CHAPTER 5

BIODIVERSITY

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INTRODUCTION

5.1 This chapter provides an Ecological Impact Assessment (EcIA) undertaken by SLR Consulting Ireland (SLR) to inform the wider Environmental Impact Assessment (EIA) process and preparation of the Environmental Impact Assessment Report (EIAR) on the likely significant impacts on biodiversity from the proposed recommencement and deepening of the existing limestone quarry and adjacent processing area at Aghamore Near, Aghamore Far and Carrownamaddoo townlands, Co. Sligo.

5.2 A previous Planning Application was submitted to Sligo County Council (Plan File Ref. No. 18/345 & ABP Ref. 305821-19) in August 2018. SLR Consulting Ireland (SLR) was subsequently commissioned by Lagan Bitumen Ltd. in 2019 to prepare the response to a Request for Further Information (RFI) from Sligo County Council (Planning Reference No. 18/345) for the proposed continued use and deepening of the existing permitted quarry at Aghamore, Co. Sligo. Two of the relevant RFIs to Biodiversity concerned bats and raptors. For completeness they have been included as Appendix 5-B and 5-C.

5.3 Following this, An Bord Pleanala refused permission for the proposed development on the 30th June 2020. This chapter has therefore been updated to support the reapplication for a similar development to that originally proposed and to provide additional information to address the previous reasons for refusal of permission.

Site Description

5.4 Aghamore Quarry ("the Site") is located in the townlands of Aghamore Near, Aghamore Far and Carrownamaddoo, approximately 3.5 km south of Sligo Town. The quarry is set in an agricultural landscape with the most common land use in the surrounding area being pasture for grazing animals. There are also a number of industrial type developments in the vicinity of the site.

5.5 The Site comprises two sections, the 'Quarry Area', which relates to the existing quarry extraction area, and the existing aggregate 'Processing Area'. A local road bisects the two areas (see **Figure 5.2**), with the Quarry Area located to the west and the Processing Area to the east of this road.

5.6 The Quarry Area is screened by planted trees at the entrance and a short distance along either side of the access track. The northernmost corner of the Quarry Area is also well vegetated with dense scrub and well-structured field boundaries. The remaining length of the Quarry Area perimeter is delineated by stock proof fencing with occasional semi-mature trees present – refer to Planning Drawing 3. The quarry void is itself largely unvegetated with occasional ruderal species growing sparsely.

5.7 The Processing Area is also surrounded by trees, likely to have been planted, but now many are mature with a developed ground flora. The Processing Area itself, is located on a mix of hardstanding, hardcore stone and other compacted substrates. The made ground consists of inert material, with limited pioneer vegetation species.

Details of the Proposed Development

5.8 The applicants are seeking planning permission for the following development:

- Recommencement of quarry operations within the previously permitted quarry extraction area (c. 10.9ha);

- Deepening of the previously permitted Quarry Area by 2 no. extractive benches from c. -21m OD to -50m OD;
- Recommencement of aggregate processing (crushing and screening) within the existing Processing Area, located to the east of the local road that bisects the site;
- The provision of a settlement lagoon (c. 2,830m2);
- The provision of 2 no. wheelwashes;
- The Provision of a double stacked portacabin office;
- The Provision of a wastewater treatment system;
- Additional stockproof / trespass proof boundary fencing;
- All within an application area of c. 22.5 Ha.

5.9 Upon the cessation of extraction operations, it is proposed to return the worked lands to natural habitat[1] after-uses. Where feasible, restoration of exhausted and redundant areas will be carried out at the earliest opportunity. However, it is envisaged that the majority of restoration proposals will only be carried out after extraction operations at the site have ceased and will be undertaken over a two-year period.

5.10 The proposed development / project is described in more detail in Chapter 2 of the Environmental Impact Assessment Report (EIAR) prepared for this planning application.

Purpose of this Report

5.11 The purpose of this Biodiversity chapter is to describe the baseline ecological conditions at the Site and to identify potential significant effects associated with the proposed project. Where necessary appropriate mitigation measures will be set out to reduce identified effects.

5.12 This chapter forms part of the EIAR that will be submitted with the planning application to assist the competent authority, in this case Sligo County Council, to carry out an Environmental Impact Assessment (EIA) of the proposed project.

Evidence of Technical Competence and Experience

5.13 SLR ecologist Nicola Faulks MCIEEM, CEcol., prepared this chapter and carried out the supporting field surveys in August 2020. Elaine Dromey MCIEEM carried out the technical review of this chapter and the 2017 site surveys for biodiversity. The 2016 site survey was undertaken by Steve Judge (now retired), an Associate Ecologist at SLR Consulting Ireland with 17 years' experience in ecological and environmental consultancy.

5.14 Nicola Faulks holds a BSc in Plant Biology from University of East Anglia and an MSc in Environmental Consultancy from Newcastle University. She is a full and chartered member of the Chartered Institute of Ecology and Environmental Management and has worked as an ecological consultant for 16 years.

[1] Natural habitat (lake, wetland – nature conservation) as defined by the EPA Environmental Management Guidelines for the Extractive Industry (2006)

5.15 Elaine Dromey holds a BSc in Earth Science from University College Cork and an MSc in Vegetation Survey and Assessment from the University of Reading, UK. She is a full member of the Chartered Institute of Ecology and Environmental Management and has worked as an ecological consultant for 16 years.

Relevant Legislation and Policy

Legislation

5.16 The main pieces of legislation in terms of ecology in regard to developments such as this are as follows;

- The EIA Directive (2014/52/EU)
- The Habitats Directive (92/43/EEC)
- The Wildlife Acts 1976 to 2012
- The Floral (Protection) Order 2015

5.17 The details of these are summarised in **Appendix 5-A:** Relevant legislation and Planning Policy**,** of this report.

Local Policy

5.18 The relevant local planning policies have been extracted from the Volume 1 of Sligo County Development Plan 2017 – 2023 and have been placed in **Appendix 5-A** of this report. These policies are concerned with the protection and/or enhancement the ecology of County Sligo. In broad terms these objectives and policies aim to ensure correct measures are put in place to identify and protect natural heritage and important environmental features within Sligo County.

ADDITIONAL INFORMATION

5.19 As outlined in Chapter 1, a planning application was submitted to Sligo County Council (Plan File Ref. No. 18/345 / ABP Ref. 305821-19) in August 2018 for similar development to that proposed as part of this application. In October 2019 Sligo County Council granted planning permission for the development (subject to 23 no. conditions). 2 no. third party appeals of the decision by Sligo County Council to grant permission for the proposed quarry development were made to An Bord Pleanala (ABP-305821-19). An Bord Pleanala refused permission for the proposed development on the 30th June 2020 for the 2 no. reasons – refer to Chapter 1 for further details.

5.20 In order to comprehensively address the reasons for refusal, and further comments contained within the An Bord Pleanala Inspectors Report a number of additional surveys / site investigations, field work and assessments have been carried out.

5.21 This Chapter 5 of the EIAR has been updated as follows:

- In 2020 a walkover survey was undertaken by Nicola Faulks (MCIEEM) as the application boundary had changed, and the field survey needed to include the Processing Area to the east of the road and to include Aghamore Stream, from upstream of the Site down to Lough Gill where accessible. The site visit also included an updated survey of the Quarry Area, for completeness;

- An additional bat survey was carried out in August 2020;

- An additional breeding bird survey was carried out in May 2021;
- Aquatic Surveys of the Aghamore Stream were carried out in September 2020 and November 2020.

Methodology

5.22 The methods used to carry out the survey of the Site, to determine the ecological value and to prepare the chapter is outlined in this section.

Scope

5.23 The scope of this report is to describe the baseline ecological conditions within the Site and the potential effects that could arise from the proposed development. This report will determine the zone of influence of the development and if important ecological features could be significantly affected. Important ecological features include sites designated for nature conservation, protected habitats and species, as well as habitats and species of principal importance for conservation of biodiversity. An assessment of the effects of the proposed development on these features will be carried out and mitigation measures will be recommended where deemed necessary.

Zone of Influence

5.24 The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects because of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

5.25 The Zone of Influence for a project can be identified through a review of the nature of the proposed development, known impacts likely to arise because of the development type, distance from ecologically sensitive sites and the features of interest of sites designated for nature conservation. The desk study carried out for the proposed development includes identification of the potential zone of influence.

5.26 The potential Zone of Influence for a project such as the recommencement of a limestone quarry and processing plant, within a brownfield/existing quarry site is not generally considered likely to extend significantly beyond the Site, largely due to the scale of the project combined with the enclosed and localised nature of the excavation work and the proposed restoration (phased over time where possible). However, the zone of Influence may be increased for this project as there is the potential for impacts on surface water and ground water though aquifers which form an ecological connection to features outside this area, that in the absence of mitigation, may be significantly affected by the proposed development.

5.27 The potential zone of influence has therefore been set at 5 km, the distance beyond which, no hydrological or other effects are anticipated.

Baseline Data Collection

Desk Study

5.28 A desk study was carried out to collate the available existing ecological information on the Site. The Site and the surrounding area were viewed using existing available satellite imagery (Google + Bing 2020).

5.29 The National Parks and Wildlife Service (NPWS 2020) and National Biodiversity Data Centre (NBDC 2020) online resources were accessed for information on sites designated for nature conservation and on protected habitats and species. Only records for the past 15 years are considered within this report as older records are unlikely to still be relevant given their age and the changes in land management that has occurred in the intervening period. Environmental Protection Agency (EPA 2020) Maps was accessed for other environmental information, such as surface water features, relevant to preparation of this report.

5.30 Sligo County Council's website was accessed for information on relevant planning policy while the planning portal (Sligo County Council 2021) was accessed for information on other proposed or permitted developments within the Site and immediate surrounding area.

5.31 Birds of Conservation Concern in Ireland (BoCCI), published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened. The BirdWatch Ireland website (BoCCI 2020) was accessed for information on birds of conservation concern.

5.32 The conservation status of mammals within Ireland and Europe is evaluated using one or more of the following documents - Wildlife Acts (1976 - 2012); the Red List of Terrestrial Mammals (Marnell *et al.*, 2009); and the EU Habitats Directive 92/43/EEC.

5.33 The development design drawings and the project description provided within other chapters of the EIAR also informed the desk study. The chapters of the EIAR reviewed during the desk study include Chapter 7 Water, Chapter 8 Air, Chapter 10 Noise and Chapter 13 Landscape. The Natura Impact Statement prepared for the development was also reviewed during the desk study.

Consultation

5.34 Irish Raptor Survey Group (IRSG) was contacted on 19 September 2017 for records of raptors breeding within or in close proximity to the quarry and extension area. The IRSG responded by email on 19th September 2017. The records provided by the IRSG are discussed later in this report.

5.35 A response was received from the Inland Fisheries Ireland via email on 1st December 2020 (Aisling Donegan – Senior Fisheries Environment Officer). The response reiterated that Aghamore Stream flows into the Lough Gill SAC and so the following impacts relevant to this chapter should be assessed:

- Fish spawning and nursery areas
- Passage of migratory fish
- Biological diversity
- Ecosystem structure and functioning

5.36 The response also stressed that the IFI guidance document "Requirement for the Protection of fisheries habitat during construction and development work" (Inland Fisheries Ireland 2016) should be followed. They also emphasise that there must be no spread of invasive species as a result of the development.

Field Survey(s)

5.37 The fieldwork carried out to inform the preparation of this report is discussed in the following sections. It is worth noting that the initial field surveys were undertaken in 2016 by Steve Judge MCIEEM, the initial site walkover only included the Quarry Area.

5.38 A second site walkover was undertaken in 2018 by Elaine Dromey MCIEEM. The objective of the second site visit was to undertake a walkover survey to better understand the biodiversity of the Site and to determine its ecological value.

5.39 In 2020 a third walkover survey was undertaken by Nicola Faulks (MCIEEM) as the application boundary had changed, and the field survey needed to include the Processing Area to the east of the road and to include Aghamore Stream, from upstream of the Site down to Lough Gill where accessible. The site visit also included an updated survey of the Quarry Area, for completeness.

Walkover Survey

5.40 For the most recent survey, the Site was visited on 10th and 11th August 2020, the walkover survey was carried out by Nicola Faulks. The survey was carried out in dry weather conditions with a light F2[2] breeze. The temperature was ca. 22°C and conditions were generally sunny with cloud cover that varied throughout the days. The objective of the site visit was to walk the whole Site (Quarry and Processing Area) to describe and evaluate if any of the ecological features recorded during the 2016/17 surveys had changed.

5.41 Habitats were identified and classified using '*A Guide to Habitats in Ireland*' (Fossitt, 2000) 2020 visits. The dominant plant species present in each habitat type were recorded. Species nomenclature follows New Flora of the British Isles (Stace 2019) for scientific and English names of vascular plants.

5.42 Incidental sightings or evidence of birds, mammals or amphibians were noted. Trees or structures suitable for bat roosts within the Site and potential suitable bat foraging habitat were also noted and where found, additional surveys were undertaken to assess the bat assemblage and usage of the survey area (undertaken in 2018).

