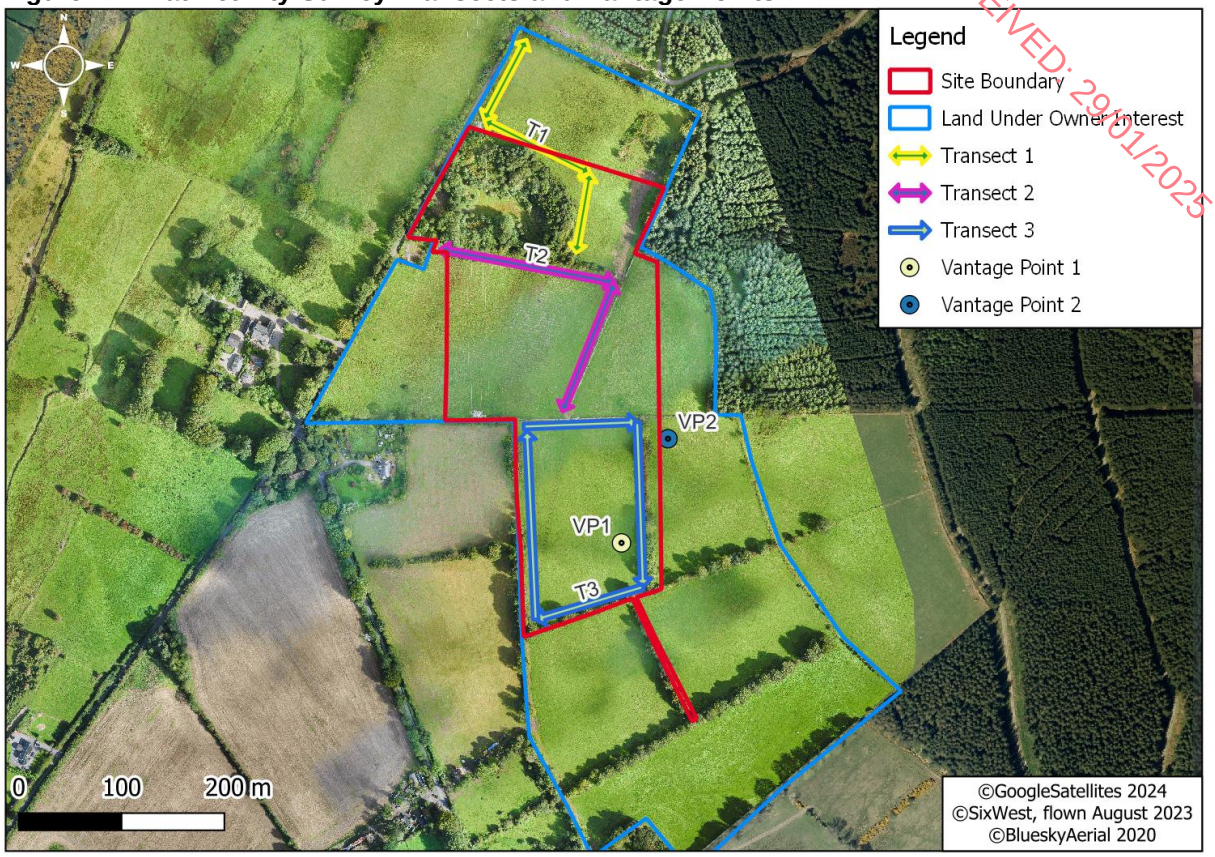
The dawn re-entry/activity survey was conducted on 17th August 2023. The dawn re-entry/activity survey commenced two hours before sunrise and finished 15 minutes after sunrise. Based on the results of the dusk activity survey and the survey limitation encountered during this survey (refer to Section 2.3 below), vantage points (VPs) were introduced along the treeline that will be removed in the southern portion of the Site. These vantage points were included on a precautionary basis given the high levels of bat activity recorded during the dusk activity survey, the identification of trees suitable for bat roosting and the observation of bats flying over and circling the trees with thick ivy cover / dense canopies on this treeline soon after sunset.

Transects were walked for the first hour of the survey, and for the last hour and 15 minutes of the survey, the surveyors at T2 and T3 changed to vantage points along the southern treeline. The surveyor at T1 walked a transect for the full two hours and 15 minutes of the survey.

A combination of visual observation and listening to ultrasonic bat calls using an Echo Meter Touch2 Pro (Apple IOS) were used throughout the transect survey. Bat calls were recorded using this Echo Meter Touch2 Pro and stored on the EchoMeter App.

Refer to Figure 2-2 below for details of the transects utilised for both the dawn and dusk survey and the vantage points used during the dawn survey.

Figure 2-2: Bat Activity Survey Transects and Vantage Points



2.2.4 Data Analysis

The bat recordings taken during the surveys were analysed using the software KaleidoscopePro to aid the identification of bat species present. A combination of the visual observations taken during the survey and the number of bat passes[1] identified on the recordings were used to determine bat activity levels within the area.

All sound file data recorded during the bat surveys was analysed using Kaleidoscope Pro Software. The 'auto-ID' function was used to batch assign the top auto-ID species for each sound file. This approach allows identification of bats to genus level for *Myotis* species, and to species level for other bats found in Ireland. Separation of *Myotis* species is complicated by the high degree of overlap between call characteristics. This software can also automatically sort sound files that contain only noise ('non-bat') from sound files that contain bat passes.

All non-noise recordings taken on the surveys were manually checked by a capable bat acoustic analyst.

2.3 Survey Limitations

Bat surveys are a snapshot of the bat activity within an area at the time of surveying. It is therefore important that bat surveys are comprised of a number of surveys designed to provide as much information on the at usage of the area. Subsequently, a combination of surveys was used to determine the importance of the survey area on local bat populations.

[1] It is important to acknowledge that bat calls provide a measure of bat activity rather than the number of individuals in a population. In practice, bat activity (as, for example, represented by 100 recordings) could be from 100 bats passing the detector or one bat passing 100 times [9].

All survey work was conducted in accordance with current best practice guidelines. Bat surveys should be undertaken when there is no rain or wind, and the temperature is above 10°C. In these weather conditions, bats will not have been deterred from flying.

The dusk activity survey was undertaken on 19th July 2023 and commenced at 21:25. However, there was a period of rain from 21:35-22:00 during which the surveyors had to wait under trees for the rain to pass. Due to this, it is possible that some bats were deterred from emerging from roosts. However, it is not considered that this delay presented a significant constraint to the survey, as when the rain stopped, bats were recorded foraging within the area.

There were no survey constraints during the dawn survey. The temperatures ranged from 14-15°C, refer to Table 2-1 below for full metadata.

Table 2-1: Bat Survey Metadata

Date	Survey Type	Sunset / Sunrise	Survey Times (Start-End)	Weather	Temperature (°C) Start - End
19/07/2023	Dusk	21:46	21:25-23:46	Dry except for a brief shower from 21.35-22.00, no wind	15°C-14°C
17/08/2023	Dawn	6:09	4:09-6:24	Dry, gentle breeze	14°C-14°C

2.4 Evaluation of the Importance of the Site for Bat Species

The value of the importance of the Site for bat species was evaluated using the ecological evaluation guidance given in the Transport Infrastructure Ireland ('TII'), formally known as National Roads Authority ('NRA'), guidance on assessment of ecological impacts of National Road Schemes [10]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at the following levels:

- International Importance;
- National Importance;
- County Importance (or vice-county in the case of plant or insect species);
- Local Importance (Higher Value); and,
- Local Importance (Lower Value).

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

Five of the nine resident Irish bat species: Leisler's bat, brown long-eared bat, Daubenton's bat, common pipistrelle and soprano pipistrelle, have been recorded within a 2km radius of the Site within the past ten years [6]. The NBDC records were checked on 21st January 2025.

Table 3-1 provides details of the habitat suitability index for the Site [6]. The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the survey area.

From the indices, it can be established that the survey area has an overall moderate habitat suitability index range of 21– 38. The habitat suitability for Irish bats within the area ranges from very low to high. Excluding the lesser horseshoe bat and Nathusius' pipistrelle who have a 'very low' habitat suitability for the Site, all of the other listed species are likely to occur within the area.

Table 3-1: Habitat Suitability Index

Bat Species	Latin Name	Suitability Index Range	Suitability Index Level
All Bat Species		21–28	Moderate
Common Pipistrelle	*Pipistrellus pipistrellus*	39-47	High
Soprano Pipistrelle	*Pipistrellus pygmaeus*	31-38	Moderate
Brown Long-eared Bat	*Plecotus auritus*	39-49	Moderate
Leisler's bat	*Nyctalus leisleri*	30-37	Moderate
Natterer's Bat	*Myotis nattereri*	27-36	Moderate
Whiskered Bat	*Myotis mystacinus*	10-20	Low
Daubenton's Bat	*Myotis daubentonii*	13-21	Low
Nathusius' pipistrelle	*Pipistrellus nathusii*	0-5	Very Low
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	0-4	Very Low

3.1.1 Previous Bat Surveys Undertaken at the Site

As part of the Ecological Impact Assessments ('EcIA') prepared for the previous planning application on-site [7], two night-time / dusk activity surveys were undertaken. The first survey was conducted on 31st August 2020, and the second on 16th September 2021. No bats were observed to be roosting within any trees on-site. The surveys identified '*the regular occurrence of a small number of individual bats utilising the treeline, hedgerow and woodland fringe habitats for foraging purposes.'* Common pipistrelle, soprano pipistrelle and Leisler's bats were the only species observed during these surveys.

3.2 Field Based Results

3.2.1 Habitats

The following habitats were identified on-site using Fossitt's, '*A Guide to Habitats in Ireland*' [11]:

- Improved Agricultural Grassland (GA1);
- Treelines (WL2);
- Stone Walls and Other Stonework (BL1);
- Spoil and Bare Ground ED2);
- Recolonising Bare Ground (ED3);
- Scrub (WS1);
- Mixed Broadleaved Woodland (WD1); and,
- Dense Bracken (HD1).

Refer to Figure 3-1 for context.

Figure 3-1: Habitat Map

The treelines on-site were considered to be suitable linear features for foraging and commuting bats. Additionally, the areas of scrub, mixed broadleaved woodland and grassland on-site were considered suitable for foraging bats.

The mixed broadleaved woodland, scrub and grassland habitats will be removed to facilitate the Proposed Development, in addition to 453m of treelines. All other treelines that border the Site will be retained and protected throughout the lifetime of the Proposed Development (see Section 4.2.2 below).

As mentioned in Section 2.2 above, an updated field survey was undertaken in October 2024 to assess the habitats along the proposed laybys and widening along the haul route. Three trees with features suitable for roosting bats were identified during this survey, as well as areas of woodland, hedgerow / treelines and stone walls (see Figure 3-2).

Figure 3-2: Habitats of note outside of the Site Boundary and Lands Under Owner Interest

The proposed laybys and road haul route have been designed taking into account biodiversity. Sections of the hedgerow / treelines will be removed to facilitate the formalisation of existing laybys and add visibility to the laybys. Additionally, vegetation will be removed to widen the road in some places. However, the extent of vegetation to be removed is small and not considered to be significant for bats within the local area. Additionally, the trees with features suitable for roosting bats will not be removed. It is considered that the creation of the habitats in the restoration plan will compensate for the removal of this vegetation, and no further mitigation measures are required.

3.2.2 Ground Level Tree Assessment

The only trees identified with bat potential were beech trees *(Fagus sylvatica)* in the south of the Site along the western treeline. These trees were determined to have low bat potential and were monitored for emergence along T3.

However, on a precautionary basis and based on the survey limitation faced during the dusk activity survey (see Section 2.2.4 and 2.3 above), the dawn survey assessment was extended to include two trees along the southern treelines, which will be removed as part of the Proposed Development.

These trees comprised of one beech and one hawthorn (*Crataegus monogyna*). Both trees were immature and had no visible cracks, crevices, knotholes, loose bark or dense ivy coverage. However, as the dense foliage growth on these trees could have obscured potential roost features for bats, these trees were surveyed during the dawn survey (see Figure 2-2 above for details of the locations of the trees surveyed).

3.2.3 Survey Results

3.2.3.1 Dusk Activity Survey – 19th July 2023

The dusk activity survey conducted on 19th July 2023 recorded low to high bat activity. Sunset was at 21:46. The results of both the dawn and dusk surveys are presented in Figure 3-2.

T1

The first bat recorded at T1 was a soprano pipistrelle at 22:02. This bat was not observed by the surveyor. The first observed bat was a soprano pipistrelle at 22:19, commuting north towards the Coillte woodland bordering the Site. This was the only bat directly observed during the dusk survey along T1. However, soprano pipistrelle, common pipistrelle and Leisler's bats were recorded throughout the survey, predominantly while the surveyor was walking adjacent to the scrub in the northwest portion of the Site. The last bat recorded was at 23:47.

Overall, there was moderate activity at this transect, with ca. 13 bat passes recorded per hour. Soprano pipistrelles had ca. seven passes per hour, Leisler's had ca. five passes per hour and there was one individual recording from a common pipistrelle at T3.

T2

Bat activity was very low along T2 during this survey, with most bats observed flying east towards the Coillte woodland that borders the Site and foraging around the southern section of the scrub on-site. Only three bats were observed during the dusk survey conducted at T2, none of which were picked up on the recorder.

T3

The first observation at T3 were five bats foraging over the southeast treeline at 21:57. Analysis of the recordings taken from the survey at this time detected calls from common pipistrelle and soprano pipistrelle, so it is considered likely that the bats observed were a combination of these species. The next bats observed were a combination of three common pipistrelle and soprano pipistrelle, observed commuting over the stone wall to the north of T3

towards the southwest treeline from 22:14 – 22:18. Common pipistrelle, soprano pipistrelle and Leisler's bats were observed and recorded almost constantly foraging and commuting along T3 from 22:18 – 22:56. Activity slowed down after this, with the last bat recorded at 23:33. In addition to the three species mentioned above, brown long-eared bats, Nathusius' pipistrelles and *Myotis* species were recorded along T3.

Overall, there was very high activity at this transect, with ca. 53 bat passes recorded per hour. Soprano pipistrelles had ca. 14 passes per hour, Leisler's had ca. six passes per hour, common pipistrelles had ca. 31 passes per hour and brown long-eared bats had ca. two passes per hour. There was one individual recording each from Nathusius' pipistrelle and *Myotis* species.

As common and soprano pipistrelles were recorded 11 minutes after sunset, it is likely that common and soprano pipistrelle roosts are located in the wider area surrounding the Site. As the rain at the start of the survey likely prevented bats from emerging from their roosts earlier, it is considered likely that roosts for these species are located within close vicinity to the Site.

3.2.3.2 Dawn Vantage Point and Transect Survey – 17th August 2023

The dawn vantage point and transect survey conducted on 17th August 2023 recorded low to high bat activity. Sunrise was at 06:09. As outlined in Section 2.2.3, after one hour of transects, the surveyors at T2 and T3 carried out VPs along the southeast treeline whilst the surveyor at T1 continued the transect, refer to Figure 2-2 for context. This transition to VPs occurred at 5:15.

