



remedial Environmental Impact Assessment Screening Report

remedial Environmental Impact Assessment Screening Report
in relation to an application to An Bord Pleanála for
substitute consent by Gabriel Murray of Murray Stone for the
Quarry at Drumbeagh, Mountcharles, Co. Donegal.

Greentrack Environmental Consultants

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1 INTRODUCTION

Greentrack consultants have been requested by Gabriel Murray of Murray Stone, c/o McMullin Associates Architects, Tirchonail Street, Donegal Town, Co. Donegal, to assist in forming an opinion as to whether or not the quarrying project at Drumbeagh, Mountcharles, Co. Donegal, should be, or should have been, subject to Environmental Impact Assessment (EIA). Experience and rulings by the European Court of Justice having shown that, in certain circumstances, small-scale projects can have significant effects on the environment. This report comprises a remedial Environmental Impact Assessment Screening Report. A separate Ecological Report which includes a Stage 1 Appropriate Assessment Screening Report has also been prepared. Both these reports will be taken into consideration by An Bord Pleanála in its determination as to whether EIA and/or AA is, or was, required in this instance.

1.1 Background

The applicant Gabriel Murray has extensive experience in the Quarry business and now wishes to regularise the enterprise through the substitute consent process. The quarry of interest was mapped as a quarry in the 1800's and has been operational and in the Murray family for several generations.

1.2 Statement of Authority

This Environmental Impact Assessment Screening Report has been compiled by Greentrack Environmental Consultants. The principal authors of this report are Denis Faulkner (B.Agr. Sc, M.A.C.A, M.A.S.A), Colin Farrell (BSc (Hons) in Geochemistry (Reading University), MSc in Applied Environmental Sciences (QUB)) and Daniel Faulkner (B.Sc. in Environmental Science from NUIG and MSc in Environmental Sustainability from UCD).

Denis Faulkner has 15 years' experience in compiling screening reports and EIA/EIAR. Colin Farrell has been working with Greentrack for the last 10 years and has extensive experience in dealing with screening reports and EIA/EIAR. Daniel has been involved in all aspects of Environmental Impact Assessment, Appropriate Assessment and Ecological Impact Assessment since 2018.

2 LEGISLATIVE CONTEXT

The guidelines for the control of quarries and ancillary activities (2004) DEHLG states within it under section 2.3 that "Since aggregates can only be worked where they occur, priority should be given to identifying the location of major deposits and to including a commitment to safeguard valuable unworked deposits for future extraction". This statement is supported by the Donegal County Development Plan 2018-2024 where it states that "The extractive industries shall be guided by DEHLG Quarries and Ancillary activities guidelines for planning authorities 2004 and the EPA Environmental Management Guidelines – Environmental Management in the Extractive Industry (Non- scheduled minerals) 2006".

According to the European Commission Guidance (2017), "Screening has to implement the Directives overall aim, i.e to determine if a Project listed in Annex II is likely to have significant effects on the environment and, therefore, be made subject to a requirement for Development Consent and an assessment, with regards to its effects on the environment. At the same time, Screening should ensure that an EIA is carried out only for those Projects for which it is thought that a significant impact on the environment is possible, thereby ensuring a more efficient use of both public and private resources. Hence, screening has to strike the right balance between the above two objectives."

Recent guidelines from the Department of Housing, Planning and Local Government (2018) in relation to screening state:

“3.1. Screening is the initial stage in the EIA process and determines whether or not specified public or private developments are likely to have significant effects on the environment and, as such, require EIA to be carried out prior to a decision on a development consent application being made. A screening determination is a matter of professional judgement, based on objective information relating to the proposed project and its receiving environment. Environmental effects can, in principle, be either positive or negative.

3.2. Screening must consider the whole development. This included likely significant effects arising from any demolition works which must be carried out in order to facilitate the proposed development. In the case of transboundary developments, screening must consider the likely significant effects arising from the whole project both sides of the boundary. A screening determination that EIA is not required must not undermine the objective of the Directive that no project likely to have significant effects on the environment, within the meaning of the Directive, should be exempt from assessment.”

Flora and fauna of Ireland are protected at a national level by the Wildlife Acts 1978 to 2012 and the Flora (Protection) Order 2015.

Annex III of the EIA Directive (as amended), schedule 7 to the Planning and development regulations 2001, as amended, lists the criteria for determining whether a project should be subject to EIA. Annex IIA of the EIA Directive (as amended)/Schedule 7A to the Planning and Development Regulations, 2001, as amended, set out the information to be provided for the purposes of EIA screening.

Planning and Development Act 2000 contains both mandatory and discretionary development plan objectives. Mandatory objectives (section 10) of most relevance to quarries include:

The conservation and protection of the environment including, and in particular, the archaeological and natural heritage and the conservation and protection of European sites and any other sites (such as Natural Heritage Areas – NHAs) which may be prescribed.

The preservation of the character of the landscape where and to the extent that, in the opinion of the planning authority, the proper planning and sustainable development of the area requires it, including the preservation of views and prospects and amenities of places and features of natural beauty or interest.

Relevant discretionary objectives in the First Schedule of the Act include:

- Regulating, promoting or controlling the exploitation of natural resources
- Protecting and preserving the quality of the environment, including the prevention, limitation, elimination, abatement or reduction of environmental pollution and the protection of waters, groundwater, the seashore and the atmosphere
- Securing the reduction or prevention of noise emissions or vibrations
- Preventing, remedying or removing injury to amenities arising from the ruinous or neglected condition of any structure or from the objectionable or neglected condition of any land.

Part 1 and Part 2 of Schedule 5 of the Planning and Development Regulations 2001 (as amended) set out the forms of development that require an environmental impact assessment report (EIAR):

Paragraph 19 or Part 1 of Schedule 5 states that the following form of development requires an EIA “Quarries and open-cast mining where the surface of the site exceeds 25 hectares”.

Paragraph 22 relates to changes or extensions. It states: “Any change or extension of projects listed in this Annex where such a change or extension in itself meets the thresholds, if any set out in this Annex”.

Paragraph 2 of Part 2 of Schedule 5 refers to extractive industry and part (b) of that section states that the following requires an EIA: “Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares.”

The quarry operation at Drumbeagh has a potential site area of 3.45 hectares, with a current extraction area less than this. The development under Schedule 5 of the Planning and Development Regulations 2001 (as amended) is sub-threshold for EIA. In cases where a project is mentioned in part 2 but is considered “sub-threshold,” the competent authority must determine whether the development is likely to have significant impacts on the environment. This determination is not made on the basis of size alone, but also the location of the development and its nature must be taken into consideration.

This report has been undertaken with reference to guidance from the following documents:

- Environmental Impact Assessment Screening (PN02), Office of Planning Regulator, June 2021.
- Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, May 2022.
- Directives 2011/92/EU and 2014/52/EU on the assessment of the effects of certain public and private projects on the environment.
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, January 2016).
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.
- Donegal County Development Plan 2018 — 2024 (as Varied).

EIA screening requires consideration of environmental information, as set out in Schedule 7A of the Planning and Development Regulations 2001. The Developer has commissioned, and qualified experts have carried out, site specific environmental investigations of the site. The findings of these studies have informed the Schedule 7 information for this application.

3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

3.1 Project Description

The proposal is for substitute consent for the quarry development at Drumbeagh, Mountcharles, Co. Donegal. The total site area is 3.45 ha which is well below the sub threshold determination level for EIA.

Extraction of the product is by mechanical means using a ripping claw on an excavator. Occasionally boulders have to be broken down further using an impact breaker mounted on an excavator down into smaller more manageable pieces. Won rock is then transported using excavator bucket or low loader bucket to the guillotine area. Rock is then guillotined by hand and stacked on pallets ready for collection. Some rock pieces are cut with a circular saw to size and then stacked on pallets ready for collection. There are no delivery lorries associated with the operation. Most customers collect product. In the past, the applicant states that occasionally blasting occurred on site to win rock. The practice was discontinued after it was seen to induce unwanted fracture patterns into the rock lessening its value as cut-stone product. There are no plans to blast at the site.

The subject site is made up of previously worked faces and benches as well as additional ground to the east of the site which is proposed to be extracted. There are a number of water-filled voids on site. Some are groundwater pools and others are acting as active settlement ponds treating surface water runoff. No washing of product takes place on this site. A crude but effective water management system is in place for the site, treating surface water effectively before discharge off site.

The processing area where rock is sawn or guillotined is surfaced with concrete and graded into a central sump. Any runoff from this area is captured in the sump and water is then recycled for use in the cutting saws when required. There is no outflow from this sump.

The quarry capacity in Donegal has greatly reduced over the last number of years due to economic, environmental, and planning compliance concerns. This has resulted in a deficit of quality materials within the County. The development provides a local high value product. This application proposes to cater for local needs in a fashion that is careful and thoughtful to the environment. The quarry enterprise provides steady long-term employment for the quarry owner and 2 local persons.

3.1.1 Fuel and Chemical Storage

No oils or chemicals are stored on site. Refuelling will be undertaken from an independent licenced fuel contractor at a designated refuelling point. Spill kits are available on site.

3.1.2 Working Hours

The quarry operates normal working hours of 08.00 to 17.00 Monday to Friday. The quarry is closed on weekends and bank holidays.

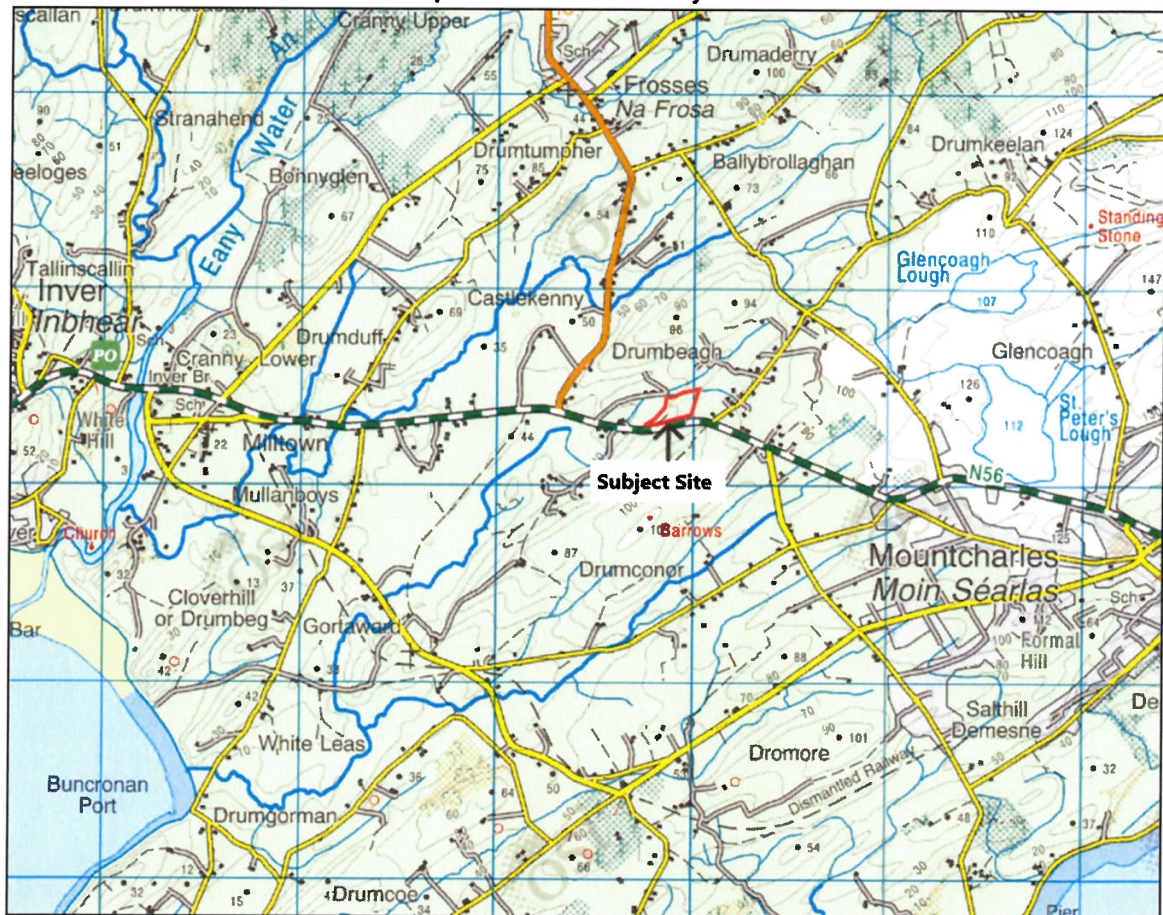
3.1.3 Utilities and Services

There is no electricity supply or mains water supply to the site. The guillotine and circular saw are electric and are powered by a diesel generator on site.

3.2 Project Location

The development consists of a quarry located on a 3.45-hectare site in the rural townland of Drumbeagh. The site is located immediately north of the N56 between the villages of Mountcharles and Inver. The site is approximately 2.5 km west of Mountcharles, 3 km east of Inver and 1.7 km south of the villages of Frosses. The site is accessed off a local slip road immediately off the N56. The access road also serves the quarry owner and one other local resident. The site is surrounded by a mixture of poor-quality agricultural land, improved agricultural grassland and one-off rural houses and farmsteads. There are also peatlands and isolated forestry blocks in the surrounding area.

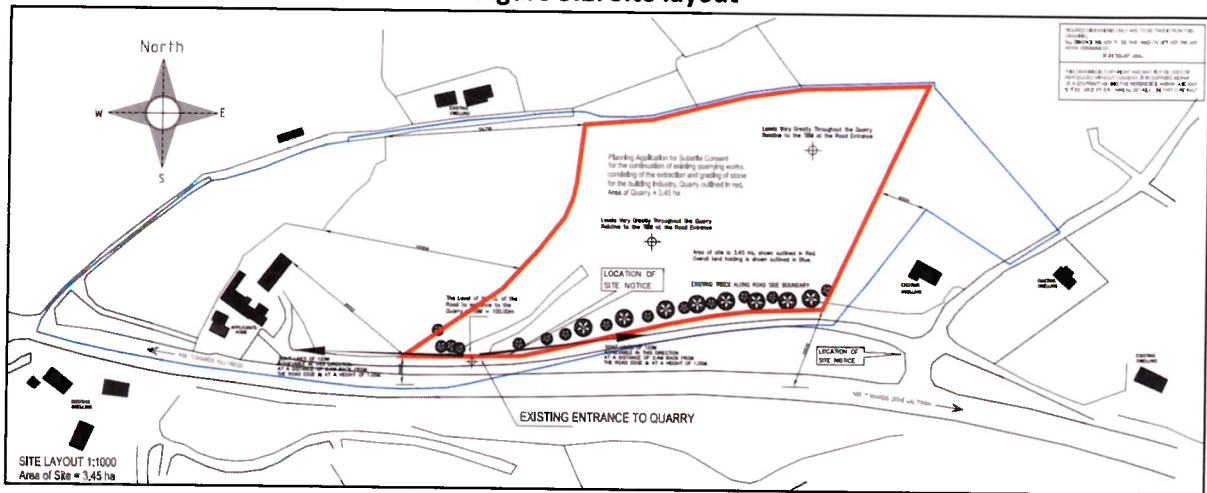
The subject site location is outlined in Maps 3.1 and 3.2 below and the site layout is detailed in Figure 3.1 below. Figure 3.2 below is a digital topographical map showing the site.

Map 3.1: Location of subject site

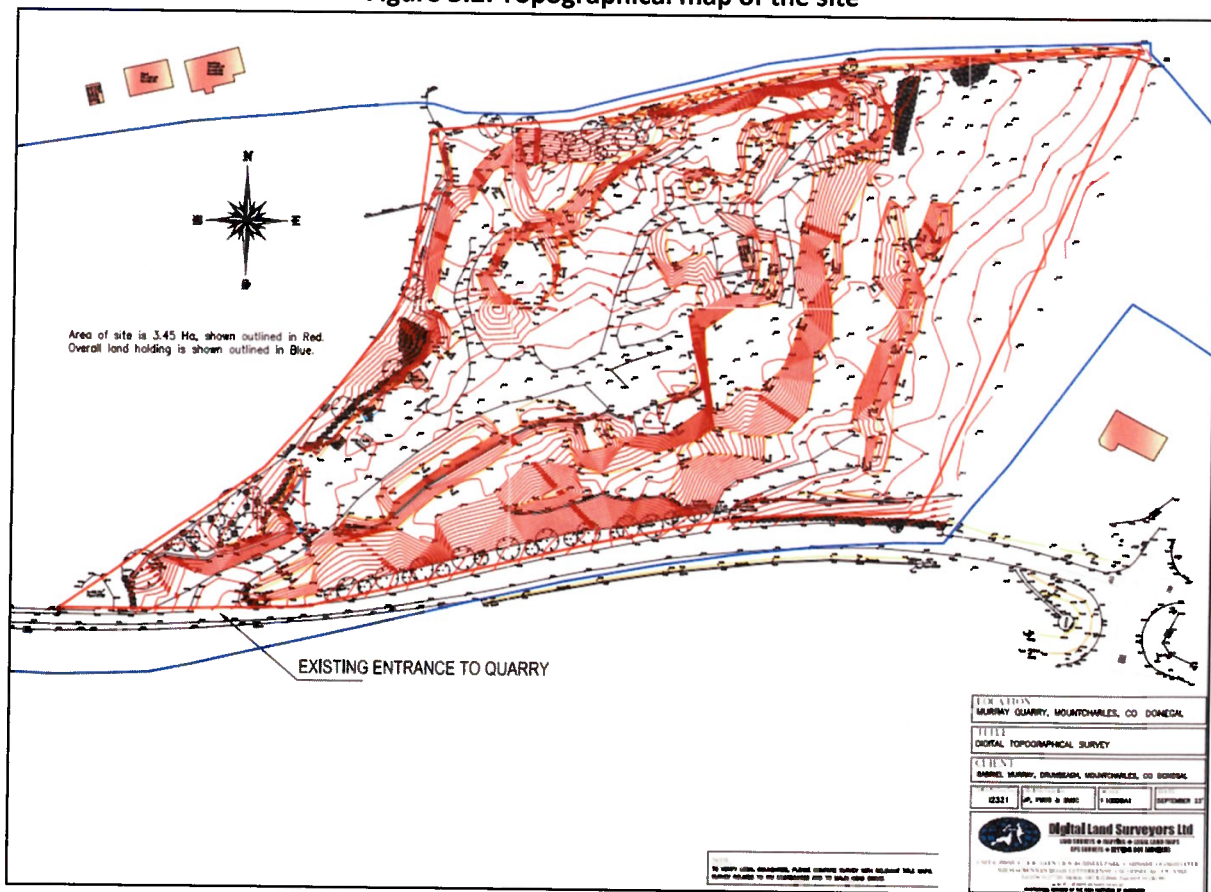
CYAL50244901 © Ordnance Survey Ireland/Government of Ireland

Map 3.2: Application site

(Map created using QGIS software)

Figure 3.1: Site layout

(Extract from Drawing provided by McMullin Associates)

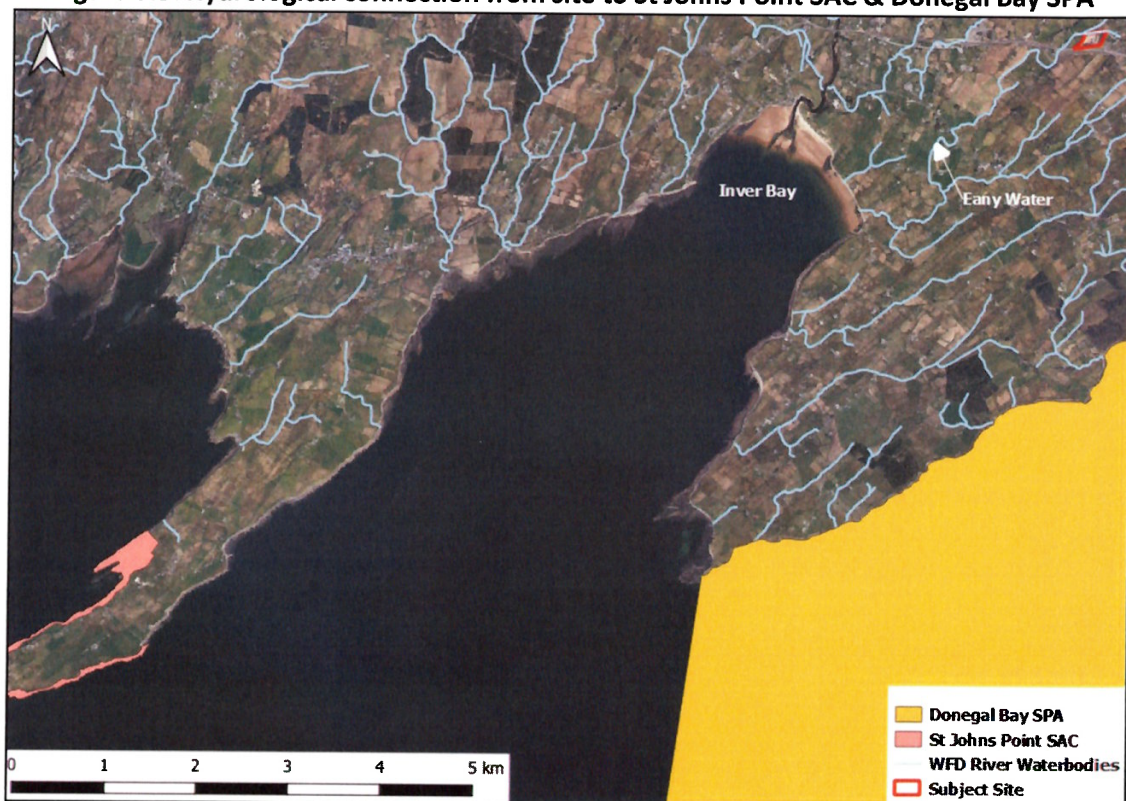
Figure 3.2: Topographical map of the site

(Map supplied by McMullin Associates)

Section 4.8.1 contains a pictorial report showing the proximity of houses and buildings to the subject quarry. The closest dwellings to the site are located 55m east of the eastern boundary of the site and 150 m east of the active quarry face, 75m west of the northwestern corner of the site and approximately 180 m from the active quarry face. The applicant and quarry operator lives approximately 130 m west of the quarry entrance.

Photograph 3.1: Elevated view of the site (looking west)

The nearest hydrologically connected Natura sites are St Johns Point SAC (Site Code: 000191) at 13.67 km hydrological distance and Donegal Bay SPA (Site Code: 004151) at 9.17 km hydrological distance. The hydrological connection is demonstrated in Figure 3.3 below.

Figure 3.3: Hydrological connection from site to St Johns Point SAC & Donegal Bay SPA

(Created using QGIS software and datasets from NPWS)

3.3 Cumulation with existing and/or approved projects

An assessment of the project's potential to combine with other existing and/or approved projects to result in likely significant effects on the environment is provided in Section 5.12 of this report.

3.4 Use of natural resources

This proposal is for the regularisation of an existing quarry for the sole purpose of extracting stone. More detail is provided in section 4.3 of this report. Water usage in the quarry has been and will be minimal as no washing of stone is planned. Rainwater is captured in the existing quarry void and utilised within the quarry when required. More detail on water management is provided in section 4.4 of this report.

3.5 Production of waste

Solid inert waste in the form of soil and stone is not an issue in this proposal as all will be termed "overburden" and has been used within the quarry as "berms" or in the planned phased restoration process.

Other waste such as plastic wrapping, wood pallets and cardboard will be saved on site and sent to an authorised waste facility for recycling. Waste oils and other hydrocarbons may be produced on site and this is dealt in section 3.6 below.