Bat Surveys

5.43 The first daytime bat roost assessment was undertaken in 2017. The habitats present within the Site were evaluated for potential roosting features (PRFs) such as trees with holes and cavities, cracks and splits in major limbs, loose bark, ivy cover and dense epicormic growth, were assessed from the ground and recorded where present. Trees with features suitable for roosting bats were categorised using the criteria set out in Bat Conservation Trust (BCT) Guidelines (Collins, 2016). The habitats present within the Site were also assessed for their potential value to commuting and foraging bat species.

5.44 In 2020, as the Processing Area was included in this assessment, and to more fully understand which species of bat are present in the area and how they may be using the Site, a daytime preliminary roost assessment for bats was undertaken of the Processing Area and adjacent habitat. The assessment again followed the methodology detailed in Collins (2006) and comprised an inspection of all accessible areas (trees, cliffs and buildings) to identify features likely to be used by bats.

[2] Force 2 on the Beaufort Wind Scale https://www.met.ie/climate/wind.asp [Accessed 24 August 2020]

5.45 The suitability for the habitat to support foraging/commuting bats and connectivity to the wider area was also assessed. In order to provide additional information against which to assess the likely use of the habitats for foraging and commuting a static bat survey was also undertaken.

5.46 Two Anabat Express remote static bat recorders were placed out on the site (Figure 5-2). One was located within the Quarry Area and one in the Processing area. Both detectors were left in place over two nights 10th – 13th August 2020. The night of the 10th - 11th August had heavy rain, however the night of the 12th – 13th was dry warm and with no wind. The results of the remote recording was analysed using the Kaliedoscope Pro software, using automatic recognisers that use an algorithm and a reference library of calls to assign each call a species. The output from the Kaliedoscope Pro software was then manually checked while compiling the results, for quality control purposes.

Bird Survey

5.47 The breeding bird survey was undertaken in May and June 2018 and was timed to target breeding peregrine *Falco peregrinus* and kestrel *Falco tinnunculus* as previous records showed these species have previously breed at Aghamore quarry. The survey method used was followed the guidance set out in Hardy et al (2013).

5.48 The two visits were undertaken two weeks apart during the likely period of late incubation/small young (visit one - May) and presence of small to large unfledged young (visit two - June). During this period adult activity at the site would be expected to be high through provisioning, territorial behaviour and nest protection from predators and thus their detectability would be high.

5.49 An update survey to assess if raptors were breeding within the Quarry Area was undertaken in May 2021. The surveyor used a scope in order to identify if any nesting or likely breeding activity was being undertaken on the quarry cliffs at the time of survey.

Otter survey

5.50 During the 2020 site visit, an otter survey of the Aghamore Stream was undertaken. A non-invasive survey was undertaken in order to negate the need for a survey licence. The surveyor was able to walk the length of the Aghamore Stream (along the banks and in the channel shown on Figure 5.3) in order to search for signs of otter presence. Features which indicate presence include spraints, footprints, holts, slides, direct sightings and lie-ups. During the survey, if fresh evidence of otter had been found, the surveyor would have immediately withdrawn to prevent disturbance.

Aquatic Survey

5.51 A biological assessment of surface water quality was undertaken of Aghamore Stream, in September 2020 and again (at different location points) in November 2020. Both surveys involved sampling predefined sampling points, both upstream and downstream of the effluent discharge point for Aghamore quarry (Figure 5.3). The water quality assessment was undertaken using the benthic macroinvertebrates as bioindicators. A range of physical metrics were recorded at each sample point: average depth, average width, meso-habitat type and substrate characteristics. Chemical characteristics of the water were also measured: dissolved oxygen, temperature, conductivity and pH.

5.52 For the invertebrate sampling, two-minute kick samples and one minute stone wash samples were taken at each monitoring location. The sample nets were emptied and rinsed into a sorting tray for analysis. All macro-invertebrate specimens were isolated and identified to family or genus level in the field. Where individuals were not identifiable in the field, biological samples were taken and preserved in 70% alcohol solutions. These samples were brought to the laboratory for further analysis under a light microscope.

5.53 Identification of specimens was carried out to the level required for the EPA Q-Rating methodology (McGarrigle et al., 2002). Based on the relative abundance of each indicator group, a biotic index (Q Value) was determined based on the biological assessment procedure used by the Environmental Protection Agency (McGarrigle et al., 2002) and European Communities Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009. The reports are contained within Chapter 7: Water, Appendix 7.5.

Limitations

Desk Study

5.54 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been carried out using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

Field Survey(s)

5.55 There were no limitations encountered during the field survey. The survey was carried out in suitable weather conditions and during the optimal season for terrestrial habitat surveys (August 2020). All areas of the Site were generally accessible. Exceptions to this were the base of the Quarry Area which was full of water at the time of survey.

5.56 For the survey of Aghamore Stream, the survey was undertaken after a period of relatively dry weather, so footprints and spraint would have been visible above the waterline.

Assessment Approach

5.57 The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2018).

Important Ecological Features

5.58 Ecological features can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

Determining Importance

5.59 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International (European);
- National (Ireland);
- County (Sligo)
- Townland (Aghamore Near, Aghamore Far and Carrownamaddoo);
- Local (intermediate area between Site and Townland); and
- Site (the development area).

5.60 The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this report.

5.61 In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include: species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 - 2018 and Birds of Conservation Concern (Colhoun & Cummins 2013).

5.62 The approach to impact assessment, as set out in CIEEM guidelines, only requires that ecological features (habitats, species, ecosystems and their functions/processes), that are considered to be important and potentially affected by the proposed development are carried forward to detailed assessment. It is not necessary to carry out detailed assessment of receptors that are sufficiently widespread, unthreatened and resilient to impacts from the proposed development and will remain viable and sustainable.

5.63 For the purposes of this report ecological features of Local importance or greater and/or subject to legal protection have been subject to detailed assessment. Effects on other ecological features are considered unlikely to be significant in legal or policy terms.

Impact Assessment

5.64 The impact assessment process involves the following steps:

- identifying and characterising potential impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required); and
- identifying opportunities for ecological enhancement.

5.65 When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

5.66 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland.

5.67 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

Significant Effects

5.68 The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

Cumulative Effects

5.69 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

5.70 Other plans and projects that should be considered when establishing cumulative effects are:

- proposals for which consent has been applied but which are awaiting determination;
- projects which have been granted consent, but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- developments specifically referenced in a National Policy Statement, a National Plan or a Local Plan.

Avoidance, Mitigation, Compensation and Enhancement

5.71 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

5.72 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

5.73 It is important to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

Baseline Ecological Conditions

5.74 This section of the chapter sets out the baseline ecological conditions at the Site using the findings of the desk study and surveys.

Designated Sites

5.75 The sites designated for nature conservation within 5 km of Aghamore Quarry are discussed in the following section. The 5 km radius search area was selected for the Natura Sites due to the hydrological links surface and groundwater, between the Site (Aghamore Stream and Lough Gill SAC, Ballysadare Bay SPA/SAC, Cummeen Strand SPA and Cummeen Strand/Drumcliff Bay). The sites designated for nature conservation found during this search are shown on **Figure 5-1**.

5.76 The quarry at Aghamore Near, Aghamore Far and Carrownamaddoo townlands is not within a site designated for nature conservation or subject to any nature conservation designations. (**Figure 5-1**).

Natura 2000 Sites

5.77 There are seven Natura 2000 sites within 5 km of the boundary of the application area. A summary description of each site is set out below. The information about each site has been downloaded from the NPWS Protected Sites in Ireland Page (NPWS 2020).

Lough Gill SAC (001976)

5.78 Lough Gill SAC, located at its closest point, 365 metres north east from the access track to the Processing Area, or 620 metres north east of the Quarry Area. Lough Gill SAC is described as an important example of a lake which appears to be naturally eutrophic. Quality generally good, though blooms of blue-green algae in recent years indicate some artificial enrichment. Significant areas of alluvial forest occur along the Garvoge River (*Osmunda - Salicetum atrocinerea* type) and at the mouth of the River Bonet (*Carici remotae - Fraxientum* type). Old oak woodland of varying quality is well scattered along the shoreline and on some of the islands and is an important example of this habitat for western Ireland.

5.79 At least six Red Data Book plant species have been recorded from site. Site has three species of lamprey and white clawed crayfish *Austropotamobius pallipes*. The lake and its associated rivers support an important population of Atlantic salmon *Salmo salar*. Otter *Lutra lutra* has a good population within the site. Of minor importance for birds though the site has a small breeding colony of common tern *Sterna hirundo*. A wide range of rare or scarce invertebrates are known from the site, as well as several Red Data Book mammal species, including pine marten *Martes martes*.

5.80 The Aghamore Stream, which flows through the Site, flows into the Lough Gill SAC, so a hydrological linkage exists between the Site and this SAC.

Union Wood SAC (000638)

5.81 This SAC is located 2.79 km to the south west of the site at its closest point. Located on the eastern bank of Ballysadare River, this site consists of fairly pure, open woodland dominated by sessile *oak Quercus petraea*, with some downy birch *Betula pubescens*. The soils of the area are acidic and the ground flora is typical of an acidic woodland. The woodland also supports a diverse fauna including pine marten *Martes martes* and red squirrel *Sciurus vulgaris*.

Ballysadare Bay SAC (000622)

5.82 This SAC is located 3.30 km southwest of the Site. This SAC contains extensive intertidal sand and mud flats, with an extent of approximately 1,500 ha. The mud provides an abundance of food for wildfowl, in the form of colonising plants such as Eelgrass *Zostera marina* and Tasselweed *Ruppia maritima*, as well as numerous species of invertebrates on which both wildfowl and waders feed. Well-developed salt marshes occur at several locations around the bay. There is also a large sand dune system at Strandhill which has been relatively undisturbed by grazers. The dune system is highly dynamic, with the tip of the peninsula actively growing and displaying a good, through limited, example of embryonic dunes.

Ballysadare Bay SPA (004129)

5.83 Located 3.30 km east from the site, Ballysadare Bay SPA and Cummeen Strand SPA form part of the complex of SPA sites in the wider Sligo Bay. The bay contains extensive intertidal sand and mudflats. The flats support good populations of macro-invertebrates which are important food items for wintering waterfowl. The site is of special conservation interest for light-bellied Brent goose, grey plover, dunlin, bar-tailed godwit and redshank.

Unshin River SAC (001898)

5.84 This river-based SAC is located 3.70 km south west of the Site at its closest point. The Unshin River runs from Lough Arrow north to Ballysadare Bay, Co. Sligo. The river is largely undrained and unaltered along much of its course. The marginal vegetation associated with the river is also included in the site, along with other semi-natural habitats adjacent to the river (included in order to enhance its protection). The Unshin River supports an excellent example of floating river vegetation. The diversity of aquatic macrophytes is exceptional, and to a certain extent the unusual combinations and richness of species can be accounted for by the good quality water being discharged from Lough Arrow upstream.

Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627)

5.85 Located 4.41 km north of the Site, this large coastal SAC encompasses two large shallow bays, Drumcliff Bay and Sligo Harbour, and both Ardboline and Horse Island. The dominant habitats on the site are estuaries and intertidal sand and mud flats. Sligo Harbour receives the waters of the Garavogue River, which flows from Lough Gill, while Drumcliff Bay receives the Drumcliff River which flows from Glencar

Lough. At low tide extensive areas of intertidal flats are exposed in both of these sheltered estuarine bays.

5.86 This site is quite diverse, with a range of habitats including, fixed dues, marram dunes, orchid-rich calcareous grassland, juniper scrub and embryonic shifting dunes.

Cummeen Strand SPA

5.87 This site lies 4.80 km north of the Site and is defined by the shallow bay which stretches from Sligo Town, westwards to Coney Island. At low tide, extensive sand and mud flats are exposed. These support a diverse macro-invertebrate fauna which provides the main food supply for the wintering waterfowl. The site is of special conservation interest for the following species: light-bellied Brent goose, oystercatcher and redshank. Cummeen Strand also supports important concentrations of wintering waterfowl.

Natural Heritage Areas and Proposed Natural heritage Areas (pNHA)

5.88 The (p)NHA sites are listed below. Those with the same names as the Natura 2000 sties generally share similar extents/boundaries, habitats and species; therefore, have not been described again in detail.

- Lough Gill pNHA (001976)
- Slieveward Bog NHA (001902) This site is approximately 4.6 km south – west of the quarry at its closest point and is designated for peatlands and is vulnerable to land drainage schemes, overgrazing, afforestation and erosion.
- Ballysadare Bay pNHA (000622)
- Union Wood pNHA (000638)
- Ballygawley Lough pNHA (001909) 2.4 km south – west – a citation for this site could not be found but is assumed to be a natural eutrophic lake with *Magnopotamion* or *Hydracharition* type vegetation, and possibly associated bog woodland.
- Lough Dargan pNHA (001906) is approximately 3.9 km south of the quarry boundary at the closest point. A citation for this site could not be found, but it is assumed to be a natural eutrophic lake with *Magnopotamion* or *Hydracharition* type vegetation, and possibly associated bog woodland.
- Unshin River pNHA (001898)
- Cummeen Strand/Drumcliff Bay pNHA (000627)

Habitats

5.89 Figure 5-2 shows the habitats recorded during the ecological survey carried out on 10th and 11th August 2020. The habitats are discussed in detail below and their ecological importance assessed.