The results of both the dawn and dusk surveys are presented in Figure 3-2.

T1

The first bat observed and recorded at T1 was a common pipistrelle at 04:48, commuting south over the scrub. A soprano pipistrelle was observed at 5:24, commuting north over the scrub. Finally, a soprano pipistrelle was recorded at 05:59 but not observed by the surveyor.

Overall, activity was very low during this transect survey, with ca. three bat passes recorded per hour. Soprano pipistrelle and common pipistrelle were the only species recorded at T1.

T2 / VP2

The first bat recorded at T2 was a brown long-eared bat at 04:21. This bat was not heard or observed by the surveyor. The first sighting of a bat at T2 was a soprano pipistrelle. This soprano pipistrelle was identified foraging along the scrub towards T1 at 04:58. The last bat observed during the transect survey was a common pipistrelle recorded foraging from 05:09 - -05:12. This common pipistrelle was identified foraging over the treeline in the northern portion of T2.

Activity during the VP survey was low. No bats were observed by the surveyor. Only four calls were recorded during the one-hour and 15-minute survey at VP2. The last call was at 05:32, 37 minutes before sunrise.

Overall, there was moderate activity at T2 and low activity at VP2. In total, 17 bat passes were recorded during the transect and four bat passes were recorded during the VP. During the transect survey, soprano pipistrelle had ca. eight passes per hour, common pipistrelle had ca. seven passes per hour, brown long-eared bats had ca. two passes per hour and there was one individual recording from a *Myotis* species. Soprano pipistrelle and brown long-eared bats were the only species recorded during the VP survey.

T3 / VP1

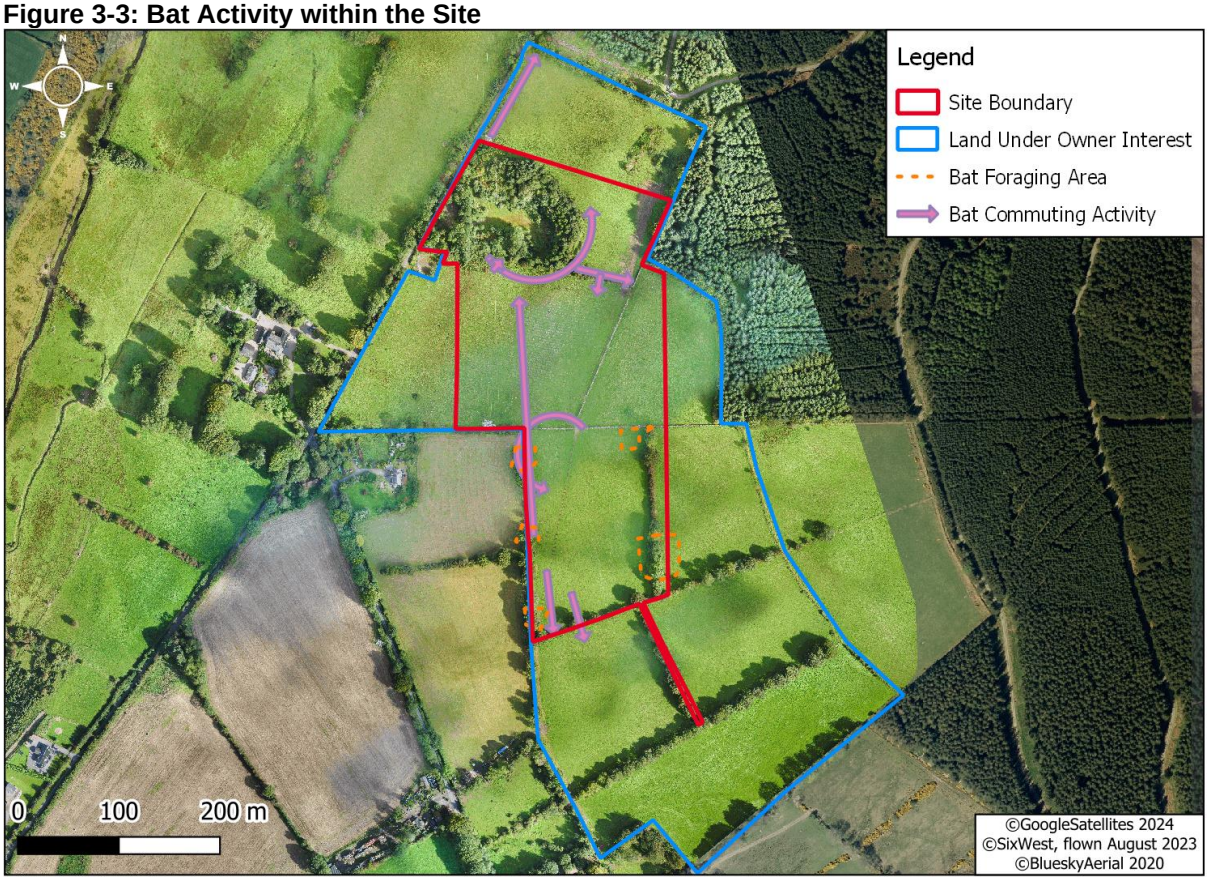
The first bat observed at T3 was a soprano pipistrelle. This soprano pipistrelle was seen foraging over the southeast treeline at 04:12. Calls from soprano pipistrelles, common

pipistrelles and brown long-eared bats were constantly recorded from 04:31 until 04:34. These bats were not observed by the surveyor. At 04:51, a bat was observed commuting east over the southeast treeline. Analysis of the recordings taken from the survey at this time detected calls from common pipistrelle, soprano pipistrelle and brown long-eared bats, so it is likely that the observed bat was one of these species. Shortly afterwards, two bats were seen commuting east at the same location over the same treeline. At 05:05, a common pipistrelle was seen commuting towards the north of the Site. The last bats observed during the transect survey were one common pipistrelle and one soprano pipistrelle at 05:08 foraging over the grassland on-site.

Activity during the VP survey was low. The only bat observed was a soprano pipistrelle at 05:21 foraging over the grassland on-site. The last bat recorded at VP1 was a soprano pipistrelle at 05:32, 37 minutes before sunrise.

Overall, there was very high activity at T3 and low activity at VP1. In total, 110 bat passes were recorded during the transect and seven bat passes were recorded during the VP. During the transect survey, soprano pipistrelle had ca. 48 passes per hour, Leisler's had ca. five passes per hour, common pipistrelles had ca. 44 passes per hour, brown long-eared bats had ca. 12 passes per hour and *Myotis* species had ca. one pass per hour. Soprano pipistrelle and brown long-eared bats were the only species recorded during the VP survey.

Figure 3-3: Bat Activity within the Site



3.2.4 Summary of Field-based Results

The surveyors identified bats commuting and foraging along treelines, woodland and scrub areas within the Site (See Figure 3-2) during both the dawn and dusk surveys.

Activity varied between the transects, with some transects experiencing very low levels of bat activity and some transects experiencing very high levels. T3 experienced the highest levels of bat activity during both the dusk and dawn survey, indicating that the treelines in the south

of the Site are the most important for foraging and commuting bats. During the dawn survey, both VPs experienced low activity.

The following bats were recorded as a result of the dusk and dawn surveys:

- Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's bat, brown long-eared bat, and *Myotis* species were recorded foraging and commuting within the Site. The most frequently encountered species of these were soprano pipistrelle, followed by common pipistrelle. These species are widespread and commonly encountered across Ireland;
- Soprano pipistrelles and common pipistrelles were recorded within 15 minutes of sunset at T3 during the dusk survey, indicating that bat roosts are likely present within the vicinity of the Site;
- The surveys recorded the majority of the commuting and foraging activity in the southern portion of the Site (Figure 3-2); and,
- No bats were identified roosting within the trees in the survey area.

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that the Site is of no value to roosting bats and high local value to foraging / commuting bats

4 IMPACT ASSESSMENT AND MITIGATION

The following bat species were recorded during the dusk and dawn surveys: common pipistrelle, soprano pipistrelle, Leisler's bat, Nathusius' pipistrelle, brown long-eared bat and *Myotis* species. Taking a precautionary approach and assuming that the *Myotis* species recorded were from the three *Myotis* species in Ireland (Daubenton's bat, Natterer's bat and whiskered bat), this represents eight of the nine resident Irish bat species. The lesser horseshoe bat was the only resident bat species not recorded during the bat surveys. All bat species recorded during the bat surveys are Annex IV species under the EU Habitats Directive and all have a favourable status in Ireland.

Bat species within the survey area will be affected by both the construction phase and operational phase of the Proposed Development. The impact assessment and mitigation will be undertaken in relation to the eight bat species recorded during the bat surveys on-site.

4.1 Potential Impacts on Bats

The principal impacts of the Proposed Development, in general, on bats may be summarised as follows:

4.1.1 Loss of Habitat

The surveys did not identify any bat roosts within the Site. However, there is commuting and foraging habitats within the Site and within the wider area. In order to facilitate the Proposed Development, ca. 453m of treelines, 0.14ha of scrub and ca. 0.56ha of woodland will be removed. All of these areas were utilised by bats to commute and forage during the dusk and dawn surveys.

A small area of vegetation will be removed along the proposed layby and road haul route, but no trees with features suitable for roosting bats will be removed. The change of land use from agriculture to quarry will also mean the loss of grassland areas that provide suitable foraging habitats for bats.

Therefore, it is considered that without appropriate consideration given to foraging and commuting bats utilising the Site, the Proposed Development could have a negative impact on bat species.

4.1.2 Lighting of the General Area (street lighting, security lighting etc.)

Bats, as nocturnal species, are affected by lighting. The degree of this impact is dependent on the sensitivity of the bat species, as some bats are more tolerant of lighting. Pipistrelles will tolerate low levels of lighting, while brown long-eared bats and *Myotis* species are very sensitive to lighting and require the light levels to be below 1lux.

Lighting is proposed as part of the Proposed Development. This has the potential to disturb commuting and foraging bats.

4.2 Mitigation Measures

The following mitigation measures are recommended to reduce the potential impact of the Proposed Development on local bat populations.

4.2.1 Proposed Lighting Measures

It is important that any potential lighting introduced onsite is cognisant of the sensitivity of foraging and commuting bats in the vicinity of the Site while still providing the necessary lighting for human usage. The following measures will be implemented to reduce light pollution into suitable bat habitats onsite should lighting be required onsite:

- Avoidance of excessive lighting;

- Lighting will be aimed only where it is needed, with no upward lighting;
- Lighting will be installed with a sensor timer so that lights only switch on when activated by a person;
- Lighting will be directed away from retained scrub / woodland habitats, planted areas and hedgerows / treelines, where possible;
- Accessories such as baffles, hoods or louvres will be used to reduce light spill and direct light only where it is needed; and,
- The height of any lighting introduced onsite will be reduced as much as possible, as lighting at a low level further reduces ecological impact.

4.2.2 Proposed Planting during Construction / Initial Operations

It is important to note that the Proposed Development has been designed to minimise vegetation clearance and that the boundary treelines will be retained and protected as part of the works. In addition, the treelines affected by the Proposed Development will be replaced by planting a screening berm with native trees and planting along the eastern boundary of the Site. In addition, a new woodland area is proposed to the north of the Site within the lands under owner interest to compensate for the removal of scrub / woodland areas on-site.

Given the loss of woodland and scrub habitats on-site, a ca. 1.03ha woodland area will be planted to the north of the Site within the lands under owner interest. This habitat will be planted with native trees during the construction phase of the Proposed Development, prior to the removal of vegetation on-site. The early planting of this habitat will aid its establishment during operations and will ensure that foraging opportunities are maintained for bats in the long term.

In addition, topsoil and overburden from the ground clearance / soil stripping activities will be used to create berms during Phase 1 and 2 of the Proposed Development. These berms will be 3m high and 11m wide, with a combined length of ca. 513m. These berms will be planted with native trees. The eastern boundary of the Site will also be planted with native trees and scrub species. This will create an additional barrier between the quarry and adjacent lands covering an area of ca.0. 393ha.

The planting will occur within the first available season (November to March), and any trees that fail to become established within 5 years of planting will be replaced by trees of a similar size/species within the next planting season. It is advised to avoid the use of chemicals (weed killers, etc.) on-site where possible to protect bat species and their food sources in the locality. For full planting details, refer to the Restoration Plan - Appendix 6-1 of the EIAR submitted alongside this report.

The proposed woodland area and screening berms will be retained and protected throughout the lifetime of the Proposed Development. Once mature, these habitats will provide foraging and commuting habitats for bats within the vicinity of the Site.

4.2.3 Protection for Trees, Hedgerows and Treelines

As per policies CPO17.14 and CPO17.23 of the Wicklow County Development Plan 2022-2028 [12] care will be required to protect retained trees from both direct and indirect harm/disturbances. To ensure that no impacts or unnecessary damage occur to the treelines bordering the Site, the following protection measures will be adhered to during the works along the boundaries of the Site where treelines are present:

- Care will be taken when planning ground clearance to ensure that no machinery or plant comes into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible;

- Where machinery access has to encroach areas within close proximity to retain trees, a Root Protection Area ('RPA') will be established, and suitable ground protection will be put in place to prevent any significant soil compaction or root damage. This should take the form of suitable strength ground protection mats or cellular confinement system capable of supporting the appropriate weight;
- When tree removal is required in close proximity to retained trees, felling must be carried out in small sections to avoid damage to adjacent trees;
- Planted berms will be created in between the proposed extraction area and retained treelines to the south and west. Exclusionary fencing will also be installed between the retained treelines and planted berms. This will act as an additional protective barrier in between the retained trees and areas of disturbance;
- A minimum buffer of 5m will be maintained between the retained treelines on-site and areas of disturbance i.e. the proposed extraction area and the proposed berms. This buffer will be extended as required to include the full crown extent of the retained trees bordering the Site;
- No materials, equipment or machinery will be stored within close proximity to retained hedgerows / treelines;
- Notice boards, wires, etc. will not be attached to any trees;
- The construction of the berms on-site will be supervised by an ECoW to ensure that no impacts occur to bordering treelines. The retained trees will be assessed following the completion of these works; and,
- In order for treeline protection measures to work effectively, all personnel associated with the operation of heavy plant machinery must be familiar with the above principles for the protection of treelines.