3.6 Pollution and nuisance

Pollution and nuisance that could arise because of this project relate to residues, emissions, noise, dust and vibrations generated during the operational phase of this project. Examples of potential residues include the contamination of soils and waters with polluting materials. On this site hydrocarbons would represent a potential source of pollution. Unregulated site runoff containing heavy loading of suspended solids would represent the main pollution threat. Potential emissions include:

- The discharge of polluted (hydrocarbons/suspended solids) surface water runoff to receiving surface and groundwater.
- The generation of noise and vibrations during the extraction activities.
- The generation of airborne emissions such as dust and exhaust fumes during the operation

Section 5.2 of this Screening Report provides an assessment of the significance of potential pollution and nuisance sources associated with this proposal & outlines mitigation measures in place and proposed mitigation measures for the protection of the environment.

3.7 Risk of major accidents and/or disasters

The potential for the active quarrying phase of this proposal to result in major accidents and/or disaster is low. This is based on the relatively small-scale nature of the quarry and the high safety standards that are now operational on all quarry sites in line with the Safety, Health and Welfare at Work Act 2005, and the Safety, Health and Welfare at Work (Quarries) Regulations, 2008, and best practice within industry.

An examination of the flood risk maps produced by the OPW was carried out with regard to the subject site. It is noted that the nearest flood risk area (0.1% AEP for fluvial flood events) is over 2 km to the west and in a separate catchment to the subject site. There have been no historical flood events at or near the site. The nearest recorded historical flood event was in Inver village approximately 4 km west of the subject site.

3.8 Risk to human health

An assessment to the risk to human health is provided in Section 5.2 of this screening report.

4 INTERACTIONS OF THE PROPOSED DEVELOPMENT

4.1 Population and Human Health

The site is located in a structurally weak rural area and the quarry provides much needed long-term secure employment in the local area.

The site is within the small area 057138002. According to the 2016 census there are 123 inhabitants in this small area. The unemployment rate in the area was recorded as 19.5 % compared to the national average of 19 % (2016). The quarry is a positive addition to the area as it provides local long-term employment. In addition, the quarry will contribute indirectly to sustaining and developing the local and regional economy through the supply of locally sourced high value decorative stone product.

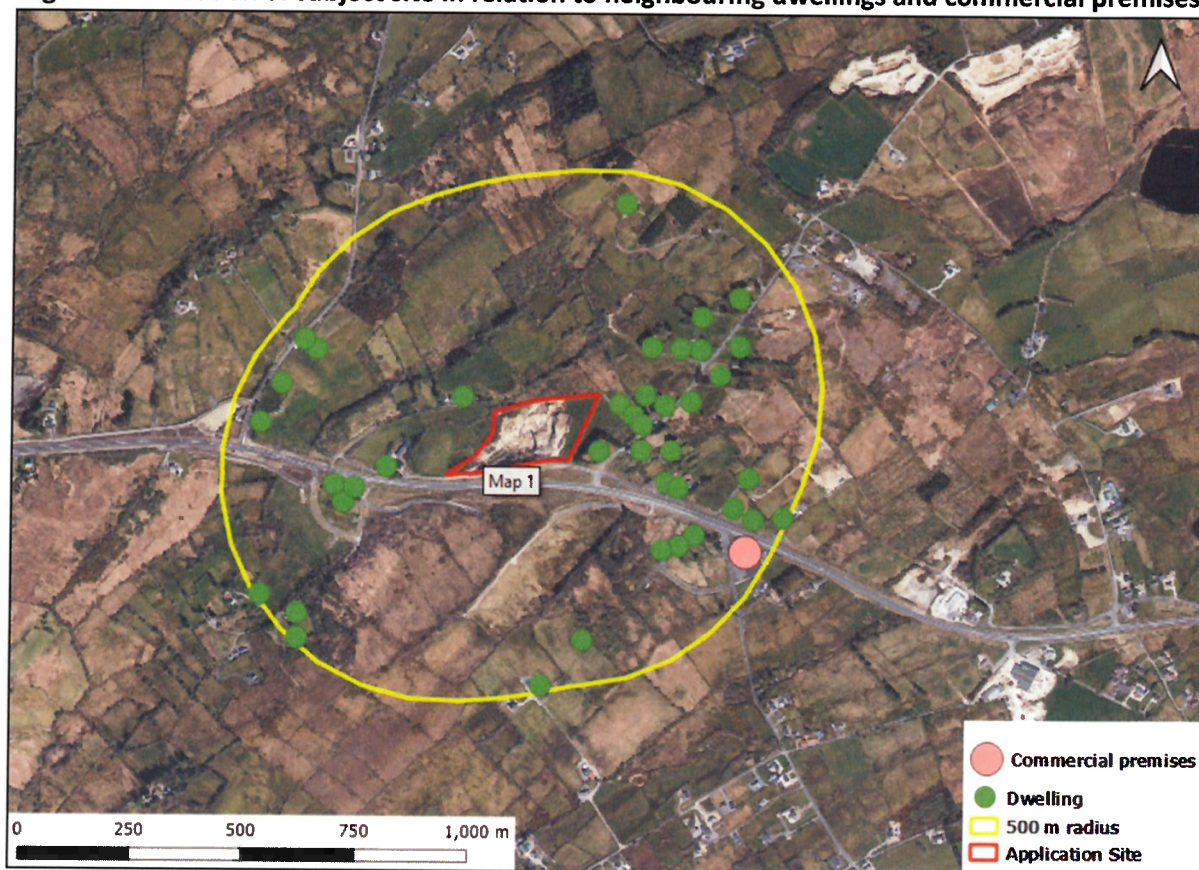
4.1.1 Community Facilities and Amenities

There are no community amenity facilities in the immediate area of the quarry such as playgrounds, sports fields etc. The nearest community facilities lie in the villages of Inver and Mountcharles west and east of the site respectively.

Sensitive receptors for human beings to environmental effects, such as noise, air quality, vibrations and increased traffic are outlined below and are in line with the Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, May 2022.

- Homes
- Hospitals
- Hotels and holiday accommodation
- Schools and rehabilitation workshops

The principal sensitive receptors within the environs of the subject site are the residential properties predominantly to the west and east of the quarry. There are 40 dwellings within 500 m of the quarry boundary. Most are located along the N56 running east-west to the south of the quarry, along the L-65115-1 running north-south to the east of the quarry and along the R 262 running north-south to the west of the quarry. There is also one commercial premises, Kelly's Toyota dealership and garage located almost 500m southwest of the quarry along the N56.

Figure 4.1: Location of subject site in relation to neighbouring dwellings and commercial premises

(Created using QGIS software)

4.1.2 Noise and Human Health

The generation of noise and vibrations during the active quarry phase will have the potential to influence human health. This is discussed in greater detail in section 4.5.

4.1.3 Air quality and Human Health

The proposed development will have the potential to generate dust emissions and exhaust emissions which could influence air quality and human health. Air quality and human health is discussed in greater detail in section 5 of this report.

4.2 Biodiversity

The subject site is not subject to any statutory conservation designations. A stage 1 appropriate assessment screening report identified several European sites within the zone of influence of the proposal. After examination it was determined that significant effects on the Natura 2000 network arising from the proposed development, either individually or in combination with other plans or projects are not likely to occur.

The potential for direct effects was excluded as the site is not situated within the boundary of any European Site. The potential for in-direct effects was excluded due to separation between site and European sites, the extent and associated dilution of the hydrological connection to European sites. There are also no Natural Heritage Areas (NHA) in proximity to the subject site, therefore this consideration can also be screened out and excluded from further consideration in this report.

The dual designation of pNHAs and European sites allows for AA screening to also assess impacts of the proposal on pNHA's. Therefore, on the basis of AA screening impact on pNHAs can be excluded.

Greentrack conducted a site walkover on 01/08/2023. A phase 1 habitat survey was conducted during the initial site walkover using guidelines produced by the JNCC in conjunction with Fossitt's Guide to Habitats in Ireland. Animal tracks and signs or direct observations were also recorded during the walkover surveys of the site.

4.2.1 Habitats

ED4- Active quarry. Active Quarry is the dominant habitat type within the Site and can be broadly described as exposed rock faces, minimal stockpiles and bare ground sparsely recolonising with ruderal species. The quarry void also contains standing water. This area is largely unvegetated, with occasional clumps of rushes (*Juncus effuses*) and creeping bent (*Agrostis stolonifera*). 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. With the exception of the exposed rock face as a nesting area for breeding birds, the subject site does not offer suitable opportunities for fauna. No evidence of bird nesting on the rock face was noted during any of the site visits.

GA1 – Improved grassland. Areas of improved agricultural grassland are within the subject site, particularly in one large section of active pasture in the E of the Site. As is typical of this species poor habitat this area is dominated by rye grasses (*Lolium perenne*). Improved agricultural grasslands are dominant in the wider environment as the subject site is located in an area of intensive farming. Improved grassland is not a biodiverse habitat and is considered to be of poor ecological value.

WD2 – Mixed Broadleaved and Conifer Woodland

This woodland comprises a mix of conifer and broadleaved species with canopy height greater than 5m.

WS1 – Scrub.

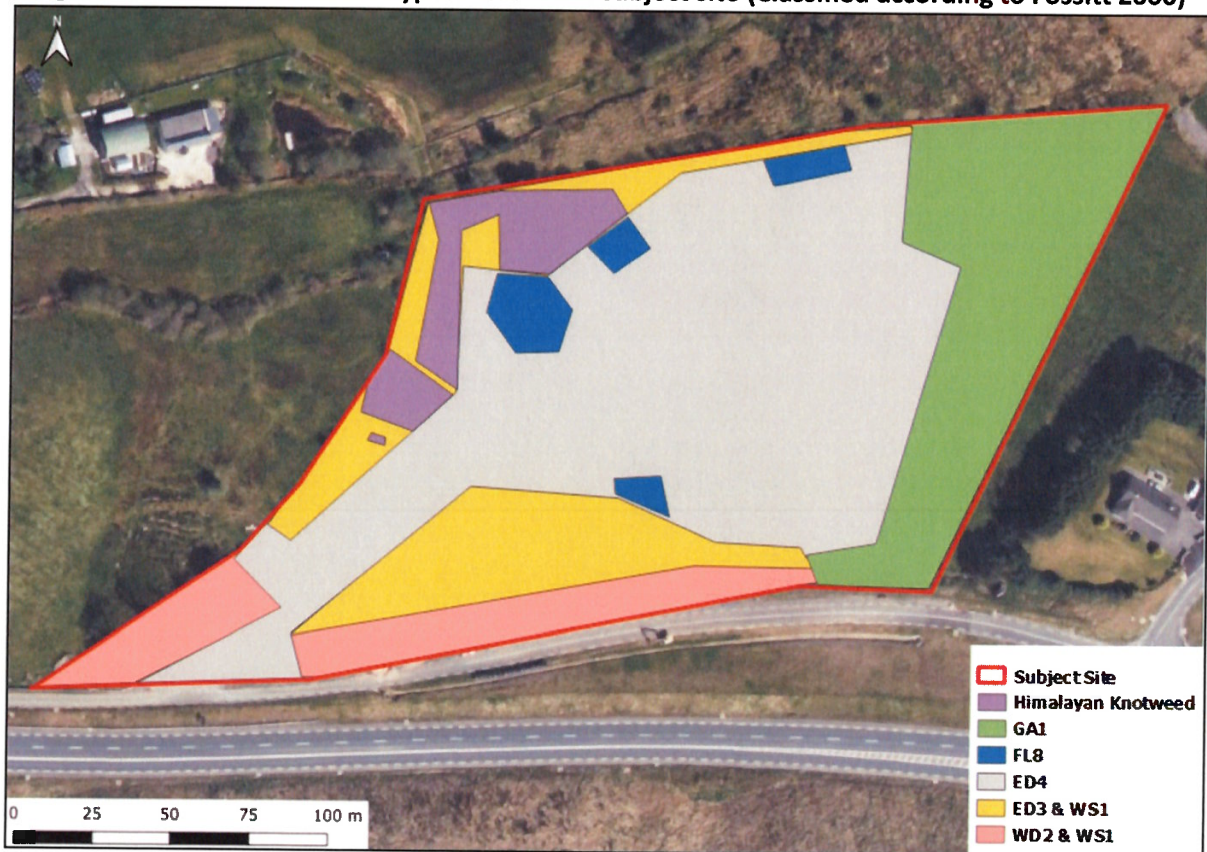
Scrub occurs throughout the site often grading to Mixed woodland in denser thickets. Scrub has also developed in areas of recolonising bare ground. Typical species in this habitat include Gorse (*Ulex europaeus*), Hawthorn (*Crataegus monogyna*), Bramble (*Rubus fruticosus*), strand of occasional Willow (*Salix spp.*).

ED3 – Recolonising bare ground. At the north, west and south of the subject site there are patches of recolonising bare ground which consists of rock debris, exposed soil, grasses, sedges, rushes and juvenile gorse. This area is of no significant ecological value and will eventually be encroached by scrub, if left undisturbed. This area will be excavated, subject to planning being granted. In the north and western patches there are significant stands of the invasive species Himalayan Knotweed (*Persicaria wallichii*) which appears to have colonised the disturbed ground in the north and west of the site.

FL8 – Artificial Lakes and Ponds. These waterbodies occur throughout the site.

Figure 4.2 below outlines the approximate location of the habitats described. This map is not to scale and is for illustration purposes only.

Figure 4.2: Outline of habitat types included in subject site (Classified according to Fossitt 2000)



(Map created using QGIS)

The below photographs illustrate the different habitats found on the subject site.

Photograph 4.1: The quarry site facing east, WD2 is in the left background, grading to scrub, GA1 is evident in the right background, in addition to patches of WS1. ED4 and ED3 comprise the foreground.



Photograph 4.2: ED3, WS1, and FL8



Photograph 4.3: Himalayan Knotweed



Photograph 4.4: WS1 on the quarry ledges

4.2.2 Fauna and Flora

The field visits and desk studies were conducted to assess the flora and fauna that occurs and is supported by the site. The following sources were also consulted to allow a desk study to be undertaken:

- The National Biodiversity Data Centre (NBDC) were accessed for information (15/8/2023) on sites and protected habitats and species in proximity to the subject site.
- 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 Birdwatch Ireland website was accessed on 18/8/2023 for information on birds of conservation concern.
- The conservation status of mammals within Ireland and Europe is established by 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.

The NBDC database was searched for records around the subject site within the 2km² National Grid square G87P, in which the subject site is located. The records returned are of varying ages so for the purposes of preparing this report only the relevant records dated within the last 15 years are listed. The absence of recent records of species from the NBDC database does not necessarily imply that a species does not occur within the search area rather it has not formally been recorded as present. Similarly, the presence of a record for a protected species within the 1km² grid squares does not mean that the species is present within the site. Relevant data from the NBDC data base is outlined in tables below.

4.2.3 Mammals

Table 4.1: Mammals recorded in NBDC database for 2km National Grid G87P

Species Name	Count	Date	Dataset	Designation
Brown Rat (<i>Rattus norvegicus</i>)	1	09/12/2014	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (<i>Meles meles</i>)	1	19/04/2017	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	4	19/04/2018	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Irish Hare (<i>Lepus timidus subsp. hibernicus</i>)	6	26/12/2022	Mammals of Ireland 2016-2025	
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	1	16/06/2007	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Red Fox (<i>Vulpes vulpes</i>)	1	26/02/2017	Mammals of Ireland 2016-2025	
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	2	16/06/2007	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

Desk research shows that several terrestrial mammals occur in Grid Square G87P. No incidental sightings of any of these mammals occurred during site visits. There were no signs of mammal tracks, droppings, or setts.

Two Bat species have been recorded in Grid G87P, *Pipistrellus pipistrellus sensu lato* and *Pipistrellus pygmaeus*. The area surrounding subject site has a bat suitability index of 26.89 for all bats. Visual inspection of potential roosts (cracks, crevices, mature trees) during site visits did not reveal any signs of roosting bats such as guano, claw marks, stains, odour, or individuals. The wooded habitat features at the site's periphery may provide foraging ground for bat species and may provide navigational assistance. All wooded features are to be retained on-site.

4.2.4 Birds

The desktop research provided the following information as detailed in Table 4.2 below:

Table 4.2: Birds recorded in NBDC database for G87P

Species Name	Count	Date	Dataset	Designation
Black-billed Magpie (<i>Pica pica</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Blue Tit (<i>Cyanistes caeruleus</i>)	2	10/06/2017	Birds of Ireland	
Chaffinch (<i>Fringilla coelebs</i>)	2	10/06/2017	Birds of Ireland	
Common Blackbird (<i>Turdus merula</i>)	2	10/06/2017	Birds of Ireland	
Common Bullfinch (<i>Pyrrhula pyrrhula</i>)	2	10/06/2017	Birds of Ireland	
Common Buzzard (<i>Buteo buteo</i>)	4	11/08/2021	Birds of Ireland	
Common Cuckoo (<i>Cuculus canorus</i>)	2	17/05/2017	Birds of Ireland	
Common Grasshopper Warbler (<i>Locustella naevia</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.
Common Kingfisher (<i>Alcedo atthis</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.
Common Pheasant (<i>Phasianus colchicus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species.
Common Starling (<i>Sturnus vulgaris</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.

Species Name	Count	Date	Dataset	Designation
Common Whitethroat (<i>Sylvia communis</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Eurasian Jackdaw (<i>Corvus monedula</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Eurasian Sparrowhawk (<i>Accipiter nisus</i>)	2	28/12/2022	Birds of Ireland	
European Robin (<i>Erithacus rubecula</i>)	2	10/06/2017	Birds of Ireland	
Great Tit (<i>Parus major</i>)	1	10/06/2017	Birds of Ireland	
Hedge Accentor (<i>Prunella modularis</i>)	2	10/06/2017	Birds of Ireland	
Hooded Crow (<i>Corvus cornix</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
House Sparrow (<i>Passer domesticus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.
Lesser Redpoll (<i>Carduelis cabaret</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Mallard (<i>Anas platyrhynchos</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species.
Meadow Pipit (<i>Anthus pratensis</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Mistle Thrush (<i>Turdus viscivorus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	

Species Name	Count	Date	Dataset	Designation
Reed Bunting (<i>Emberiza schoeniclus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Rook (<i>Corvus frugilegus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Sand Martin (<i>Riparia riparia</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.
Sky Lark (<i>Alauda arvensis</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List.
Song Thrush (<i>Turdus philomelos</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
White Wagtail (<i>Motacilla alba</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Willow Warbler (<i>Phylloscopus trochilus</i>)	2	10/06/2017	Birds of Ireland	
Winter Wren (<i>Troglodytes troglodytes</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	

Daniel Faulkner of Greentrack conducted a bird survey of the site on the 20/07/2023 and the results are summarised below in Table 4.3 below:

Table 4.3: Greentrack Bird Survey

Site Name:	Murray Stone			
Date: Start time: End time:	20/07/2023 9.00 11.00			
Counter: Weather: Activity:	Daniel Faulkner Cloud cover: 5% Rain: 1 none but ground very wet from previous night Wind: 1 calm Visibility: 1 good. There was no other activity onsite.			
Species	By sight		By sound	
	In flight	Foraging	Roosting	
Jackdaw	1			
Common Whitethroat		4		
Hooded crow	1	1		
Blue tit				1
Bull Finch	1			
Blackbird		1		1
Robin		1		

Field survey did not reveal any Birds that are listed as SCI's for Special Protection Areas. No roosting birds were observed on site. Foraging and in-flight birds were observed. It is not likely that the site supports any SCI Bird species.

4.2.5 Insects

Table 4.4: Insects recorded in NBDC database for G87P

Species Name	Count	Date	Dataset	Designation
Common Blue (<i>Polyommatus icarus</i>)	1	11/06/2021	Atlas of Butterflies in Ireland 2021	
Green-veined White (<i>Pieris napi</i>)	4	04/08/2021	Atlas of Butterflies in Ireland 2021	
Holly Blue (<i>Celastrina argiolus</i>)	1	03/05/2020	Atlas of Butterflies in Ireland 2021	

Species Name	Count	Date	Dataset	Designation
Large White (<i>Pieris brassicae</i>)	1	22/05/2018	Atlas of Butterflies in Ireland 2021	
Meadow Brown (<i>Maniola jurtina</i>)	2	04/08/2021	Atlas of Butterflies in Ireland 2021	
Orange-tip (<i>Anthocharis cardamines</i>)	4	02/05/2021	Atlas of Butterflies in Ireland 2021	
Peacock (<i>Inachis io</i>)	8	11/08/2021	Atlas of Butterflies in Ireland 2021	
Red Admiral (<i>Vanessa atalanta</i>)	1	20/06/2020	Atlas of Butterflies in Ireland 2021	
Ringlet (<i>Aphantopus hyperantus</i>)	2	26/07/2020	Atlas of Butterflies in Ireland 2021	
Silver-washed Fritillary (<i>Argynnis paphia</i>)	1	09/08/2020	Atlas of Butterflies in Ireland 2021	
Small Copper (<i>Lycaena phlaeas</i>)	1	03/06/2018	Atlas of Butterflies in Ireland 2021	
Small Heath (<i>Coenonympha pamphilus</i>)	2	03/06/2018	Atlas of Butterflies in Ireland 2021	Threatened Species: Near threatened.
Small Tortoiseshell (Aglais urticae)	1	11/08/2021	Atlas of Butterflies in Ireland 2021	
Speckled Wood (<i>Pararge aegeria</i>)	2	28/05/2018	Atlas of Butterflies in Ireland 2021	
Common Blue Damselfly (<i>Enallagma cyathigerum</i>)	1	17/07/2022	Dragonfly Ireland 2019 to 2024	
Bombus (<i>Bombus lucorum</i>)	2	22/03/2019	Bees of Ireland	
Bombus (<i>Bombus terrestris</i>)	2	27/03/2022	Bees of Ireland	
Common Carder Bee (<i>Bombus (Thoracombus) pascuorum</i>)	1	24/05/2018	Bees of Ireland	
Early Bumble Bee (<i>Bombus (Pyrobombus) pratorum</i>)	1	30/05/2018	Bees of Ireland	
Greater Horntail Wasp (<i>Urocerus gigas</i>)	1	01/08/2016	Sawflies of Ireland	
Grey Mining Bee (<i>Andrena (Melandrena) cineraria</i>)	1	24/05/2018	Bees of Ireland	
Small Garden Bumble Bee (<i>Bombus (Megabombus) hortorum</i>)	1	24/05/2018	Bees of Ireland	

Species Name	Count	Date	Dataset	Designation
Silver-ground Carpet (<i>Xanthorhoe montanata</i>)	1	05/06/2018	Moths Ireland	
<i>Helophilus pendulus</i>	1	04/06/2018	Hoverflies (Syrphidae) of Ireland	
<i>Rhingia campestris</i>	1	06/06/2018	Hoverflies (Syrphidae) of Ireland	
<i>Sericomyia lappona</i>	1	04/06/2018	Hoverflies (Syrphidae) of Ireland	

Several invertebrate species have been recorded in Grid G87P. The small heath butterfly is a near threatened species. It is unlikely that this species occurs in or is supported by the site due to lack of well drained fine grassland.