ED3 – Recolonising Bare ground

5.90 Within the Quarry Area and the Processing Area, some areas of bare ground have become colonised by a range of primary colonising species which can survive in either waterlogged or drought conditions. Commonly encountered species included procumbent pearlwort *Sagina procumbens*, bird's foot trefoil *Lotus corniculatus*, ribwort plantain *Plantago lanceolata*, colt's foot *Tussilago farfara*, autumn hawkbit *Leodonton Hispidus* and mouse-ear hawkbit *L. officinarum*. In some areas, such as TN3 and TN12, where revegetation is more than 70% on previously worked areas, commonly occurring limestone grassland

species were also found including false oat grass *Arrhenatherum elatius*, fairy flax Linum catharticum, knap weed *Centaurea nigra*, wild carrot *Daucus carota*, oxeye daisy *Leucanthemum vulgare* and carline thistle *Carlina vulgaris*. If left undisturbed, it is likely that these areas would revert to a type of calcareous grassland.

5.91 The species recorded within the ED3 habitat are commonly occurring primary colonising species and are found in a range of habitat types, especially where recent earth movement has taken place or associated with calcareous grasslands. This habitat is relatively common and widespread throughout Ireland especially in quarries, alongside railway lines, and on derelict sites where demolition has taken place. This habitat is evaluated as important at a site level only and so has been scoped out of further consideration in this report.

ED4 – Active Quarry

5.92 Active Quarry is the dominant habitat type within the Quarry Area and can be broadly described as exposed rock faces, stockpiles and bare ground sparsely recolonising with ruderal species. The quarry void also contains standing water (TN 14). This area is largely unvegetated, though since the area has been undisturbed over the last few years, herbs have started to colonise the gravelly areas, with occasional yellow-wort *Blackstonia perfoliate,* common century *Centaurium erythraea*, Euphrasia *Euphrasia spp.* and creeping bent *Agrostis stolonifera* present in areas. Around the edges of the quarry void species such as gorse *Ulex europaeus* and bramble *Rubus fruticosus* agg. are encroaching and re-establishing on areas which were previously worked. Though in most areas, vegetation density was not considered sufficient to map these areas as ED3 – Recolonising Bare Ground.

5.93 The active quarry habitat would be evaluated as important at Site level. The active quarry will continue to operate as previous and is not expected to be significantly affected by the proposal. Active quarry is scoped out of this assessment.

FW1 - Eroding/Upland Rivers

5.94 Aghamore Stream runs south to north adjacent to the Processing Area. The stream is up to two metres wide, with low banks, ranging from none to 1 metre high. Where the stream crosses under the bridge at TN6 the stony stream bed can be seen under the water. Similarly, upstream of TN4 the stony stream bed can also be seen, though here it is often associated with a slow flow and small localised areas of marshy grassland. The riparian corridor which shades the stream for almost its entire surveyed length comprises semi mature trees (discussed later under broadleaved woodland). Only limited instream vegetation was noted, suggesting that this water course is subject to spate flows during periods of high rain fall.

5.95 The stream is not identified as a salmonid river under the European Communities (Quality of Salmonid Waters) Regulations 1988 (SI No.293). It is a typically common and widespread habitat but does provide an ecological corridor linking to the Lough Gill SAC, ~765 m downstream all be it a stream which passes through multiple culverts (Figure 5.3). The river is therefore assessed to be important at a Townland level.

GA1 – Improved Agricultural Grassland

5.96 Areas of improved agricultural grassland are within the Site (Quarry Area). These are mostly present as marginal areas from adjoining farmland. One section of active pasture is present in the south east of the Quarry Area (TN11). As is typical of this species poor habitat this area is dominated by rye grasses *Lolium perenne*. Improved agricultural grasslands are widespread throughout Ireland and within the

surrounding landscape. The improved agricultural grassland would be evaluated as important at the Site level. Improved agricultural grassland is scoped out of this assessment.

GA1/GS1 - Improved Agricultural Grassland/Dry Calcareous Grassland

5.97 Two large areas which included a mixture of these two habitats occur on either side of the entry road to the Quarry Area, beyond the planted woodland. This habitat also occurs in areas bordering the existing quarry void e.g. at TN15. This lime rich grassland has a variety of ruderal species such as coltsfoot *Tussilago farafara*. Other species recorded include; red clover *Trifolium pratense,* mouse-eared hawkweed *Hieracium pilosella,* glaucous sedge *Carex flacca,* knapweed *Centaurea nigra,* oatgrass *Arrhenatherum* sp.*,* fairy flax *Linum catharticum,* red fescue *Festuca rubra,* wild carrot *Daucus carota,* creeping bent*,* oxeye daisy *Leucanthemum vulgare,* wild strawberry *Fragaria vesca* and eyebright *Euphrasia* sp. In some ranker areas species such as soft rush *Juncus effuses,* nettle *Urtica dioica*, gorse and bramble become more common.

5.98 Rougher areas of this habitat are "springier" underfoot with grasses such as red fescue being dominant and cocks-foot *Dactylis glomerata* being frequent and glaucous sedge abundant. An example of this habitat is found south of the Quarry Area entry road. Other species in these rougher areas include coltsfoot, fairy flax, Yorkshire fog *Holcus lanatus*, creeping bent, ragwort *Senecio jacobea*, yellow-wort, bird's-foot trefoil *lotus corniculatus,* crested dog's-tail *Cynosurus cristatusI,* meadow vetchling *Lathyrus pratensis* and wild carrot (e.g. TN16). In these areas, alder *Alnus glutinosa* and willow *Salix sp.* are encroaching in places, as is bramble, which is why TN13 has been classified as scrub, even though it still has elements of calcareous grassland present.

5.99 Close to the Processing Area, adjacent to Aghamore stream, there are some areas of Wet Grassland - GS4, too small to map. TN5 denotes one of these areas which is almost trending into a small area of Marsh – GM1. This habitat which kept moist by the stream and is likely to be subject to temporary periodic flooding during high rainfall events. Species included water mint *Mentha aquatica*, yellow flag *Iris pseudoacorus*, nettle *Urtica doica* wild angelica *Angelica sylvestris*, Yorkshire fog *Holcus lanatus* and jointed rush *Juncus articulatus*.

5.100 The grassland within Aghamore Quarry would be evaluated as important at Site level. It is not expected to be significantly affected by the proposal. This habitat is scoped out of this assessment.

WD1 – Mixed Broadleaf Woodland

5.101 Two areas of young planted mixed broadleaf woodland are present on either side of the Quarry Area entrance. The canopy of these areas is primarily comprised of sycamore *Acer psuedoplatanus*, ash *Fraxinus excelsior*, alder *Alnus glutinosa* and birch *Betula pubescens*. Elder *Sambucus nigra* is also present.

5.102 There is no woodland within the Processing Area boundary, however, adjacent to the Processing Area there is a range of different types of woodland. There is a line of riparian woodland which runs either side of the stream, comprising a range of species including sycamore, hazel, alder willow (grey and goat) and osier.

5.103 At TN9 there is a very wet area of woodland which is too small to map but would likely qualify as WN6 Wet Wood. It comprises tree species alder *Alnus glutinosa,* birch *Betula pendula* and willow *Salix spp.*, with understory species represented by meadow sweet *Fillipendula ulmaria*, jointed rush *Juncus articulatus*, remote sedge *Carex remota*, cleavers *Galium aparine*, mint *Mentha aquatica* and small areas of iris *Iris peeudoacorus* where the tree canopy cover is less dense.

5.104 The woodland at TN7 appears to be quite a semi-mature/mature woodland with tall trees, including holly *Ilex aquifolium*, hazel *Corylus avellana*, oak *Quercus petraea*, ash *Fraxinus excelsior* and alder *Alnus glutinosa*. Some good woodland indicator understory plants such as wood geum *Geum urbanum, herb Robert Geranium robertinium, dog violet Viola spp (*probably canina), opposite leaved golden saxifrage *Chrysosplenium oppositifolium,* enchanter's nightshade *Circaea lutetiana* and thyme leaved speedwell *Veronica serpullifolia,* cuckoo-pint *Arum maculatum* and honeysuckle *Lonicera periclymenum* were also noted.

5.105 A second area of more mature woodland is located at TN2, where the woodland has an understory dominated by ferns, the dominant species here is considered likely to be lady fern *Athyrium filix-femina*. The canopy is formed by mature sycamore *Acer pseudoplatanus,* alder *Alnus glutinosa*, oak *Quercus spp.* and hazel *Corylus avellana.*

5.106 The woodland habitat at Aghamore Quarry would be evaluated as important at local level as it does not form extended habitat corridors, and only limited areas are mature and established, the majority being situated outside of the Processing and Quarry Areas. The woodland inside the Quarry Area is plantation woodland and more recently planted. This habitat will not be significantly affected by the proposed works; therefore this habitat is scoped out of this assessment.

WL1 – Hedgerows

5.107 Numerous hedgerows are present along the perimeter of the Quarry Area. Combined these have an approximate length of 890 m. There are some trees present within the hedgerows, but overall, they are typically low in species diversity. The hedgerow comprising a field boundary to the north of the Quarry Area is noted as being dense with hawthorn *Crataegus monogyna*, ivy *Hedera Hibernica*, elder, bramble and other woody species.

5.108 Other hedgerows share this typical species composition but are less well-structured having been severely cut and managed. Other species noted within the hedgerows bordering the Site include blackthorn *Prunus spinosa*, gorse, holly *Ilex aquifolium*, bramble, crab apple *Malus sylvestris* and sycamore.

5.109 The hedgerow habitat at the Site would be evaluated as important at Site level. There will be no reduction of hedgerows as part of this project. This habitat will not be significantly affected by this proposal. Hedgerow habitat is scoped out of this assessment.

WS1 – Scrub

5.110 Within the Quarry Area, some sections of hedgerow along the perimeter have gone unmanaged and has widened into scrub. Other areas, such as that denoted by TN13, have become disused since the previous period of quarrying activity and scrub has encroached over the area. These areas of scrub share a similar species composition with the hedgerows discussed above but are dominated by bramble and gorse.

5.111 The largest area that has been attributed as scrub is located in the south of the Processing Area (TN3). This area comprises mounds of hardened concrete returns from historical operations and areas where pockets of soil or gravel are present, scrub species have begun to grow. The category WS1 covers the areas where native species such as gorse, silver birch, bramble and abundant willow species grow. However, buddleja *Buddleja davidii* has begun to colonise the area too, with this species making up to 50% of the scrub species in some areas. Over time, this area is likely to trend towards becoming WS3 – Ornamental Non-native Scrub. Between the piles of concrete returns are flatter areas, these have been classified as ED3 – recolonising bare ground; again, over time, these areas are also likely to become WS1/WS3 -Scrub.

5.112 The scrub habitat at Aghamore would be evaluated as important at Site level. The proposed works will not significantly affect this habitat. Scrub habitat is scoped out of this assessment.

WL2 – Treeline

5.113 There are sections of treelines around the boundary of the south and west of the Quarry Area. The small section of treeline on the western border of the site consists of semi-mature ash *Fraxinus excelsior* and sycamore outside of the fence line that comprises the boundary. The longer treeline on the southern boundary contains semi-mature species dominated by sycamore and also occasional beech *Fagus sylvatica*. These sections of treelines are positioned within the hedgerows which are described above. There is approximately 265 m of treelines within the Site.

5.114 The trees present within the treelines are commonly occurring and widespread throughout Ireland and the surrounding areas. The treelines would be evaluated as important at the Site level. It is not proposed to reduce the length of treelines within the Site as part of this project. Treelines will not the significantly affected by the proposed works. Treelines can be scoped out of this assessment.

Photograph 5-1 The Quarry Area with sparse vegetation and water in the bottom.

Photograph 5-2 The stream adjacent to the Processing Area, this is the culvert at TN 6.

Photograph 5-3 Mature woodland at TN 7, adjacent to the Processing Area.

Photograph 5-4 Common spotted orchid in one of the grassier areas adjacent to the Quarry Area (TN 15).

Photograph 5-5 Revegetating bare ground to the south of the Processing Area with recolonization of vegetation.

Photograph 5-6 Bare ground within the Processing Area with limited recolonization of vegetation.

Faunal Species

Desk Study Results

5.115 The NBDC database was searched for records of rare and/or protected species from the 2 km grid squares G6931, G6392, G7031 and G7032 within which the Site is located. Only records for the past 15 years are considered within this report as older records are unlikely to still be relevant given their age and the changes in land management that has occurred in the intervening period. The records returned are presented in **Table 5-1** below.

5.116 The absence of recent (within 15 years) records of species from the NBDC database does not necessarily imply that a species does not occur within the search area, rather that it has not formally been recorded as present.