4.2.4 Restoration Plan

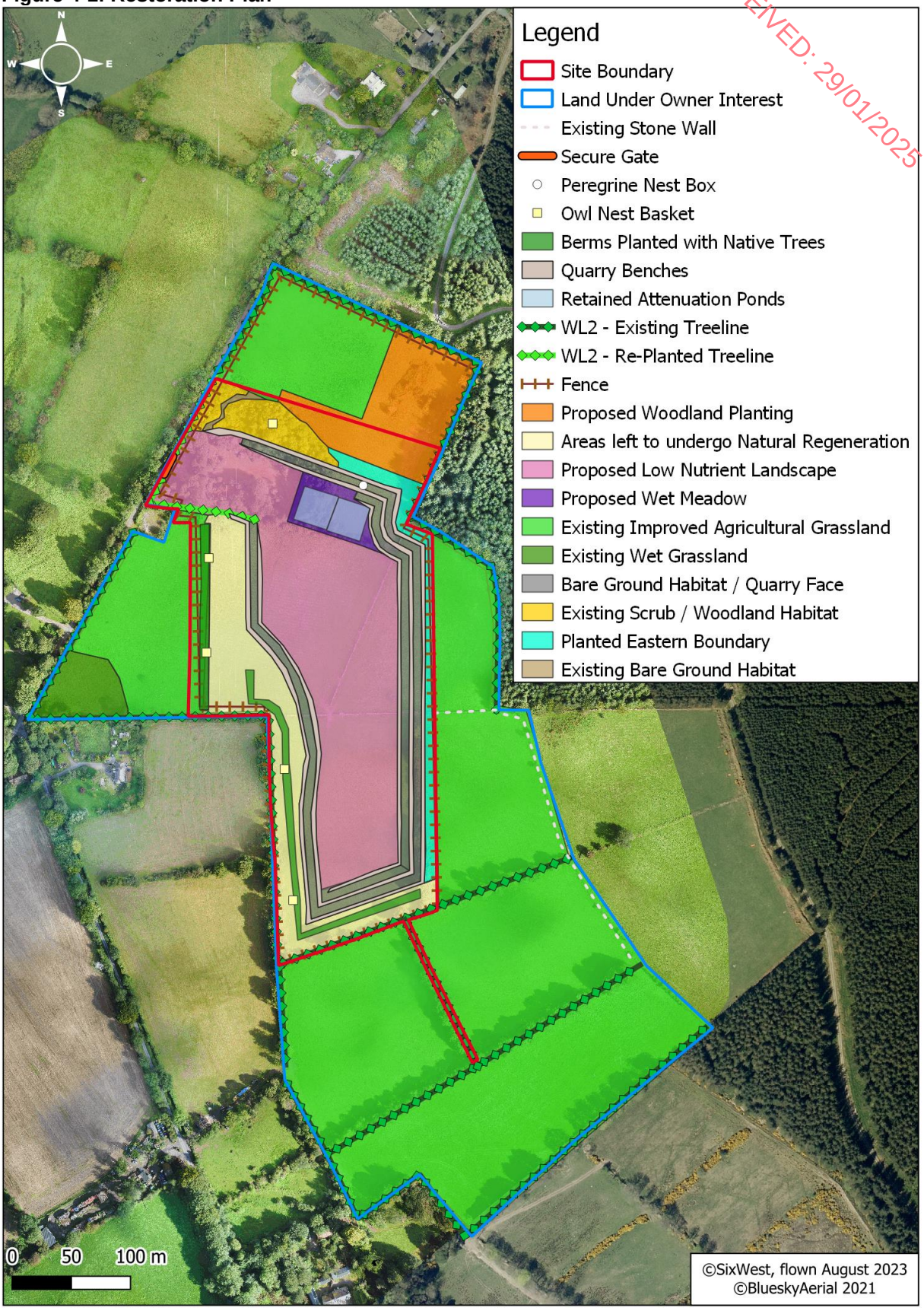
A Restoration Plan has been prepared by MOR Environmental and submitted as part of the overall planning application (Appendix 6-1 to the EIAR). After each phase of operations, the stored topsoil and overburden will be spread across the quarry floor to kick-start the restoration process. The Restoration Plan includes for the retention of wet grassland, two attenuation ponds, the introduction of a wet meadow, the re-planting of treelines within the western portion of the Site and the proposed woodland planting / planted berms described above. The remainder of the Site will be allowed to re-generate naturally.

The attenuation ponds, wet meadow and wet grassland will attract insects, which will allow bats to forage on the Site. Additionally, the planted berms, eastern boundary and re-planted treelines will provide potential foraging and commuting habitats for bats.

The proposed woodland planting will exceed the area of scrub and woodland to be removed as part of the Proposed Development. The woodland planting will also comprise of native tree species. Once these trees become established, they will provide potential roosting, foraging and commuting habitats for bats. Similarly, the planting along the eastern boundary of the Site will provide additional habitats for bats in the long-term.

Figure 4-1 below shows the proposed Restoration Plan of the Site and the lands under ownership interest.

Figure 4-1: Restoration Plan



5 CONCLUSIONS

The bat surveys undertaken for the Proposed Development included a walkover of the lands within the Site and area to the north, a tree inspection, a dusk activity survey and a dawn re-entry/activity survey. The walkover and tree inspection identified few trees on-site with low roosting potential, which were monitored for emergence during the dusk and dawn surveys. Additionally, the scrub on-site and treelines in the northwest, central and southern portion of the Site were subject to transect surveys.

No bats were observed roosting within any trees on-site. Based on the bat activity within the survey area shortly after sunset, it is considered likely that bats are roosting within the vicinity of the Site. The surveys identified the majority of bats commuting and foraging along the treelines in the southern portion of the Site, but bats were also observed commuting over and adjacent to the scrub on-site. Soprano pipistrelle were the most frequently recorded species during the dusk and dawn surveys.

The Proposed Development will result in the loss of commuting/foraging habitats for bats by the removal of treelines, scrub, mixed broadleaved woodland and agricultural fields. However, the planting of a woodland area, the eastern boundary and berms with native trees, followed by the successful implementation of the restoration plan will provide alternative foraging and commuting habitats for bats on-site.

Overall, the Site is considered to be of high local value for commuting and foraging bats within the local area as the majority of the Site is dark at night and contains good commuting and foraging habitats for bats. The mitigation measures presented within this report are designed to reduce the potential impacts on bats from the proposed works. It can be concluded that with the implementation of these measures, the overall impact from the Proposed Development on bats will be Low-Negligible.

6 REFERENCES

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APPENDIX 6-3

January 2025

Bird Report

Proposed Quarry Re-Commencement and Extension

Deerpark, Donard, Co. Wicklow

Herbie Stephenson Limited

MALONE O'REGAN ENVIRONMENTAL

QUALITY
I.S. EN ISO 9001:2015
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Title: Bird Report, Proposed Quarry Re-Commencement and Extension, Deerpark, Donard, Co. Wicklow, Herbie Stephenson Limited

Job Number: E2123

Prepared By: Stephanie Lonergan **Signed:** S. Lonergan

Checked By: Amelia Keane **Signed:** Amelia Keane

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	29/01/25	Report	Final	SL	AK	DH

Bird Report

Proposed Quarry Re-Commencement and Extension

Deerpark, Donard, Co. Wicklow

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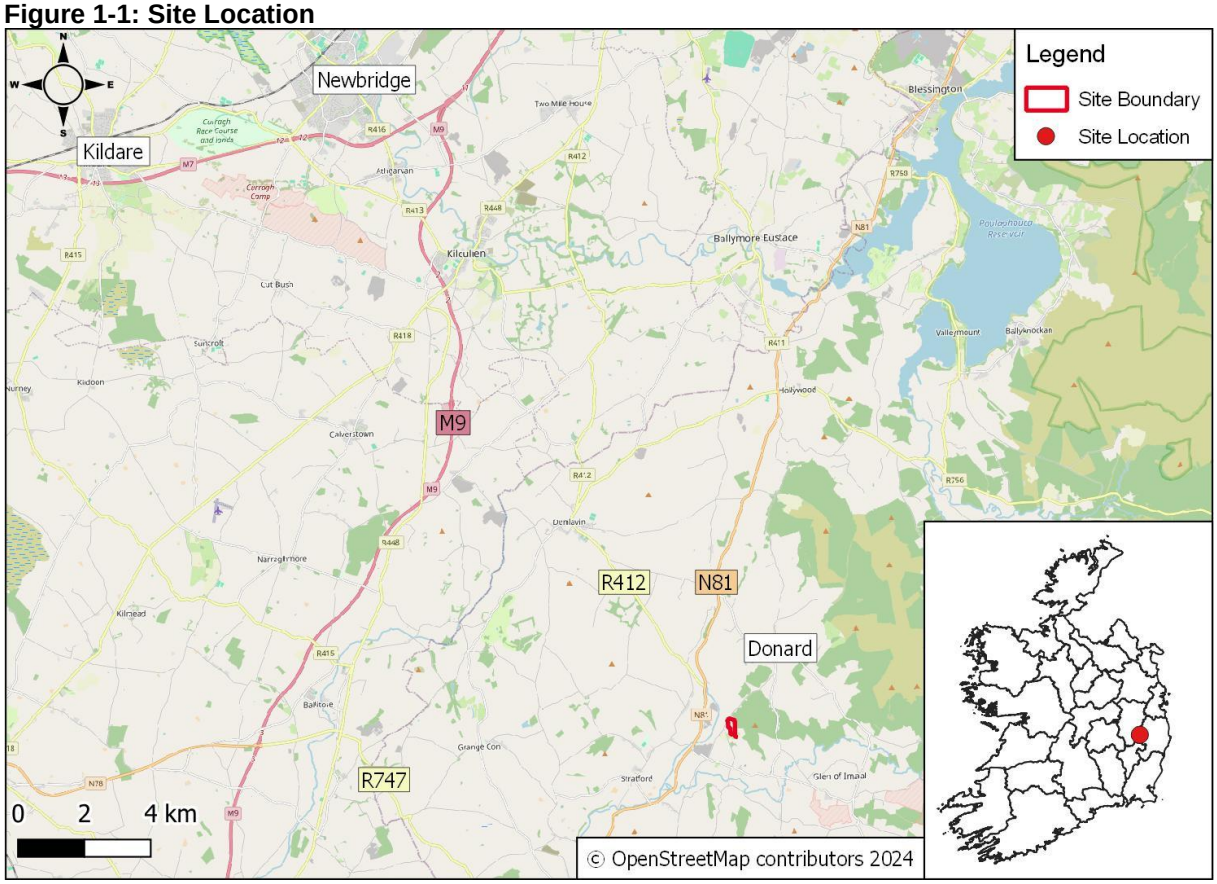
1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') were commissioned by Mr Herbie Stephenson. ('the Applicant') to undertake breeding bird surveys to assess the likely effects, if any, from the proposed re-commencement of quarrying at an old rock quarry in Deerpark, Donard, Co. Wicklow, to a level of 165metres Ordnance Datum ('mOD') along with the extension of the quarry into reserves to the south and east of the old quarry (the 'Proposed Development').

Full details of the description of the Proposed Development can be found in the Environmental Impact Assessment Report ('EIAR') submitted as part of the overall planning application. This Bird Report is an appendix to Chapter 6 – Biodiversity of the EIAR and should be read in conjunction with this chapter.

The Proposed Development will be located on a site covering an area of circa ('ca.') 8.1 hectares ('ha') within the townlands of Deerpark and Donaghmore Co Wicklow (Ordnance Survey Ireland Grid Reference ITM 692022, N 695358), refer to the redline boundary presented in Figure 1-1 below for context ('the Site'). The Site is located ca. 2.4km southwest of Donard.

Figure 1-1: Site Location



1.1 Relevant Legislation

All wild birds are protected by law under the Wildlife Act 1976 and subsequent amendments. All species are afforded full protection under this Act, which makes it a criminal offence for anyone without a licence to:

- Kill or injure a wild bird;
- Disturb, damage or remove a wild bird nest or eggs; and,

- Disturb any wild bird while at the nest.

In addition to domestic legislation birds are also protected under the EU Birds Directive (2009/147/EC). The Birds Directive provides for a network of sites to protect birds at their breeding, feeding, roosting and wintering areas.

For the purposes of this report, a species was considered to be of 'conservation concern' should it be included one or more the following:

- Annex 1 of the EU Birds Directive;
- Part 1 of the Fourth Schedule of the Wildlife Act, 1976 (as amended);
- Birds of Conservation Concern in Ireland ('BoCCI') red list; and,
- BoCCI amber list.

1.2 Purpose of the Report

The purpose of this report is to outline the methodologies and results of the bird habitat assessment and the breeding bird surveys undertaken at the Site.

Bird Habitat Assessment

The aim of the bird habitat assessment was to ascertain the potential of the Site to provide suitable habitat for breeding birds, to support important assemblages of wintering birds or support rare or notable species.

Breeding Bird Surveys

- To identify and assess the number of active breeding bird territories within the Site;
- To map active nests, where present, within the Site;
- To evaluate the overall bird community within the Site by recording all behavioural activity of birds;
- Utilise the information in order to identify and assess any areas of the Site that may require special consideration during the breeding bird season;
- Assess all potential impacts, if any, of the Proposed Development on breeding bird species; and,
- Provide additional mitigation measures, should they be required.

1.3 Statement of Authority

This report was checked by Ms. Amelia Keane, Senior Environmental Consultant – Ornithology. Amelia is a qualifying member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') and has over five years' experience working in ecological consultancy with a specialist interest in ornithology. As part of her role, Amelia is required regularly to conduct ornithological surveys and prepare specialist ornithological assessments and reports.

The report was approved by Mr. Dyfrig Hubble, Associated Director - Ecology. Dyfrig is a full member of CIEEM and has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of planning applications.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of breeding birds are summarised below.

2.1 Desk-based Studies

A desk-based review of information sources was completed, which included the following sources of information:

- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date detail on conservation objectives for the European sites relevant to this assessment [1];
- Bird Watch Ireland – The Irish Wetland Bird Survey ('I-WeBS') information was reviewed with regard to potential overwintering wetland sites that may be utilised by wintering waterbird population during the winter non-breeding season (September to March) [2];
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distributions within 2km of the Site [3];
- The Terrestrial Ecology - Ecological Impact Assessment ('EcIA') Report prepared by Delichon Ecology in November 2021 as part of the previous planning application (Planning Ref: 21/1472) [4]; and,
- The Raptor Survey Report prepared by CC Ornithology in June 2022 based on correspondence with the NPWS [5].

2.2 Field-based Studies

2.2.1 Habitat Assessment

The Site was assessed for its potential to support assemblages of birds of rare or notable species, as well as designated bird species. As part of this assessment, a habitat survey was undertaken using the Fossitt's '*Guide to Habitats in Ireland'* [6].

The habitat survey aimed to identify the extent and quality of habitats present on the Site. This survey was carried out by two suitably qualified MOR Environmental Ecologists on 8th June 2023.

An updated field survey was undertaken on 29th October 2024 to assess any potential changes onsite. This field survey was also extended to assess the potential habitats of note outside of the Site boundary and lands under owner interest, including the pond where water pumped into the land drain will travel and the habitats along the proposed laybys and road haul route.

2.2.2 Bird Habitat Assessment

During the habitat assessments, the Site and other habitats of note were assessed for their potential to provide nesting habitat for breeding birds, to support important assemblages of wintering birds or to support rare or notable species.

All field boundaries were walked, and the habitats on-site were fully assessed for their potential to provide suitable nesting, winter roosting habitat or foraging habitat. Areas of dense hedging, scrub habitat, wet grassland habitat, tall grassland habitat and on-site water features were noted.