4.2.6 Vascular Plants

Table 4.5: Flowering plants recorded in NBDC database for G87P

Species Name	Count	Date	Dataset	Designation
Bilberry (<i>Vaccinium myrtillus</i>)	2	10/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Black Medick (<i>Medicago lupulina</i>)	1	03/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Blackthorn (<i>Prunus spinosa</i>)	2	20/04/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Bluebell (<i>Hyacinthoides non-scripta</i>)	1	02/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Bugle (<i>Ajuga reptans</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Coltsfoot (<i>Tussilago farfara</i>)	1	22/02/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Columbine (<i>Aquilegia vulgaris</i>)	2	10/04/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Bird's-foot-trefoil (<i>Lotus corniculatus</i>)	1	03/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Cottongrass (<i>Eriophorum angustifolium</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Dog-violet (<i>Viola riviniana</i>)	1	13/03/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	

Species Name	Count	Date	Dataset	Designation
Common Knapweed (<i>Centaurea nigra</i>)	2	06/11/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Mouse-ear (<i>Cerastium fontanum</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Spotted-orchid (<i>Dactylorhiza fuchsii</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Common Twayblade (<i>Listera ovata</i>)	1	03/07/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Cow Parsley (<i>Anthriscus sylvestris</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
<i>Euphrasia officinalis</i> agg.	1	26/06/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Foxglove (<i>Digitalis purpurea</i>)	2	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
<i>Fuchsia magellanica</i>	4	21/08/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Germander Speedwell (<i>Veronica chamaedrys</i>)	2	19/06/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Guelder-rose (<i>Viburnum opulus</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Herb-Robert (<i>Geranium robertianum</i>)	1	07/11/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Himalayan Knotweed (<i>Persicaria wallichii</i>)	2	27/08/2015	National Invasive Species Database	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

Species Name	Count	Date	Dataset	Designation
Holly (<i>Ilex aquifolium</i>)	1	03/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Japanese Knotweed (<i>Fallopia japonica</i>)	1	27/08/2015	National Invasive Species Database	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Lesser Celandine (<i>Ranunculus ficaria</i>)	2	25/02/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Lesser Spearwort (<i>Ranunculus flammula</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Marsh-marigold (<i>Caltha palustris</i>)	2	12/05/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Meadow Thistle (<i>Cirsium dissectum</i>)	1	01/06/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Meadowsweet (<i>Filipendula ulmaria</i>)	1	17/07/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Narrow-leaved Marsh-orchid (<i>Dactylorhiza traunsteinerioides</i>)	2	03/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Northern Marsh-orchid (<i>Dactylorhiza purpurella</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Primrose (<i>Primula vulgaris</i>)	1	02/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Ragged-Robin (<i>Lychnis flos-cuculi</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	

Species Name	Count	Date	Dataset	Designation
Ramsons (<i>Allium ursinum</i>)	1	13/03/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Red Clover (<i>Trifolium pratense</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Ribwort Plantain (<i>Plantago lanceolata</i>)	1	31/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Selfheal (<i>Prunella vulgaris</i>)	1	02/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Silverweed (<i>Potentilla anserina</i>)	1	23/06/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Sneezewort (<i>Achillea ptarmica</i>)	1	21/08/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Snowberry (<i>Symphoricarpos albus</i>)	1	07/11/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Soft-rush (<i>Juncus effusus</i>)	1	21/08/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Sun Spurge (<i>Euphorbia helioscopia</i>)	1	21/08/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
<i>Taraxacum aggregate</i>	2	05/01/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Water Forget-me-not (<i>Myosotis scorpioides</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
White Clover (<i>Trifolium repens</i>)	1	30/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	

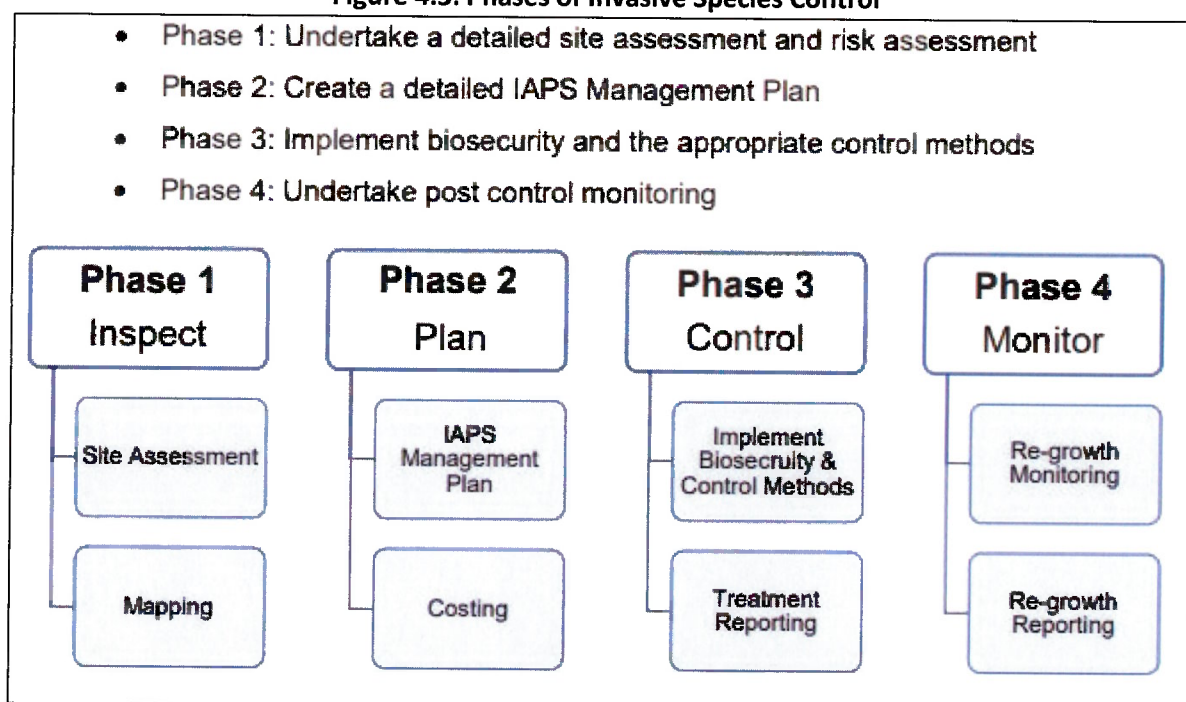
Species Name	Count	Date	Dataset	Designation
Wild Strawberry (<i>Fragaria vesca</i>)	1	02/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Wood Anemone (<i>Anemone nemorosa</i>)	2	02/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	

4.3 Non-native Invasive Species

No rare vascular plant records were found in grid G87P. Notably two non-native invasive species have been recorded Japanese Knotweed, and Himalayan Knotweed. Indeed, the later has been identified and is well established in the subject site. Therefore, an eradication programme to remove the species from the site is required.

This third schedule Invasive Species is robust and has formed dense thickets. No other activity should take place on site until this species is removed. Eradication by the applicant is an obligation under European Communities (Birds and Natural Habitats) Regulations, 2011– 2015 and must be done in a manner that does not encourage the species to spread. Guidance on removal of this species is provided by the document The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (GE-ENV-01105). Guidance document GE-ENV-01104 outlines the steps to a control program, this is illustrated in Figure 4.3.

Figure 4.3: Phases of Invasive Species Control



4.3.1 Phase 1 and 2 of Invasive Species Control

Phase 1 and 2 have been satisfied by this assessment and mapping and assessment, and planning has occurred.

4.3.2 Phase 3 of Invasive Species Control (GE-ENV-01104)

Areas infested with IAPS must be clearly identified and the specific sites of infestation isolated with fencing or warning tape. 'Biosecure zone' signs must be erected at each contaminated site to alert workers that IAPS are present and to avoid entering or interfering with these sites. Likewise, any stockpiles of soil that are or could be contaminated with IAPS must be clearly marked. Designated and clearly marked cleaning and/or disinfection stations should be strategically placed within the work site for use by staff, vehicles and machinery. Where it is necessary to work in contaminated areas, every effort should be made not to use vehicles with caterpillar tracks. All vehicles and equipment that have been used in IAPS control operations must be thoroughly pressure-washed in a designated wash-down area each time they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment. It is important to remove soil that may contain seeds or plant fragments, which otherwise could be transported along the road corridor as works are being undertaken. Vehicles leaving contaminated

area(s) should either be confined to marked haulage routes protected by root barrier membranes or be pressure-washed before leaving the area. Only vehicles that are deemed to be biosecure (i.e. sealed so that no soil can escape) shall be used to transport contaminated soil and all must be thoroughly pressure-washed in the designated washdown area before exiting the infested area.

The following conditions are to be adhered to (Extracted from GE-ENV-01105) A suitably qualified ecologist or horticulturalist with sufficient training, experience and knowledge in the control of IAPS should be employed to assist in the planning and execution of control measures in relation to Himalayan knotweed. In addition, those involved in the control of Himalayan knotweed may be advised to have access to the advice of a Registered Pesticide Advisor on the register established by the Minister for Agriculture, Food and the Marine pursuant to Regulation 4 of the Sustainable Use of Pesticides Regulations. All pesticide users must be registered and have the appropriate training necessary to carry out the proposed method of control. Similar to Japanese knotweed, Himalayan knotweed is most often spread by rhizomes and eradication of this species is equally as difficult.

The infestation is to be treated with a non-persistent herbicide. Physical removal shall be conducted at the site in the areas mapped (Figure 4.2). This includes cutting, digging or excavating, hoeing and pulling by hand. Extra care shall be taken near watercourses as water is an effective conduit for the dispersal of plant fragments and seeds.

Once removed, the plant material is to be buried to a minimum depth of 5m in uncontaminated soil. A geotextile membrane that is in new condition, sealed, UV protected, and has an associated manufacture guarantee for 50 years of efficacy is to line the burial chamber. All control measures must comply with best practice legislation and all planning conditions.

4.3.3 Phase 4 of Invasive Species Control

Those responsible for the treatment of IAPS must document the methods of treatment employed. Following control of large areas of IAPS, subsequent disturbance of the soil may give rise to a flush of seedling germination or revitalised rhizome growth. To avoid this, bare soil should be mulched (covered with a natural or synthetic barrier, such as wood chip, straw, geo-textile, or other appropriate material) and planted at the earliest opportunity with appropriate native replacement vegetation to stabilize the soil and deter subsequent re-invasion.

The site must be monitored for a period of two years, if regrowth is noticed re-treatment must take place.

4.3.4 Conclusion

Desk research and Field Surveys did not identify any terrestrial or volant mammals that are likely to be affected by this development. No nesting bird species were identified within the site.

The scrub and wooded areas at the periphery of the site may provide foraging support for bird and bat species and should therefore be retained. No rare or threatened insect species were identified on-site. No rare flora was identified on site. However, an infestation of Himalayan Knotweed was uncovered. A treatment programme has been outlined in Section 4.3.2 and is to be adhered to.

Mitigation measures, in place and those proposed, for Biodiversity are outline in Section 5.

4.4 Land, soil and Geology

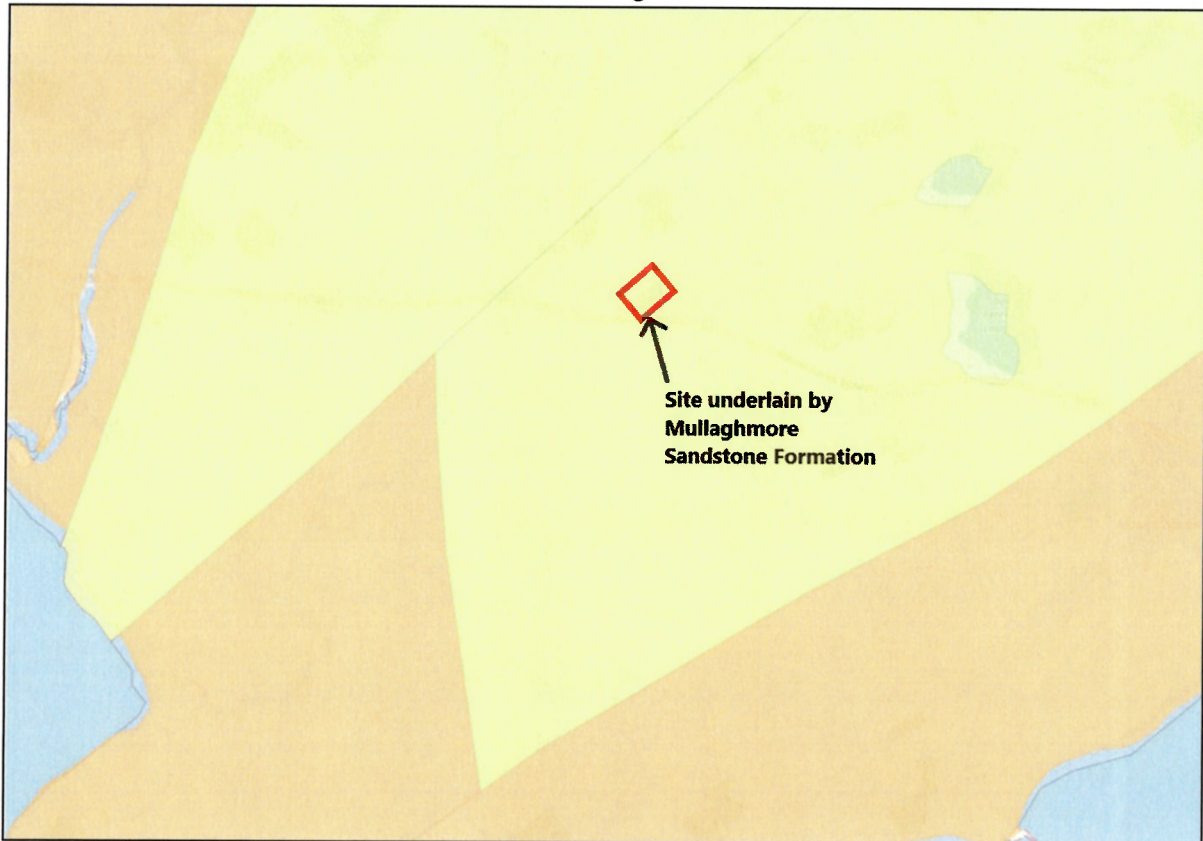
4.4.1 Geology

The subject site is located on a gently west-sloping hillside between the villages of Mountcharles and Inver immediately north of the N56. There are records of a quarry at the site from the early 1800's. The application site is 3.45 hectares in size.

The bedrock geology of the proposed site is listed as the Mullaghmore Sandstone Formation which is part of the Dinantian Sandstone Group. The British Geological Survey describe the Mullaghmore Sandstone Formation as a brown to grey, fine to coarse-grained, silty, bioturbated interbedded with

micaceous, carbonated mudstone and siltstone, immediately overlying basal Dromore Sandstone Member, are thin stromatolitic limestones, black ostracodal packstones and bituminous pyritous shales. Figure 4.4 below is from the EPA mapviewer showing the site located within the Mullaghmore Sandstone Formation.

Figure 4.4: Site location and Mullaghmore Sandstone Formation



(Taken from EPA mapviewer)

Current bedrock use is for decorative stone. The product is not used for road surfacing, structural building or as a constituent of concrete.

There are no geological heritage sites in or near the application site.

4.4.2 Land and soil

The bedrock is predominantly overlain by till as noted by the GSI. No site suitability assessment for permeability was carried out as there is no requirement on the site for wastewater percolation. Welfare facilities for the quarry operator and employees is provided at the operators home approximately 130 m west of the quarry entrance.

4.4.3 Historical Landfills and Illegal Dumping

A review of the EPA data on waste licence and unlicensed sites has confirmed that there are no known historical landfills or illegal landfills in the area of the application site.

4.4.4 Quarry activity

The nearest two active quarries to the application site that are planning compliant are located approximately 2.5 km NE of the application site and 10 km west of the site respectively. There is a quarry located 1 km NE of the site which is not planning compliant.

Mitigation measures, in place and those proposed, for Land, Soil & Geology are outlined in Section 5.

4.5 Water

4.5.1 Water Quality

The subject site is located within the Water Framework Directive (WFD) Catchment 37 Donegal Bay North (GBNIIENW) and the WFD sub catchment Eany (Water)_SC_010. A tributary of the Eany Water River flows (EPA code: IE_NW_37E030350) flows along the northern boundary of the site and the site is located in the Eany Water sub basin catchment. The Eany Water River flows into the sea at Inver Bay approximately 3 km southwest of the subject site. The hydrological distance from the site to Inver Bay is approximately 4.67 km. Hydrological connections are shown in Figure 4.5 below.

The site is outside any Margaritifera catchment and does not influence any waters designated under the Salmonid Regulations (SI 293/1988).

There are no EPA monitoring stations on the tributary of the Eany water system leading from the site. There are a number of EPA monitoring stations in other unconnected tributaries of the Eany water to the north of the application site. The latest Q values (2021) from these stations indicate good and high ecological status.

Figure 4.5: Hydrological Connections



(Created using QGIS software)

The underlying groundwater body is the Frosses groundwater body. This is described by the GSI as productive fissured bedrock. The EPA have assessed this groundwater body as 'not at risk'.

According to the EPA, the Frosses groundwater body was assigned as of "good" status in 2016 - 2021 assessments and is considered "not at risk". Groundwater flow direction will generally follow the topography and flow from NE to SW towards the coast. Groundwater is discussed in more detail in Section 4.5.2 below.

Water flow in and around the quarry is shown in Figure 4.6 below. There are effectively two outflows from the site. A small proportion of the runoff from the site flows north through a settlement pond, which has been unmanaged, and onwards into a tributary of the Eany Water River. The majority of

the runoff from the footprint of the site flows into a settlement pond located in the central southern part of the site. The outflow from this settlement pond flows into a vegetated drainage ditch and into an open drain at the entrance of the site. This drain is then culverted and flows southwest into a tributary of the Eany Water.

The processing area where stone is cut and guillotined is surfaced with concrete. The concrete is graded towards a sump covered by slatted concrete. All runoff from this area is directed to the sump. Water is recycled for use within the circular saws from the sump and there is no other outflow from this sump.

Figure 4.6: Water flow within the application site.



(Created using QGIS software)

4.5.2 Surface Water Analysis

To assess the effectiveness of the treatment of surface water runoff within the site by settlement samples were taken. The sample points are labelled, and the location of each sample point is shown in Figure 4.6 above. The two outflows from the site were analysed (samples 2 & 5) and the receiving watercourses were sampled upstream and downstream of site influence.

A summary of the analysis results is given in Table 4.6 below. The certificates of analysis are presented in Appendix 1.

The analytical results were assessed with regard to the EU Environmental Objectives (Surface Water) Regulations (as amended), 2019 (SI 77/2019).

Both receiving watercourses downstream of the site outflows achieve 'high' status in relation to levels of Ammonia, Orthophosphate and Total Phosphorus.

BOD was in the 'good' range for the southern receiving watercourse.

The results for BOD for the tributary of Eany Water and results for Dissolved Inorganic Nitrogen for both receiving watercourses were outside the acceptable range. In these cases, the upstream values for these parameters were also outside the acceptable range. It is concluded that site influence cannot be responsible for the measured levels of these parameters downstream of the site.

pH and suspended solids are all seen to be within accepted limits of 6-9 and < 30 mg/l respectively.

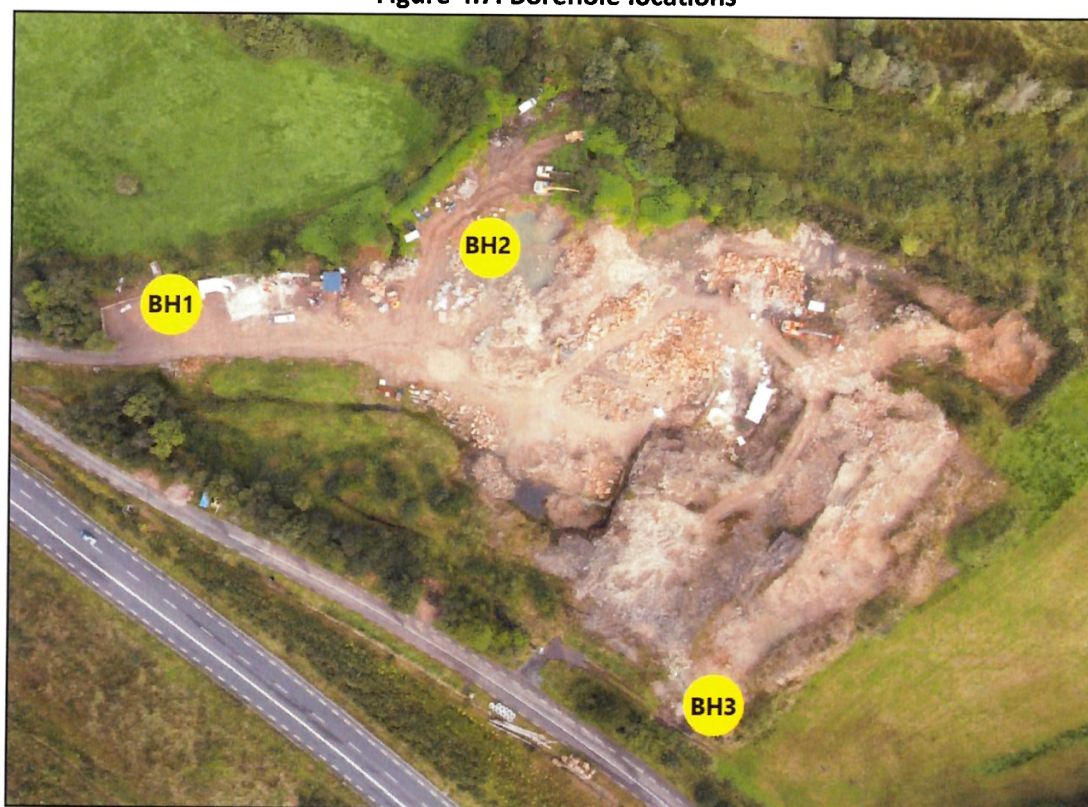
Table 4.6: Summary of surface water analysis

Sample	Description	pH	Ammonia mg/l	Dissolved Inorg N mg/l	Dissolved TON mg/l	Dissolved Ammonia mg/l	Orthophosphate mg/l	Total Phosphorus mg/l	Conductivity µS/cm	Suspended Solids mg/l	BOD mg/l
1	Tributary of Eany Water upstream of site influence.	7.19	<0.01	0.54	0.51	<0.01	0.02	<0.05	178	<5	2
2	Outflow from North.	7.06	0.26	1.31	1.19	0.12	<0.01	<0.05	496	12	2
3	Tributary of Eany Water downstream of site outflow.	7.28	0.04	0.6	0.6	<0.01	<0.01	<0.05	187	<5	2.7
4	Southern watercourse upstream of site influence.	7.52	<0.01	0.49	0.49	<0.01	<0.01	<0.05	256	<5	1.58
5	Outflow from South.	7.99	<0.01	0.51	0.51	<0.01	<0.01	<0.05	254	<5	1.55
6	Southern watercourse downstream of site outflow.	7.76	<0.01	0.53	0.53	<0.01	<0.01	<0.05	260	<5	1.49

4.5.3 Hydrogeology

A site survey was carried out by Colin Farrell to determine if the proposal has had any impact on groundwater at the site and in the wider environment. The site slopes from the northeast to the southwest. Elevations range from approximately 71 mOD to the 54 mOD. The main quarry deck is around 55 mOD. Three groundwater monitoring boreholes were commissioned in August 2023. These were drilled on 17th august 2023 and the borehole logs are presented in Appendix II. The approximate position of the boreholes is shown in Figure 4.7 below. A brief water level monitoring program was commenced when the boreholes had been established to assess the water table levels and assess any likely impact. Two of the boreholes (BH1 & BH2) were located within the current extraction footprint and the third borehole (BH3) was located outside the quarry void. BH1 and BH2 were drilled to 13m and 12m depth respectively and BH3 was drilled to 31m depth.

Figure 4.7: Borehole locations



The standing groundwater levels were dipped with an electronic groundwater dip meter on three occasions as part of this study. The recorded groundwater levels are given in Table 4.7 below.

Table 4.7: Groundwater levels

Borehole	Ground level mOD	Groundwater level 31.8.23 mOD	Groundwater level 7.9.23 mOD	Groundwater level 14.9.23 mOD
1	55.5	54.04	54.03	54.04
2	57.0	56.33	54.30	56.30
3	69.4	64.81	64.41	63.95

As expected in most of the general area, standing groundwater levels are found to be within the top 10m of the ground. Groundwater levels in BH1 and BH2 are encountered within 2.5m of the surface due to previous extraction activities. There is a slight gradient in a south-westerly direction between the groundwater levels in BH2 and BH1. This is consistent with the expected groundwater gradient in the Frosses groundwater body which flows to the southwest and the coast.