Table 5-1 Rare and/or Protected Species Previously Recorded in Grid Squares G6931, G 6932, G7031 and G7032

Species recorded	Grid Square	Date of last record	No. of records	Protected / Conservation Status
West European Hedgehog *Erinaceus europaeus*	G6932	22/03/2011	Wildlife Acts 1976 - 2012	NBDC Atlas of Mammals in Ireland 2010-2015
Eurasian badger *Meles meles*	G6931	20/10/2007	Wildlife Acts 1976 - 2012	NBDC Atlas of Mammals in Ireland 2010-2015
Red squirrel *Sciurus vulgaris*	G7032	07/12/2013	Wildlife Acts 1976 - 2012	NBDC Atlas of Mammals in Ireland 2010-2015
Soprano pipistrelle *Pipistrellus pygmaeus*	G7032	30/07/2007	Wildlife Acts 1976 – 2012 Habitats Directive: Annex IV	NBDC National Bat Database of Ireland

5.117 Table 5-1 provides records generated from NBDC which include protected species such as hedgehog, badger, red squirrel and soprano pipistrelle, all of which are protected under the Wildlife Acts 1976 – 2012, pine marten is protected under both the Wildlife Acts 1976 – 2012 and the Habitats Directive. Hedgehog, badger and pine marten are listed as of "least concern" in the most recent Red List for terrestrial mammals in Ireland, red squirrel is considered near threatened.

Amphibians

5.118 During the survey in 2020 frogs were noted in the artificial pond at TN4 Adjacent to the Processing Area. The flooded area within the base of the Quarry Area was not considered suitable for frog or smooth newt, as it has generally steep inaccessible sides, and is devoid of vegetation (used by smooth newt for egg laying). The size and likely fluctuating water levels of the quarry makes it sub-optimal for amphibians.

5.119 The proposed project Site itself does not contain any ponds suitable for breeding amphibians, so the proposed works are not likely to result in effect to the local amphibian population. Amphibians are therefore scoped out and not considered further in this report.

Birds

5.120 The IRSG was contacted with respect to records of breeding raptors within or in close proximity to the Site. The IRSG confirmed that peregrine falcon had nested in 2017 within the area[3] within which the quarry is located. The Site has regularly held breeding peregrine and kestrel in previous years and in addition supports a regular pair of nesting raven.

5.121 A raptor survey was carried out over two days on the Site (RFI report is located in Appendix 5-C). This survey determined that peregrine have not nested successfully at the Site during 2018, a single adult and subadult were observed during the survey perching within the quarry. The behaviour observed was highly indicative of non-breeding use of the Site. Kestrels were recorded on both days of survey and behaviour indicative of likely nesting were observed. These included prolonged sightings of courtship behaviour of at least one pair and in addition up to five subadults. Copulation and food provisioning was observed between the adult pair which are occupying a used ravens nest on the southern face of the quarry. On the second site survey, two weeks after the first visit, a kestrel pair was observed in the north-eastern corner of the quarry. This area also contained an overhang and obvious "whitewashed" perch area. This strongly indicated an occupied site.

5.122 Incidental observations during this survey included a pair of breeding ravens nesting on the southern quarry face. Two grey wagtails *Motacilla cinereal* displaying breeding behaviour, a single common sandpiper *Actitis hypoleucos* and two non-breeding choughs *Pyrrhocorax* were also observed.

5.123 Breeding grey wagtails are red listed within the Birds of Conversation Concern in Ireland (BoCCI) (Coulhoun & Cummins, 2013). Kestrel is amber listed as is common sandpiper and chough. Peregrine and raven are both green listed species.

5.124 An update breeding bird survey was undertaken on the 26 and 27th May 2021, which confirmed that there is a breeding pair of peregrine in the Quarry Area, south-eastern face. Three chicks were counted in the nest. The 2021 survey showed no signs of kestrel nesting in the quarry, but a pair were noted during the survey.

5.125 Grey wagtail and kestrel breeding within the Site would be evaluated as important at the Townland level.

Mammals

Bats

5.126 The initial desk study and daytime evaluation of habitat in respect of bats, undertaken in September 2017, found that Site is not close to any internationally or nationally designated sites for bats (the RFI bat report in Appendix 5-B provides more detail of this initial survey). In summary, the quarry void comprised largely unvegetated bare limestone faces and there are only small areas of immature woodland and scrub around the southern and western perimeter of the Quarry Area. The quarry habitats were evaluated as having negligible suitability for roosting and commuting and foraging bats.

[3] Exact grid references are confidential and not provided within this report due to concerns about persecution. IRSG can be contacted directly to verify the location of the peregrine nest site.

5.127 The semi-mature plantation woodland at the entrance to the Quarry Area, was assessed not likely to provide any potential roost features and is evaluated as having negligible suitability. The plantation is considered to offer low suitability for foraging and commuting bats as it is poorly connected to suitable continuous habitat within the Quarry Area boundary and outwith the Site to the north and east.

5.128 In addition to the negligible – low suitability of the habitats within the Quarry Area for foraging and commuting bats there is also poor landscape connectivity to suitable roosting and foraging and commuting habitats in the wider countryside i.e. beyond the redline planning application boundary.

5.129 A second daytime evaluation of habitats in respect of bats was also undertaken in August 2020. The Quarry Area was found to comprise of quite a dense stone, with very limited crack lines. During the site walkover, using binoculars, no suitable bat roosting habitat was noted within the bare rock faces. In confirmation of the 2017 surveys, one of the trees within the Quarry Area appeared to provide potential bat roost features (cracks, woodpecker holes etc) as the trees are generally immature. With regards to foraging, the quarry itself will likely provide limited foraging habitat as it provides shelter, and the rock warmth (after a sunny day) which will attract insects. The tree lined entrance to the Quarry Area will provide limited sheltered foraging habitat for a range of bat species.

5.130 The Processing Area has a number of buildings on it, standing on made ground. These open areas, with sheet metal storage style buildings provide negligible suitable bat roosting habitat, and likely only foraging on calm nights over the open areas. The vegetated habitats, within the Processing Area will provide suitable foraging habitat for bats; especially on the edge habitats between grassland, scrub and woodland. With regards to roosting, only the more mature woodland (TN7), which is located outside of the Processing Area, was considered to contain trees that may provide potential roost features for bats. Some rot holes, broken limbs, lose bark were noted.

5.131 During the August 2020 site visit, two Anabat Express detectors were left in the field to record over night. One was placed in the Processing Area, close to TN6, the second detector was placed in the Quarry Area, at the base of a small cliff to the north of TN 13. The detectors were left out for two full nights, as during the first night of recording there was heavy rain. The second night was warm 12^{o}C with no rain and wind of F2-3. The results are as follows:

5.132 The following species were recorded within the Site:

- *Myotis Daubentonii* – Daubenton's bat
- *Myotis Nattereri* – Natterer's bat
- *Nyctalus leisleri* – Leisler's bat
- *Pipistrellus pygmaeus* – Soprano pipistrelle
- *Pipistrellus pipistrellus* – Common pipistrelle
- *Pipistrellus nathusii* – Nathusius' pipistrelle
- *Plecotus auratus* – Brown long-eared bat

5.133 The seven species that have been identified are all resident bat species within Ireland. The majority of the species identified are widespread and common, however the Natterer's bat is one of the rarer species, and so too is the Nathusius pipistrelle. This is reflected in the records for these species.

5.134 The detector located in the Quarry Area recorded 145 bat pass files, 81 were attributed to soprano pipistrelle and 16 to common pipistrelle. Eleven bat passes were attributed to Daubenton's bat, and 14

to Leisler's bats. 23 bat passes appeared to have been made by brown long eared bats. No Natterers or Nathusius' bats were recorded at this location. The Processing Area recorded was placed close to the access track, surrounded by semi mature woodland associated with the stream. Here 223 bat pass files were recorded. Of these, 201 were made up of common and soprano pipistrelle. Ten bat passes were attributed to Daubenton's bat and ten to Leisler's bat. One potential Natterer's bat pass was recorded, and one potential Nathuisus' pipistrelle bat pass was recorded. The calls are termed as "potential records", as the parameters for bat calls can overlap, so it is often difficult to definitively identify some calls to species level, however on the balance of probability it is considered that these species were present, if only briefly.

5.135 The two bat recorders also picked up a range of bat social calls, suggesting that young bats were flying with their mothers at the time. In addition to this, calls were recorded for all species within an hour of sunset, suggesting that they are roosting in the area, though not necessarily within the Site. A number of potential bat roosts are present in the wider area, such as farmhouses, barns and large mature trees with rot holes.

5.136 The Site itself (Processing Area and Quarry Area) is considered to provide negligible bat roosting potential, due to lack of suitable potential bat roost features. The Site does provide foraging habitat for bats; though the foraging habitat within the Site is common and widespread throughout the region – hedgerows, field edges and tree lined roads. All bat species in Ireland are protected under the Annex IV of EU Habitats Directive, which is transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011. All bat species are also protected under the Wildlife Acts 1976 - 2018. The Site is evaluated to be of local value for foraging bat species.

Badger

5.137 Badger has been historically recorded across the local area. During the 2016 and 2017 survey no signs of badger were noted within the Quarry Area. During the 2020 survey, tracks and a hole were noted. However, due to the prints and signs of recent kill that were found, it is considered most likely that the hole belonged to a fox. Fox scat was also noted around the quarry rim. No signs of badger dung, snuffle holes or prints were noted.

5.138 Badger *Meles meles* is legally protected under the Wildlife Acts 1976 – 2018. The Site does provide suitable habitat for both setts and foraging, though during the three site surveys (2016, 2017 and 2020) no, signs of badger presence have been noted within the Site. It is therefore considered that at the current time badger are not present within the Site. Therefore, they have been scoped out for further assessment.

Otter

5.139 During the 2020 survey, no signs of otter spraint, prints, holes or lie-ups were noted on the stream adjacent to the Processing Area. The stream flows into the Lough Gill SAC (700 metres downstream) which of which otter is a qualifying interest. However, between the Site and Lough Gill, the stream passes through a number of culverted sections, one of which is over 80 m long (Figure 5.3). It is considered that the length of these culverted sections is likely to deter otter from using this stream on a regular basis. The stream is narrow (2 m wide) and quite shallow so would not support permanent otter presence, due to lack of food source such as fish, though a limited source of common frog may be available.

5.140 Otter in Ireland are protected under the Annex II and IV of EU Habitats Directive, which is transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011. Otter is also protected under the Wildlife Acts 1976 - 2018. The stream is considered not to support an otter population, due in part

to accessibility but also lack of foraging provision; therefore, otter have been scoped out of this assessment.

Other Mammals

5.141 Pine marten was recorded during the raptor surveys carried out at the site. It was observed in an area close to an overhang in the northeast corner of the Quarry Area, which was deemed to be a likely kestrel nesting sight. A pine marten latrine was also recorded in this same area during the second site visit (June 2018). The population of pine martens is thought to be increasing in Ireland after a long period of decline. The species status is regarded as being of "least concern" Woodland and scrub habitats are favoured, such as those surrounding but outside of the Processing Area but use of mature gardens has also been observed. They are known to den in hallow trees, burrows, brash and buildings. Persecution, habitat loss and fragmentation are threats to this species.

5.142 Other mammals, or their tracks and signs, were not observed during the site visits in 2016, 2017 and 2020.

5.143 The populations of other mammals would be evaluated as important at the Site level. They are not considered likely to be significantly affected by the proposal and are therefore scoped out of this assessment.

Aquatic Surveys

5.144 The results of the September 2020 aquatic survey, undertaken at two sample points above and below the quarry effluent outflow pipe (Figure 5.3), found that the water in the stream was relatively moderate flowing, clean and with little instream vegetation and similar water chemistries. At both locations the substrate was classified as gravel, sand and cobbles. A range of benthic invertebrates were found at each location, from seven orders/groups, belonging to ten families.

5.145 The determined Q Values for both locations surveyed in September 2020 were classified as being 3 – 4 which is described as slightly polluted water. The assemblage of invertebrates found upstream was slightly more diverse, but of a lower abundance than that found downstream, but the variation was not sufficient to affect the Q values that were determined. Specimens of the genus *Gammarus,* were by far the most common organisms present, followed by molluscs and caddis flies.

5.146 Additional macroinvertebrate surveys were undertaken in November 2020, and included five survey points, from upstream of the Processing Area, to an accessible point, close to the confluence with Lough Gill (Figure 5.3). At all points the substrates within Aghamore stream were found to be relatively clean with cobbles and or coarse gravel available for invertebrates. Flow velocity was higher at the downstream sites, and oxygen levels were within normal ranges at all locations (>6.5-8mg/l).

5.147 The results of the November 2020 surveys found that the macroinvertebrate assemblage indicated a Q value of 3, moderately polluted water at all locations. The assemblage did not vary significantly between sampling locations. The number of taxa present, and their diversity is likely to be limited due to the time of year. Optimal time for survey is April – September; so, a November survey is likely to have depressed the results. That said, based on the September surveys (which used 2 similar survey point locations); it is considered likely that the Q value along the length of the surveyed river is 3-4 when seasonal variation is considered – slightly polluted water.

5.148 The Q value applied is the same upstream and downstream of the yard drainage and the quarry effluent discharge, therefore it can be inferred that the emissions currently occurring from the yard and quarry are not having a deleterious effect on the macroinvertebrate fauna in the Aghamore Stream.

5.149 The Aghamore Stream is not identified as a salmonid river under the European Communities (Quality of Salmonid Waters) Regulations 1988 (SI No.293). The stream, as shown on Figure 5.3 flows south to north, adjacent to the Processing Area, and on into Lough Gill.