Following the initial Site assessment, a desk-based review and a review of the design of the Proposed Development, it was deemed necessary to undertake specialist breeding bird surveys on-site.

2.2.3 Breeding Bird Survey

Three breeding bird surveys were undertaken on 13th July, 31st July and 11th August 2023 by one suitability qualified MOR Environmental Ecologist. The breeding bird surveys were conducted in line with the methodology described in:

- BTO - *A Field Guide to Monitoring Nests* [7]; and,
- Common Bird Census in *Bird Monitoring Methods* [8].

In order to establish whether any breeding bird species were utilising the Site, particularly the trees and scrub located within the Site, transects were walked along all of the field boundaries located within the Site (see Figure 2-1 below).

All birds were recorded through sight and sound. Optical equipment was used, including binoculars, in order to minimise disturbance to potentially breeding birds. The hedgerows and hedgerow / treeline on-site were examined for the presence of nests. During the survey, the behavioural activity of the recorded birds was noted using the BTO breeding status codes [2]. Birds that displayed non-territorial behaviours were recorded as well (i.e., designated birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing).

Therefore, birds were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criterion for each classification is described below:

- Non-breeding – Birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing;
- Possible Breeding – Birds observed in suitable nesting habitat and displaying either territorial and/or courtship behaviours, nest building behaviours or observed visiting a possible nest; and,
- Confirmed Breeding – Birds observed either on the nest or carrying faecal sac or food, sighting of a nest with eggs/chicks, used nests, eggshells, or recently fledged young.

The survey dates, times and weather conditions for both dates are described in Table 2-1.

Table 2-1: Breeding Bird Survey Dates, Times and Weather Conditions

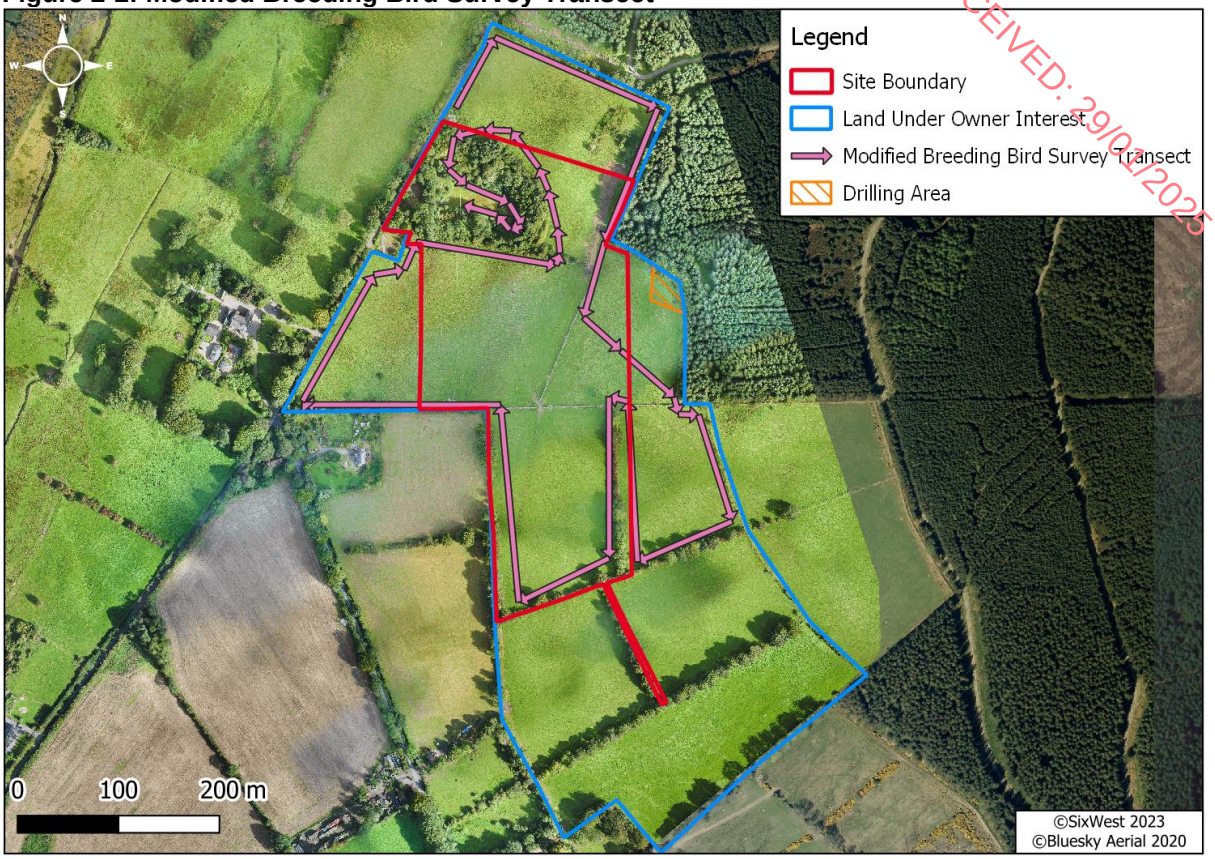
Visit No.	Date	Time	Weather Conditions
Visit 1	13/07/2023	08:30-10:30	Cloud cover 100%, temperature 15-18ºC, light breeze, scattered showers.
Visit 2	31/07/2023	09:15-11:15	Cloud cover 66-99%, temperature 14ºC, wind 18km/h, light rain until 9:15.
Visit 3	11/08/2023	08:30-10:30	Cloud cover 66-99%, temperature 15-17ºC, wind 20km/h, moderate breeze, no rain

Figure 2-1: Breeding Bird Survey Transect

2.2.4 Survey Limitations

During the breeding bird survey on 13th July 2023, drilling was taking place in the northeast of the Site. Therefore, the surveyor could not survey this area of the field and had to utilise a modified transect route to avoid the drilling. In addition, the surveyor could not hear any bird calls in this section of the field during the drilling works. Please see Figure 2-2 below for details of the location of the drilling and the modified transect route.

Figure 2-2: Modified Breeding Bird Survey Transect



No other constraints were encountered during the surveys.

2.3 External Field-based Studies

2.3.1 Raptor Survey

Three surveys were conducted on the 26th June 2023; 15th July 2023 and 9th August 2023. These surveys were conducted by ornithologists Dr Marc Ruddock, Mr Douglas Ruddock and Mr James Irons to establish whether the Site was occupied by Peregrines. The surveys focused on the Site boundary but included a survey of alternative nest areas within 5km. A separate raptor report has been prepared; refer to Appendix 6-4 of the EIAR for context.

Updated surveys were also undertaken by the same external consultants, with the addition of Mr Alan Ferguson, on 11th June 2024, 12th June 2024 and 9th July 2024. The 2024 surveys focused only on surveying for raptors.

2.4 Assessment Methodology

2.4.1 Avian Receptor Evaluation

The value of the avian receptors at the Site were evaluated using the ecological evaluation guidance given in the Transport Infrastructure Ireland ('TII'), formally known as National Roads Authority ('NRA') guidance on the assessment of ecological impacts of National Road Schemes [9]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at International, National, County and Local (higher and lower value) levels. Key ecological receptors for assessment are those deemed to be above the 'Local Importance (lower value)' evaluation (see Table 2-2 below).

Table 2-2: NRA Guidance for Evaluation Criteria relevant to Avian Fauna

Resource Evaluation	Criteria
International Importance	'European Site' including Special Area of Conservation ('SAC'), Site of Community Importance ('SCI'), Special Protection Area ('SPA'), proposed Special Area of Conservation, or Proposed Special Protection Area ('pSPA'). Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive.
National Importance	Site designated or proposed as a Natural Heritage Area ('NHA'), Statutory Nature Reserve, Refuge for Fauna and Flora protected under the Wildlife Acts, or National Park, Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species protected under the Wildlife Acts; and/or • Species listed on the relevant Red Data list.
County Importance	County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP (if this has been prepared). Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level. Resident or regularly occurring populations (assessed to be important at the County level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. • Species protected under the Wildlife Acts; and/or, • Species listed on the relevant Red Data list.
Local Importance (High Value)	Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP (if this has been prepared). Resident or regularly occurring populations (assessed to be important at the Local level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. • Species protected under the Wildlife Acts; and/or, • Species listed on the relevant Red Data list.

3 RESULTS

3.1 Desk-Based Results

3.1.1 National Biodiversity Data Centre

The NBDC was consulted for records of protected species within 2km of the Site [3]. Table 3-1 below provides a summary of the records of birds that occur within 2km of the Site in the last 10 years.

Table 3-1: NBDC Records for Species within 2km of the Site (S99B, S99C, S99D, S99G, S99H, S99I)

Common Name	Scientific Name	Date of last record	Designation
Birds			
Barn Owl	*Tyto alba*	01/07/2015	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
White-throated Dipper	*Cinclus cinclus*	14/01/2020	Birds of Conservation Concern Green List

*Note that only species recorded within the past 10 years were included in this table. The parameter of 10 years was chosen to allow for habitat adaption and modification, it is considered that any records over 10 years old are not representative of the current distribution of species populations.

3.1.2 Irish Wetland Bird Survey ('I-WeBS')

The Site is not located within or directly adjacent to any Special Protection Areas ('SPA'). A review of the I-WeBS information was undertaken to determine any potential wintering wetland sites that may be utilised by wintering waterbird population within the vicinity of the Site. There are no I-WeBS sites or subsites located on-site or within close proximity to the Site. The closest I-WeBS site is the Poulaphouca Reservoir which is located ca. 10.8km northeast of the Site. Therefore, it is considered unlikely that any species utilising this I-WeBS site will utilise the on-site habitats.

3.1.3 Previous Bird Surveys Undertaken at the Site

3.1.3.1 EcIA by Delichon Ecology

A previous planning application was submitted on-site in 2021 for the extraction of rock by blasting, processing of material using mobile plant, landscaping and restoration of the quarry and all other ancillary facilities and works. This application was refused by the Local Authority on the grounds that a sub-threshold EIAR should have been supplied as part of the planning application.

However, as part of the planning application, an EcIA prepared by Delichon Ecology [4]. Although no targeted bird surveys were undertaken as part of this assessment, all bird species observed on-site during the field surveys undertaken in August 2020 and September 2021 were recorded. These results are presented in Table 3-2 below.

Table 3-2: Birds Recorded during Previous Site Visits in 2020 and 2021 [4]

BoCCI Conservation Status [10]	Common Name	Species Name	Activity and Occurrence within the Study Area
Green Listed	Blackbird	*Turdus merula*	Foraging within hedgerows, treelines, and scrub in the vicinity of the quarry site.

BoCCI Conservation Status [10]	Common Name	Species Name	Activity and Occurrence within the Study Area
	Blue tit	*Cyanistes caeruleus*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
	Buzzard	*Buteo buteo*	Overflying the site and foraging in the surrounding environment.
	Chaffinch	*Fringilla coelebs*	Foraging within hedgerows, treelines, scrub and bog woodland in the vicinity of the proposed quarry site and nearby conifer plantation.
	Great Tit	*Parus major*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
	Hooded Crow	*Corvus cornix*	Foraging in the wider countryside, pastoral and forestry lands to the north.
	Jackdaw	*Corvus monedula*	Using the study area and adjoining habitats for foraging.
	Magpie	*Pica pica*	Foraging in the wider countryside, pastoral and forestry lands to the north.
	Pied Wagtail	*Motacilla alba*	Foraging in disturbed and open habitats within adjoining the proposed quarry site.
	Robin	*Erithacus rubecula*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
	Rook	*Corvus frugilegus*	Rooks overflying site and using adjoining habitats for foraging.
	Woodpigeon	*Columba palumbus*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
	Wren	*Troglodytes troglodytes*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
Amber Listed	Greenfinch	*Chloris chloris*	Foraging within hedgerows, treelines, scrub in the vicinity of the quarry site.
	Starling	*Sturnus vulgaris*	Small flocks using the pastoral fields adjoining and in the vicinity of the site.
	Swallow	*Hirundo rustica*	Overflying and foraging over the proposed quarry site.

3.1.3.2 Raptor Survey by CC Ornithology

A targeted raptor survey was undertaken by CC Ornithology on 21st June 2022 at the Site. The target species of this survey was peregrine falcon (*Falco peregrinus*), following previous correspondence with a local NPWS ranger for the Wicklow Mountains National Park who had anecdotal evidence of peregrine utilising the Site in 2022.

No evidence of nesting peregrine falcon was identified on-site. A large area of whitewash was noted on one of the cliff ledges, as well as pellets and downy feathers from peregrine, which suggested that a pair of peregrines had used the Site. There was no evidence of any other raptor species noted on-site.

Other species observed during this raptor survey are outlined in Table 3-3 below.

Table 3-3: Other Species Identified by CC Ornithology

Common Name	Scientific Name	Designation
Blackbird	*Turdus merula*	Birds of Conservation Concern – Green List
Blackcap	*Sylvia atricapilla*	Birds of Conservation Concern – Green List
Blue tit	*Cyanistes caeruleus*	Birds of Conservation Concern – Green List
Bullfinch	*Pyrrhula pyrrhula*	Birds of Conservation Concern – Green List
Chaffinch	*Fringilla coelebs*	Birds of Conservation Concern – Green List
Chiffchaff	*Phylloscopus collybita*	Birds of Conservation Concern – Green List
Coal Tit	*Periparus ater*	Birds of Conservation Concern – Green List
Goldfinch	*Carduelis carduelis*	Birds of Conservation Concern – Green List
Great spotted woodpecker	*Dendrocopos major*	Birds of Conservation Concern – Green List
Great tit	*Parus major*	Birds of Conservation Concern – Green List
Jay	*Garrulus glandarius*	Birds of Conservation Concern – Green List
Mistle thrush	*Turdus viscivorus*	Birds of Conservation Concern – Green List
Robin	*Erithacus rubecula*	Birds of Conservation Concern – Green List
Song thrush	*Turdus philomelos*	Birds of Conservation Concern – Green List
Willow Warbler	*Phylloscopus trochilus*	Birds of Conservation Concern – Amber List
Woodpigeon	*Columba palumbus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Green List EU Bird Directive Annex II, Section I and Annex III Section I

3.2 Field-Based Results

3.2.1 Habitat Survey

The habitat assessment identified eight habitats within the Site. These habitats were described as follows:

- Improved Agricultural Grassland (GA1);
- Treelines (WL2);
- Stone Walls and Other Stonework (BL1);
- Spoil and Bare Ground (ED2);
- Recolonising Bare Ground (ED3) / Disturbed Ground (ED);
- Scrub (WS1);
- Mixed Broadleaved Woodland (WD1); and,

- Dense Bracken (HD1).