Groundwater levels are approximately 5m below ground levels at BH3. Extraction activity is expected to have caused a shallow cone of depression within the local groundwater environment. There is a small pond of water within the quarry void (located near to BH2, Figure 4.7) that is likely to be groundwater fed. A sample of this pond was sent for conductivity analysis, and it was shown to be 551 $\mu\text{S}/\text{cm}$ which is consistent with expected groundwater values. (Certificate of Analysis for Pond 1 presented in Appendix 1).

4.5.3.1 Aquifer characterisation

The aquifer underlying the application site is described by the GSI as a Locally Important Aquifer (Lm) – Bedrock which is Generally Moderately Productive. Locally important aquifers are capable of ‘good’ well yields 100-400 m³/day. Information reported in the County Donegal Groundwater Protection Scheme, Volume I July 2004, produced by Donegal County Council and the GSI highlight that groundwater will circulate primarily through fissures and cracks as these rock units do not show significant intergranular permeability. Fissure permeability is generally more developed in the top 20-30 m of the aquifer and the Mullaghmore Sandstone Formation tends to have calcareous cement that is prone to dissolution leading to increasing permeability. The underlying aquifer is expected to be moderately productive but also variable dependent on the fracture pattern and extent. The Dinantian Sandstones, of which the Mullaghmore Formation is a member, make up approximately 3% of the aquifers in county Donegal.

The Frosses Groundwater Body Description compiled by the GSI expects transmissivity values to be in the range of 10-50 m²/day. Storativity is also expected to be reasonable. The GSI GWB report states that the main groundwater discharges will be to stream, rivers and springs within the groundwater basin. Overall groundwater flow direction is to the southwest as determined by the topography.

4.5.3.2 Groundwater Vulnerability

The term ‘Vulnerability’ is used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities (County Donegal Groundwater Protection Scheme, DELG, DCC, GSI, 2004). The vulnerability of groundwater depends on:

- the time of travel of infiltrating water (and contaminants).
- the relative quantity of contaminants that can reach the groundwater.
- the contaminant attenuation capacity of the geological materials through which the water and contaminants infiltrate.

The GSI have assessed most of the application site as ‘X’ which is indicative of rock at or near the surface. A portion of the site to the east is classified as ‘Extreme’ due to the thin nature of the soils on site.

Due to the vulnerable nature of the aquifer of Local Importance mitigation measures are in place to ensure that the aquifer is protected. Further mitigation measures are proposed for activities into the future.

4.5.4 Quarry History

Documentation made available to Greentrack from the quarry operator included an Unauthorised Development Report sent out by Donegal County Council Planning Department (Ref: UD 2027). There were several visits to the site documented and an oil spill noted on one Donegal County Council staff visit on 12/02/202. The quarry operator states that this spillage was cleaned up using an oil spill kit and the contaminated soil/stone removed to an authorised facility.

As part of this screening exercise Greentrack undertook analysis of the soil/stone in the general area of the oil spill to assess the extent of any potential residual contamination. Greentrack also undertook chemical analysis of the groundwater underneath the site to assess any potential migration of contamination into the groundwater body.

One composite soil/stone sample was taken from the general area of the oil spillage and a sample was taken from each of the groundwater monitoring boreholes using disposable manual bailers. All the samples were tested for any traces of petroleum hydrocarbons and derivatives and the results are presented in Table 4.8. below. The certificates of analysis are presented in Appendix I.

Table 4.8: Chemical Analysis of soil/stone and groundwater following oil spill.

Sample	Total Aliphatics (C10 -C44) µg/kg or µg/l	Total Aromatics (EC10 -EC44) µg/kg or µg/l	Total PAH µg/kg or µg/l	Total PCB µg/kg or µg/l	Total BTEX µg/kg or µg/l
Soil/stone from quarry floor	25800	20000	<118	<21	<7
BH1	<10	<10	<0.082	-	<5
BH2	<10	<10	0.146	-	<5
BH3	59	<10	0.143	-	<5
Limit of Detection µg/kg	<10000* <10	<5000* <10	<118* <0.082**	<21	<7* <5**

*LOD for solid samples. ** LOD for liquid samples

4.5.4.1 Assessment of Chemical Analysis Results for Soil/Stone

The soil/stone sample from the quarry floor shows some trace amounts of mineral oil in the heavier fraction (>C21 & >EC21) amounting to 45800 µg/kg. This is the equivalent of 45.8 mg/kg. The result is compared with the maximum concentrations allowed for soil/stone to be accepted at soil recovery facilities published by the EPA (Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities, EPA 2020). The upper threshold for Mineral Oil is 50 mg/kg. It is noted that the Mineral Oil value recorded on site is below this trigger value, so the site is considered remediated.

4.5.4.2 Assessment of Chemical Analysis Results for Groundwater

There were almost no traces of petroleum hydrocarbons in the groundwater samples. The sample from BH3 showed a slight trace of aliphatics in the C16-C35 fraction. It is unlikely that activities within the quarry have influenced these results as BH3 is hydrologically upgradient from the quarry floor. The groundwater analysis was compared against the parameters set out in S.I No. 9/2010 – European Communities Environmental Objectives (Groundwater) regulations 2010. PAH levels were seen to be slightly elevated when compared with the Guideline Limit Values of 0.075 µg/l. BH3 and BH2 show the slightly elevated levels of PAH whereas BH1 is below the limits of detection. This may suggest that the source of PAH may be outside the site.

4.5.4.3 Overall Conclusion

There does not appear to be any significant residual hydrocarbon contamination either in the soil/stone of the site or the groundwater following the reported oil spill.

4.5.5 Historical Water Management

Settlement ponds have been used in the past to treat effluent from the quarry floor with a suspended solid load before discharge off site. Water has always been treated prior to discharge to a local watercourse. The current system utilises a large shallow void in the central southern part of the site as the main settlement pond. The outflow from this pond is along a drainage ditch which has a heavily vegetated channel. This would be regarded as an impeded pathway and would further treat effluent by slowing flow and through the complex interactions likely to occur near the root zone of the vegetation. Photograph 4.5 shows this impeded pathway. The analysis of the sample from this outflow shows clean water treated to an acceptable standard discharged to natural waters.

Photograph 4.5: The impeded pathway from the outflow of the main settlement pond to the discharge point.



There is currently very little surface water draining to the settlement pond on the northwest boundary of the site. Historic extraction activity will have led to a greater proportion of water flowing north into this settlement pond. This pond has not been maintained and there is vegetation and many scrub species actively growing in the pond. The outflow is shown to be treated to an acceptable standard to be discharged to natural waters.

As part of future plans the quarry operator will divert all runoff from the northern settlement pond to allow the pond to become redundant. All surface water runoff will be directed to the main settlement pond with the quarry site. A discharge licence will be sought from the applicant from Donegal County Council for the discharge of this treated effluent to natural waters.

4.5.6 Water requirement

The proposed extraction and processing of rock at the site is a dry operation. There is no washing of product planned before it leaves site for market. The only requirement for water use during the extraction and processing activities will be dust suppression in periods of dry weather. Water is used from the existing settlement pond and pumped into a bowser for spraying down.

Welfare facilities exist at the quarry operators' home approximately 130m west of the quarry entrance. Toilet and washing facilities for staff are available at the operator's home. Tea and lunch breaks are also taken there.

Mitigation measures, in place and those proposed, for Water are outlined in Section 5.

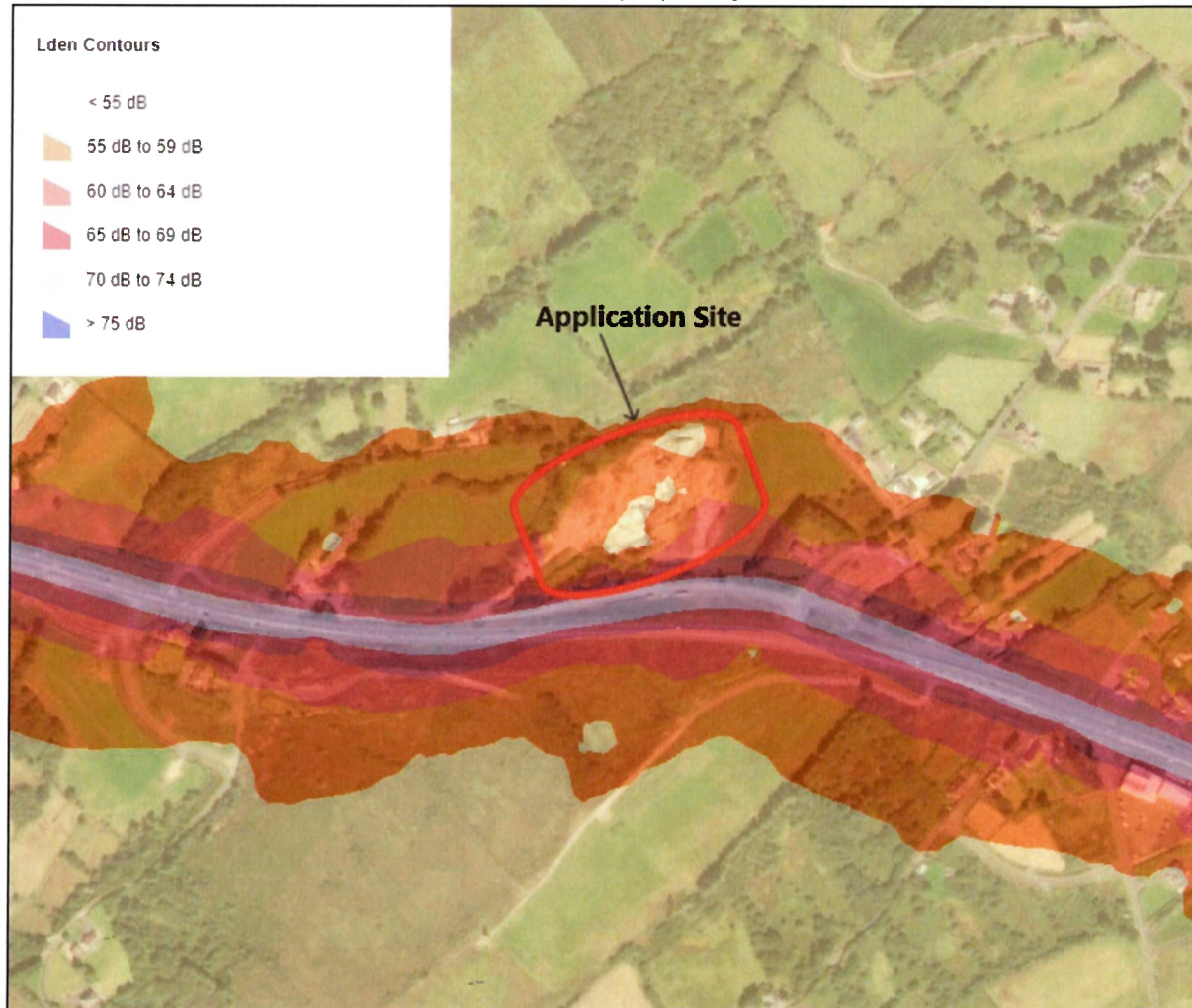
4.6 Noise and Vibration

4.6.1 Traffic Noise

A draft Noise Action Plan 2018 – 2023 has been produced by Donegal County Council for the third round of noise action planning under the Environmental Noise Regulations 2006 (S.I 140 of 2006). For the purposes of the Directive and Regulations, environmental noise is unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and noise in agglomerations over a specified size.

As part of the production of the action plan, noise mapping bodies made strategic noise maps in December 2017 for major road which are defined as those > 3 million vehicles per annum. The N56 running immediately south of the site falls into this category and has been mapped. An extract from the interactive map produced by Donegal County Council is presented below in Figure 4.8.

Figure 4.8: Noise mapping along the N56



(Extract from Donegal draft Noise Action Plan 2018 – 2023)

As can be seen from Figure 4.8 above, part of the site closest to the N56 lies in the 60-64 dB zone and the remainder of the site lies in the 55-59 dB zone.

4.6.2 Noise from Site Activities

A noise level is liable to provoke a complaint whenever its level exceeds by a certain margin, the pre-existing noise level or when it attains an absolute level. A change in noise level of 3 dB is 'barely perceptible'; while an increase in noise level of 10 dB is perceived as a twofold increase in loudness. A noise level in excess of 85 dB gives a significant risk of hearing damage. Construction and industrial noise sources are normally assessed and expressed using equivalent continuous levels, LAeq. In relation to quarry developments and ancillary activities, it recommended that noise from the activities on site shall not exceed the following noise limits at the nearest noise-sensitive receptor:

Daytime	08.00-20.00 hrs	LAeq (1h) = 55dBA
Night-time	20.00-08.00 hrs	LAeq (1h) = 45dBA

A noise survey was conducted by Greentrack to assess how activities on site impact on any noise sensitive locations surrounding the site. The environmental noise survey was conducted in the vicinity

of Murray Stone, Drumbeagh, Mountcharles, Co. Donegal in accordance with the EPA's Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4, EPA 2016) and ISO 1996 (2017) Description Measurement and Assessment of Environmental Noise. Part 2 Determination of Environmental Noise Levels.

Three noise sensitive locations were chosen surrounding the quarry and a brief attended noise survey was carried out at each location. During the noise survey the operator was asked to perform the noisiest operations so that a worst-case scenario can be considered. The noisiest operation was extraction activities with a ripping claw attached to an excavator extracting rock mechanically which generally took place about once a month. When the extraction activity was taking place processing of rock by sawing and by guillotine was taking place simultaneously. The location of the noise sensitive locations is shown below in Figure 4.9. The full report of the noise survey is presented in Appendix III.

Figure 4.9: Noise Sensitive Locations, N1, N2 & N3.



Recorded noise levels at noise sensitive locations were largely influenced by traffic noise from the nearby N56. There were variable contributions from quarry activity to the noise environments at all noise sensitive locations. The noise climates at the receptors were not adversely impacted by any continuous or dominant noise sources associated with quarrying activities. Where noise was apparent from quarrying activity, it was measured at a level well below typical guideline limit values of 55 dB. No audible tonal component of noise associated with quarry activities could be identified at any of the noise sensitive locations.

No impulsive noise sources associated with quarry activities could be identified at any of the noise sensitive locations.

The particular type of quarry activity taking place at Drumbeagh is small scale and at a low intensity. The results of the noise survey indicate that worst case-scenario activities at the site would not exceed guideline noise limit values which are typically 55 dB during working hours. Historically before the berms were constructed there was potential for more noise from the quarry to be heard at noise sensitive locations. However, it is likely that noise from the nearby N56 will have dominated the noise environment in the environs of the quarry in the past.

4.6.3 Vibration

The use of heavy machinery in the quarry is sporadic. Mechanical extraction of product using a ripping claw on an excavator occurs on average monthly. There is not likely to be any vibration felt outside the quarry from this activity. There are no haulage lorries associated with the site.

It has been reported that there have been occasional blasts in the past to win rock from the face. Any blasting was done as per the S.I No. 237/1971 - Quarries (explosive) regulations and the HAS Safe Quarry – Guidelines to the Safety, Health and Welfare at work (Quarries) Regulation 2008.

The current quarry operator states that blasting induced more fractures into the natural cleavage pattern of the rock and devalued the product and so blasting was discontinued. There are no plans to blast the quarry face for this reason.

Historical blasting may have caused vibration at neighbouring properties. There are no blast records available. There has never been a complaint regarding noise or vibration to Donegal County Council regarding any of the quarry activities.

Mitigation measures, in place and those proposed, for Biodiversity are outlined in Section 5.

4.7 Air and Climate

4.7.1 Air

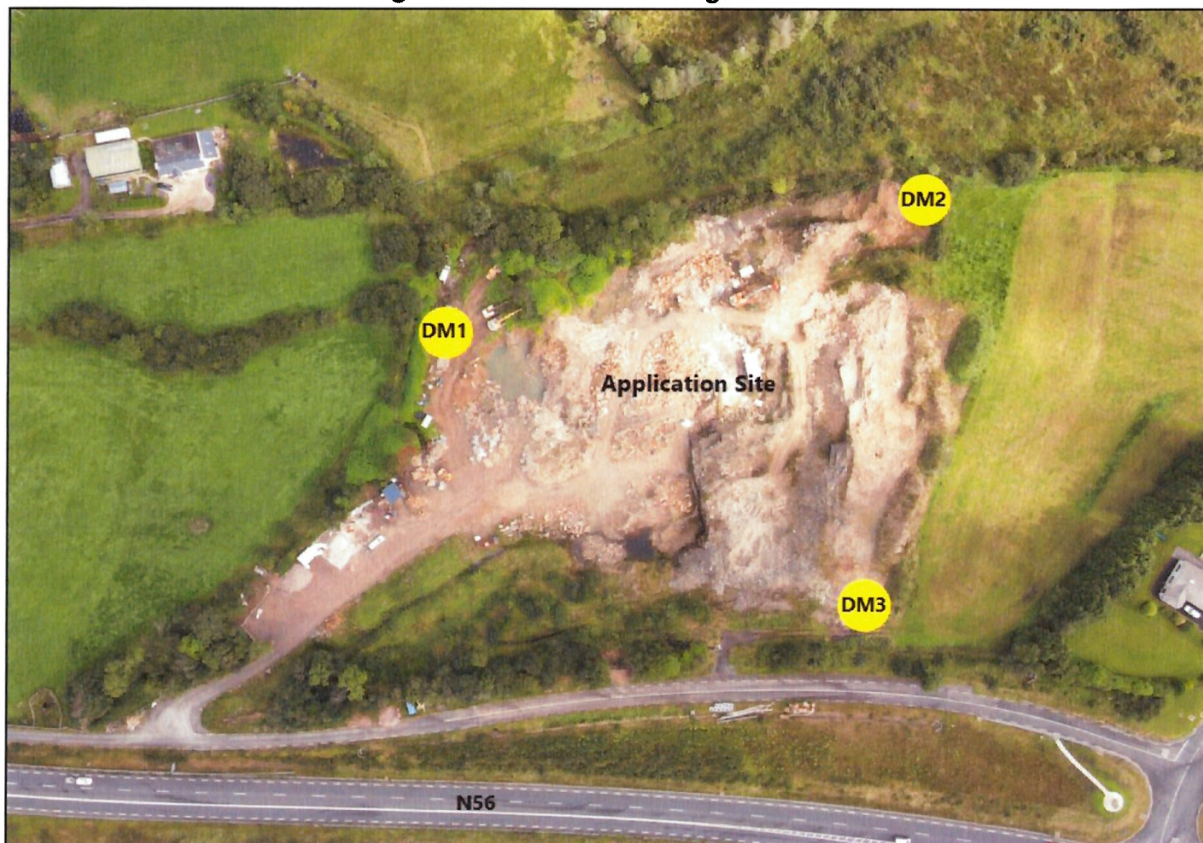
For quarrying related activities, the most likely emission to the air environment is dust, which arises predominantly from the excavation, processing and transporting of aggregate. These sources are generally dispersed sources rather than specific point sources and this dictates the measures required to mitigate dust related impacts.

The development will have, and have had, the potential to generate dust emissions and particulates which may result in impacts on local air quality. Combustion emissions from vehicle & generator exhaust emissions associated with the extraction and transportation of product will also have the potential to impact on local air pollution. Cutting rocks with a circular saw can potentially generate dust.

The impact of dust is usually monitored by measuring rates of dust deposition. According to the EPA Guideline Document entitled Environmental Management in the Extractive Industries (April 2006), there are currently no Irish statutory standards or EPA guidelines relating specifically to dust deposition thresholds for inert mineral dust. There are a number of methods to measure dust deposition but only the German TA Luft Air Quality Standards (TA Luft, 1986) specify a method of measuring dust deposition – the Bergerhoff Method (German Standard VDI 2119, 1972) – with dust nuisance. It is the only enforceable method available. On this basis, the EPA recommend a dust deposition limit value of 350 mg/m²/day (Table 10.1) (when averaged over a 30-day period) has been adopted at site boundaries associated with quarrying related activities.

The then Department of Environment, Heritage and Local Government (DoEHLG) published 'Quarries & Ancillary Activities: Guideline for Planning Authorities' (2004) also recommends the TA Luft dust deposition limit is adopted at site boundaries near quarry developments. In addition, the DoEHLG have identified that residents within 500m of the dust source can potentially be affected from emissions, with more severe concerns about dust within 100m of the source.

To assess the likely dust generation and deposition at the site boundaries, three dust monitors were installed in August 2023. The monitors were placed at the existing extraction area boundaries and were analysed after one month on site. The dust monitoring report is attached as Appendix IV. The location of the dust monitors is shown below in Figure 4.10 below and the results of the dust monitoring is shown in Table 4.9.

Figure 4.10: Dust Monitoring Locations**Table 4.9: Dust Monitoring Results (August 2023)**

Analytical Period	Dust Monitor 1 (NW) mg/m ² /day	Dust Monitor 2 (NE) mg/m ² /day	Dust Monitor 3 (SE) mg/m ² /day
August 2023	107	110	27.6

Dust generation rates depend on the site activity, particle size, the moisture content of the material and weather conditions. Dust emissions are dramatically reduced where rainfall has occurred due to the cohesion created between dust particles and water and the removal of suspended dust from the air. It is typical to assume very little dust is generated under "wet day" conditions where rainfall greater than 0.2 mm has fallen.

Large particle sizes (greater than 75 microns) fall rapidly out of atmospheric suspension and are subsequently deposited in close proximity to the source. Particle sizes of less than 75 microns are of interest as they can remain airborne for greater distances and give rise to the potential dust nuisance at the sensitive receptors.

The guidelines applied to the extractive industry are widely used as best practice (DoEHLG (2004)). Threshold limits are usually indicated at 350 mg/m²/day at the boundary of a site for acceptable dust deposition levels.

It is noted that the dust deposition monitoring has been in compliance with the 350 mg/m²/day DoEHLG (2004) threshold limits.

The overall impact of activities on site, in terms of dust emissions, has been imperceptible to the local air environment beyond the site boundaries.

Mitigation measures, in place and those proposed, are outlined in Section 5.

4.7.2 Climate

This section assesses potential impacts that the development may have had with regards to climate and climate change. Climate can be thought of as the 'average weather' over an extended period of time and so refers to temperature, precipitation and wind.

The topic of 'Climate' is commonly discussed with reference to 'Climate Change' which is any significant change in the measures of climate over an extended period of time. Climate change includes major changes in temperature, precipitation or wind patterns, among others, that occur over several decades or longer.

Ireland has a typical maritime climate, with relatively mild and moist winters and cool, cloudy summers. The climate of the application site is typical of the Irish climate. The climate is influenced by warm maritime air associated with Gulf Stream which has the effect of moderating the climate, and results in high average humidity across the country. The area of highest precipitation is along the western coast.

Long term averages are calculated from the latest complete 30-year data set provided by Met Eireann for the meteorological station at Malin Head, Co. Donegal. The latest available long-term average is calculated from data recorded between 1981-2010. The long-term average annual precipitation value for Malin Head is 1,076 mm. The long-term average annual mean temperature for Malin Head is 9.8 degrees Celsius.

According to Met Eireann the average hourly wind speed in Donegal experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 5.6 months, from October 11 to March 29, with average wind speeds of more than 14.0 miles per hour. The calmer time of year lasts for 6.4 months, from March 29 to October 11.

The operation of plant and movement of vehicles will generate exhaust emissions. These emissions are an inevitable consequence of the production of quarry product. Inevitably over the lifetime of the development plant and quarry vehicles needed replaced. Priority was given to energy efficient low emission vehicles and plant when considering new replacement plant and vehicles.

The development of the site as a quarry supplying quality product to the local market is likely to have reduced emissions by reducing the distance customers have to travel to source product. This may have an overall positive effect of emissions levels in a regional context.