5.150 Between the Processing Area and the outflow of Aghamore stream into Lough Gill (approximately 765 metres), the stream flows under and number of culverts and pipes. Each culvert and each pipe will change the flow regime of the water and is likely to act to hinder salmonoid movement (Figure 5.3).

Photograph 5 -7 The culvert under the bridge leading to the Processing Area (TN6)

5.151 Figure 5.3 shows that north of the Processing Area, the Aghamore stream passes under the road and into a culvert. This culvert is over 80 metres long and is totally dark, due to its length. Due to the length of this culvert and the fact that it is unlit, it is considered that it will act as a barrier to fish migration. Studies have shown that culverts and weirs do disrupt fish migration and movement, including trout and salmon (WTT 2021). Therefore, if salmonid fish present in Lough Gill are migrating, they would be unlikely to swim up in to the Aghamore stream to spawn, as too many barriers are present in the form of culverts and pipes.

Invasive Species

5.152 During the site survey a stand of Japanese knotweed *Fallopia japonica* was recorded to the south of the Processing Area, in two small stands (Figure 5.2 TN1). It was not recorded elsewhere on the site. Cotoneaster *Cotoneaster spp.* was also recorded outwith but adjacent to the Processing Area. This plant, especially if it is the species *Cotoneaster horizontalis,* can become quite invasive, especially on the walls of quarries. Neither species was recorded within the Site, however mitigation for these species will be included in the next section in order to prevent future (accidental) spread.

5.153 American mink Mustela vison and feral goat *Capra hircus* have been recorded within 1 km^2 grid square in which the site is located. There were no invasive species recorded within the Site during the field surveys. Invasive faunal species can be scoped out of further consideration within this report as they are not known from the Site.

Summary of Important Ecological Features

5.154 Table 5-2 summarises all important ecological features for which detailed assessment is required. The geographical scale of importance for the ecological features within the Site are summarised along with their legal status and a rationale, where appropriate, for not carrying forward any features for detailed assessment. None of the European Designated sites have been brought forward for further assessment as they have been subject to an Appropriate Assessment Screening and Natura Impact Statement Report (SLR 2021).

Table 5-2 Summary of Important Ecological Features Subject to Detailed Assessment

Ecological Feature		Scale of importance	Comments on Legal Status and/or Importance
Habitats	FW1 – Eroding/upland rivers	Townland	Referenced in several policies, objectives and goals of Kildare County Development plan.
Species	Birds	Townland	Wildlife Acts 1976 – 2018 confers protection on breeding birds. Referenced also in several policies, objectives and goals of Kildare County Development Plan relating to protected habitats and species. One red and one amber listed species found breeding within the Quarry Area
	Bats	Local	Wildlife Acts 1976 – 2018 and Annex IV of the Habitats Directive, confers protection on all Irish bat species and their roosts. Bats are directly and indirectly referenced in several policies and objectives of Sligo County Development plan.
	Pine marten	Local	Wildlife Acts 1976 – 2018 and Annex confers protection on pine marten. It is an offence, except under licence to capture or to kill a pine marten, or to destroy or disturb its breeding or resting place. From being nearly extinct in Ireland, its population levels have recovered, a recent survey suggesting that a population of about 4,000 animals now exists within the country.

Detailed Project Description

Operational Phase

5.155 The applicants are seeking planning permission for the following development:

- Recommencement of quarry operations within the previously permitted quarry extraction area (c. 10.9ha);
- Deepening of the previously permitted Quarry Area by 2 no. extractive benches from c. -21m OD to -50m OD;
- Recommencement of aggregate processing (crushing and screening) within the existing Processing Area, located to the east of the local road that bisects the site;
- The provision of a settlement lagoon (c. 2,830m^2);

- The provision of 2 no. wheelwashes;
- The Provision of a double stacked portacabin office;
- The Provision of a wastewater treatment system;
- Additional stockproof / trespass proof boundary fencing;
- All within an application area of c. 22.5 Ha.

5.156 The quarry operations will comprise extraction of limestone using conventional blasting techniques; processing (crushing and screening) of the fragmented rock to produce aggregates for use in the manufacture of value-added products, road construction and site development works.

5.157 Material extracted from the Quarry Area will initially be processed within the quarry void using mobile processing plant. Material will then be transported to the existing Processing Area located on the opposite side of the local road. The lorries which will transport the material between the Quarry Area and the Processing Area may pass through two no. wheel washes, one within the Quarry Area and one just before the weigh bridge in the Processing Area. Both wheel wash systems will be closed systems, so will not discharge as surface water to nearby watercourses.

5.158 Existing facilities at the site include the weighbridge & weighbridge office and a garage / workshop. These facilities are located within the Processing Area on the eastern part of the application site.

5.159 A settlement lagoon of c. 2,830m^3 will be created in advance of quarrying activities recommencing at the site to treat surface water pumped from the quarry floor before being discharged in to the Aghamore stream. During the construction of the lagoon, the pumping of a combination of rainwater and groundwater from the quarry floor directly to the Aghamore stream will continue as presently occurs. The settlement lagoon will have a water depth of 1.5m and a minimum freeboard of 0.5m. The settlement lagoon will be lined to prevent leakage. Interceptors will be installed close to areas of potential risk such as the fuel storage area and refuelling station to reduce the risk of a pollution incident occurring. The discharge point from the settlement lagoon will remain at the current location into Aghamore stream. The predicted inflow rate will remain within below the maximum discharge rate set out in the existing trade effluent discharge licence to Aghamore stream (40.5l/s).

Restoration and Aftercare Phase

5.160 A Landscape Mitigation and Restoration Plan is provided in Chapter 2 of the EIAR. Landscaping during operation and post – operation will include hedgerow and woodland gapping-up with native species where appropriate, and aftercare management to encourage dense, well-structured hedgerows and woodland throughout.

5.161 It is proposed that restoration of the Site would be carried out once extraction activities have ceased. The full details of the proposed restoration are included in the Landscape Mitigation and Restoration Plan provided in Chapter 2 of the EIAR.

5.162 The cliff faces in the quarry that are used by breeding raptors will be allowed to remain undisturbed at all times during the bird breeding season and following restoration of the site.

Assessment of Effects and Mitigation Measures

5.163 This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect and cumulative effects. The following design principles and "designed-in" mitigation have informed the assessment of impacts.

- Within the design of the proposal good practice environmental and pollution control measures are employed with regard to current best practice guidance such as, but not limited to, the following:
  - EPA Environmental Management Guidelines (2006): Environmental Management in the Extractive Industry (Non-Scheduled Minerals);
  - Environmental Good Practice on-site Guide (CIRIA, 2015); and
  - DoEHLG (Department of the Environment, Heritage and Local Government) April 2004: Quarries and Ancillary Activities Guidelines for Planning Authorities.
- Landscaping measures are proposed within the design of the development. These are listed in full in **Chapter 13** of the EIAR and include features to minimise loss of biodiversity on-site. Such measures include the following:
  - Landscaping during and post-operation, will include hedgerow and woodland gapping-up with native species where appropriate, and aftercare management to encourage dense, well-structured hedgerows and woodland throughout.

5.164 Taking the above into account, the potential impacts of the proposed development are outlined in the following sections.

Do Nothing Impact

5.165 The existing quarry, as permitted, would be restored in line with the conditions associated with the existing permission. The Do-Nothing Impact would result in moderate significant positive change in the ecological interest of the Site should the quarry not recommence operations and restoration takes place.

Potential Impacts

Eroding/upland rivers - FW1

5.166 The recommencement of the extraction of limestone from the Quarry Area, and its transport over to the Processing Area, will not result in any direct loss, damage or fragmentation of the stream, or its riparian corridor. The Processing Area has also been designed to have a standoff of 25 metres from the stream, in order to reduce disturbance (noise and light) of the stream and associated riparian corridor.

5.167 Surface water run-off from the Processing Area will continue to percolate to ground. Chapter 7: Water studies have found that the processing area is located on a sand/gravel deposit of >10m deep, so this will aid with water percolation and should enable any suspended solids to be filtered by the ground.

5.168 As noted previously the floor of the Quarry Area is currently filled with water, this is because the floor of the quarry (at -21 m OD) sits below the level of the water table which likely sits between -11m and -16m OD. During the operational phase, the quarry will be deepened to -50 m OD. To undertake quarry works, water will need to be pumped out of the quarry floor, to allow dry working. The water will be pumped

out at varying rates depending on surface water conditions (ground water inflows to the quarry at final floor level of -50m OD would be 12.2l/s). Storm water will be pumped into the settlement lagoon, prior to being discharged into Aghamore stream, so will contain only a very low level of particulate matter on being discharged in to Aghamore stream. The lagoon will allow for a discharge rate of 28.3l/s, based on the proposed surface area of 2,830m^2.

5.169 A channel survey was carried out along the Aghamore Stream as part of this assessment from the quarry discharge point to Lough Gill. It was estimated that the peak flow for Aghamore stream at the quarry discharge point is approximately 500-800l/s, a flow rate which would occur during high rain fall events. Chapter 7: Water, also states that in summer months Aghamore stream is likely to dry up, or at least be partially ephemeral. Based on this, the stream can be described as a spate stream, a watercourse which experiences a wide range of flow rates over the year. Because of this it is anticipated that the proposed discharge rate in to Aghamore stream from the settlement lagoon is unlikely to have any significant impact on the stream habitats. A constant discharge from the settlement lagoon may even be beneficial for the stream and it will provide a constant flow of water, even during dry summer periods when the stream may have otherwise dried up.

5.170 Within Chapter 7: Water, the impact assessment section also assesses the potential for surface water discharge to impact on water quality. The study found that levels of ammonia and orthophosphate discharged currently from the quarry sump, would cause a negligible change to the existing background water levels in Loch Gill, downstream of the site. It is also worth noting that the concentrations of faecal bacteria in the quarry discharge water are lower than background levels. This is anticipated to remain so, even during the operational phase of the Project.

Proposed Mitigation Measures

5.171 Besides the design mitigation (the settlement lagoon and hydrocarbon interceptors) Chapter 7: Water sets out a range of mitigation measures which indirectly will benefit biodiversity, such as ongoing monitoring of water quality; managing runoff and preventing spills.

Significance of Residual Effects

5.172 Following the implementation of design and onsite mitigation measures, as fully described in Chapter 7: Water, the residual effect on Aghamore stream would not be significant.

Birds

Potential Impacts

5.173 Peregrine falcon is known to regularly nest on the faces within the quarry void. The raptor survey carried out as part of this project, determined that successful breeding of peregrine falcon did not occur at the Site, within the Quarry Area in 2018. The update survey undertaken in May 2021 identified a single pair of peregrine nesting in the Quarry Area, with three chicks in the nest. In 2018, Kestrel was observed nesting within a worked-out section of the quarry but were not present in 2021. Raptors are evaluated as important at the townland level.

5.174 There is no proposal to alter areas of the worked-out quarry faces as the project is concerned with deepening the existing quarry floor only, with no lateral extension proposed. However, quarrying activities which have not occurred on this site in the last number of years, such as blasting, may indirectly impact breeding raptors through noise and vibration disturbance. The operation of the quarry, including deepening, may potentially give rise to negative effects on breeding raptors in the absence of mitigation.

5.175 A pair of grey wagtails, a red listed species, were observed showing breeding behaviour in the Site. Common sandpiper and chough, amber listed species, were also observed in low numbers but showed no breeding behaviour.

5.176 Grey wagtail is evaluated as important at the townland level while common sandpiper and chough are evaluated as important as the site level. Changes to the existing environment used by grey wagtails are not proposed. However, quarrying activities which have not occurred on this site since 2014, such as blasting, may indirectly impact this species breeding through noise and vibration disturbance. The operation of the quarry, including deepening, may potentially give rise to negative effects on breeding grey wagtail.

Proposed Mitigation Measures

5.177 During operation, the cliff faces / rocky ledges currently used by raptor species within exhausted / worked out areas of the quarry will be retained. The haul road will pass beneath the current Peregrine nesting ledge but will lie 30 metres beneath it. Where possible, this haul road should be constructed after the 2021 chicks have fledged, but prior to the 2022 nesting season. So, if a peregrine does nest there, it can habituate to the already active haul road; rather than haul road use suddenly beginning within the nesting period, which could cause nest abandonment.

5.178 Additional mitigation measures would involve the environmental manager and site supervisor/manager providing a toolbox talk on peregrine falcon for all Site staff, including all new staff joining, over the lifetime of the operation. The toolbox talk will set out clearly how to identify the species and the importance of reporting any sightings to the environmental manager and site supervisor/manager.

5.179 From 2022 onwards, during operation, a peregrine survey should be undertaken three times per year by an ornithologist. The surveys would be undertaken:

- Early March to mid-April to identify newly occupied sites;
- Late April to end of May to identify newly occupied sites and confirm occupancy or absence at previously known nest location; and
- Early June to mid-July to record the likely breeding success or failure, and/or to confirm absence at the previously known nest location.