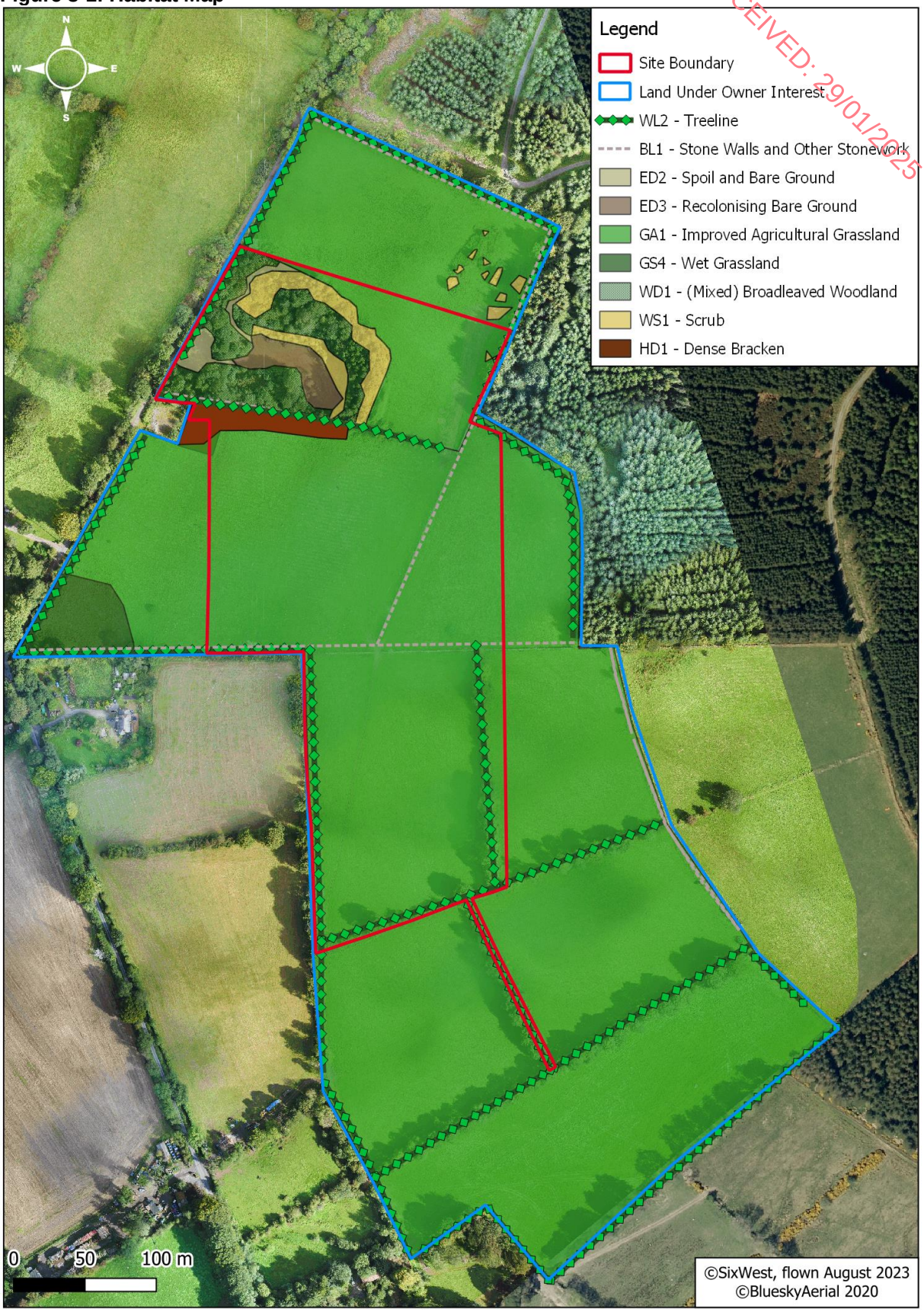
The distribution of habitats is illustrated in Figure 3-1 below.

The following habitats were identified outside the Site boundary within the lands under ownership interest:

- Improved Agricultural Grassland (GA1);
- Wet Grassland (GS4);
- Recolonising Bare Ground (ED3);
- Scrub (WS1);
- Treelines (WL2); and,
- Stone Walls and Other Stonework (BL1).

These were a continuation of the habitats found on-site and are presented in Figure 3-1.

Figure 3-1: Habitat Map



Habitats of note outside the Site boundary and Lands Under Owner Interest

The following section provides details of the field-based assessment that was undertaken for the assessment in relation to the off-site pond and the proposed locations for passing bays and widening along the haul route on 29th October 2024. The distribution of the habitats is shown in Figure 3-2.

Hedgerows / Treelines (WL1 / WL2)

Hedgerows / treelines bordered the roads to the east of the Site. All hedgerow / treelines were present alongside sloped verges with varying vegetation densities.

Mixed Broadleaved Woodland (WD1)

A small woodland pocket was present east of the Donard Mountain Road, ca. 158m east of the Site.

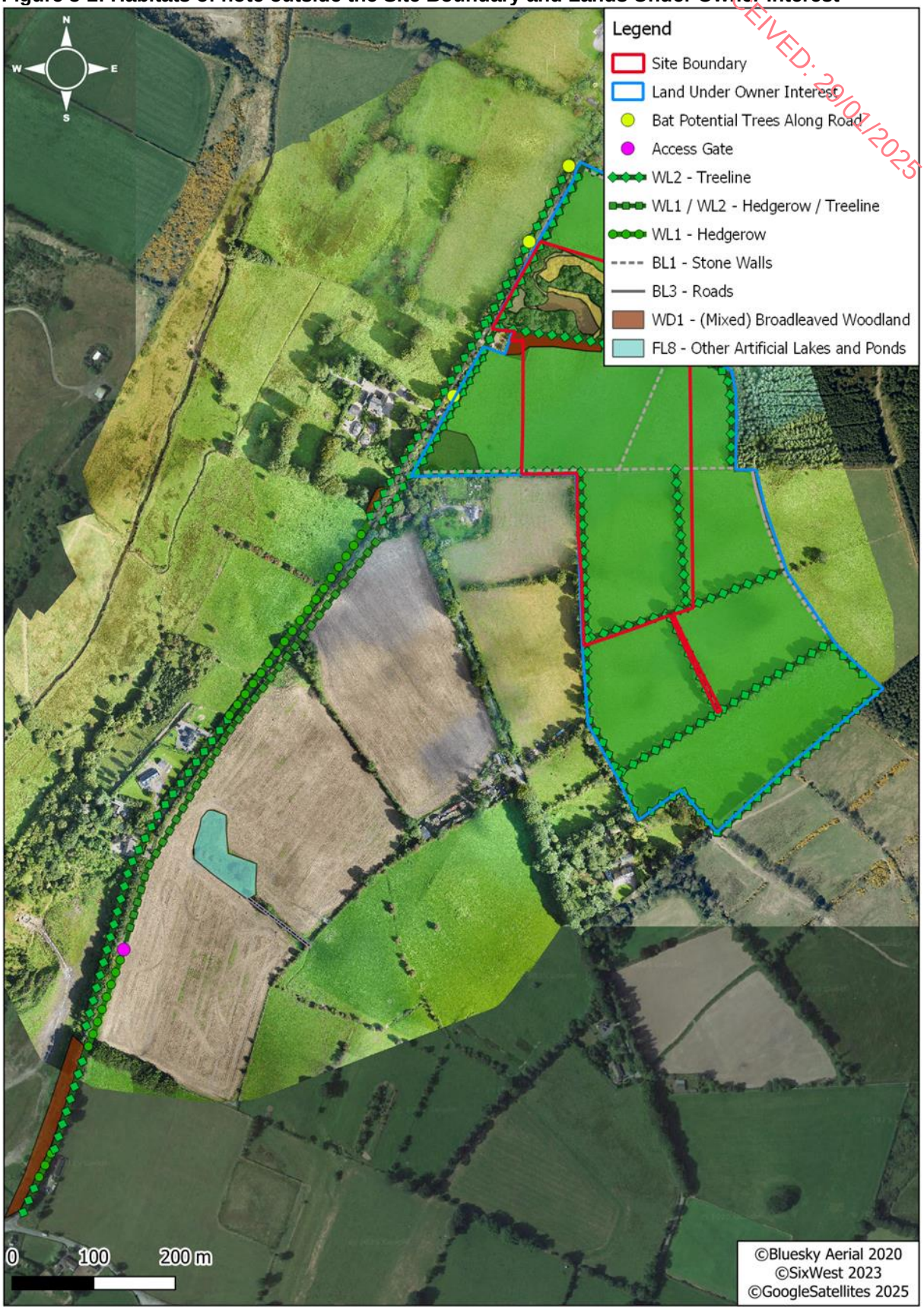
A small woodland pocket was located ca. 786m south of the Site at the end of the Donard Mountain Road before an intersection.

Artificial Lakes and Ponds (FL8)

The pond located ca. 490m southwest of the Site will be used to manage excess groundwater and prevent overflow of proposed attenuation ponds on-site. Excess water from the ponds will be pumped through an overground pipe into the existing land drainage system, which discharges into this pond from the northeast (refer to Section 8.3.5 in Chapter 8 – Water of the EIAR for further details). Any pumping from the water management ponds into the land drainage system leading to the overflow pond will be restricted to agricultural rates. Previous Site visits undertaken by MOR Environmental Ecologists noted that the pond had pools of water present. However, at the time of this survey, the pond contained limited shallow pools of water and there was mostly no flow of water from the discharge point. Plant species found in the pond consisted of mostly nettles, brambles and tree saplings. No aquatic plant species were present.

No wetland or waterbirds were observed using this pond at the time of the Site visit in October 2024. Common countryside bird species were observed flying around and singing from the vegetation surrounding this pond, including robin, blackbird and hooded crow.

Figure 3-2: Habitats of note outside the Site Boundary and Lands Under Owner Interest



3.2.2 Bird Habitat Assessment

The habitats within the Site are primarily comprised of improved agricultural grassland, is surrounded and bisected by treelines, and is bordered by Coillte woodland to the northeast.

Winter Bird Habitat Assessment

It is considered that the Site provides potential foraging ground or roost habitat for wintering countryside bird species. However, there are no on-site waterbodies that are considered suitable for wintering waterbirds or wildfowl. Furthermore, given the fact that the Site and surrounding fields are comprised predominantly of agricultural grassland and based on desk-based assessments, it is considered that the Site is not considered to be a site of importance for wintering bird species.

Breeding Bird Habitat Assessment

The mixed broadleaved woodland, treelines, areas of scrub, wet grassland, agricultural grassland and dense bracken were considered to provide suitable nesting and foraging habitat for breeding countryside birds. However, there are no waterbodies located on-site and as such it is considered that the Site does not have suitable habitat for breeding waterbirds. At the time of the Site surveys, the agricultural grassland fields were being utilised for grazing livestock, which is known to decrease the suitability of the habitat for ground-nesting birds [11]. These fields have a medium stocking density of ca. 10 ewes/ha.

3.2.3 Breeding Bird Surveys

Table 3-4 contains a summary of the birds recorded on-site during the MOR Environmental surveys, their status according the BoCCI, their behaviours and breeding status.

During the breeding bird surveys, a total of 32 species were recorded on-site:

- 23 Green BoCCI listed species – blackbird, blackcap, blue tit, buzzard, chaffinch, chiffchaff, coal tit, dunnock, goldfinch, great tit, hooded crow, jackdaw, long-tailed tit, magpie, mistle thrush, robin, rook, sedge warbler, siskin, song thrush, treecreeper, woodpigeon and wren;
- Eight were Amber BoCCI listed non-Annex I species – barn swallow, lesser black-backed gull, goldcrest, greenfinch, house martin, skylark, starling and willow warbler; and,
- One was Red BoCCI listed non-Annex I species – meadow pipit.

No active or used nests were identified within the Site. In addition, no bird species exhibited behaviours that would be classified as *'Confirmed Breeding*'. However, of the species recorded, 27 were classified as '*Possible Breeding*' as they displayed territorial behaviour (singing, calling or aggression) within the suitable nesting habitats and five were classified as '*Non-breeding*'.

Details on the species that were recorded, their abundance and their behaviours are provided in Table 3-4.