There has been an inevitable loss of vegetation with clearance for site infrastructure and to facilitate extraction. This will be offset with a proposed landscaping plan for the site which will increase biodiversity in the overall site and introduce a tree planting scheme for carbon sequestration. Some of the screening berms host semi-mature native trees. Some of the small voids have started to recolonise as a wetland habitat which will also contribute to carbon capture, increase biodiversity and offset the loss of vegetation.

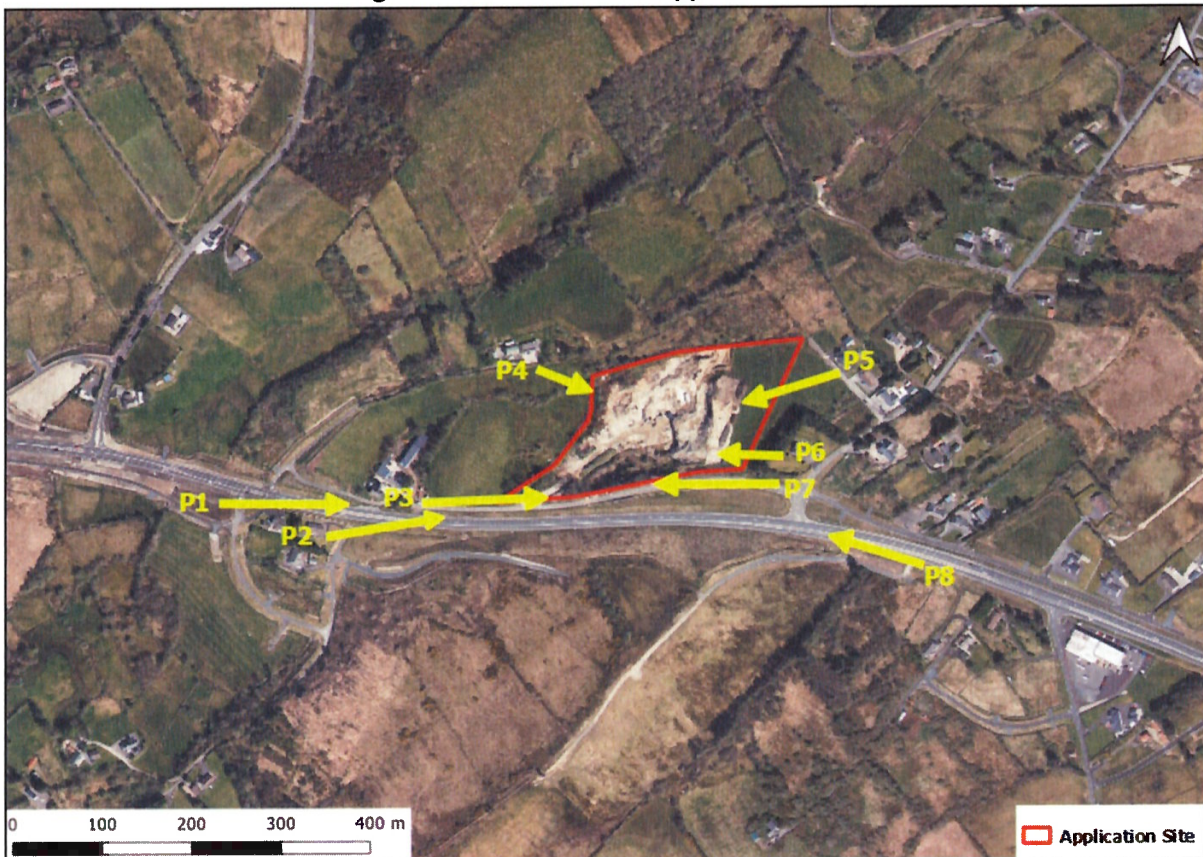
Mitigation measures, in places and those proposed, are outlined in Section 5.

4.8 Landscape and Visual Impact

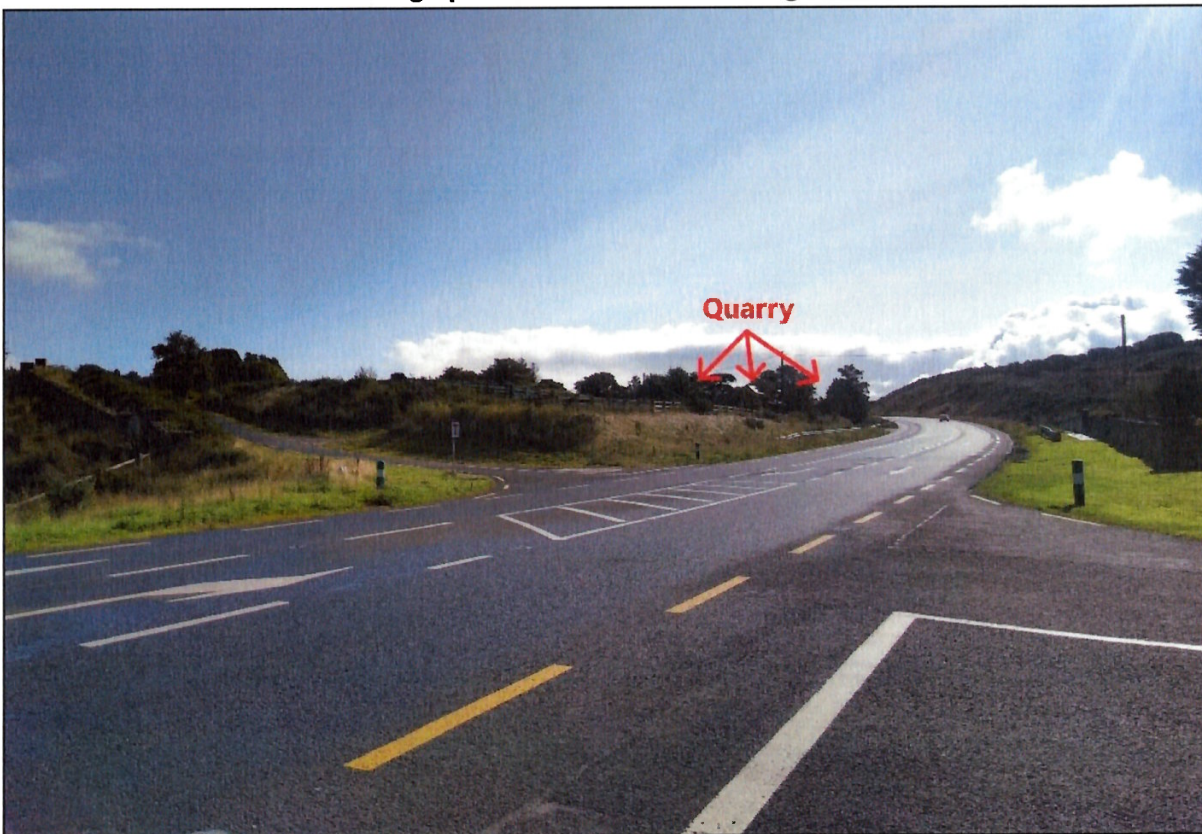
4.8.1 Visual Impact

The application site is located in an area detailed as an area of high scenic amenity (HAS) in the Donegal County Development plan 2018-2024. The nature and topography of the site lends itself well to being very unobtrusive on the surrounding landscape. The quarry is screened from view from approaches from the west and east on the N56. No flood lighting has been or will be used in the quarry.

Site visits were undertaken during July and August of 2023 by Colin Farrell of Greentrack to evaluate the quarries' location and visibility from local dwellings and roads. The development is exceptionally well screened from view. Only a few of the closest dwellings to the quarry can see the quarry. A selection of the typical views of the site is given in Photographs 4.6 to 4.13 below. An overview of these viewpoints is given in Figure 4.11 below.

Figure 4.11: Views of the application site.

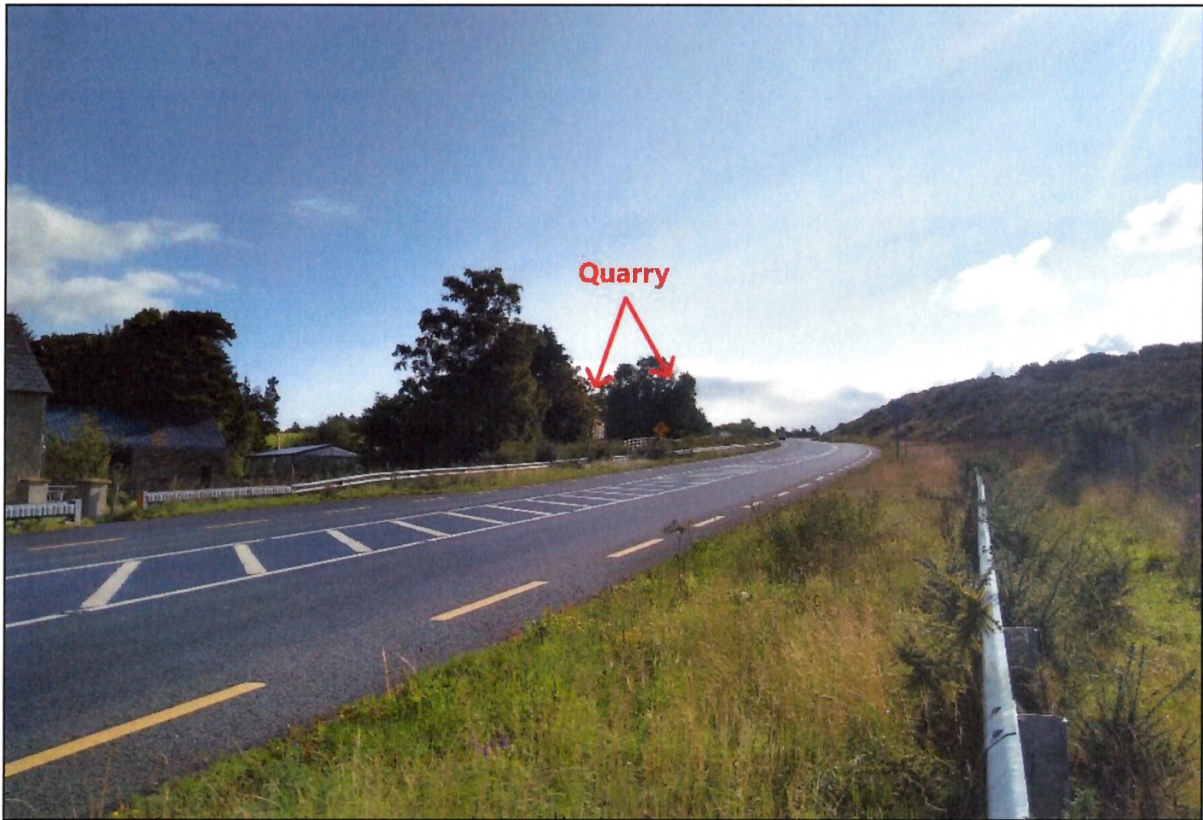
(Created using QGIS software)

Photograph 4.6: View from P1 looking east.

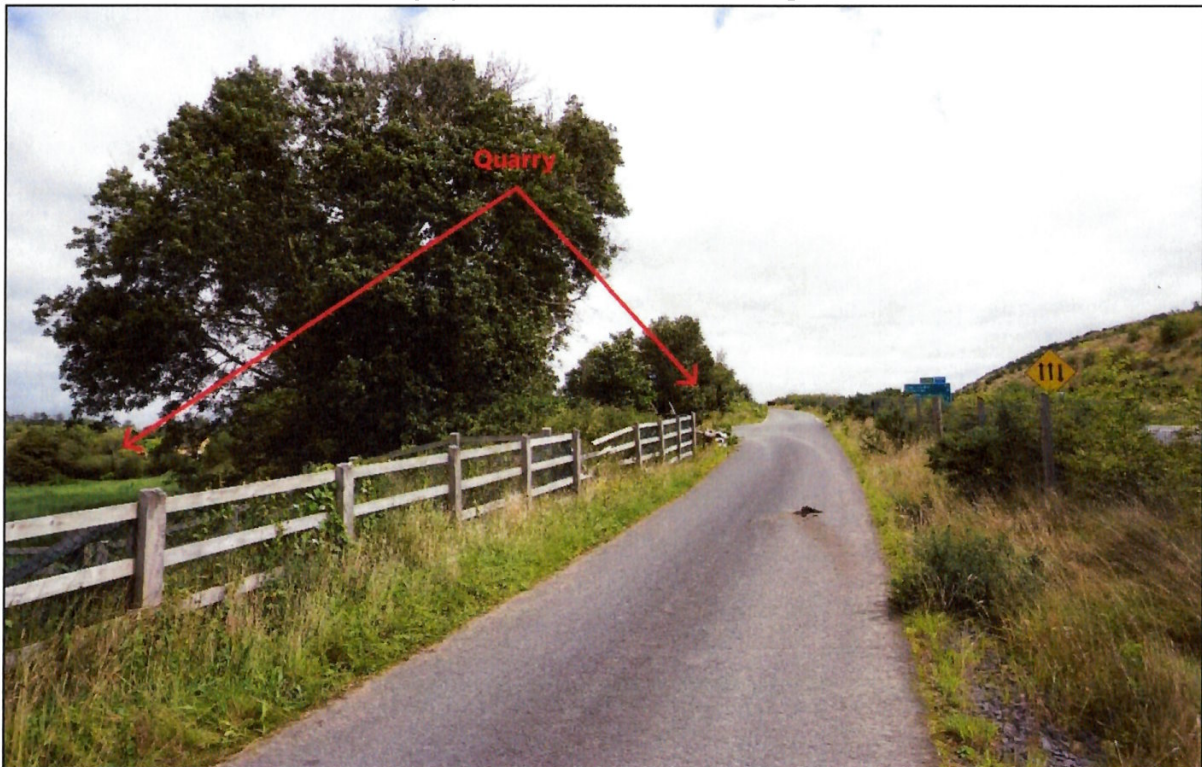
The quarry is not visible on approach from the west of the N56 due to the extensive scrub and tree cover on the southern and south-western boundaries of the site. The quarry is also not visible from

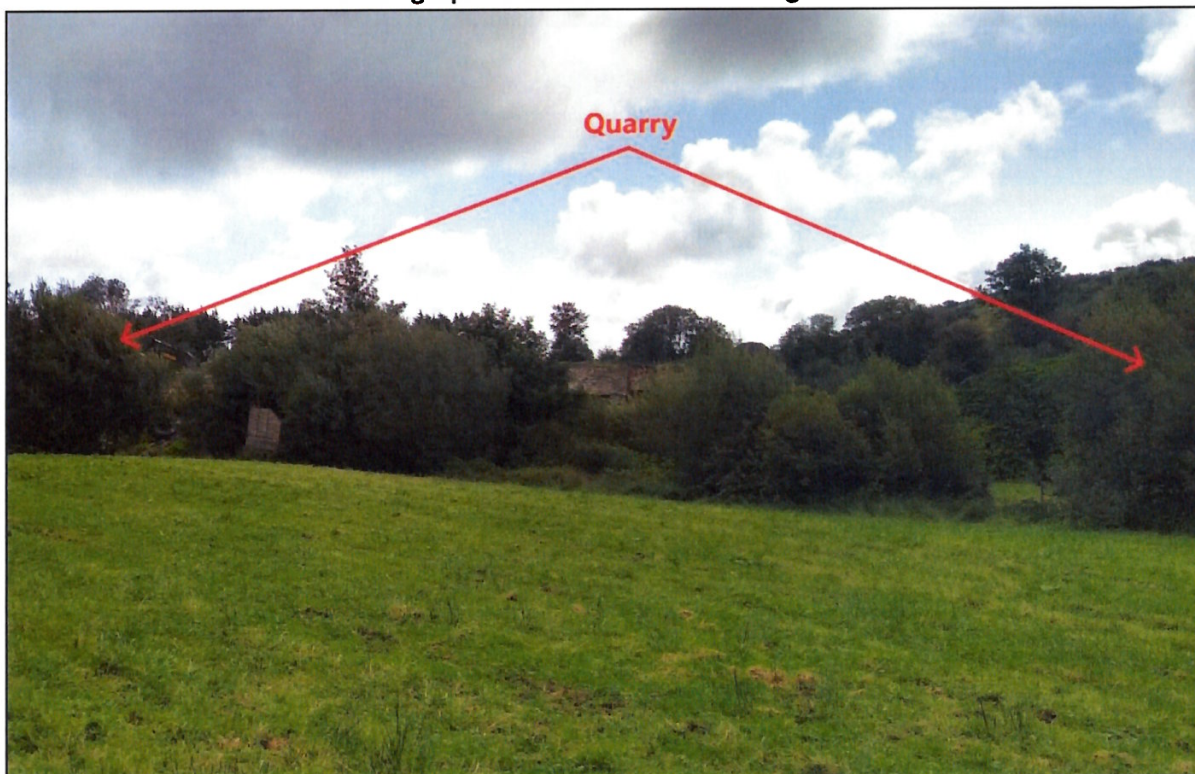
the nearest dwelling to the site south of the N56 as Photograph 4.7 shows, and from the slip road to the south the quarry only the quarry entrance is visible and some machinery but none of the active faces are visible.

Photograph 4.7: View from P2 looking east.



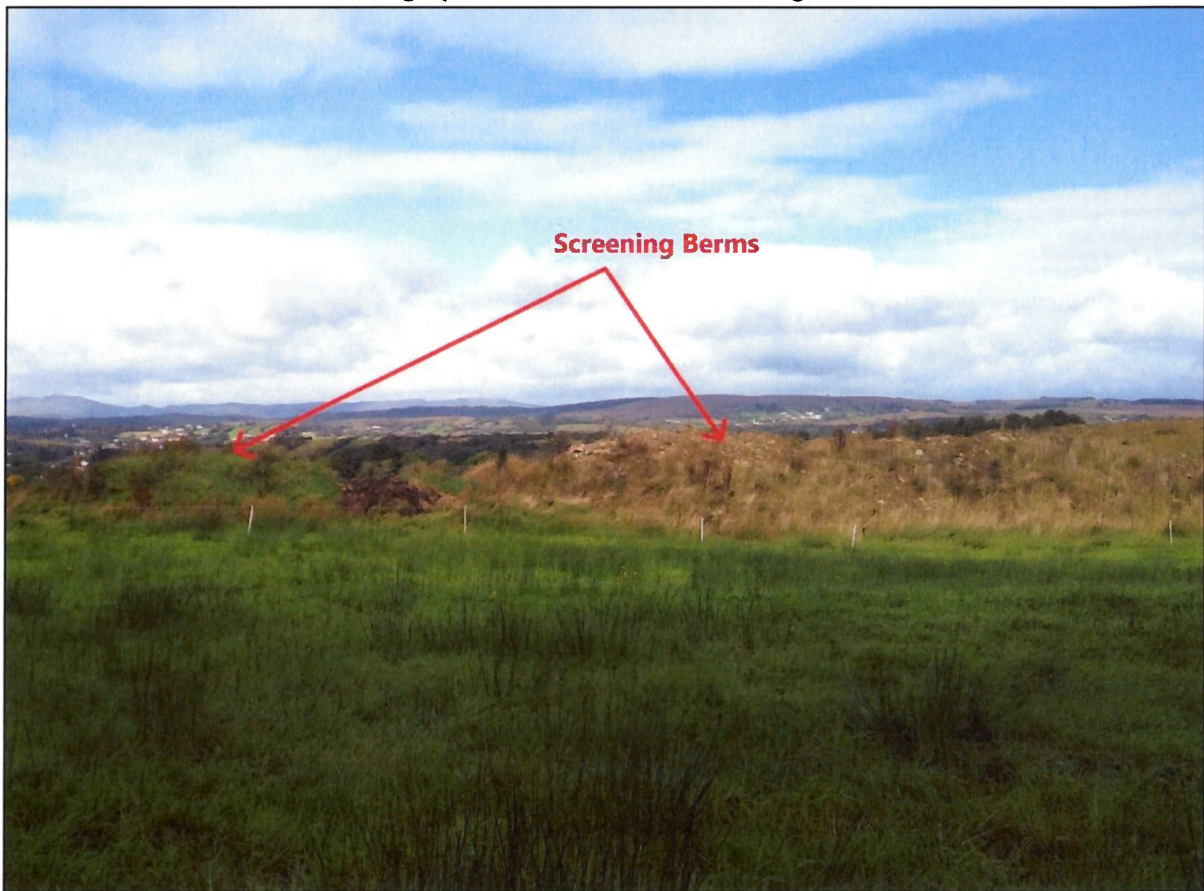
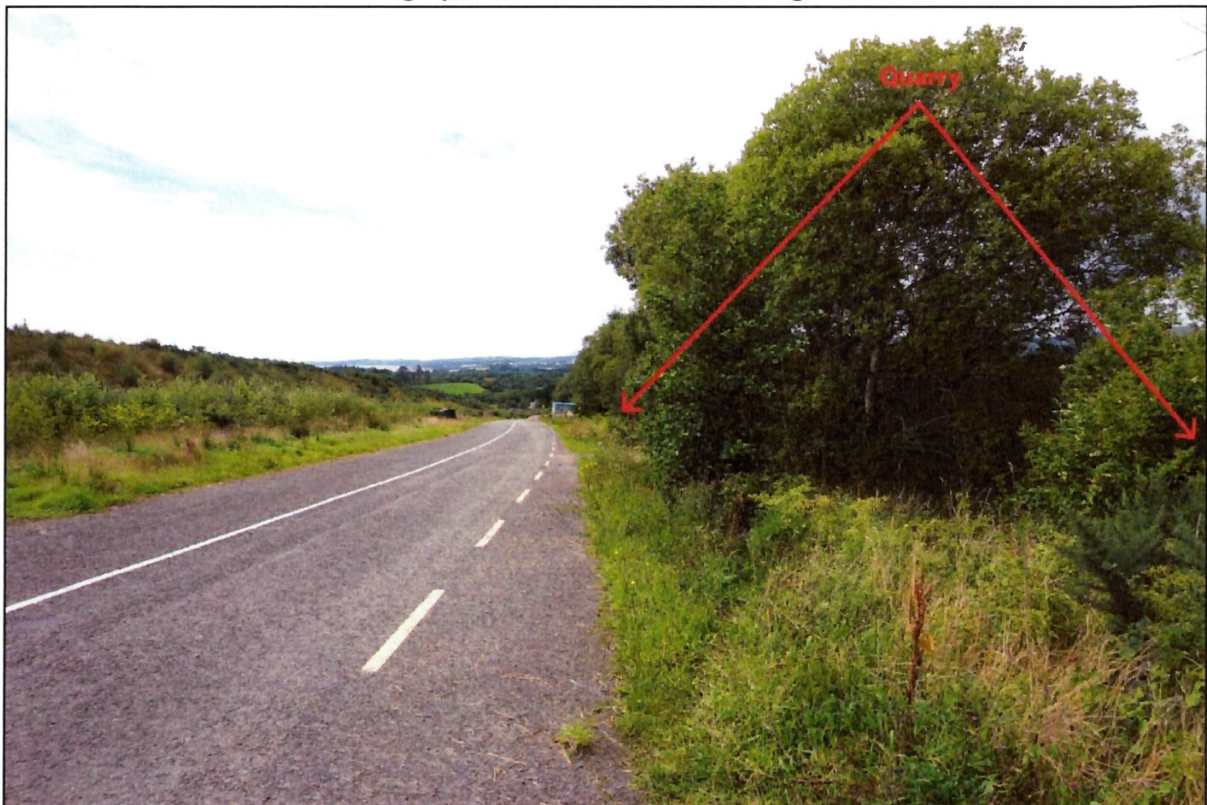
Photograph 4.8: View from P3 looking east.