5.180 If peregrine falcon is confirmed to be attempting to breed or is successfully breeding within the Quarry Area, a peregrine falcon management plan will be prepared to prevent disturbance until chicks have fledged. The plan will take in to account the working methodologies used in the quarry at the time, and the proposed blasting strategy during the nesting period. Measures to protect the nesting birds are likely to include the implementation of an appropriate buffer zone around the nest site and the restriction of certain activities within the buffer zone to prevent disturbance of the nesting pair. As the peregrine surveys will be undertaken annually, the peregrine falcon management plan can be updated accordingly. So in years where no nesting takes place, then activities within the Quarry Area would not be subject to regulation for peregrine presence.

5.181 The grey wagtail will also be included in a breeding bird survey of the Site prior to the recommencement of quarrying activities should the proposal be accepted. If this species is observed nesting and/or breeding on the Site, then site specific mitigation will be developed as part of the reporting of the survey which will reduce any potential negative effects on this species to an acceptable level.

5.182 The amber listed species observed during surveys, i.e. common sandpiper and chough, were seen within suitable habitat and flying over the Site respectively. These species will also be included within the breeding bird survey.

Significance of Residual Effects.

5.183 Following the implementation of species-specific mitigation measures where and if required, the residual effect on the bird assemblage within the Site would not be significant.

Bats (All Species)

Potential Impacts

5.184 The current proposals do not involve the removal of any hedgerows or trees. The Quarry Area was found not to provide suitable crevices or cracks for roosting bats. Therefore, no potential roosting habitat will be removed because of the quarrying and processing activities.

5.185 Bats are using the Site for foraging, therefore noise and light generated at night-time, may disturb foraging bats. In accordance with condition 14 (b) of the previous planning permission quarry operations will be carried out between 0800 – 1800 hrs Monday to Friday: and from 09.00 – 17.00 hrs Saturday. The quarry will not operate on Sundays or Bank Holidays, except in emergency situations. Therefore, predominantly during the bat active period (March to October) quarrying and processing activities, will be undertaken during hours of daylight when the bats are roosting, so should not affect bats foraging within the Site.

5.186 Sufficient lighting will be provided at the site to ensure safe operations during winter periods.

Proposed Mitigation Measures

5.187 Security lighting will comprise low level spot lighting and will be directed towards the vehicle loading area and operational area, for safety purposes.

5.188 A landscape and restoration plan forms part of this EIAR. The plan the restoration of the site to a natural habitat, on completion of all extraction works. The landscape/restoration proposals will consist of the following (refer to Chapter 2 of the EIAR). As part of this plan, hedgerow and woodland planting, using native species, in advance of operations, will be planted along the boundaries of the Quarry Area. As they mature, these boundary features will be of benefit to foraging and commuting bats.

Significance of Residual Effects

5.189 The residual effect will not be significant.

Pine marten

Potential Impacts

5.190 A single pine marten was observed on the rocky edges around the existing water filled quarry void in the northeast. A pine marten latrine was also recorded here in the same areas as the nesting kestrel. It is possible that the pine marten was predating on the nesting kestrel.

5.191 Changes to the existing environment used by pine marten is not proposed. The operational phase is not likely to give rise to any negative effects on pine marten.

Proposed Mitigation Measures

5.192 No mitigation is proposed in respect of pine marten; however, the proposed bolstering of the hedgerows and woodland on the site by planting native species in advance of operations, as outlined in Chapter 13 – Landscape, may result in a slight positive impact for this species.

Significance of Residual Effects

5.193 The residual effect will not be significant.

Monitoring

5.194 The year after restoration has been completed the Site should be visited during bird breeding season, preferably in the period May – June, to check that the raptors e.g. kestrel, continue to use the Site.

Cumulative Effects

5.195 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

5.196 There is one active quarry operation located within 5 km of the Site, located at Ballysadare, approximately 4 km to the southwest of the Site. This quarry is with the 5 km zone of influence of the proposed works. The zone of influence of quarrying activities typically do not extend beyond 2 km, the 5 km using a precautionary approach and to incorporate ecological connectivity though surface water pathways or landscape features. As there is no connectivity between the Site and the Quarry at Ballysadare there is no pathway for significant effects to occur cumulatively when considered with the quarry at Aghamore.

5.197 A search of the Sligo County Council online planning search facility indicates that there are no other planned developments in the vicinity of the application site and in the adjoining townlands of Carrownamaddoo, Cuilbeg, Aghamore Near, Tullynagracken South, Drumaskibbole, Ballydawley, Castledargan, which were granted planning permission in the last five years[4] and have the potential to have any significant adverse cumulative impacts on the local environment. All of the proposed planning application involve extensions, new road improvement, works to Sligo substation etc.

5.198 It is noted that planning permission was granted for development consisting of the filling of lands with construction and demolition waste in Carrownamaddoo townland c. 450 metres from the application area (Plan File Ref. No. 18/49) subject to 7 no. conditions. This proposed development, granted on 29/05/2018 is considered small scale, short term in duration (5 years) and is located sufficient distance from the application area and therefore no cumulative impacts are considered.

5.199 There are no policies or objectives within Sligo County Development Plan that when considered with the quarry proposal could give rise to cumulative effects on the ecology of the Site and immediate environs.

[4] Planning search conducted on 29th April 2021 on Sligo County Council website.

5.200 The planning applications within the Aghamore area (refer to Chapter 4 and Planning Report) are largely confined to single dwellings and small developments. When considered together with the quarry there is no pathway for cumulative effects to arise.

5.201 Cumulative effects are considered unlikely to occur as result of the quarry proposal when considered with other plans and projects.

Summary of Effects

Table 5-3 Summary of Potential Impacts, Proposed Mitigation and Residual Effects

Ecological Feature	Effect	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
FW1 – Eroding rivers	Significant at the Townland level	No additional mitigation required, as this has been designed into the project through the construction of a settlement lagoon and interceptors.	No action required	Not significant
Birds	Significant at the Townland Level	Removal of vegetation will be carried out outside the bird breeding season (1 March – 31 August inclusive) where possible. Annual surveys to be undertaken for raptors, specifically breeding peregrine falcon. If breeding activity is noted, then mitigation will be implemented through a peregrine falcon management plan.	Landscape plan and quarry operator	Not significant
Bats	Not Likely	No mitigation required outside of the proposed landscape plan as the design allows for the retention of woodland and no potential roost areas will be impacted.	Landscape plan	Not significant
Pine marten	Significant at the Site Level	No mitigation required, but the proposed landscape plan will benefit this species.	Landscape plan	Not Significant

Conclusions

5.202 The applicants are seeking permission to recommence quarry operations at Aghamore Quarry, which will involve deepening the quarry from -21m OD to -50m OD. The recommencement of operations will also include for the aggregate Processing Area to the east side of the local road, and Aghamore stream which bisects the two sites.

5.203 A range of biodiversity surveys have been undertaken on the site, the first was an initial field survey undertaken in 2016. This was followed by an update survey in 2018. The most recent survey was undertaken in 2020. In addition to the general walkover surveys to map habitats and identify potential risks, the site and Aghamore stream have been subject to targeted aquatic, bat, otter and bird surveys.

5.204 The Quarry Area and Processing Area do not lie within a designated site, the closest site is Lough Gill SAC which lies (at its closest point) 360m from the access track to the Processing Area. The Aghamore stream, which flows between the Quarry Area and the Processing Area, flows into Lough Gill. Of the habitats and species identified during the site surveys, none were considered to be of greater importance than townland. Features brought forward for further assessment due to their value or conservation status were: Aghamore stream and the bird assemblage within the stie – townland level; bat assemblage and pine marten - local level.

5.205 The impact assessment concluded that, during operation, when the quarry is deepened, the need to discharge water (ground and surface) to Aghamore stream will continue, and as currently will have no significant impact on the water quality of Aghamore stream, nor Lough Gill SAC beyond. A settlement lagoon will be installed in the Quarry Area which will further reduce the potential for a pollution incident to occur. For the Processing Area, a minimum 25 metre standoff between Aghamore stream and the Processing Area will be maintained, this means that the existing woodland will also be retained. Water from the Processing Area will be allowed to naturally percolate into the ground or the underlying aquifer (which comprises sand and gravel); so will not run off directly in to Aghamore stream.

5.206 Peregrine falcon has historically and is currently nesting in the quarry. In case of peregrine continuing to nest in the quarry in future years, mitigation will be put in place. This will take the form of ongoing annual monitoring, retaining suitable nesting habitat and developing specific mitigation based on annual monitoring results and the proposed quarry activities during the nesting period. Although no bat roosts were found within the Quarry Area or Processing Area, or considered likely to be present, design mitigation will be implemented to benefit foraging bats, which utilise Aghamore stream and surrounding woodland edges. Security lighting will be low level spot lighting and will be directed away from woodland edges.

5.207 Following the implementation of the recommended mitigation, it is assessed that there will be no residual biodiversity effects as a result of the proposed quarry and processing works.

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FIGURES

Figure 5-1
Sites Designated for Nature Conservation

Figure 5-2
Habitat Map

Figure 5-3
Aquatic Survey Map

004035 - CUMMEEN STRAND SPA

000627 - CUMMEEN STRAND / DRUMCLIFF BAY SAC / pNHA

001658 - COLGAGH LOUGH pNHA

001670 - KNOCKNAREA MOUNTAIN & GLEN pNHA

001976 - LOUGH GILL SAC / pNHA

004129 - BALLYSADARE BAY SPA

000622 - BALLYSADARE BAY SAC / pNHA

000638 - UNION WOOD SAC / pNHA

001898 - UNSHIN RIVER SAC

001909 - BALLYGAWLEY LOUGH pNHA

001902 - SLIEVEWARD BOG NHA

001906 - LOUGH DARGAN pNHA

001898 - UNSHIN RIVER SAC / pNHA

5KM

0 500 1000 1500 2000m 3000 4000 5000

Metres 1:50,000

NOTES

1. EXTRACT FROM 1:50,000 O.S DISCOVERY MAP NO. 25

2. ORDNANCE SURVEY IRELAND LICENCE NO. CYAL50167032 (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

LEGEND

- LOCATION OF PROJECT SITE
- 5KM OFFSET FROM APPLICATION SITE
- SPECIAL AREA OF CONSERVATION (SAC)
- SPECIAL PROTECTION AREA (SPA)
- NATURAL HERITAGE AREA (NHA)
- PROPOSED NATURAL HERITAGE AREA (pNHA)

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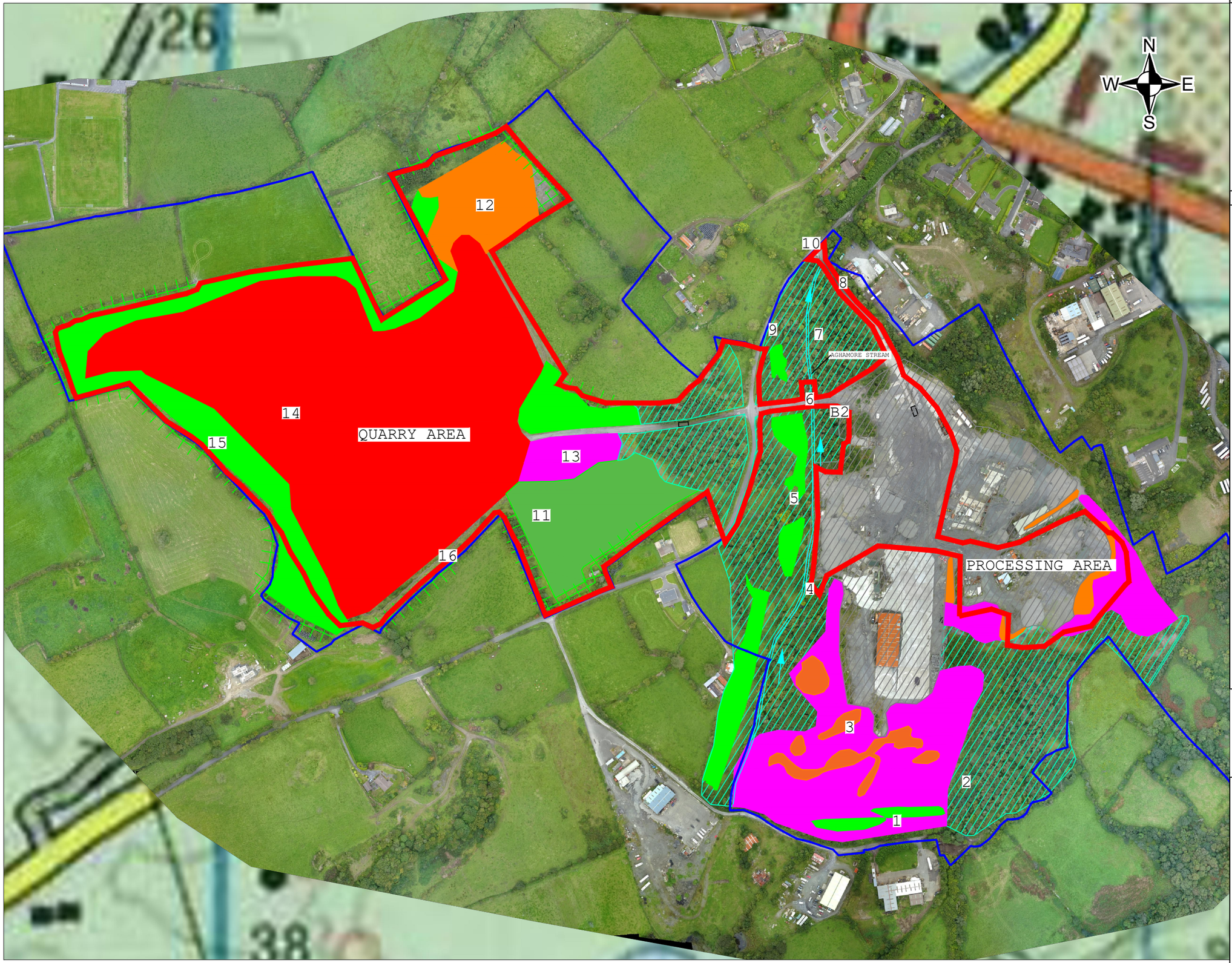
DESIGNATED SITES WITHIN 5 KM

FIGURE 5.1

Scale: 1:50,000 @ A3

Date: MAY 2021

501.00584.00019.FIGURE 5.1.Sites Designated for Nature Conservation within 5km.dwg



NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. CYAL50167032 (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND
2. AERIAL PHOTOGRAPHY CARRIED OUT BY SLR CONSULTING SEPTEMBER 2020

LEGEND

LAND OWNERSHIP

APPLICATION AREA (c. 22.5 Ha.)