Table 3-4: Birds recorded within the Site during the Breeding Bird Surveys

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
Green-listed	Blackbird	*Turdus merula*	8	1	3	Visit 1: Individuals were noted perching and calling within the hedgerows / treelines and foraging within the mixed broadleaved woodland area on-site Visit 2: An individual was noted perched and flushed in treeline northeast of the Site. Visit 3: Individuals were noted calling and flushed from treelines within the Site.	Possible Breeding
	Blackcap	*Sylvia atricapilla*	1	4	2	Visit 1: A juvenile was identified perching within vegetation within the western portion of the lands under owner interest. Visit 2: Blackcap were identified singing and calling within the scrub and woodland margin separating the disused quarry and the fields to the north. Two individuals were identified singing within the woodland along the eastern boundary of the Site. Visit 3: Blackcap were heard singing and calling from the Coillte woodland bordering the Site to the east.	Possible Breeding
	Blue tit	*Cyanistes caeruleus*	5	0	3	Visit 1: Individuals were recorded perching and calling in the treelines on-site. Visit 2: No individuals were recorded during this visit. Visit 3: Individuals and a juvenile were noted perched and calling within the treelines on-site.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Buzzard	*Buteo buteo*	1	1	0	Visit 1: An individual was noted calling, perching, and flushed into woodland northeast of the Site. Visit 2: A buzzard was noted circling / soaring over the disused quarry area. Visit 3: No individuals were recorded during this visit.	Possible breeding
	Chaffinch	*Fringilla coelebs*	5	0	3	Visit 1: Multiple individuals were identified calling and singing along the western boundary of the lands under owner interest. Chaffinches were also heard within the scrub / woodland habitat surrounding the disused quarry. Visit 2: No individuals were recorded during this visit. Visit 3: Individuals were noted calling within the treelines on-site.	Possible Breeding
	Chiffchaff	*Phylloscopus collybita*	3	1	0	Visit 1: Two individuals were identified singing and calling within the scrub and woodland habitat surrounding the disused quarry. One individual was also identified singing within the Coillte Woodland along the northern boundary of the lands under owner interest. Visit 2: One individual was heard singing from scrub / woodland habitat separating the disused quarry from the agricultural fields to the north. Visit 3: No individuals were recorded during this visit.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Coal Tit	*Periparus ater*	2	2	1	Visit 1: Individuals were noted calling and foraging within the treeline south of the Site. Two individuals were identified displaying territorial behaviour within scrub along the western boundary of the Site. Visit 2: Individuals were noted calling along treelines on the Site. Visit 3: An individual was noted calling and flushed from the treeline northwest of the Site.	Possible Breeding
	Dunnock	*Prunella modularis*	2	0	2	Visit 1: Individuals were heard singing within the scrub bordering the disused quarry area to the east. Visit 2: No individuals were recorded during this visit. Visit 3: One individual was identified perching on stone walls within the central region of the Site. One individual was recorded perching and calling within the scrub to the south of the disused quarry.	Possible Breeding
	Goldfinch	*Carduelis carduelis*	0	6	4	Visit 1: No individuals were recorded during this visit. Visit 2: Multiple individuals were identified singing from vegetation and foraging along the treelines within the central and western portion of the Site. Visit 3: Four individuals were seen foraging over the grassland fields within the central / southern region of the Site.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Great tit	*Parus major*	4	0	7	Visit 1: Individuals were noted perching and calling throughout the treelines on-site. Visit 2: No individuals were recorded during this visit. Visit 3: Individuals were noted flushed, calling and perching within the treelines on-site.	Possible Breeding
	Hooded crow	*Corvus cornix*	3	0	2	Visit 1: Individuals were noted calling and perching within the treeline southwest on-site. Visit 2: No individuals were recorded during this visit. Visit 3: Individuals were flushed from hedgerow / treelines within the Site.	Possible Breeding
	Jackdaw	*Coloeus monedula*	0	5	1	Visit 1: No individuals were recorded during this visit Visit 2: Two individuals were identified foraging within the agricultural fields to the south of the Site and three individuals were identified flying over the Site. Visit 3: One individual was identified flying east to west over the Site.	Non-Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Long-tailed tit	*Aegithalus caudatus*	5	4	2	Visit 1: Multiple individuals were identified along the western portion of the Site and lands under owner interest. These individuals were identified singing and calling within the existing treeline and woodland habitat. Visit 2: Four individuals were identified perching and calling within the scrub / woodland habitats surrounding the disused quarry area. Visit 3: Two individuals were identified singing in scrub within the eastern portion of the disused quarry area.	Possible Breeding
	Magpie	*Pica pica*	2	0	1	Visit 1: Individual was noted foraging and flushed from the area of recolonising bare ground in the historic quarry area on-site. Visit 2: No individuals were recorded during this visit. Visit 3: An individual was noted foraging and flushed from the area of recolonising bare ground area in the historic quarry area on-site.	Non-Breeding
	Mistle thrush	*Turdus viscivorus*	0	2	3	Visit 1: No individuals were recorded during this visit. Visit 2: One individual was identified foraging within the agricultural fields on-site. One individual was identified perching and singing on a stonewall along the eastern boundary of the Site. Visit 3: One individual was heard singing within the Coillte woodland bordering the Site to the east. Two individuals were identified singing from vegetation within the disused quarry area.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Robin	*Erithacus rubecula*	4	6	6	Visit 1: Individuals were noted perching and calling throughout the treelines on-site. Visit 2: Individuals were noted perching and calling throughout the treelines on-site. Visit 3: Individuals were noted calling and singing within the treelines on-site.	Possible Breeding
	Rook	*Corvus frugilegus*	3	31	0	Visit 1: Individuals were noted calling and perching within the treeline in the south of the Site and flying overhead. Visit 2: Individuals were noted foraging and calling within the fields on-site. Visit 3: No individuals were recorded during this visit.	Possible Breeding
	Sedge Warbler	*Acrocephalus schoenobaenus*	1	1	0	Visit 1: One individual was identified within the area of scrub separating the disused quarry area and the agricultural fields to the east. Visit 2: One individual was identified foraging within the wet grassland area to the west of the Site within the lands under owner interest. Visit 3: No individuals were recorded during this visit.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Siskin	*Spinus spinus*	0	3	2	Visit 1: No individuals were recorded during this visit. Visit 2: Two individuals were identified flying over the central region of the Site. One individual was heard calling from Coillte Woodland to the east of the Site. Visit 3: Two individuals were identified singing / calling within treelines to the north and south of the Site.	Possible Breeding
	Song thrush	*Turdus philomelos*	4	2	1	Visit 1: Multiple individuals were identified calling and singing within the treelines bordering the Site. Visit 2: Two individuals were recorded singing within treelines to the north and south of the Site. Visit 3: One individual was identified singing within the treeline along the western boundary of the Site.	Possible Breeding
	Treecreeper	*Certhia familiaris*	2	0	0	Visit 1: Individuals were heard calling in the treeline in the south of the Site. Visit 2: No individuals were recorded during this visit. Visit 3: No individuals were recorded during this visit.	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Woodpigeon	*Columba palumbus*	3	8	1	Visit 1: Individuals were noted perching and calling throughout the treelines on-site. Visit 2: Multiple individuals were flushed from treelines throughout the Site by the surveyor. Visit 3: One individual was noted flushed from the southern treeline on-site and flew northwest.	Possible Breeding
	Wren	*Troglodytes troglodytes*	12	7	10	Visit 1: Individuals were noted calling, perching and moving throughout the treelines on-site. Two individuals were also identified singing within the scrub habitat bordering the disused quarry. One of these individuals was displaying agitated / aggressive behaviours but no nest was visually identified by the surveyor. Visit 2: Individuals were noted calling, perching and moving throughout the Site. Visit 3: Individuals were noted calling and perching throughout the Site.	Possible Breeding
Amber-Listed	Barn Swallow	*Hirundo rustica*	7	0	5	Visit 1: Individuals were noted foraging in the fields on-site. Visit 2: No individuals were recorded during this visit. Visit 3: Individuals were noted foraging within the fields on-site.	Non-Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Goldcrest	*Regulus regulus*	2	2	4	Visit 1: Two individuals were noted calling in the treeline in the northeast of the Site. Visit 2: Two individuals were noted calling and responding to each other in a treeline in the southeast of the Site. Visit 3: Individuals were noted perched and calling within the treelines on-site.	Possible Breeding
	Greenfinch	*Chloris chloris*	2	0	0	Visit 1: Individuals were calling and flushed from treeline in the southwest of the Site. Visit 2: No individuals were recorded during this visit. Visit 3: No individuals were recorded during this visit.	Possible Breeding
	House Martin	*Delichon urbicum*	0	7	0	Visit 1: No individuals were recorded during this visit. Visit 2: Individuals were noted flying over the grassland on-site towards the west and were presumed to be foraging, individuals were also noted calling on-site. Visit 3: No individuals were recorded during this visit.	Possible Breeding
	Lesser Black-backed Gull	*Larus fuscus*	1	0	0	Visit 1: One individual was identified flying north over the central region of the Site. Visit 2: No individuals were recorded during this visit. Visit 3: No individuals were recorded during this visit.	Non-Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
	Skylark	*Alauda arvensis*	0	2	2	Visit 1: No individuals were recorded during this visit. Visit 2: Two individuals were observed flying east over the Site into adjacent agricultural land. Visit 3: At least two individuals were heard singing in the agricultural grassland fields to the south of the lands under owner interest.	Possible Breeding
	Starling	*Sturnus vulgaris*	8	0	0	Visit 1: Multiple starlings were identified foraging within the area of wet grassland along the western boundary of the lands under owner interest. These starlings were flushed by the surveyor. Visit 2: No individuals were recorded during this visit. Visit 3: No individuals were recorded during this visit.	Non-Breeding
	Willow Warbler	*Phylloscopus trochilus*	0	0	1	Visit 1: No individuals were recorded during this visit. Visit 2: No individuals were recorded during this visit. Visit 3: An individual was noted calling from the treeline in the centre of the Site	Possible Breeding

BoCCI Conservation Status [10]	**Species**	**Latin Name**	**Numbers Recorded**			**Survey Notes**	**Breeding Status**
			Visit 1	**Visit 2**	**Visit 3**		
Red-Listed	Meadow pipit	*Anthus pratensis*	2	0	3	<u>Visit 1</u> Meadow pipits were noted foraging and landing within the southern region of the lands under owner interest. <u>Visit 2</u> No individuals were recorded during this visit. <u>Visit 3</u> Meadow pipits were identified perching and calling within agricultural fields and stone walls within the central region of the Site.	Possible Breeding

3.3 External Field-based Studies

3.3.1 Raptor Surveys

The external surveys undertaken by Dr. Marc Ruddock, Mr. Doughlas Ruddock and Mr James Irons and Mr Alan Ferguson in 2023 and 2024 did not identify any breeding peregrine falcon using the Site. However, Marc Ruddock noted the potential for peregrine falcons to utilise the Site once the quarry benches have become established.

A full raptor report has been prepared by Dr. Marc Ruddock which details the full survey methodologies, the survey results and the proposed mitigation for raptors. The surveys focused on the Site boundary but included a survey of alternative nest areas within 5km. This raptor report is attached as Appendix 6-4 to the EIAR and should be read in conjunction with this report. Refer to Table 3-5 for a summary of the species identified during the external field-based surveys within the Site and the surrounding 5km area.

Table 3-5: Bird Species identified during Raptor Surveys

Common Name	Scientific Name	Designation
Barn swallow	*Hirundo rustica*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Blackbird	*Turdus merula*	Birds of Conservation Concern – Green List
Blackcap	*Sylvia atricapilla*	Birds of Conservation Concern – Green List
Blue tit	*Cyanistes caeruleus*	Birds of Conservation Concern – Green List
Buzzard	*Buteo buteo*	Birds of Conservation Concern – Green List
Chaffinch	*Fringilla coelebs*	Birds of Conservation Concern – Green List
Chiffchaff	*Phylloscopus collybita*	Birds of Conservation Concern – Green List
Coal Tit	*Periparus ater*	Birds of Conservation Concern – Green List
Dunnock	*Prunella modularis*	Birds of Conservation Concern – Green List
Goldcrest	*Regulus regulus*	Birds of Conservation Concern – Amber List
Goldfinch	*Carduelis carduelis*	Birds of Conservation Concern – Green List
Great spotted woodpecker	*Dendrocopos major*	Birds of Conservation Concern – Green List
Great tit	*Parus major*	Birds of Conservation Concern – Green List
Greenfinch	*Chloris chloris*	Birds of Conservation Concern – Amber List
Grey heron	*Ardea cinerea*	Birds of Conservation Concern – Green List
Hooded crow	*Corvus cornix*	Birds of Conservation Concern – Green List
Herring gull	*Larus argentatus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
House martin	*Delichon urbicum*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List

Common Name	Scientific Name	Designation
Jackdaw	*Coloeus monedula*	Birds of Conservation Concern – Green List
Jay	*Garrulus glandarius*	Birds of Conservation Concern – Green List
Kestrel	*Falco tinnunculus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Lesser black-backed gull	*Larus fuscus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Long-eared owl	*Asio Otus*	Birds of Conservation Concern – Green List
Long-tailed tit	*Aegithalus caudatus*	Birds of Conservation Concern – Green List
Magpie	*Pica pica*	Birds of Conservation Concern – Green List
Meadow pipit	*Anthus pratensis*	Birds of Conservation Concern – Red List
Mistle thrush	*Turdus viscivorus*	Birds of Conservation Concern – Green List
Peregrine	*Falco peregrinus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Green List EU Bird Directive Annex I
Reed bunting	*Emberiza schoeniclus*	Birds of Conservation Concern – Green List
Red kite	*Milvus milvus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Robin	*Erithacus rubecula*	Birds of Conservation Concern – Green List
Rook	*Corvus frugilegus*	Birds of Conservation Concern – Green List
Sedge warbler	*Acrocephalus schoenobaenus*	Birds of Conservation Concern – Green List
Siskin	*Spinus spinus*	Birds of Conservation Concern – Green List
Skylark	*Alauda arvensis*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Song thrush	*Turdus philomelos*	Birds of Conservation Concern – Green List
Sparrowhawk	*Accipiter nisus*	Birds of Conservation Concern – Green List
Sand martin	*Riparia riparia*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Starling	*Sturnus vulgaris*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Swift	*Apus apus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List

Common Name	Scientific Name	Designation
Treecreeper	*Certhia familiaris*	Birds of Conservation Concern – Green List
Willow warbler	*Phylloscopus trochilus*	Birds of Conservation Concern – Amber List
Woodpigeon	*Columba palumbus*	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Green List EU Bird Directive Annex II, Section I and Annex III Section I
Wren	*Troglodytes troglodytes*	Birds of Conservation Concern – Green List

4 IMPACT ASSESSMENT AND MITIGATION

This section will assess potential impacts, if any, on breeding and wintering bird species within the Site and the vicinity of the Site and will put forward mitigation measures, if required, that will be implemented as part of the Proposed Development to ensure no adverse effects occur to any bird species.

4.1 Potential Impacts

4.1.1 Breeding Birds

4.1.1.1 Vegetation Removal

As mentioned in Section 3.2 above, the Site and surrounding lands under owner interest are considered to provide suitable nesting and foraging habitats for breeding birds through the woodland, hedgerow/treelines and areas of scrub, wet grassland, agricultural grassland and dense bracken. However, these habitats are abundant within the wider area.

The majority of habitats that will be lost on-site are areas of grazed grassland. As part of the Proposed Development, the following clearance/removal works will also be required:

- Removal of ca. 453m of treelines;
- Removal of ca. 0.14ha scrub; and,
- Removal of ca. 0.56ha of mixed broadleaved woodland.

Additionally, vegetation will be removed to facilitate the laybys and widening along the proposed haul route. It should be noted that these construction works will be undertaken by the local authority, and these works will be subject to the necessary statutory consents.

The removal of these habitats will result in the loss of both nesting and foraging habitats for birds. However, alternative habitats for breeding birds, including all boundary treelines and the northern portion of the woodland / scrub habitats (totalling ca.0.36ha), will be retained. Two screening berms with a combined length of ca. 513m will be planted along the southern and western boundaries of the Site, ca. 0.39ha of planting will be introduced around the eastern boundary and a ca. 1.04ha woodland will be planted to the northeast of the Site within the lands under owner interest. It is not considered that the loss of agricultural grassland will be significant based on the current grazing regime implemented on-site and the abundance of this habitat within the wider area.

It should be noted that Long eared owls were confirmed to be breeding on-site in 2023 and their continued presence was noted by Dr. Marc Ruddock in 2024. A number of passerines were considered possibly breeding on-site. Measures for these species have been included as part of the EIAR; refer to Appendix 6-1, Appendix 6-4 and Section 4.2 below for further information.

As the Proposed Development will result in the loss of vegetation and breeding bird habitats, mitigation measures will be implemented in order to ensure no adverse effects occur to breeding birds as Section 4.2 below.

4.1.1.2 Quarrying Activity

Raptors such as peregrine falcon are well adapted to quarry habitats. However, blasting can have an effect on peregrines if the appropriate buffers are not implemented. As outlined above, peregrine falcon have been known to previously use the Site for feeding and roosting purposes. However, the 2023 and 2024 raptor surveys conducted by Dr. Marc Ruddock, Mr. Douglas Ruddock, Mr James Irons and Mr. Alan Ferguson concluded that peregrine falcon were not currently using the Site for breeding purposes. Nonetheless, mitigation measures will be implemented as a precautionary measure to ensure that the Proposed Development does

not impact this Annex I species in the future. Refer to Section 4.2 below and Appendix 6-4 for further information.

4.1.2 Wintering Bird Species

It is not considered that the Site is of importance for wintering bird species based on the desk-based assessment and the habitats present on-site.

It is considered unlikely that wintering waterbird and wildfowl utilise the Site given the lack of suitable waterbodies on-site and within the vicinity of the Site. The on-site habitats may provide suitable foraging and roosting habitat for wintering countryside bird species; however, given the abundance of this habitat within the wider area, it is considered that the Site is not a site of importance for wintering bird species.