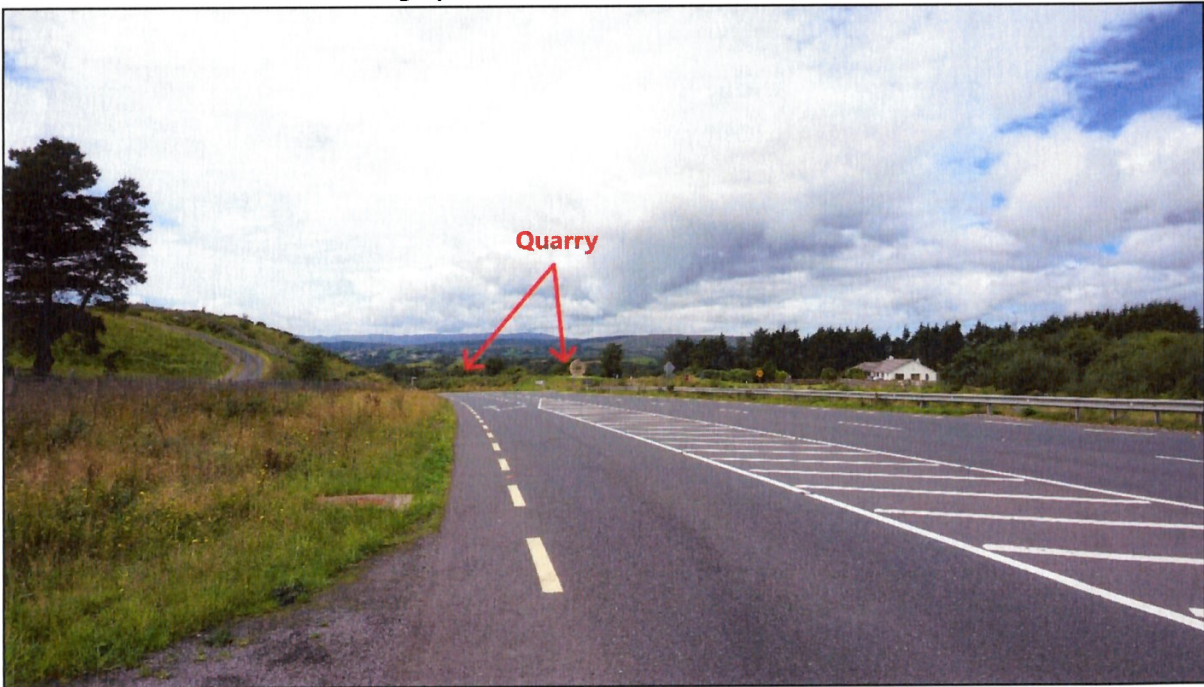


Photograph 4.9: View from P4 looking east.

Photograph 4.9 shows the view from the nearest dwelling to the northwest of the site. The site is largely screened by an area of scrub along the northwestern boundary of the site and also by hedge in the adjacent fields. Some redundant machinery is visible, and a partial view of the quarry face is apparent. Photograph 4.10 shows the typical view that the dwelling to the northeast have of the quarry. The screening berms provided adequate visual screening in this area and no quarry plant or activity can be seen. The same screening berms provide visual screening of the quarry from the nearest dwelling to the southeastern corner of the site as is shown in Photograph 4.11.

Photograph 4.10: View from P5 looking west.

Photograph 4.11: View from P6 looking west.**Photograph 4.12: View from P7 looking west.**

Photograph 4.13: View from P7 looking west.

The quarry is not visible from the approaches on the slip road or on the approach from the east on the N56. The screening is due to the scrub, semi-mature and mature trees located on the southern boundary of the site. These provide excellent screening for the development. There is likely to have been a similar boundary historically along the southern edge of the quarry. Searches of historical aerial images on Google Earth Pro™ would suggest a significant vegetated boundary going back at least 20 years. Photograph 4.14 below is an elevated photograph taken from within the quarry showing the extent of scrub and tree cover along the southern boundary of the site.

Photograph 4.14: Extent of scrub and tree cover along southern boundary of the site.

The visual impact of the quarry is discussed in Section 4.8 of this report.

4.8.2 Landscaping

Although the quarry is well screened on approach on the N56, improvements could be made to the visual screening of the enterprise. The berms created to the east of the quarry have partially recolonised with grasses (Photographs 4.10 & 4.11). These berms could be more complete providing a better screen for the inhabitants of the dwellings immediately east of the quarry. In addition, the berms should be planted with native trees and wildflower mixes to aid screening and boost biodiversity.

Mitigation measures, in place and those proposed, are outlined in Section 5.

4.9 Cultural Heritage

4.9.1 Archaeological Heritage

There are no Recorded Archaeological Monuments within the site boundary. The nearest recorded Archaeological Monuments are 500m south of the site (R176073 & R176070) and 750m east of the site (R176085). No other known monuments are close to the proposed development.

4.9.2 Architectural heritage

The nearest site recorded on the National Inventory of Architectural Heritage is 'The Creamery House' which is a detached two-bay two-storey former creamery managers house built in 1916. It is located approximately 1.5 km west of the application site. The Creamery House is also a protected structure.

4.10 Material Assets

The existing land use of the subject site has been detailed as an active quarry and improved grassland. There is no ESB or telecommunications facility. There is no mains water supply or mains wastewater facilities available to the subject site.

4.11 Traffic

The exit from the quarry is via the slip road onto the L-65115-1 which leads on to the N56. The N56 has been recently upgraded and the junction of the L-65115-1 onto the N56 was also upgraded and has clear sight lines in both directions. The road condition of the slip road, L-65115-1 and N56 is excellent.

4.11.1 Traffic Survey

No traffic survey was carried out in relation to this screening report due to the small-scale nature of the quarry activity at the application site. The quarry operator and one, or sometimes two, employees work at the application site. At most, two vehicles have been travelling to the site for work, as the quarry operator lives within walking distance. This means that there may have been 2 short car journeys to the site and two short journeys from the site from staff members.

The nature of the product is that it is high-value decorative cut stone and therefore is not supplied in bulk. As a result, there are on average 2 to 3 collections per week from customers using small lorries. The volume of traffic associated with staff and associated with moving quarry product is assessed as insignificant in the terms of the overall traffic volume in the local area.

5 CHARACTERISTICS OF LIKELY SIGNIFICANT EFFECTS

5.1 Introduction

The likely significant effects that the quarry has had and is likely to have on the environment will now be considered and assessed by reference to the following factors:

- Population and human health
- Biodiversity
- Land, Soil and Geology
- Water
- Air & Climate
- Noise/Vibrations
- Landscape & Visual
- Cultural Heritage
- Material Assets
- Traffic

An assessment of the potential for the proposed project to result in likely significant effects to each of these environmental factors is now explored in the following sub sections.

5.2 Population and human health

5.2.1 Impacts

The potential for significant human/environmental health effects from activities connected to the proposed development are considered to be low. Potential effects could in the worst-case result from accidental spillages on site, uncontrolled discharges to surface water and flooding. The impact of the quarry will also add to traffic, noise, vibrations and dust in the immediate vicinity. Separate reports on noise and dust (Appendix III and IV) have shown that all activities will be carried out in line with current legislation and best practice and no likely significant effects have been, or are expected, to impinge on the local population and human health.

5.2.2 Mitigation

The quarry includes extensive mitigation in terms of noise, air quality, etc as detailed in Sections 5.5, 5.7 and 5.11 below. Any potentially impacts identified as arising from the proposed development will be mitigated against with appropriate measures to ensure there are no significant human/environmental health effects from activities connected to the proposed development.

5.2.3 Residual Impacts

As the quarry involves extensive mitigations and quarry activity is small-scale and low intensity receptors the effects on human health and population is predicted to be, and to have been, not significant. A positive residual impact is the increased economic activity that the proposal generates in the local community.

5.3 Biodiversity

5.3.1 Impacts

The habitats accruing within and immediately adjacent to the subject site are of low ecological value and low conservation status. No habitats upon which protected species rely will be lost due to proposed excavation works. No habitat fragmentation such as the severance of a linear habitat corridor such as hedgerows, treelines and watercourses has occurred, or will occur, as a result of this proposal. No rare, threatened or protected species were identified in or around the subject site and the proposal will have no significant effect on such species. Noise from the operational works could have caused a disturbance to any birds/mammals which may be nesting/foraging within site. Discharge of polluted effluent could have a negative impact on the biodiversity within the receiving watercourses.

In summary, no significant effect to local biodiversity will occur as a result of this proposal.

An Ecological Report including Stage 1 Appropriate Assessment has been prepared for this proposal and concludes that the project is not likely, alone or in combination with other plans or projects, to have a significant negative effect on any European Site in view of their Conservation Objectives and

on the basis of best scientific evidence and that there is no reasonable scientific doubt as to that conclusion.

5.3.2 Mitigation

While no significant effects to biodiversity will occur as a result of this proposal the following measures will be implemented in order to enhance the biodiversity value of landscape during the operational and re-instatement phase of the development:

- Landscaping during and post operation will consist of native species and will be managed to encourage dense well-structured vegetation, maintain and enhance wildlife corridors.
- When the quarry ceases to be in use the applicant will restore it to a natural state to create favourable habitat for wildlife which will result in a positive effect on the environment and add to the biodiversity of the area.
- Established treelines, hedgerow and vegetation cover will be retained as much as possible.
- On cessation of activities, the quarry void will be graded with soil/overburden and planted with willow and/or alder and become a natural habitat.
- An Invasive Species Management plan will be carried out as per section 3 to deal with the Himalayan Knotweed on site.
- Runoff from extraction and processing areas was always directed towards the nearest available pond/sump for settlement treatment before any potential discharge from site.
- A discharge licence must be sought from Donegal County Council for the effluent discharge off site to the receiving watercourse.
- A hydrocarbon interceptor is to be installed immediately prior to the discharge point.
- All oils and lubricants are stored in a bunded area off site.
- Refuelling to be done by an external authorised contractor with appropriate drip trays and spill kit.
- Regular inspections and maintenance scheduling must continue to take place for all plant and vehicles to minimise the potential for malfunction or leak.
- An emergency spill kit with oil boom, absorbers etc. must continue kept on site for use in the event of an accidental spillage/leak.
- Regular visual monitoring of all surface waters onsite (including settlement ponds) for any surface sheen or sign of potential hydrocarbon pollution must continue to be undertaken.
- Regular maintenance of settlement tanks must be undertaken to ensure efficiency and appropriate disposal of material removed.
- All extraction and material handling activities must be suspended for the duration of a red level rainfall warning issued by Met Eireann
- The site must maintain and continually update the environmental monitoring programme and monitor water, noise, dust, and blasting on a regular basis to demonstrate that the development is not having an adverse impact on the surrounding environment.
- A full restoration plan will be implemented once quarrying activities have ceased which will allow the quarry void to be reclaimed by nature over time.
- The settlement ponds for this site are adequately sized to deal with the runoff generated from site stripping and extraction works so there is, and was, no risk of flooding occurring within the site nor in the surrounding environs due to the removal of the grassland habitat.
- Plant used at the site must continue to have noise emission levels that comply with the limiting levels defined in EC Directive 86/662/EEC and any subsequent amendments. Any plant that is used intermittently must be shut down when not in use to minimise noise levels.
- All extraction and processing activities must continue to follow the guidelines as set within BS 5228 -1:2009+A1 2014. This includes guidance on several aspects of construction site practices, which include, but are not limited to: (a) Selection of quiet plant, (b) Control of noise sources, (c) Screening, (d) Hours of work.
- The best means practical, including proper maintenance of plant, must continue to be employed to minimise the noise produced by on-site operations.

- All vehicles and mechanical plant must be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.

5.3.3 Residual Impacts

Restoration of the quarry will be actively managed as part of the operational plan. This will include the planting of berms with native species which will give an immediate beneficial boost to the local biodiversity.

This ecological impact assessment concludes that historic, and current, quarry activities within the application site have had no significant residual effects, assuming the mitigation measures outlined in the section on Biodiversity were, and continue to be, adhered to.

5.4 Land, Soils and Geology

5.4.1 Impacts

The existing quarry site is designated as rock with proposed extension into a small area of improved grassland. The dominant rock type in the exposed quarry face is sandstone. Quarry activity is planned to remain at the current low intensity level, and this is to remain a small-scale operation. The loss of geology is a permanent impact that can't be mitigated. Other impacts that are possible are the pollution of soil and geology with hydrocarbons. The impacts of the re-opening of the quarry are deemed to be imperceptible to land, soil and geology.

5.4.2 Mitigation

- A hydrocarbon interceptor is to be installed into the drainage system downstream of Settlement Pond 1
- Oils and lubricants are stored in a bunded area off site.
- Refuelling of plant on site is carried out by licenced fuel contractor with mobile tanker.
- Drip trays used for all refuelling operations. Best practice for refuelling is incorporated into the Environmental Management System for the site.
- Regular inspections and maintenance scheduling take place for all plant and vehicles to minimise the potential for malfunction or leak.
- An emergency spill kit with oil boom, absorbers etc. kept on site for use in the event of an accidental spillage/leak.
- Regular visual monitoring of all surface waters onsite (including settlement ponds) for any surface sheen or sign of potential hydrocarbon pollution.

5.4.3 Residual Impacts

Residual impacts are those that remain after the implementation of the mitigation measures. By its nature quarrying activity will have a permanent negative effect on the bedrock removed from the site. The removal of the resource is difficult to mitigate against.

The provision of quarry product to the local and regional markets and the creation of new diverse habitats on the restoration of the site will go some way to mitigating the loss of the resource in the longer term.

5.5 Water

5.5.1 Impacts

There has been, and is, potential for suspended sediment and hydrocarbons to be released from activities into receiving surface waters and the underlying groundwater if mitigation measures are not in place.

5.5.2 Mitigation

- Runoff from extraction and processing areas was always directed towards the nearest available pond/sump for settlement treatment before any potential discharge from site.
- A discharge licence must be sought from Donegal County Council for the effluent discharge off site to the receiving watercourse.
- A hydrocarbon interceptor is to be installed immediately prior to the discharge point.
- All oils and lubricants are stored in a bunded area off site.
- Refuelling to be done by an external authorised contractor with appropriate drip trays and spill kit
- Regular inspections and maintenance scheduling must continue to take place for all plant and vehicles to minimise the potential for malfunction or leak.
- An emergency spill kit with oil boom, absorbers etc. must continue kept on site for use in the event of an accidental spillage/leak.
- Regular visual monitoring of all surface waters onsite (including settlement ponds) for any surface sheen or sign of potential hydrocarbon pollution must continue to be undertaken.
- Regular maintenance of settlement tanks must be undertaken to ensure efficiency and appropriate disposal of material removed.
- All extraction and material handling activities must be suspended for the duration of a red level rainfall warning issued by Met Eireann
- The site must maintain and continually update the environmental monitoring programme and monitor water, noise, dust, and blasting on a regular basis to demonstrate that the development is not having an adverse impact on the surrounding environment.
- The settlement ponds for this site are adequately sized to deal with the runoff generated from the site to ensure effective treatment before discharge.
- Suspension of extraction and material handling activities for the duration of a red level rainfall warning issued by Met Eireann.

5.5.3 Residual Impacts

With the implementation of the mitigation measures listed, the implementation of the project as outlined will not cause, or have caused, a significant negative effect on the surface water or groundwater environments.

5.6 Air and Climate

5.6.1 Impacts

The greatest impact on air quality from this proposal is unregulated dust particles being released during extraction and processing. This risk is not considered to be significant given the limited duration of dry meteorological conditions in Donegal and the fact that the prevailing wind is in a south westerly direction which is away from any sensitive receptors and populated areas.

Studies have indicated that fugitive dust is typically deposited within 100m to 200m of the source with most dust deposited within 50m from source. Where large amounts of dust are deposited on vegetation over a long-time scale there may be some adverse effects upon plants restricting photosynthesis, respiration and transpiration. As examined in the biodiversity Section (5.3), there is no flora of interest in or around the subject site and very little biodiversity or ecological value.

All development must now be mindful of Ireland's commitment to meet its reduction in greenhouse gas emissions by 30% (from 2005 levels) by 2030. This commitment will have implications on all activities within the application site catchment area, especially in agriculture and transport. Traffic generated from the subject site will not significantly add to the local traffic volumes.

In summary, no significant effect to local air and climate will occur as a result of this proposal.

5.6.2 Mitigation

- Dust monitoring will continue to be carried out monthly at the designated monitoring locations if required.
- The timing of operations optimised in relation to meteorological conditions.
- Material in outdoor stockpiling will be conditioned with water to minimise dust during dry and windy conditions. In addition, stockpiles will be sited to take advantage of shelter from wind.
- Screening berms grass-seeded and planted to eliminate wind-blown dust.
- A water bowser/sprayer will be available at all times to minimise dust during dry and windy conditions.
- Strict adherence to good operational practice such as switching off plant and vehicles when not in use.
- All plant and vehicles regularly serviced to ensure they are running as efficiently as possible.
- Energy consumption ratings considered when upgrading new vehicles associated with the site.
- Regular energy audits in order to assess energy requirements and areas where energy usage can be reduced. This will lead to a reduction in greenhouse gas emissions.
- Landscaping plan to offset vegetation loss and increase net biodiversity.

5.6.3 Residual Impacts

With the appropriate mitigation measures in place, residual impacts of the quarry associated with air and climate will have, or have had, no likely significant effects on the environment. There may be a slight positive impact on climate with the reduced travel distance for customers collecting product locally.

5.7 Noise and vibration

5.7.1 Impacts

Noise impacts were measured at a number of noise sensitive locations and found not to be significant. A number of mitigation measures are in place to ensure the noise impacts remain insignificant.

5.7.2 Mitigation

- All motors and pulleys have been maintained to a high standard with regular maintenance to avoid any tonal or impulsive components in the emission.
- All mobile plant on site will have well maintained silencers.
- Machinery is throttled down or turned off when not in use.
- Screening berms in the east are to be planted with native trees to help with acoustic screening.
- A noise buying standard has been in place where any replacement of mobile plant was due, noise characteristics are considered.
- Operating procedures have included training to reduce drop heights for product.
- All plant used on site should have noise emission levels that comply with the limiting levels defined in EC Directive 86/662/EEC and any subsequent amendment.

5.7.3 Residual Impacts

With the appropriate mitigation measures in place, residual impacts of the quarry associated with noise and vibrations will have, or have had, no likely significant effects on the environment.

5.8 Landscape and visual

5.8.1 Impacts

Section 4.8.1 contains a photographic report that demonstrates that the current quarry site has very little impact of the visual landscape due to the local topography and screening effect of scrub and mature trees along the southern boundary of the site.

5.8.2 Mitigation

- Additional planting of semi-mature trees along the southern boundary to fill in gaps.
- Extension of screening berms along eastern boundary to ensure screening is complete along this boundary.
- Planting of the screening berms on the eastern boundary with native trees and wildflower mix to aid screening and boost biodiversity.

5.8.3 Residual Impacts

With the appropriate mitigation measures in place, residual impacts of the quarry will have had, or have, no significant effects on landscape and visual features. The residual impact of the quarry restoration will provide a positive landscape feature.

5.9 Cultural Heritage

5.9.1 Impacts

No sites of important historical, cultural or archaeological heritage occur within or immediately adjacent to the subject site.

In summary, no significant effect to the local cultural heritage will occur as a result of this proposal.

5.9.2 Mitigation

There are no recommended mitigation measures specific to Cultural Heritage.

5.9.3 Residual Impacts

Residual impacts associated with the quarry will have had, or have, no likely significant effects on the cultural heritage of the area.

5.10 Material Assets

5.10.1 Impacts

The quarry will have no significant effects on utilities such as ESB or mains water supply.

The quarry and all associated activities will have no significant effect on material assets.

5.10.2 Mitigation

No mitigation measures are required in this instance.

5.10.3 Residual Impacts

There are no significant residual impacts associated with this proposal relating to material assets.

5.11 Traffic

5.11.1 Impacts

Given the small-scale quarrying activity and low output, traffic impact is expected to be negligible. The quarry and all associated activities will have no significant effect on traffic volumes in and around the subject site.

5.11.2 Mitigation

No mitigation measures are required in this instance.

5.11.3 Residual Impacts

The residual impact relating to traffic are deemed to be not significant.

5.12 Interactions and Cumulative effects

5.12.1 Impacts

Interactive effects may arise for the interaction between various impacts within a project. Potential interactive effects on the environment from the quarry include:

Impacts to air quality will have the potential to interact with Population and Human Health by the decline in air quality at properties adjacent to the proposed quarry. This impact has been assessed and it is predicted to result in an imperceptible and negligible effect.

The quarrying activity has the potential to generate runoff with a high suspended sediment load from the site with discharge to receiving waters. It is noted that the potential impact to receiving watercourses associated with the mobilisation of suspended solids is predicted to result in an imperceptible and negligible effect.

Quarry activity interactions with landscape and visual during the operational phase of the quarry is also predicted to result in an imperceptible and negligible effect.

Impacts to noise will have the potential to interact with Population and Human Health by presenting a risk to sensitive properties adjacent to the site. The noise impacts from quarry activity have been shown to be within acceptable limits.

Landscape and visual through the provision of noise barriers which will alter the landscape and visual setting for adjacent properties.

The interactions and cumulative effect of noise generated by the quarry have also been found to be negligible and will have no significant effect.

The significance of any potential negative interactive effects is predicted to be slight and predominantly of a temporary nature. Mitigation measures as outlined in Section 5.1 to 5.11 will provide effective management of the project and will eliminate the potential for interactive effects to result in likely significant effects on the environment.

Cumulative Effects caused by the quarry regarding existing and/or planned projects is also now considered. There were no other planned developments in the townland of Drumbeagh which were granted planning permission in the last 5 years and have the potential to have any significant negative adverse cumulative impacts on the local environment. Planning ref. 21/50516 (365m W) was granted permission in November 2021 for the erection of an agricultural shed and increasing of ground levels around the proposed shed and all associated site development works. Planning ref. 22/51910 (470m SW) was granted permission in February 2023 for the (1) demolition of existing single storey domestic garage (2) construction of a single storey extension to existing storey and half type dwelling house including changes to existing elevations and all ancillary site development works. Neither of these projects will be adversely affected by quarry activity at the application site, nor will they present any "in combination" effects that may be considered of significant effect on the environment.

There is no hydrological or other direct link between the application site and any of these developments. Due to the small scale and non-invasive nature of these developments, we would

contend that none represent any “significant negative effect” on the environments, when considered in combination with this proposal. On this basis they can all be screened out.

5.12.2 Mitigation

There is no mitigation required in relation to “interactions and cumulative effects”.

5.12.3 Residual impacts

There are no residual impacts of significance in relation to “interactions and cumulative effects”.

6 CONCLUSION

This screening report and determination is a matter of professional judgement, based on objective information relating to the quarry and its receiving environment. Environmental effects can, in principle, be either positive or negative. This report has detailed all the characteristics of the proposal in section 3 and all the interactions in section 4. The latter section gives details and findings. In Section 5 we examine likely significant effects.

If substitute consent is not approved for the existing quarry, then there would be no potential impacts related to the environment. However, this would also have an adverse effect on employment and there will be no financial benefit to the local economy. This is an important consideration, especially for an area with such a rural area with limited employment prospects.

If this quarry is not permitted, stone will have to be imported from further afield for local use. This will result in an increased carbon footprint due to increased transportation. The proposed planting of trees and natural hedgerows around the site has the potential to benefit local wildlife as well as acting as a carbon mitigation measure. This is very unlikely to be undertaken if substitute consent is not achieved and the quarry has to close.

This report concludes that this is a sub-threshold project which is not likely to have, or have had, a significant effect on the environment, either by itself or in combination with other plans or projects, and that an Environmental Impact Assessment (EIA) is not required in this instance.

This rEIA Screening Report has been prepared by Greentrack Consultants with all reasonable care, due diligence and professional application. Greentrack have also sought to implement the best current scientific knowledge on the potential effect this proposal will have on the environment and information contained within this report is based on the interpretation of data collected and also data supplied by the applicant. This data has been accepted by Greentrack in good faith.