Key:
(Based on Fossitt J.A. (2000), *A Guide to Habitats in Ireland*, The Heritage Council, Kilkenny)

- Active quarries and mines - ED4
- Scrub - WS1
- Dry Calcareous and Neutral Grassland / Improved Agricultural Grassland - GS1 / GA1
- Improved Agricultural Grassland - GA1
- Hedgerows - WL1
- (Mixed) Broadleaved Woodland (Screen Planting) - WD1
- Recolonising Bare Ground - ED3
- Building and Artificial Surfaces - BL3
- 7 Target Note Reference Number
- B1 Bat Detector Location

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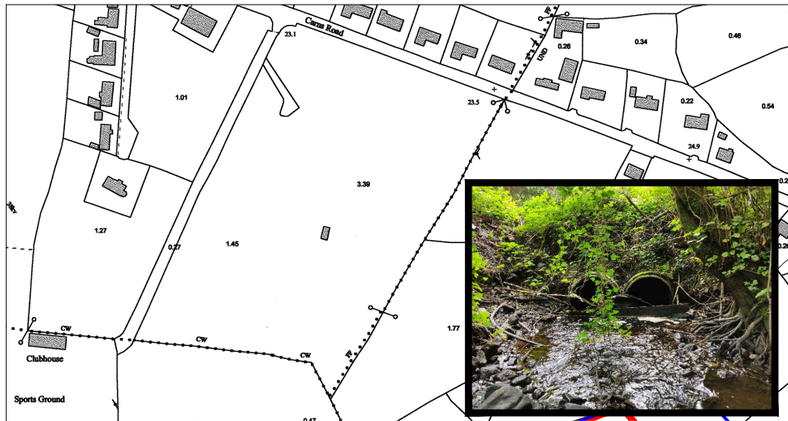
HABITATS MAP

FIGURE 5.2

Scale	Date
1:4,000 @ A3	MAY 2021

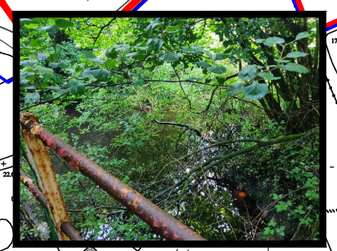
501.00584.00019.FIGURE 5.2.Rev.1.dwg



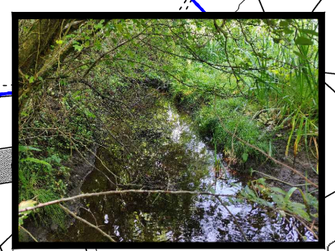
PARTIALLY BLOCKED DOUBLE PIPE CULVERT UNDER ROAD

UPSTREAM END OF LONG CULVERT UNDER ROAD

CULVERT UNDER BRIDGE



MAN MADE POND



SHADED STREAM SECTION

LOUGH GILL

AGHAMORE NEAR

AGHAMOR

N W E S

0 50 100 150 200m 300 400 500

Metres 1:5000

NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. CYAL50167032 (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND
2. AERIAL PHOTOGRAPHY CARRIED OUT BY SLR CONSULTING SEPTEMBER 2020

LEGEND

- LAND OWNERSHIP
- APPLICATION AREA (c. 22.5 Ha.)
- CULVERT
- AGHAMORE STREAM
- 1 — LOCATION OF BIOLOGICAL ASSESSMENTS (24th NOVEMBER 2020)
- 1 — LOCATION OF BIOLOGICAL ASSESSMENTS (30th OCTOBER 2020)

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AGHAMORE STREAM

FIGURE 5.3

Scale: 1:5,000 @ A3

Date: MAY 2021

501.00584.00019.FIGURE 5.3.Rev.0.dwg

APPENDIX 5-A

Relevant Legislation and Planning Policy

Relevant Legislation[5]

EIA Directive

The EIA Directive, Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment as amended by Council Directive 97/11/EC of 3 March 1997, Directive 2003/35/EC of 26 May 2003 and Directive 2009/31/EC of 23 April 2009, now codified in Directive 2011/92/EU of 13 December 2011 and amended in Directive 2014/52/EU of 16 April 2014, is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to development consent being given. The EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Development) Act, 1963 (and other legislation) to provide for environmental impact assessment.

Habitats and Birds Directive

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

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

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

National Legislation

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

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

order or any works which are liable to destroy or to significantly alter, damage or interfere with the features by reason of which the designation order was made'.

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

Relevant Planning Policy

Sligo County Development Plan 2017–2023

The relevant planning policies and objectives have been extracted from Volume 1 of Sligo County Development Plan 2017 – 2023 and are set out below.

Natural heritage – general policies

It is the policy of Sligo County Council to:

- **P-NH-1** Protect, sustainably manage and enhance the natural heritage, biodiversity, geological heritage, landscape and environment of County Sligo in recognition of its importance for nature conservation and biodiversity, and as a non-renewable resource, in association with all stakeholders.
- **P-NH-2** Promote increased understanding and awareness of the natural heritage and biodiversity of the county.
- **P-NH-3** Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under the EU Habitats Directive, EU Birds Directive, the Wildlife Act and the Flora Protection Order.
- **P-NH-4** Take full account of the precautionary principle where uncertainty exists regarding the potential impact of a proposed development on the natural heritage resource.

Designated sites for nature conservation – policies

It is the policy of Sligo County Council to:

- **P-DSNC-1** Protect and maintain the favourable conservation status and conservation value of all natural heritage sites designated or proposed for designation in accordance with European and national legislation and agreements. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs), Ramsar Sites, Statutory Nature Reserves. In addition, the Council will identify, maintain and develop non-designated areas of high nature conservation value which serve as linkages or 'stepping stones' between protected sites in accordance with Article 10 of the Habitats Directive.
- **P-DSNC-2** Promote the maintenance and, as appropriate, achievement of 'favourable conservation status' of habitats and species in association with the NPWS.
- **P-DSNC-3** Carry out an appropriate level of assessment for all development plans, land-use plans and projects that the Council authorizes or proposes to undertake or adopt, to determine the potential for these plans or projects to impact on designated sites, proposed designated sites or associated ecological corridors and linkages in accordance with the Habitats Directive, All appropriate assessments shall be in compliance with the provisions of Part XAB of the Planning and Development Act 2000.

- **P-DSNC-4** Consider development within, or with the potential to affect, Natural Heritage Areas or proposed Natural Heritage Areas, where it is shown that such development, activities or works will not have significant negative impacts on such sites or features, or in circumstances where impacts can be appropriately mitigated.

Protected plant and animal species – policies

It is the policy of Sligo County Council to:

- **P-PPAS-1** Ensure that development does not have a significant adverse impact, incapable of satisfactory mitigation on plant, animal or bird species protected by law.
- **P-PPAS-2** Consult with the National Parks and Wildlife Service (DAHG) and take account of any licensing requirements when undertaking, approving and authorising development which is likely to affect plant, animal or bird species protected by law.
- **P-PPAS-3** Provide guidance to developers and others in relation to species protected by law and their protection and management in the context of development.

Nature conservation outside designated sites – policies

It is the policy of Sligo County Council to:

- **P-NCODS-1** Minimise the impact of new development on habitats of natural value that are key features of the County's ecological network. Developments likely to have an adverse effect on recognised sites of local nature conservation importance will be required to demonstrate the impacts on the ecological value of the site and will not be approved unless it can be clearly demonstrated that there are reasons for the development that outweigh the need to safeguard the nature conservation value of the site.
- **P-NCODS-2** Ensure that development proposals, where relevant, improve the ecological coherence of the Natura 2000 network and encourage the retention and management of landscape features that are of major importance for wild fauna and flora as per Article 10 of the Habitats Directive.
- **P-NCODS-3** Ensure that proposals for development protect and enhance biodiversity, wherever possible, by minimising adverse impacts on existing habitats and by including mitigation and/or compensation measures, as appropriate, which ensure that biodiversity is enhanced.
- **P-NCODS-4** Apply the precautionary principle in relation to development proposals with potential to impact on County Biodiversity Sites or on local nature conservation interest by requiring an ecological impact assessment (EcIA) to ensure that any proposed development will not affect the integrity and conservation value of the site.
- **P-NCODS-5** Ensure that no ecological networks, or parts thereof which provide significant connectivity between areas of local biodiversity, are lost without remediation as a result of implementation of this Plan.
- **P-NCODS-6** Provide guidance for developers and the general public in relation to nature conservation outside designated sites and the conservation and enhancement of biodiversity and geological heritage in general.
- **P-NCODS-7** Integrate biodiversity considerations into Local Authority plans, programmes and activities where appropriate.

Wetlands Policies

It is the policy of Sligo County Council to:

- **P-WET-1** Have regard to the County Sligo Wetlands Surveys 2008-2011 and subsequent wetland surveys that may be published during the lifetime of this Plan. Protect surveyed wetland sites that have been rated of A (International), B (National) and C+ (County) importance.
- **P-WET-2** Ensure that an ecological assessment at an appropriate level is undertaken in conjunction with proposals involving drainage or reclamation of wetland habitats.

Woodlands, trees and hedgerows policies

It is the policy of Sligo County Council to:

- **P-WTH-1** Protect trees, woodlands and hedgerows from development that would impact adversely upon them. Promote new tree and woodland planting and the enhancement of existing hedgerows by seeking increased coverage, in conjunction with new development using native species of local provenance, where possible.
- **P-WTH-2** Discourage the felling of mature trees to facilitate development and, where appropriate make use of tree preservation orders to protect important trees and groups of trees which may be at risk or have an important amenity or historic value.
- **P-WTH-3** Require the planting of native broadleaved species, and species of local provenance, in new developments.
- **P-WTH-4** Promote the planting of native tree and shrub species by committing to using native species (of local provenance wherever possible) in its landscaping works and on County Council property.

Invasive species policies

It is the policy of Sligo County Council to:

- **P-INV-1** Prevent and control the spread of invasive plant and animal species within the county.
- **P-INV-2** Require, where appropriate, Invasive Species Management Plans to be prepared for development proposals regulated by the Planning Authority or undertaken by the Local Authority, and in particular for Japanese Knotweed and Giant Hogweed.

Inland waters policies

It is the policy of Sligo County Council to:

- **P-INW-1** Protect rivers, streams and other water courses and their associated Core Riparian Zones (CRZs) from inappropriate development and maintain them in an open state, capable of providing suitable habitats for fauna and flora. Structures (e.g. bridges) crossing fisheries waters shall be clear-span and shall be designed and built in consultation with Inland Fisheries Ireland.
- **P- INW-2** Protect and enhance biodiversity richness by protecting rivers, stream corridors and valleys by reserving land along their banks for ecological corridors, maintaining them free from inappropriate development and discouraging culverting or realignment.
- **P- INW-3** Ensure that all proposed greenfield residential and commercial developments use sustainable drainage systems (SUDS) in accordance with best current practice, ensuring protection of the integrity of wetland sites in the adjoining area, including their hydrological regime.
- **P- INW-4** Ensure that floodplains and wetlands within the Plan area are retained for their biodiversity and flood protection value.

- **P- INW-5** Ensure that proposed developments do not adversely affect groundwater resources and groundwater-dependent habitats and species

Biodiversity Planning

Ireland's National Biodiversity Plan 2017–2021[6] identifies actions towards understanding and protecting biodiversity in Ireland with the vision "*that biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally*".

Local Biodiversity Action Plans have been produced by some County Councils. The County Sligo Heritage Plan 2016 -2020 makes specific provision for biodiversity through Action 15 - Implement the County Sligo Biodiversity Action Plan (2011-2015) and develop a new plan in 2016 for years 2016-2020. The Biodiversity Action Plan provides four objectives, supported by 28 biodiversity actions. Its delivery is overseen by the Natural Heritage Working Group on behalf of Sligo Heritage Forum. The development and implementation of a Biodiversity Action Plan for Sligo reflects the importance of our natural heritage and the need to undertake dedicated action to sustain it for the future. Sligo Heritage Forum promotes a fully integrated approach to heritage which encompasses built and natural heritage equally. Accordingly, the Forum recognises the importance of strengthening the links between the County Heritage Plan and the Biodiversity Action Plan so that both plans are read as one and that they continue to inform and compliment each other.