As mentioned in Section 3.2.1 above, the habitat survey of the off-site pond by MOR Environmental Ecologists in October 2024 identified only shallow pools of water within this pond, and the pond was encroached by scrub. However, it is considered that pumping water into this pond may rise the water levels within and increase the suitability of this waterbody for wintering waterbird and wildfowl. Additionally, certain wetland bird species such as coot (*Fulica atra*) and moorhen (*Gallinula chloropus*) may potentially utilise the pond.

However, it should be noted that any pumping from the water management ponds into the land drainage system leading to the overflow pond will be restricted to agricultural rates. This will prevent extreme fluctuations in the water levels within the pond, and it is considered that the off-site pond will continue to provide potential suitable habitat for wintering waterbird and wildfowl.

Overall, the required vegetation clearance and loss of agricultural grassland on-site may result in a loss of foraging grounds to wintering countryside bird species. However, the implementation of the two vegetated berms will provide suitable habitat for wintering countryside bird species. Therefore, based on the desk-based assessments, it is considered that the Proposed Development will result in a negligible impact on wintering bird species.

4.2 Mitigation Measures

4.2.1 Breeding Birds

To ensure no impacts occur to nesting birds within vegetation, the following mitigation measures will be put in place:

- As per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches will be restricted during the nesting and breeding season for birds and wildlife, from 1st March to 31st August. All vegetation clearance on-site will be conducted in line with this legislation;
- In the unlikely event that works need to be undertaken within the main breeding season, this would be undertaken in consultation with NPWS and the Ecological Clerk of Works ('ECoW');
- Prior to any vegetation removal, the ECoW will inspect the Site;
- All vegetation clearance works will be undertaken in a systematic way. The ECoW will inspect the Site during the vegetation clearance works;
- All Site personnel will be made aware of the locations of significant bird species and habitats prior to the commencement of works;
- Where possible, significant ornithological habitats will be retained on-site;

- Five long-eared owl nest baskets will be installed throughout the Site, including in the retained scrub / woodland habitat and on the proposed berms planted with native trees. The exact location will be confirmed by the ECoW. These baskets will provide potential nesting habitat for these species. The installation of these nest baskets will be undertaken by an expert tree climber or off-road mobile elevated work platform ('MEWP');
- In the unlikely event that birds nest within the active working area during the construction works, all works will stop within the immediate area and the ECoW will be consulted for advice; and,
- If peregrine falcon or other notable / protected bird species are identified colonising any areas to be impacted by the operations on-site, then works will stop within the identified area. An appropriate undisturbed buffer zone will need to be established for the duration of the breeding season or until the chicks have fledged and left the nest. This will be confirmed by the ECoW.

4.2.2 Peregrine Falcon

It is anticipated that the nest ledges may become improved and provide better nesting and roosting habitats for peregrine falcons due to the clearance of scrub and vegetation currently growing and enclosing the rock face. However, to ensure that peregrine falcons that do use the Site in the future will be protected for the lifetime of the Proposed Development and after the closure of the Site, the following measures will be implemented:

- Construction works should begin outside of the main breeding season (1st March to 31st August) to allow peregrine falcon time to habituate to the Proposed Development;
- All personnel operating on-site will be made aware of the legal protection afforded to peregrine falcons, and biodiversity signage will be erected throughout the quarry;
- The existing northern and northeastern rock faces will be retained and optimised where possible (i.e. both areas will be extracted as early as possible during construction to create a long-term dormant rock face). This will ensure older suitable faces are maintained for peregrine falcon throughout the construction, operation and restoration phases. A nest box will be installed along the northeast quarry face after quarrying in this area has ceased;
- As works progress through the Site, additional alternative nest ledges and/or artificial boxes will be created at two-three locations near the top of the developing cliffs on the northeastern and eastern rock faces
- If peregrine falcon are identified colonising any areas to be impacted by the Proposed Development, then works will stop within the identified area. An appropriate undisturbed buffer zone will need to be established for the duration of the breeding season or until the chicks have fledged and left the nest, which will be confirmed by the ECoW;
- Should a peregrine falcon nest be identified on-site, all personnel operating on the Site will be made aware of the presence and location of the nest. Access will be restricted below cliffs which are actively being utilised by peregrine falcons. This will be done using fencing and/or other appropriate barriers;
- Infrastructure will not be installed, nor any material stockpiled, within 25-50m of rock faces supporting peregrine falcon. Vegetation should also be managed within this 25-50m area to keep vegetation away from nest locations. All vegetation management or required barrier installation will take place outside of the breeding bird season;

- No blasting should occur along the western rock face during the main breeding season (unless the breeding status of peregrine falcon is confirmed to have failed by an experienced raptor ecologist);
- A buffer of 25-50m will be implemented from any identified peregrine falcon nests on-site if works are required during the breeding season (in consultation with a raptor expert). This distance may be increased if this buffer is deemed insufficient and peregrine falcon become disturbed due to works on-site;
- As part of the restoration plan for the Site, the quarry ledges will be left in place and unplanted. This will provide a suitable breeding habitat for peregrine falcon;
- The breeding status of peregrine falcon will be established immediately prior to construction or extraction if works are required within 25-50m of the breeding nest cliffs during the main breeding period; and,
- An annual peregrine falcon monitoring programme will be established during the construction and extraction phases of the Proposed Development to establish the potential effects, if any, of the Proposed Development on peregrine falcon. It should also be established if peregrine falcon occupy the Site during the winter. This monitoring programme will be undertaken with a suitably qualified raptor expert, quarry operators and the NPWS.

4.2.3 Winter Birds

No mitigation measures are considered necessary for wintering birds during the construction, operation or restoration phases of the Proposed Development.

4.3 Restoration Plan

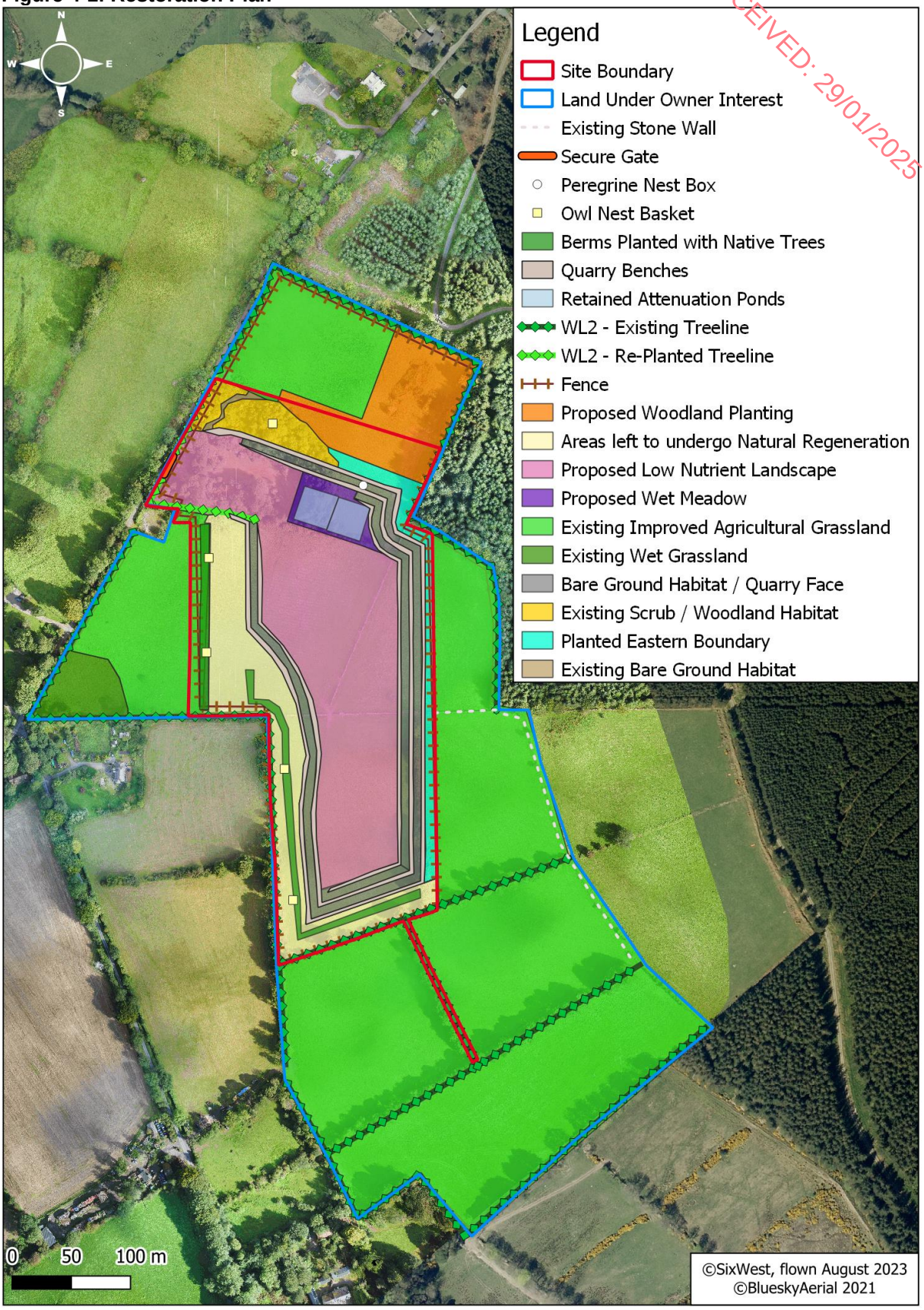
As part of the restoration plan for the Site, there will be replacement and enhancement planting measures. These measures include:

- The planting of a ca. 1.03ha mixed broadleaved woodland during the construction phase of the Proposed Development;
- The construction and planting of two screening berms along the southern and western boundaries of the Site. These berms will be ca. 3m high and 11m wide, and total a combined length of ca. 513m;
- The planting of the eastern boundary of the Site amounting to ca. 0.39ha; and,
- The re-planting of two treelines removed to facilitate the Proposed Development after operations have ceased.

The woodland area, screening berms and re-planted treeline will be planted with native species. These habitats will provide potential nesting and foraging habitats for birds on-site.

Additionally, the retained boundary treelines will be protected from disturbance, including berm construction and quarrying works. A minimum buffer of 5m will be maintained between the treelines and areas of disturbance. This will allow birds to continue to utilise the boundary treelines for foraging and breeding.

Figure 4-1: Restoration Plan



5 CONCLUSIONS

During the bird surveys conducted at the Site, a combined total of 44 bird species were recorded on-site and within the wider surrounding area. The species recorded are considered to be common within the Irish countryside and none of these species were present in significant numbers. Of these species:

- 30 Green BoCCI listed species – blackbird, blackcap, blue tit, buzzard, chaffinch, chiffchaff, coal tit, dunnock, goldfinch, great spotted woodpecker, great tit, grey heron, hooded crow, jackdaw, jay, long-eared owl, long-tailed tit, magpie, mistle thrush, peregrine, reed bunting, robin, rook, sedge warbler, siskin, song thrush, sparrowhawk, treecreeper, woodpigeon and wren;
- 10 were Amber BoCCI listed non-Annex I species – barn swallow, herring gull, lesser black-backed gull, goldcrest, greenfinch, house martin, sand martin, skylark, starling, and willow warbler; and,
- Four was Red- BoCCI listed non-Annex I species –kestrel, meadow pipit, red kite and swift.

The bird surveys undertaken at the Site confirmed the presence of breeding long-eared owl as well as 27 species classified as '*Possible Breeding.*' These species displayed territorial behaviour (singing, calling or aggression) within suitable nesting habitats on-site. Buzzards and sparrow hawks were identified as breeding in lands bordering the Site to the east and west.

Previous raptor surveys undertaken at the Site concluded that peregrine falcon were using the Site for feeding and roosting purposes. The updated 2023 and 2024 surveys confirmed that no peregrine falcon are currently using the Site for breeding. However, Marc Ruddock noted the potential for peregrine falcons to utilise the Site once the quarry benches have become established.

The on-site habitats are considered to provide suitable habitat for breeding birds, which are common across Ireland. Therefore, mitigation measures will be implemented to ensure no impacts occur to breeding birds during the construction phase. Overall, it was concluded that the Proposed Development would not have a significant impact on breeding birds given the proposed planting and habitat creation measures for long eared owl and the passerines occupying the Site.

In addition, the proposed quarrying activities on-site will create suitable nesting habitat for peregrine falcon, which have been recorded within the wider area.

Finally, it should be noted that the on-site habitats are not considered to be of importance to wintering bird species and it is not considered that the Proposed Development will have a significant impact on any wintering bird species.

6 REFERENCES

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[4] E. Delaney, "Terrestrial Ecology - Ecological Impact Assesment," Delichon Ecology, 2021.

[5] C. Cardiff, "Donard Quarry, Co. Wicklow Raptor Survey 21/06/2022," CC Ornithology, 2022.

[6] J. Fossitt, "A Guide to Habitats in Ireland," 2000.

[7] J. Ferguson-Lee, R. Castell and D. Leech, A Field Guide to Monitoring Nests, Norfolk, United Kingdom: British Trust for Ornithology, 2011.

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[10] G. Gilbert, A. Stanbury and L. Lesley Lewis, "Birds of Conservation Concern in Ireland 4: 2020-2026," 2020.

[11] R. Fuller, "Relationships between grazing and birds with particular refernce to sheep in the British Uplands," British Trust for Ornithology, 1996.

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APPENDIX 6-4

A raptor survey was conducted Dr Marc Ruddock of Bird Surveyors Ltd in support of this planning application to Wicklow County Council ('WCC') was submitted confidentially to WCC under recommendation of the professional specialist given the sensitive biodiversity data within the report.