This report has been prepared under instruction from the applicant, Gabriel Murray of Murray Stone, substitute consent applicant to An Bord Pleanála. Greentrack accept no responsibility to any third party to whom this report is made known or available. Any such third parties rely on this rEIA Screening Report at their own risk.

7 REFERENCES

Fossitt, J. (2000) A guide to habitats in Ireland The Heritage Council, Kilkenny.

Habitats Directive. (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Union, 206, p. 7-50.

National Biodiversity Data Centre online map viewer:

<https://maps.biodiversityireland.ie/Map/Terrestrial/Species/119290>

Department of Housing, Planning and Local Government August 2018. " Guidelines for Planning Authorities and An Bord Pleanala on carry out Environmental Impact Assessment".

Department of Environment, Heritage and Local Government April 2004, Quarries and Ancillary Activities – Guidelines for Planning Authorities

Chartered Institute of Ecology and Environmental Management, September 2018: Guidelines for Ecological Impact Assessment in the UK and Ireland.

Donegal County Council Planning Portal:

<http://donegal.maps.arcgis.com/apps/webappviewer/index.html?id=8be91e332a8f47bfbbe83add1550c666>.

Environmental Protection Agency Portal: <https://www.epa.ie/>. Lat accessed March 16th

European Commission Portal: <https://ec.europa.eu/environment/eia/eia-support.htm>.

Birdwatch Portal: <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland-2014-2019/>.

Teagasc Portal: <http://gis.teagasc.ie/soils/index.php>. Lat accessed March 19th

Department of Communications, Climate & Environment Portal: <https://www.dccae.gov.ie/en-ie/environment/topics/air-quality/eu-clean-air-policy/Pages/default.aspx>. Last accessed March 3rd.

European Commission Portal: https://ec.europa.eu/clima/policies/effort_en. Last accessed March 7th

CSO Portal: <https://www.cso.ie>. Lat accessed March 27th

Land registry portal: <https://www.landdirect.ie/>.

S.I. 605 of 2017 (European Union (Good Agricultural Practice for protection of Waters) Regulations 2017

APPENDIX I: CERTIFICATES OF ANALYSIS



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CERTIFICATE OF ANALYSIS

Page 1 of 4

Customer: Greentrack
4 Roe House,
Dry Arch Business Park,
Dromore,
Letterkenny,

Report no.: 23-04762
No. of samples: 6
Acceptance date: 09/08/2023
Analysis date: 09/08/2023
Date of issue: 21/08/2023
Contact: Denis Faulkner

Comments

6 x sample water
Ref: Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-04762-(01)	Water	ne wc u/s - stream	E-101	BOD	2 mg/l
			E-105	pH	7.19 @20.4°C
			E-124	Ammonia (as NH ₃ -N)	<0.01 mg/l
			E-138	Dissolved Inorganic Nitrogen	0.54 mg/l
			E-138	Dissolved TON	0.54 mg/l
			E-138	Dissolved Ammonia	<0.01 mg/l
			E-109	Orthophosphate (as P)	0.02 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	178 µS/cm@20.0°C
			E-103	Suspended Solids	<5 mg/l
23-04762-(02)	Water	n outflow effluent	E-101	BOD	2 mg/l
			E-105	pH	7.06 @20.2°C
			E-124	Ammonia (as NH ₃ -N)	0.26 mg/l
			E-109	Orthophosphate (as P)	<0.01 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	496 µS/cm@20.0°C
			E-103	Suspended Solids	12 mg/l
			E-138	Dissolved Inorganic Nitrogen	1.31 mg/l
			E-138	Dissolved TON	1.19 mg/l
			E-138	Dissolved Ammonia	0.12 mg/l

In Test Method - 'Subcontracted A' tests are accredited. 'Subcontracted U' tests are unaccredited.

Tests are unaccredited if prefixed by # or if INAB logo is not visible on the report.

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Comments

6 x sample water
Ref.: Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-04762-(03)	Water	ne wc d/s - stream	E-101	BOD	2.70 mg/l
			E-105	pH	7.28 @19.7°C
			E-124	Ammonia (as NH ₃ -N)	0.04 mg/l
			E-138	Dissolved Inorganic Nitrogen	0.60 mg/l
			E-138	Dissolved TON	0.60 mg/l
			E-138	Dissolved Ammonia	<0.01 mg/l
			E-109	Orthophosphate (as P)	<0.01 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	187 µS/cm@20.0°C
			E-103	Suspended Solids	<5 mg/l
23-04762-(04)	Water	s wc u/s - stream	E-105	pH	7.52 @19.9°C
			E-124	Ammonia (as NH ₃ -N)	<0.01 mg/l
			E-138	Dissolved Inorganic Nitrogen	0.49 mg/l
			E-138	Dissolved TON	0.49 mg/l
			E-138	Dissolved Ammonia	<0.01 mg/l
			E-109	Orthophosphate (as P)	<0.01 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	256 µS/cm@20.0°C
			E-103	Suspended Solids	<5 mg/l
			E-101	BOD	1.58 mg/l

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Contact: Denis Faulkner

Comments

6 x sample water
Ref.: Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-04762-(05)	Water	s outflow effluent	E-105	pH	7.99 @20.0°C
			E-124	Ammonia (as NH ₃ -N)	<0.01 mg/l
			E-138	Dissolved Inorganic Nitrogen	0.51 mg/l
			E-138	Dissolved TON	0.51 mg/l
			E-138	Dissolved Ammonia	<0.01 mg/l
			E-109	Orthophosphate (as P)	<0.01 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	254 µS/cm@20.0°C
			E-103	Suspended Solids	<5 mg/l
			E-101	BOD	1.55 mg/l
23-04762-(06)	Water	s wc d/s - stream	E-101	BOD	1.49 mg/l
			E-105	pH	7.76 @20.0°C
			E-124	Ammonia (as NH ₃ -N)	<0.01 mg/l
			E-138	Dissolved Inorganic Nitrogen	0.53 mg/l
			E-138	Dissolved TON	0.53 mg/l
			E-138	Dissolved Ammonia	<0.01 mg/l
			E-109	Orthophosphate (as P)	<0.01 mg/l
			E-110A	#Total Phosphorus (as P)	<0.05 mg/l
			E-113	#Conductivity	260 µS/cm@20.0°C

In Test Method - Subcontracted A tests are accredited. Subcontracted U tests are unaccredited.
Tests are unaccredited if prefixed by U or if NAB logo is not visible on the report.
Unless otherwise stated in the comments section, samples were accepted for testing in a satisfactory condition.
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Revision: 13



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(T) 074 9741809
(E) aqualab.killybegs@pelagia.com

CERTIFICATE OF ANALYSIS

Page 4 of 4

Customer: Greentrack
4 Roe House,
Dry Arch Business Park ,
Dromore ,
Letterkenny ,

Report no.: 23-04762
No. of samples: 6
Acceptance date: 09/08/2023
Analysis date: 09/08/2023
Date of issue: 21/08/2023
Contact: Denis Faulkner

Comments

6 x sample water
Ref: Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-04762-(06)	Water	s wc d/s - stream	E-103	Suspended Solids	<5 mg/l

The results in this electronically produced test report have been checked and approved. The test report meets the requirements of IS EN ISO/IEC 17025:2017 and is also valid without signature.

Report authorised by:

Julie Cassidy
Julie Cassidy
Senior Technician

In Test Method - "Subcontracted A" tests are accredited, "Subcontracted U" tests are unaccredited.

Tests are unaccredited if prefixed by U or if NAB logo is not visible on the report.

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Revision: 13



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CERTIFICATE OF ANALYSIS

Page 1 of 1

Customer: Greentrack
4 Roe House,
Dry Arch Business Park,
Dromore,
Letterkenny,

Report no.: 23-04763
No. of samples: 2
Acceptance date: 09/08/2023
Analysis date: 09/08/2023
Date of issue: 10/08/2023
Contact: Denis Faulkner

Comments

2 x sample water
Ref: Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-04763-(01)	Water	pond 1 surface water	E-113	Conductivity	511 $\mu\text{S}/\text{cm}@20.0^{\circ}\text{C}$
23-04763-(02)	Water	pond 4 surface water	E-113	Conductivity	251 $\mu\text{S}/\text{cm}@20.0^{\circ}\text{C}$

The results in this electronically produced test report have been checked and approved. The test report meets the requirements of IS EN ISO/IEC 17025:2017 and is also valid without signature.

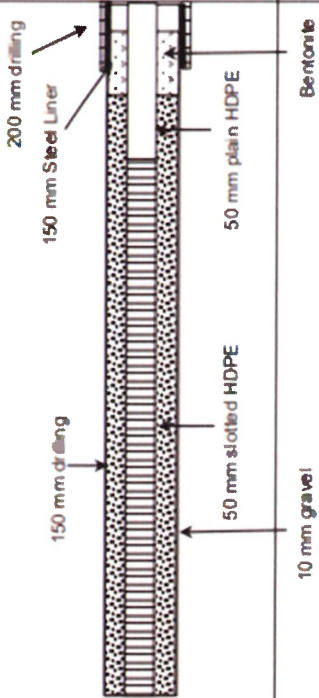
Report authorised by:

Erika Szunyogova
Erika Szunyogova
Laboratory Manager

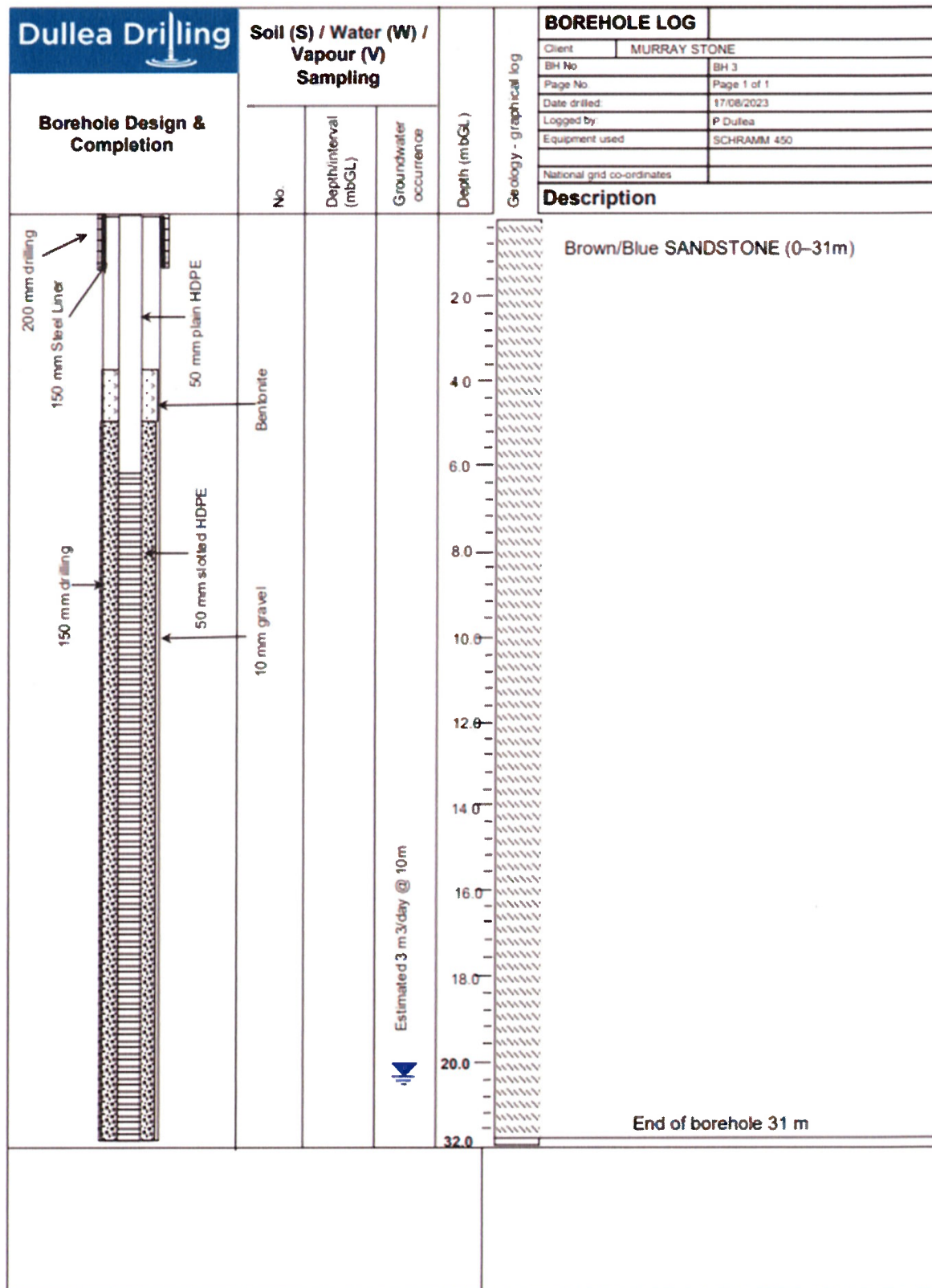
In Test Method - Subcontracted A tests are accredited. Subcontracted U tests are unaccredited.
Tests are unaccredited if prefixed by A or if INAB logo is not visible on the report.
Unless otherwise stated in the comments section, samples were accepted for testing in a satisfactory condition.
This report relates only to the item(s) tested and shall not be reproduced, except in full, without the prior agreement of AQUALAB.
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Revision: 13

APPENDIX II: BOREHOLE LOGS

Dullea Drilling Borehole Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth (m bGL)	Geology - graphical log	BOREHOLE LOG	
	No.	Depth/interval (mbGL)	Groundwater occurrence			Client	
						MURRAY STONE	
						BH No	BH 1
						Page No	Page 1 of 1
						Date drilled	17/08/2023
						Logged by	P Dullea
						Equipment used	SCHRAMM 450
						National grid co-ordinates	
						Description	
						Fill (0-1m)	
						Brown/Blue SANDSTONE (1-13m)	
			Estimated 3 m ³ /day @ 10m			End of borehole 13 m	

Dullea Drilling		Soil (S) / Water (W) / Vapour (V) Sampling		Depth (mbGL)	Geology - graphical log	BOREHOLE LOG	
						Client	MURRAY STONE
Borehole Design & Completion		No.	Depth/interval (mbGL)	Groundwater occurrence	Depth (mbGL)	Geology - graphical log	Description
			Bentonite		Estimated 3 m ³ /day @ 10m	2.0	
	10 mm gravel			4.0		Brown/Blue SANDSTONE (1-12m)	
						End of borehole 12 m	
					6.0		
					8.0		
					10.0		
					12.0		
					14.0		
					16.0		
					18.0		
					20.0		
					22.0		



APPENDIX III: ENVIRONMENTAL NOISE SURVEY



Environmental Noise Survey

Environmental Noise Survey to determine the prevailing noise environment in the area in the vicinity of Murray Stone, Drumbeagh, Mountcharles, Co. Donegal.

Greentrack Environmental Consultants

September 2023

DOCUMENT DETAILS

Client: Murray Stone

Project Title: Environmental Noise Survey

Project Number: 23.0708

Document Title: Environmental Noise Survey, Murray Stone

Completion Date: 12th September 2023

Prepared By:



Greentrack Consultancy Limited
4 Roe House,
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Co. Donegal
F92 NHT0

074 9126483

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1 INTRODUCTION

Murray Stone is small well established sandstone supplier in south Donegal. The quarry is currently unauthorised and is attempting to regularise activities with a substitute consent application to An Bord Pleanála. The current enterprise is small scale with mechanical extraction of material from a relatively small quarry face followed by hand cutting of material by guillotine for market. There is the occasional requirement to break larger pieces of stone with a hydraulic impact hammer. A remedial Environmental Impact Assessment Screening Report will accompany the substitute consent application. This environmental noise report is produced to inform the screening report.

2 SITE DESCRIPTION

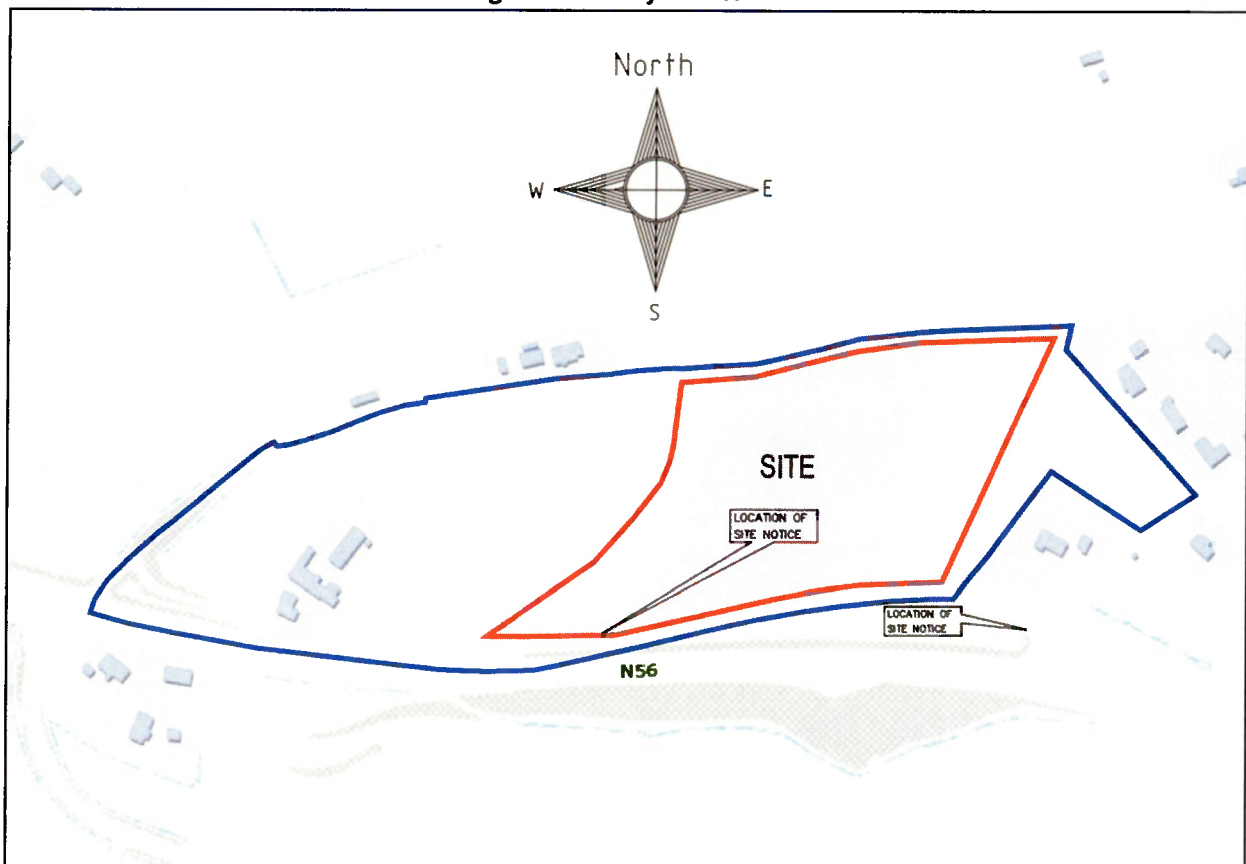
2.1 Location

The proposed development is located in the rural townland of Drumbeagh, Mountcharles, Co. Donegal, (Figure 2.1). Access to the site is provided by the local slip road off the N56 which also serves the applicant's home and one other house. The quarry site is part of a larger landholding. Figure 4.1 shows the extent of the site (in red) in relation to the overall landholding (shown in blue).

Figure 2.1 Site location map



CYAL50244901 © Ordnance Survey Ireland/Government of Ireland.

Figure 2.2: Subject Site

(Extract from Drawing provided by McMullin Associates)

The quarry is sited in a rural area with one-off sporadic housing throughout the area. There are 24 dwellings within 500 m of the quarry boundary, one of which is the applicants home. 10 of the dwellings are within 100 m of the N56 national route. The dominant land use in the surrounding area is agriculture and forestry. The quality of the agricultural land would be described as poor and further east of the site there are extensive belts of coniferous forest both in private and state ownership.

2.2 Site Description

The development consists of a quarry located on a 3.45-hectare site in the rural townland of Drumbeagh. The site is located immediately north of the N56 between the villages of Mountcharles and Inver.

The quarry features an access track that leads to a levelled area in the central portion of the quarry. Worked and working faces are to the east and a guillotine processing area lies in the west of the quarry.

There is an excavator, telehandler and small tractor in use at the site. Most of the product is transported in tonne bags by customers collecting directly from the site. There are some stockpiles of cut and uncut material on site and a small area of loaded tonne bags ready for shipment. Murray Stone do not deliver product and there are no delivery lorries.

Structures at the quarry include small shelter structures around the guillotine and generator which powers the guillotine and a mobile home which serves as an office located to the east of the central levelled area. There are also several abandoned vehicles and redundant pieces of quarry equipment/plant which are mainly located in the northern part of the quarry.

2.3 Quarrying Operations

There has been a quarry recorded on the site since the mid 1800's. The primary product from the quarry is cut sandstone for decorative cladding or garden stone.

Rock is extracted by mechanical means using an excavator with a ripping claw. Larger boulders are then further broken down into manageable sizes using a hydraulic breaker attachment on the excavator. Manageable pieces are then guillotines cleaving the rock along natural bedding planes into decorative stone. The quarry produces a beige/light brown cut stone and a blue cut stone from the available lithology.

A water management system including settlement ponds ensures runoff from the quarry is treated to a high standard before discharge off site.

3 SCOPE

Greentrack were commissioned to carry out a remedial Environmental Impact Assessment Screening Report to assess if the development requires, or would have required, Environmental Impact Assessment. A noise survey was conducted to assess how activities on site impact on any noise sensitive locations surrounding the site. The environmental noise survey was conducted in the vicinity of Murray Stone, Drumbeagh, Mountcharles, Co. Donegal in accordance with the EPA's Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4, EPA 2016) and ISO 1996 (2017) Description Measurement and Assessment of Environmental Noise. Part 2 Determination of Environmental Noise Levels.

The purpose of the survey was to determine the prevailing noise environment in the area and to inform the screening report.

4 METHODOLOGY

The survey was carried out by Colin Farrell BSc. MSc. of Greentrack Environmental Consultants.

4.1 Noise Sensitive Locations

A site visit was undertaken as part of the baseline environmental noise survey to inform the assessment. The site visit was used to choose appropriate Noise Sensitive Locations for the monitoring sites. As specified in the guidance document, facilities that are not located in Industrial Estates and were standalone sites of industry should not use the site boundaries as noise monitoring locations but use relevant Noise Sensitive Locations.

Following a site inspection where all noise sensitive receptors were considered, three locations were selected as Noise Sensitive Locations (N1, N2 & N3).

N1 was the most obvious noise sensitive location being situated approximately 55 m east of the southeast corner of the application site. A boundary of mature coniferous trees separates the dwelling from the quarry. Noise measurements were taken east of this acoustic buffer and are therefore likely to be higher than those experienced at the dwelling. N1 is approximately 25 m from the N56 national route.

There are no noise sensitive locations to the south of the N56.

N2 was chosen as a location to the east of the site as representative of the three bungalows in this area. N2 is a dwelling house approximately 115 m east of the quarry boundary.

N3 was selected as the location that best represented receptors located to the northwest of the site. N3 is approximately 80 m from the northwest boundary of the site. A boundary of native trees and hedges separates the dwelling from the quarry. Noise measurements were taken south of this acoustic buffer and are therefore likely to be higher than those experienced at the dwelling.

The location of each of the Noise Sensitive Locations relative to the quarry boundary are shown in Figure 4.1.

Figure 4.1: Noise Sensitive Locations N1, N2 & N3.