[6] Department of Culture, Heritage and the Gaeltacht (2017). *National Biodiversity Plan 2017-2021*. Department of Culture, Heritage and the Gaeltacht, Dublin.

APPENDIX 5-B

Request for further information on bats (2019)

RESPONSE TO ITEM 12 OF REQUEST FOR FURTHER INFORMATION

Planning application for continued use and operation of the existing permitted quarry at Aghamore, Co. Sligo.
(Planning Reference 18/345)

Prepared for: Lagan Bitumen Ltd.

SLR Ref: 501.00396.00007
Version No: 1
April 2019

BASIS OF REPORT

This document has been prepared by SLR Consulting (Ireland) Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with Lagan Bitumen Ltd. (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

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Appendix B BCT guidelines for assessing the potential suitability of proposed development sites for bats.

INTRODUCTION

1.1 SLR Consulting Ireland (SLR) was commissioned by Lagan Bitumen Ltd. in 2019 to prepare the response to a Request for Further Information (RFI) from Sligo County Council (Planning Reference No. 18/345) for the proposed continued use and deepening of the existing permitted quarry at Aghamore, Co. Sligo.

Background

1.2 This report addresses Item 12 of the RFI which is as follows:

"You shall submit a Bat Survey for bat species that may be affected by the proposed development. The assessment shall include any potential effects along with proposed mitigation measures where such species are present or are affected. This is to be undertaken in compliance with S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011, Part 6 Protection of Flora and Fauna, Section 51 Regulations"

General Description of the Site

1.3 Aghamore Quarry ("the Site") is located in the townlands of Aghamore Near and Carrownamaddoo, approximately 3.5 km south of Sligo Town, centred at approximate ITM (Irish Transverse Mercator) coordinates 570109, 831866. The quarry is set in an agricultural landscape with the most common landuse in the surrounding area being pasture for agriculture.

1.4 The Site is screened by planted trees at the Site entrance and a short distance along either side of the access track. The northernmost corner of the Site is also well vegetated with dense scrub and well-structured field boundaries. The remaining length of the Site perimeter consists of stock proof fencing with occasional semi-mature trees present. The quarry void is itself largely unvegetated with occasional ruderal species growing sparsely.

Purpose of the Report

1.5 The purpose of this report is to respond to Item 12 of the Request for Further Information (Planning Reference No. 18/345) issued by Sligo County Council on 22 October 2018.

Evidence of Technical Competence and Experience

1.6 The bat survey report was prepared by SLR ecologist Owen Twomey. Elaine Dromey MCIEEM carried out the technical review of this report.

1.7 Owen Twomey is an ecologist with SLR and has worked in ecological consultancy since 2016. Owen holds a BSc in Environmental Science (Zoology) and a Postgraduate Diploma in Ecological Assessment from University College Cork. Owen has prepared ecological reports including bat survey reports for a wide range of developments.

1.8 Elaine Dromey holds a BSc in Earth Science from University College Cork and an MSc in Vegetation Survey and Assessment from the University of Reading, UK. She is a full member of the Chartered Institute of Ecology and Environmental Management. Elaine has carried out ecological works and prepared ecological reports for a variety of different projects including large wind farms, single turbine developments, power lines, quarry developments, anaerobic digesters, industrial development and single small developments.

LEGISLATION

1.9 All species of bat occurring in Ireland are protected under the Annex IV of EU Habitats Directive, which is transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011. Section 51(2) of the Regulations makes it an offence to:

- deliberately capture or kill any specimen of these species in the wild,
- deliberately disturb these species particularly during the period of breeding, rearing, hibernation and migration, or
- damage or destroy a breeding site or resting place of such an animal.

1.10 Bats are also protected under the Wildlife Acts 1976-2012. Under this legislation it is an offence to intentionally kill or injure a bat or intentionally destroy or disturb a breeding place or resting place. Section 31(5) of the Wildlife (Amendment) Act 2000 also makes it an offence if anyone wilfully interferes with or destroys the breeding place or resting place of a bat.

METHODS

1.11 The methodology used to carry out the survey of the Site, to evaluate the suitability of habitats to support bat species and to prepare the bat survey report are outlined in this section. The assessment methodology for evaluation of habitat suitability for bats is based on standard professional bat survey guidelines published in 2016 by the Bat Conservation Trust (BCT) (Collins, J. 2016).

Scope of the Report

1.12 The scope of this report is to set out the response to Item 12 of the RFI which is focused on the presence of bat species at Aghamore Quarry including the rationale for not carrying out a bat activity survey at the Site. For the purposes of this report the study area is limited to the redline boundary of the planning application area. The evaluation of the suitability of habitats for use by roosting and foraging / commuting bats is based on the field survey work carried out in 2016 and 2017.

Desk Study

1.13 A desk study was carried out to collate the available existing ecological information on the quarry at Aghamore, Co. Sligo. The Site and the surrounding area were viewed using existing available satellite imagery[1]. The National Biodiversity Data Centre (NBDC)[2] was accessed for records of bat species from the 1 km grid squares G6931, G6932, G7031, and G7032 within which the Site is located.

1.14 The conservation status of mammals within Ireland and Europe is identified using one or more of the following documents; Wildlife Acts (1976 - 2012), the Red List of Terrestrial Mammals (Marnell *et al*., 2009) and the EU Habitats Directive 92/43/EEC.

Field Survey

1.15 There was no specific bat survey carried out at Aghamore Quarry but the habitats present within the Site were evaluated for use by roosting and / or foraging during the surveys of the Site on 20 May 2016 and again on 14 September 2017.

1.16 The habitats present within the Site was evaluated for potential roosting features (PRFs) such as trees with holes and cavities, cracks and splits in major limbs, loose bark, ivy cover and dense epicormic growth, were assessed from the ground and recorded where present. Trees with features suitable for roosting bats were categorised using the criteria set out in Bat Conservation Trust (BCT) Guidelines (Collins, 2016) and included as Appendix B of this report. The habitats present within the Site were also assessed for their potential value to commuting and foraging bat species.

[1] https://www.google.ie/maps & https://www.bing.com/maps (last accessed 05 March 2019)
[2] http://maps.biodiversityireland.ie/#/Map (last accessed 05 March 2019)

RESULTS

1.17 NBDC returned records for a single bat species within the four 1 km grid squares within which the Site is located (G6931, G6932, G7031, G7032). The records returned are shown in Table 1 below.

Table 1 . NBDC Bat Species Records

Species	Grid square	Date of last record	No. of records	Protected status	Dataset
Soprano pipistrelle *Pipistrellus pygmaeus*	G7032	2007	2	Wildlife Acts Habitats Directive; Annex IV	National Bat Database of Ireland

1.18 Two records of a single species, soprano pipistrelle, were contained within the National Biodiversity Data Centre. Both of these records were captured during Bat Conservation Irelands car-based bat monitoring schemes carried out in 2005 and 2007. These records originate from a section of road ca. 350 m north-east of the entrance to the Site.

1.19 The habitats present within the Site are shown on Figure 1.

1.20 The dominant habitat within the Site is active quarry habitat that can be broadly described as exposed rock faces, stockpiles and bare ground sparsely recolonising with ruderal species – refer to EIAR Chapter 4. The quarry void also contained small areas of standing water at the time of survey in 2017 although it has also been flooded in recent years. The floor of the quarry void is largely unvegetated. The quarry is surrounded to the north and east by species poor improved agricultural grassland (GA1) with defunct gappy hedgerows and wire fencing delineating field boundaries.

1.21 Two areas of young planted mixed broadleaf woodland are present on either side of the quarry entrance. The dominant tree species present in these areas are semi-mature sycamore *Acer pseudoplatanus* with smooth bark and no potential roost features such cracks and crevices. There are some small sections of gorse *Ulex europaeus* and bramble *Rubus fruticosus* agg. dominated scrub within the Site.

Evaluation

1.22 The Site is not close to any internationally or nationally designated sites for bats. The quarry void is largely unvegetated bare limestone faces and there are only small areas of immature woodland and scrub around the southern and western perimeter of the planning application site. The quarry habitats are evaluated as having negligible suitability for roosting and commuting and foraging bats.

1.23 The semi-mature plantation woodland is not likely to provide any potential roost features and is evaluated as having negligible suitability. The plantation is considered to offer low suitability for foraging and commuting bats as it is poorly connected to suitable continuous habitat within the Site boundary and outwith the Site to the north and east.

1.24 In addition to the negligible – low suitability of the habitats within the Site for foraging and commuting bats there is also poor landscape connectivity[3] to suitable roosting and foraging and commuting habitats in the wider countryside i.e. beyond the redline planning application boundary.

[3] "*Landscape connectivity is a combined product of structural and functional connectivity, i.e. the effect of physical landscape structure and the actual species use of the landscape. Structural connectivity is equal to habitat continuity and is measured by analysing landscape structure, independent of any attributes of organisms. This definition is often used in the context of metapopulation ecology. Functional connectivity is the response of the organism to the landscape elements other than its habitats (i.e. the non-habitat matrix). This definition is often used in the context of landscape ecology*. (Kettunen *et al*. 2007)"

DISCUSSION

1.25 The bat population was evaluated as important at the Site level in the biodiversity chapter of the EIAR for the development submitted to Sligo County Council. Site level is the lowest level on the geographic scale (CIEEM 2016, 2018) used for assessment of potential impacts and effects of the proposed development. The habitats evaluated as low suitability for bats will not be affected at all by the proposed development while the loss of habitats evaluated as negligible suitability, such as active quarry, is not considered to be a concern. Bats were not considered likely to be significantly affected by the proposed continuation of use of the quarry and was therefore scoped out of the assessment.

1.26 The proposed development is unlikely to have a negative effect of bat species. The proposal will not result in a loss of suitable roosting, commuting or foraging habitat with the potential to support bat species. There are no specific mitigation measures recommended

CONCLUSIONS

1.27 The proposed continuation of use and deepening of the limestone quarry at Aghamore, Co. Sligo will not result in loss of features suitable to support roosting bats. There will be no loss or reduction of foraging or commuting bat habitats.

1.28 It is not likely that the operational phase of the proposed development will result in negative effects to bat species.

1.29 The site will be restored to natural habitat once quarrying activities have ceased. The restoration phase may result in a slight positive effect on bats as the diversity of habitats present will increase and should result in opportunities for foraging and commuting.

REFERENCES

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APPENDIX A: FIGURES

APPENDIX B

BAT CONSERVATION TRUST GUIDELINES FOR ASSESSING THE POTENTIAL SUITABILITY OF PROPOSED DEVELOPMENT SITES FOR BATS

Guidelines for assessing the potential suitability of proposed development sites for bats

Suitability	Description of Roosting Habitats	Description of Communing and Foraging Habitats
Negligible	A building, structure, tree or other feature with negligible habitat features likely to be used by bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A building or structure with one or more potential roost features that could be used by individual bats opportunistically, but do not provide enough space, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and/or suitable surrounding habitat to be used on a regular basis, or by larger numbers of bats. Buildings in this category are unlikely to support a maternity colony or be used by hibernating bats. A tree of sufficient size and age to contain potential roost features but with none seen from the ground, or features seen with only very limited roosting potential (i.e. some small cracks or crevices, low ivy cover).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated and not very well connected to the surrounding landscape by other habitat and/or features. Suitable but isolated habitat that could be used by small numbers of foraging bats.
Moderate	A building, structure, tree or other feature with one or more potential roost sites that could be used by bats due to their size, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and surrounding habitat but unlikely to support a roost of high conservation value status. Buildings, structures and trees falling into this category would not be expected to support a maternity colony, or significant hibernation or transitory roost.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A building, structure, tree or other feature with one or more potential roost sites that are obviously suitable for use by large numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and surrounding habitat. Buildings, structures and trees falling into this category may be expected to support a maternity colony, or significant hibernation or a significant transitory roost.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such a broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roost.

APPENDIX 5-C

Request for further information on raptors (2019)

CONCLUSIONS

1.38 The proposed continuation of use and deepening of the limestone quarry at Aghamore, Co. Sligo will result in localised effects on the ecology of the Site. There will be no lateral extension of the quarry and therefore the existing higher quarry faces will remain in situ. The effects likely to occur will arise due to quarrying activities such as blasting and rock extraction close to the nest sites although these activities are not likely to affect kestrel as it has historically nested outside the active quarry void. Breeding birds, particularly raptors such as peregrine falcon and kestrel, are considered likely to continue using the quarry even when operational. It is proposed to carry out a breeding bird survey at the quarry during the first season of quarry activity and then use the results to inform the quarry operator to avoid or reduce certain activities in areas during the breeding season.

1.39 The restoration plan for the Site has incorporated the retention of the cliff faces used by the breeding raptors. The quarry, once it has ceased operation, will therefore continue to provide suitable habitat for breeding raptor species such peregrine falcon and kestrel.