APPENDIX 6-5

January 2025

Reptile Survey Report

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

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Job Number: E2123

Prepared By: Emily Cazzini **Signed:** Emily Cazzini

Checked By: Sarah de Courcy **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	29/01/2025	Reptile Report	Final	EC	SDC	DH

Reptile Survey Report

Proposed Quarry Re-Commencement and Extension

Herbie Stephenson Limited

Deerpark, Donard, Co. Wicklow

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1 INTRODUCTION

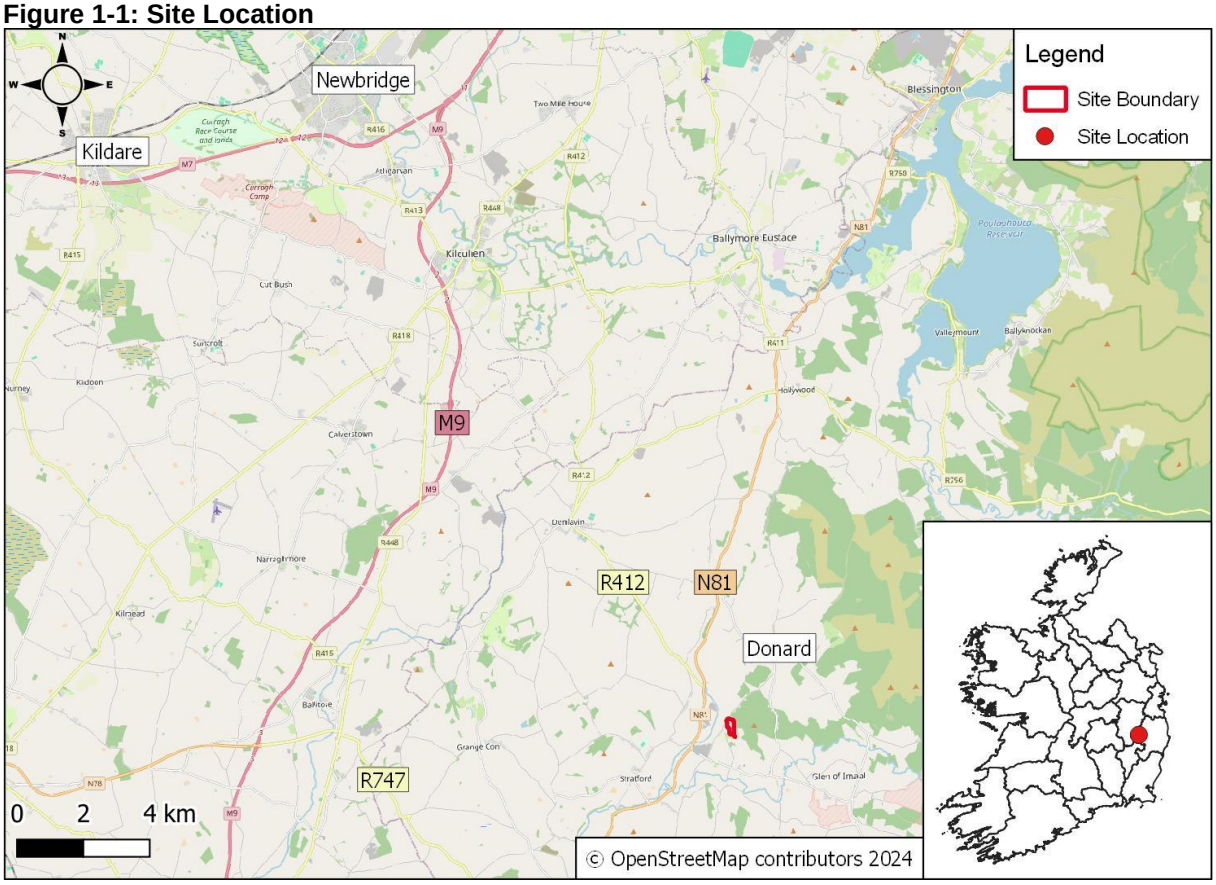
Malone O'Regan Environmental ('MOR Environmental') were commissioned by Mr Herbie Stephenson ('the Applicant') to undertake reptile surveys to assess the likely effects, if any, from the proposed re-commencement of quarrying at an old rock quarry in Deerpark, Donard, Co. Wicklow, to a level of 165 metres above Ordnance Datum ('mAOD') along with the extension of the quarry into reserves to the south and east of the historic quarry and all ancillary works (the 'Proposed Development') on reptiles.

Full details of the description of the Proposed Development can be found in the Environmental Impact Assessment Report ('EIAR') submitted as part of the overall planning application. This Reptile Report is an appendix to Chapter 6 – Biodiversity of the EIAR and should be read in conjunction with this chapter.

The Proposed Development will be located on a site covering an area of circa ('ca.') 8.1 hectares ('ha') within the townland of Deerpark and Donaghmore Co Wicklow (Ordnance Survey Ireland Grid Reference ITM 692022, 695358), refer to the redline boundary presented in Figure 1-1 below for context ('the Site'). The Site is located ca. 2.4km southwest of Donard.

The location of the Site is shown in Figure 1-1.

Figure 1-1: Site Location



1.1 Relevant Legislation

Common lizard is one of two native species of reptile found in Ireland. The other native reptile is leatherback turtle (*Dermochelys coriacea*) which is limited to Irish waters and is therefore, not relevant to this report. Common lizard is protected under national legislation, Wildlife Act 1976 and Wildlife (Amendment) Act 2000.

Under this legislation, it is an offence to;

a) Intentionally kill, injure or take (handle) any protected wild animal;

b) Intentionally interfere with or destroy the breeding place or resting place of any protected wild animal;

c) Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by any protected wild animal; and,

d) Possess or control any live or dead specimen or anything derived from a protected species.

The Natural Parks and Wildlife Service ('NPWS') can issue licences for reptiles 'in respect of development' to permit otherwise unlawful activities (identified above) to take place.

1.2 Purpose of Survey Work

The implication of this legislation is that developments and projects need to take account of potential effects on reptiles. In areas where suitable habitat exists, and in the absence of contemporary baseline data existing for this species, survey work is necessary to identify the presence or absence of reptiles on-site and identify the potential impacts, if any, of the Proposed Development and associated works on this species. This enables mitigation, relocation and habitat enhancement to be planned and incorporated into the design of a project. It also ensures that there is no adverse effect on the conservation status of this species at a local level.

This report outlines the survey methods used to establish the presence / absence of reptiles on-site and details the findings of these surveys. It also includes recommendations for mitigation and enhancement as appropriate.

1.3 Statement of Authority

This report was checked by Ms. Sarah de Courcy, Environmental Consultant – Ecology. Sarah is a qualifying member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') and has over 4 years' experience working in ecological consultancy. As part of her role, Sarah has undertaken specialist amphibian and reptile surveys and reports.

The report was approved by Mr. Dyfrig Hubble, Associated Director - Ecology. Dyfrig is a full member of CIEEM and has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of planning applications.

2 METHODOLOGY

2.1 Desk-based Studies

The National Biodiversity Data Centre ('NBDC') website was consulted with regard to common lizard distributions within 10km of the Site [1]. Only records within the last ten years were utilised. The parameter of 10 years was chosen to allow for habitat adaption and modification, it is considered that any records over 10 years old are not representative of the current distribution of common lizard.

2.2 Field Surveys

An initial walkover of the Site was conducted on 8th June 2023 by two suitably qualified MOR Environmental Ecologists. During this walkover, suitable habitat for reptiles was identified within the northern and central portion of the Site. These habitats were located at the edge of the improved agricultural grassland fields and comprised of open and vegetated areas in between scrub and dense bracken habitats. In addition, the stone walls were considered suitable for basking and sheltering reptiles. Reptiles require a mixture of open and vegetated areas to allow for basking opportunities whilst maintaining easy access to shelter and refuge from predators. Refer to Plate 2-1 and 2-2 below for context on the identified habitats.

Plate 2-1: Suitable Edge Habitat for Common Lizards. Photograph taken on 8th June 2023.

Plate 2-2: Suitable Stone Habitat for Common Lizards. Photograph taken on 8th June 2023.

As potential reptile habitat was identified during the initial walkover of the Site and records of common lizard were identified within 10km of the Site during the desk-based studies, presence/absence surveys were undertaken. The survey methodology utilised on-site was based on best practice approaches described by the following guidance documents:

- Chapter 23: Reptiles in *Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring* [2];
- Joint Nature Conservation Committee ('JNCC') - *Herptofauna Worker's Manual* [3];
- JNCC – *Common Standards Monitoring Guidance for Reptiles and Amphibians* [4];
- *Survey Protocols for the British Herpetofauna* [5]*;*
- Froglife – *Reptile Survey*: *An introduction to planning, conducting and interpreting surveys for snake and lizard conservation* [6]; and,
- Transport Infrastructure Ireland ('TII') (formerly National Road Authority ['NRA']) – *Guidelines for Assessment of Ecological Impacts of National Roads Schemes* [7].

A combination of artificial refugia, refugia searches and direct observation was employed.

A total of 44 artificial refugia, consisting of 1m x 0.5m sheets of roofing felt, were placed at regular intervals along transects across the identified reptile habitats; refer to Plate 2-3 and Figure 2-1 below for context. The refugia were placed in areas most suitable for sheltering or basking reptiles, including margins of scrub, rough grassland, bramble and ruderal vegetation. These artificial refugia were numbered and installed on 13th July 2023. The artificial refugia were then left for two weeks prior to the commencement of the surveys. This was to allow material underneath the roofing felt to dieback.

Plate 2-3: Examples of Artificial Refugia utilised on-site

Reptile activity is very dependent on the weather and time of year. As common lizards are ectotherms, they must bask to warm themselves in order to become active. Reptiles require less basking time in April, May and September due to more continuous mid-summer heat. Subsequently, these are ideal months to carry out reptile surveys. If weather conditions are suitable, successful reptile surveys may also be carried out from June to August. Optimum conditions for reptile surveys are intermittent sunshine with little or no wind, especially after a period of cooler or wetter weather. The preferred temperature for reptile surveys is between 10 and 17°C; however, common lizard will bask in temperatures up to 18°C. Therefore, as far as was practically possible, surveying was carried out under these conditions. In total seven reptile surveys were conducted between July and August 2023. Survey dates, times and weather conditions are described below in Table 2-1.

During these surveys, any reptiles above or beneath the artificial refugia were recorded. The surveyor also recorded any reptiles utilising existing refugia on-site i.e., piles of logs, rubble and discarded wood or commuting through vegetation / open areas while conducting the survey. The location, number, age and sex of any reptiles identified during the survey was recorded.

Table 2-1: Reptile Survey Metadata

Date	Survey Times (Start-End)	Temperature (°C) (Start-End)	Wind (Beaufort Scale)	Ground Moisture	Rain	Cloud Cover
26/07/2023	9:10-10:30	13-14°C	5	Wet	Light Rain	66-99%
28/07/2023	09:15 – 10:35	17-18°C	2	Dry	None	0-33%
31/07/2023	08:30 – 10:00	13-14°C	4	Wet	Light Rain	66-99%.
01/08/2023	9:00 – 10:40	14-16°C	2	Wet	None	33-66%
11/08/2023	8:30 – 10:00	15-17°C	2	Wet - Dew	None	66-99%.

Date	Survey Times (Start-End)	Temperature (°C) (Start-End)	Wind (Beaufort Scale)	Ground Moisture	Rain	Cloud Cover
23/08/2023	10:30-11:45	14-16°C	1	Mainly Dry, wet in areas	Light rain started at 11:20	66-99%
08/09/2023	10:30-11:45	23-25°C	1	Dry	None	0-33%

2.2.1 Survey Limitations

The reptile surveys were carried out from July to early September which is within the optimum time frame for reptile surveys. The survey visits were completed during suitable weather temperatures above 9°C. It should be noted that the weather in July and August 2023 was particularly wet. Wet weather caused waterlogging on a number of artificial refugia (see Table 3.3 below), such waterlogging could prevent reptiles from using the refugia.

Figure 2-1: Locations of Artificial Refugia and Transects

3 RESULTS

3.1 Desk-based Studies

Table 3-1 provides a summary of records of common lizard within 10km of the Site over the last 10 years [1].

Table 3-1: NBDC records of Common Lizard within 10km of the Site [1]

Date of Record	Number of Observations	Grid Reference	Distance from the Site
27/03/2020	1	S957974	4km NE
22/04/2015	1	S995888	9.7km SE
26/07/2020	1	T001889	10km SE

3.2 Field Survey

Out of the seven surveys undertaken at the Site, no reptiles or evidence of reptiles were identified.

The results of the field surveys are summarised in Table 3-2 and Table 3-3 below. It should be noted that evidence of other species on the artificial refugia was also recorded during the surveys. The following legend should be used when interpreting the results of Tables 3-2 and 3-3.

Legend	
Reptiles Present	
Reptiles Absent	
Refugia Inaccessible	
Refugia Missing	
Waterlogged	**W**
Fox Scat	**FS**
Common Frog	**CF**
Deer Droppings	**D**

Table 3-2: Reptile survey results for Artificial Refugia 1-22

Date Observed	Refugia No.																					Observations
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
26/07/2023	W		W	W		W				W			W				W		W			• No reptiles observed; • Water pooling on Refugia 1,3,4,6,10,13,17 and 19
28/07/2023																						• No reptiles observed
31/07/2023										D												• No reptiles observed; • Deer droppings were identified near Refugia 10
01/08/2023			W										W									• No reptiles observed; • Water pooling on Refugia 3,13,17 and 20
11/08/2023	W		W			W			W				W				W					• No reptiles observed; • Water pooling observed on Refugia 1,3, 6, 9,13, 17 and 20.
23/08/2023		W	W														W					• No reptiles observed; • Water pooling observed on Refugia 2 ,3 and 17
08/09/2023																						• No reptiles observed.

Table 3-3: Reptile Survey Results for Artificial Refugia 23-44

Date Observed	Refugia No.																					Observations
	23	24	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
26/07/2023						**W**										**W**						• No reptiles observed; • Water pooling recorded on Refugia 29 and 39
28/07/2023																						• No reptiles observed.
31/07/2023																						• No reptiles observed;
01/08/2023															**W**	**W**	**CF**					• No reptiles observed; • Common Frog identified under Refugia 40; • Water pooling was recorded on Refugia 38 and 39.
11/08/2023											**W**	**W**			**W**	**W**	**W**					• No reptiles observed; • Water pooling was recorded on Refugia 33, 34, 38,39 and 40.
23/08/2023							**FS**															• No reptiles observed; • Fox scat identified beside Refugia 30.
08/09/2023															**W**							• No reptiles observed; • Water pooling was recorded on Refugia 38.

4 EVALUATION AND CONCLUSION

The evaluation considers information about the characteristics of the species population and distribution, the availability of suitable habitats and the findings of the field studies as recommended by Beebee and Grayson [8]. This information has been interpreted using professional judgement to determine the potential value of the on-site habitats for common lizard.

In terms of biodiversity conservation value, identified receptors have been valued using the Transport Infrastructure Ireland ('TII') Scheme [7], using the following scale:

- International importance;
- National importance;
- County importance (or vice-county in the case of plant or insect species);
- Local importance (higher value); and,
- Local importance (lower value).

The common lizard is relatively widespread throughout Ireland, residing in areas of bogland, coastal habitat, grasslands, and upland habitats. Within these habitats, lizards require a mixture of open and vegetated areas to allow for basking opportunities whilst maintaining easy access to shelter and refuge from predators. A high concentration of invertebrates is also an indicator of optimal habitats. However, it should be noted that reptile populations are likely under-studied and under-recorded and limited information is available on their distribution.

Suitable habitat for reptiles was identified on-site and within the lands under ownership interest to the north. These habitats were located at the edge of improved agricultural grassland fields and comprised of open areas in between bracken/scrub and stone wall habitats. No reptiles were identified during any of the seven surveys. Therefore, no specific mitigation for reptiles will be incorporated into the Proposed Development design/operations. However, it is important to note that the proposed works must still comply with the Wildlife Act 1976 and Wildlife (Amendment) Act 2000 as outlined in Section 1.2. Therefore, if any reptiles are identified during the construction or operational phases of the Proposed Development, especially during the vegetation clearance works, the Ecological Clerk of Works ('ECoW') will be contacted for advice.

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