4.2 Survey Equipment

The measurements were made using a Cirrus Optimus + Green CK:177B sound level meter fitted with a 1:1 and 1:3 octave band filter. The instrument was calibrated in situ at 93.7 dB prior to use and the calibration was cross-checked after the measurements using a Cirrus acoustic calibrator. Calibration certificates from the manufacturer are supplied in Appendix 1, and on-site calibration values are supplied with the summary environmental noise reports in Appendix 2.

The sound level meter was orientated towards the closest quarry boundary and mounted on a tripod at 1.5m above ground level. This instrument is a Type 1 instrument in accordance with IEC 651 regulations. The Time Weighting used was Fast and the Frequency Weighting was A-weighted as per IEC 651.

Photographs of the sound level meter in place in N1, N2 & N3 are shown in Photographs 4.1, 4.2 & 4.3.

Photograph 4.1: Survey equipment at N1



Photograph 4.2: Survey equipment at N2



Photograph 4.3: Survey equipment at N3

4.3 Survey Period

Noise measurements were conducted over the course of 24th August 2023 from approximately 10.30 am to 12.30 pm. One 15-minute attended survey was conducted at each location. To create a worst-case scenario for noise impact, the noisiest operation was being undertaken while the surveys were being conducted. The ripping claw was fitted to the excavator and extraction of rock was ongoing.

The guillotine was also in full operation when extraction was occurring. This was an unusual situation for the quarry to have two processes occurring simultaneously. No evening or night-time surveys were undertaken as the site is not operational during the evening or night-time.

4.4 Conditions

The meteorological condition during the survey period was warm, sunny conditions with scattered light showers. Wind speed averaged 5 m/s from the WSW and the temperature ranged from 15 °C to 18 °C. Cloud cover was 60%.

5 SURVEY RESULTS

The main measurement parameter was the equivalent continuous A-weighted Sound Pressure level, $L_{Aeq,T}$, over 15 minute monitoring periods. A statistical analysis of the measurement results was completed so that the percentile levels, $L_{AN,T}$, for $N = 90\%$ and $N = 10\%$ over the monitoring periods could be assessed. The percentile levels represent the noise level in dBA exceeded for $N\%$ of the measurement time.

The results of the survey for each of the noise sensitive locations are summarised in Table 5.1 – 5.4. The summary report of each 15-minute survey is presented in Appendix 2.

Table 5.1: Summary of the Environmental Noise Survey for N1

Receptor	N1 - dwelling approximately 55m east of southeast quarry corner.				
Period	Time	Measured Noise Level dB			Comments
		L _{Aeq}	L _{AF90}	L _{AFmax}	
Daytime 0700 - 1900 (24.8.23)	10:54 – 11:09	55.6	50.5	70.7	Background noise dominated by N56 traffic, and some quarry activity can be heard. Other noise sources are birdsong and wind noise through the adjacent trees. Contribution from quarry to overall noise levels is estimated around 47-55 dB and general traffic noise from the N56 is estimated around 53-64 dB L _{AFmax} caused by vehicle noise on adjacent N56 road (non-quarry related).

Table 5.2: Summary of the Environmental Noise Survey for N2

Receptor	N2 - dwelling approximately 115 m east of eastern quarry boundary.				
Period	Time	Measured Noise Level dB			Comments
		L _{Aeq}	L _{AF90}	L _{AFmax}	
Daytime 0700 - 1900 (24.8.23)	11:12 – 11:29	52.7	47.4	69.0	Background noise dominated by N56 traffic, and some quarry activity can be heard. Birdsong also makes a small contribution to the overall noise environment. Contribution from quarry to overall noise levels is estimated around 49-55 dB and general traffic noise from the N56 is estimated around 52-61 dB L _{AFmax} caused by vehicle noise on adjacent N56 road (non-quarry related).

Table 5.3: Summary of the Environmental Noise Survey for N3

Receptor	N1 - dwelling approximately 80 m west of the northwestern boundary of the quarry				
Period	Time	Measured Noise Level dB			Comments
		L _{Aeq}	L _{AF90}	L _{AFmax}	
Daytime 0700 - 1900 (24.8.23)	11.44 - 11:59	52.1	46.5	69.3	Background noise dominated by N56 traffic, and some quarry activity is faintly audible. Other noise sources are birdsong and wind noise through the adjacent trees. Contribution from quarry to overall noise levels is estimated around 37-45 dB and general traffic noise from the N56 is estimated around 45-55 dB L _{AFmax} caused by vehicle noise on adjacent N56 road (non-quarry related).

6 GENERAL ASSESSMENT

L_{eq,15} levels for N1 are 55.6 dBA. As expected, activity from the quarry can be heard loudest at this location but the noise levels due to extraction activity at an estimated 47-55 dBA is within recommended levels. The screening berms along the eastern boundary of the quarry are providing

some noise attenuation from inside the quarry. Passing traffic along the N56 dominates the noise environment at this location.

Average $L_{eq,15}$ levels for N2 are 52.7 dBA. Quarry activity is estimated to be at 49-55 dBA at this location. Quarry noise has been partially attenuated by the partial screening berms along the eastern boundary of the quarry and the distance from the quarry.

At N3 the average $L_{eq,15}$ levels were observed at 52.1 dBA. Activity within the quarry was faintly audible at an acceptable level 37-45 dBA and traffic noise along the N56 was heard at approximately 45-55 dBA. Noise attenuation was provided by scrub cover along the north-western boundary of the quarry.

Background noise levels, represented by L_{AF90} , are 50.5 dBA, 47.4 dBA, and 46.5 dBA for N1, N2 and N3 respectively. These are all relatively low background noise levels. The highest background noise was recorded at N1 where there was a slight contribution from quarry activity but most of the noise source was traffic from the N56.

6.1 Tonal Assessment

The methodology of objective identification of the presence of tonal noise is set out in BS 4142: 2014: Annex C (normative): *Objective method for assessing the audibility of tones in sound: One-third octave method*.

'This methodology requires that for a prominent, discrete tone to be identified as present, the time-averaged linear sound pressure level in the one-third-octave band of interest is required to exceed the time-averaged linear sound pressure levels of both adjacent one-third octave bands by some constant level difference. The appropriate level differences vary with frequency. They should be greater than or equal to the following values in both adjacent one-third-octave bands:

- 15dB in low-frequency one-third-octave bands (25Hz to 125Hz);
- 8dB in middle-frequency bands (160Hz to 400Hz), and;
- 5 dB in high-frequency bands (500Hz to 10,000Hz).'

The third octave spectra presented in Appendix 1 were examined for the presence of tonal noise.

It is concluded that there was no audible tonal noise associated with the site during the survey period.

6.2 Impulsive Assessment

Normally an impulsive characteristic, such as thumping, banging or an impact noise, is determined subjectively.

No impulsive noise from the facility was identified during the survey period.

7 CONCLUSIONS

Recorded noise levels at noise sensitive locations were largely influenced by traffic noise from the nearby N56. There were variable contributions from quarry activity to the noise environments at all noise sensitive locations. The noise climates at the receptors were not adversely impacted by any continuous or dominant noise sources associated with quarrying activities. Where noise was apparent from quarrying activity, it was measured at a level well below typical guideline limit values.

No audible tonal component of noise associated with quarry activities could be identified at any of the noise sensitive locations.

No impulsive noise sources associated with quarry activities could be identified at any of the noise sensitive locations.

APPENDIX 1: Calibration Certificates

CERTIFICATE OF CALIBRATION		
ISSUED BY	Cirrus Research GmbH	
DATE OF ISSUE	10/12/21	CERTIFICATE NUMBER 167205



Cirrus Research GmbH
Arabella Center
Lyoner Strasse 44-48
D-60528 Frankfurt
Germany

Page 1 of 2

Test engineer:
M.Laakel
Electronically signed:


Microphone

Microphone capsule

Manufacturer: Cirrus Research plc

Model: MK:224

Serial Number: 213317B

Calibration procedure

Date of calibration: 10 December 2021

Open circuit: 53.2 mV/Pa

Sensitivity at 1 kHz: -25.5 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using a closed cavity applying a known pressure level using the sequential excitation technique in accordance with BS EN 61094-5:2016 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Environmental conditions

Pressure: 98.29 kPa

Temperature: 23.4 °C

Humidity: 21.3 %

CERTIFICATE OF CALIBRATION

Certificate Number:

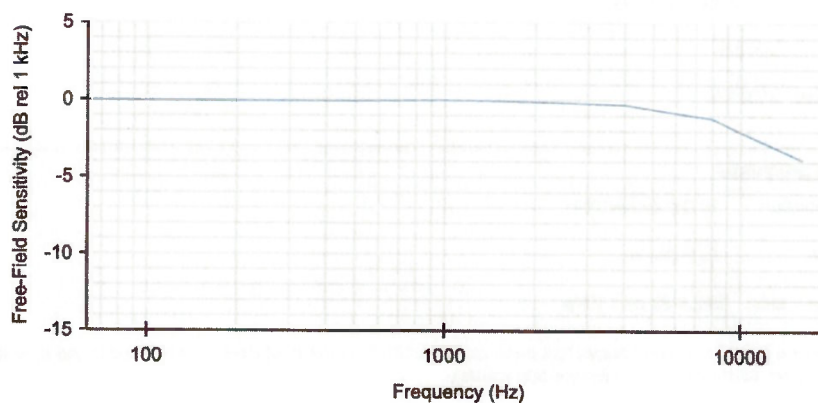
167205

Page 2 of 2

Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)
63	-0.01
125	-0.05
250	-0.06
500	-0.07
1000	0.00
2000	-0.10
4000	-0.28
8000	-1.15
16000	-3.85

Free-Field Frequency Response : Graphical



CERTIFICATE OF CALIBRATION

ISSUED BY Cirrus Research GmbH

DATE OF ISSUE 13 December 2021 CERTIFICATE NUMBER 167285



Cirrus Research GmbH
Arabella Center
Lyoner Strasse 44-48
D-60528 Frankfurt
Germany

Page 1 of 2

Approved signatory

M.Laakel

Electronically signed:

Sound Level Meter : IEC 61672-3:2013

Instrument information

Manufacturer:	Cirrus Research plc	Notes:
Model:	CR:171B	
Serial number:	G301928	
Class:	1	
Firmware version:	5.5.3021	

Test summary

Date of calibration: 13 December 2021

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.

Periodic tests were performed in accordance with procedures from IEC 61672-3:2013.

The sound level meter submitted for testing successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to determine that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Notes

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%.

APPENDIX 2: SUMMARY NOISE REPORTS

12/09/2023



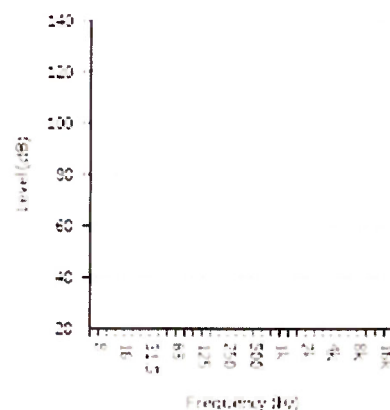
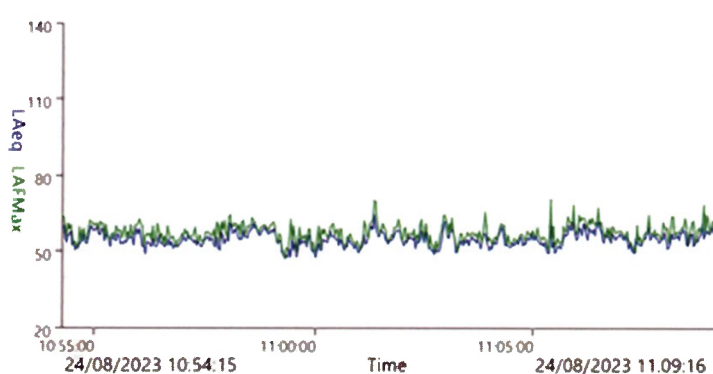
Measurement Summary Report

Name 50
Time 24/08/2023 10:54:15 **Person** Colin Farrell **Place** NSL1 **Project** Murray Stone
Duration 00:15:00
Instrument G301928, CR:171B

Calibration

Before 24/08/2023 10:19 **Offset** -0.24 dB **After** 24/08/2023 12:04 **Offset** 0.06 dB

Basic Values		Statistical Levels (Ln)	
L _{Aeq}	55.6 dB	LAF1	61.9 dB
L _{AE}	85.1 dB	LAF5	59.5 dB
L _{AFMax}	70.7 dB	LAF10	58.4 dB
		LAF50	54.1 dB
		LAF90	50.5 dB
		LAF95	49.2 dB
		LAF99	47.3 dB



12/09/2023



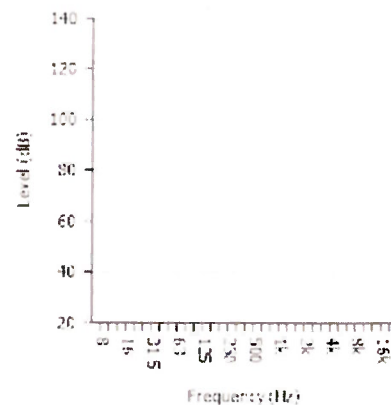
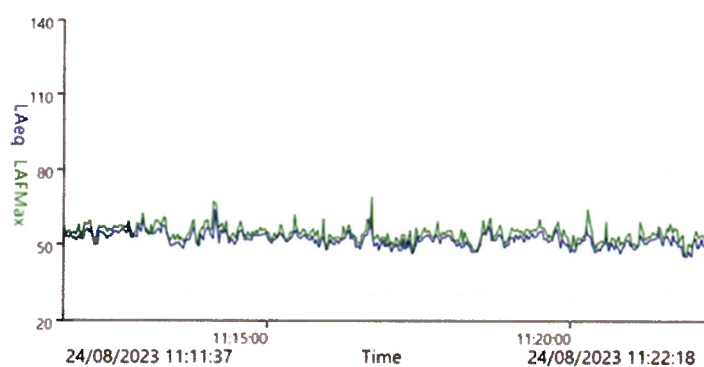
Measurement Summary Report

Name 51
Time 24/08/2023 11:11:37 **Person** Colin Farrell **Place** NSL2 **Project** Murray Stone
Duration 00:10:41 **Instrument** G301928, CR:171B

Calibration

Before 24/08/2023 10:19 **Offset** -0.24 dB **After** 24/08/2023 12:04 **Offset** 0.06 dB

Basic Values		Statistical Levels (Ln)	
L _{Aeq}	53.0 dB	LAF1	59.1 dB
L _{AE}	81.1 dB	LAF5	56.6 dB
L _{AFMax}	69.0 dB	LAF10	55.4 dB
		LAF50	51.7 dB
		LAF90	47.9 dB
		LAF95	46.9 dB
		LAF99	44.9 dB



12/09/2023



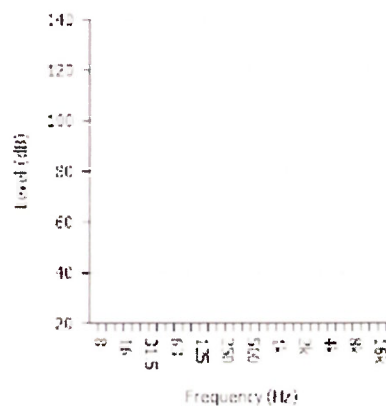
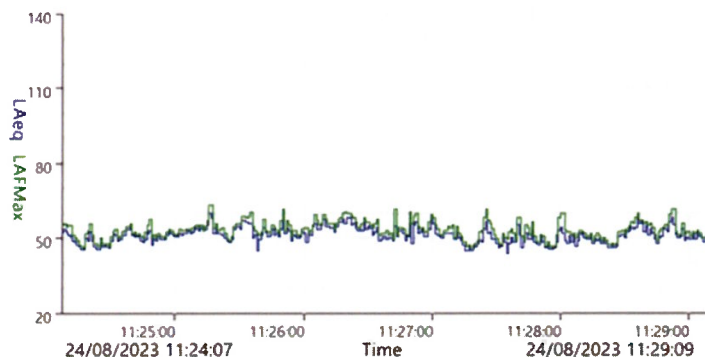
Measurement Summary Report

Name 52
Time 24/08/2023 11:24:07 **Person** Colin Farrell **Place** NSL2 **Project** Murray Stone
Duration 00:05:02
Instrument G301928, CR:171B

Calibration

Before 24/08/2023 10:19 **Offset** -0.24 dB **After** 24/08/2023 12:04 **Offset** 0.06 dB

Basic Values		Statistical Levels (Ln)	
L _{Aeq}	52.1 dB	LAF1	58.9 dB
L _{AE}	76.9 dB	LAF5	56.4 dB
L _{AFMax}	63.1 dB	LAF10	55.1 dB
		LAF50	50.6 dB
		LAF90	46.5 dB
		LAF95	45.7 dB
		LAF99	44.5 dB



12/09/2023



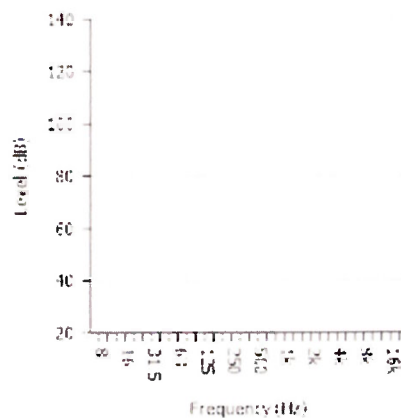
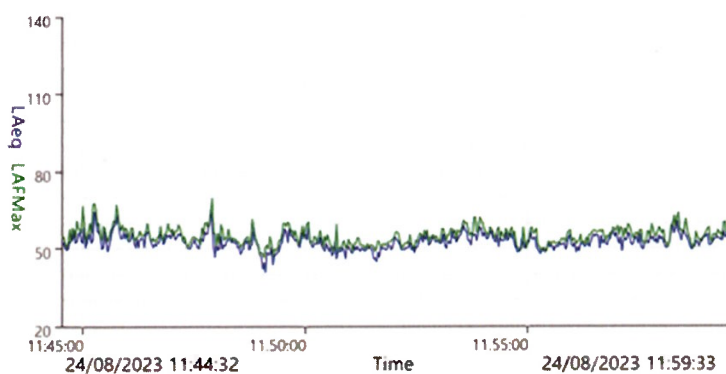
Measurement Summary Report

Name 53
Time 24/08/2023 11:44:32 **Person** Colin Farrell **Place** NSL3 **Project** Murray Stone
Duration 00:15:00
Instrument G301928, CR:171B

Calibration

Before 24/08/2023 10:19 **Offset** -0.24 dB **After** 24/08/2023 12:04 **Offset** 0.06 dB

Basic Values		Statistical Levels (Ln)	
L _{Aeq}	53.6 dB	LAF1	61.1 dB
L _{AE}	83.1 dB	LAF5	57.3 dB
L _{AFMax}	69.3 dB	LAF10	56.1 dB
		LAF50	52.0 dB
		LAF90	48.3 dB
		LAF95	46.9 dB
		LAF99	42.4 dB



APPENDIX IV: Dust Monitoring Report



Dust Monitoring Report

Dust Monitoring Survey for Murray Stone,
Drumbeagh, Mountcharles, Co. Donegal.

Greentrack Environmental Consultants

September 2023

DOCUMENT DETAILS

Client: Murray Stone

Project Title: Dust Monitoring Report

Project Number: 23.0708

Document Title: Dust Monitoring Report, Murray Stone.

Completion Date: 12th September 2023

Prepared By:



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1 INTRODUCTION

Murray Stone is small well established sandstone supplier in south Donegal. The quarry is currently unauthorised and is attempting to regularise activities with a substitute consent application to An Bord Pleanála. The current enterprise is small scale with mechanical extraction of material from a relatively small quarry face followed by hand cutting of material by guillotine for market. There is the occasional requirement to break larger pieces of stone with a hydraulic impact hammer. A remedial Environmental Impact Assessment Screening Report will accompany the substitute consent application. This dust monitoring report is produced to inform the screening report.

2 SITE DESCRIPTION

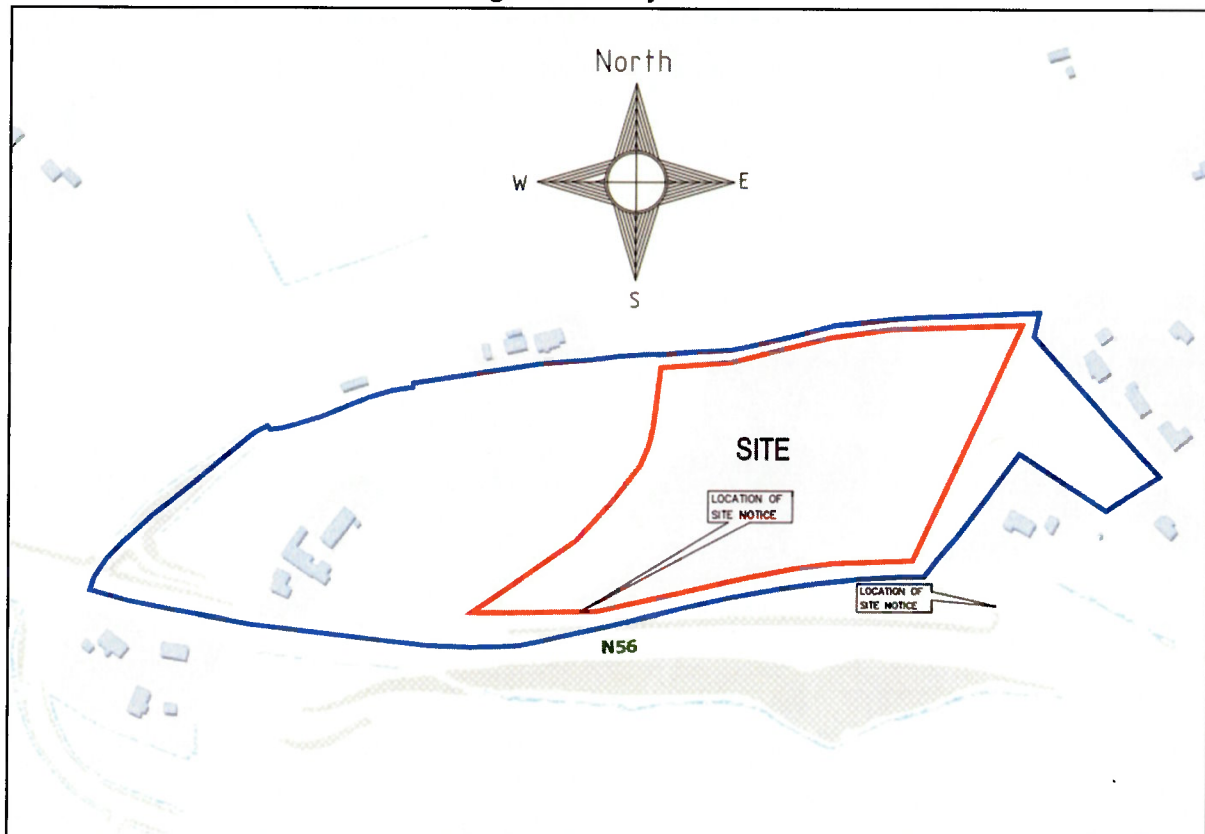
2.1 Location

The proposed development is located in the rural townland of Drumbeagh, Mountcharles, Co. Donegal, (Figure 2.1). Access to the site is provided by the local slip road off the N56 which also serves the applicant's home and one other house. The quarry site is part of a larger landholding. Figure 4.1 shows the extent of the site (in red) in relation to the overall landholding (shown in blue).

Figure 2.1: Site location map



CYAL50244901 © Ordnance Survey Ireland/Government of Ireland.

Figure 2.2: Subject Site

(Extract from Drawing provided by McMullin Associates)

The quarry is sited in a rural area with one-off sporadic housing throughout the area. There are 24 dwellings within 500 m of the quarry boundary, one of which is the applicants home. 10 of the dwellings are within 100 m of the N56 national route. The dominant land use in the surrounding area is agriculture and forestry. The quality of the agricultural land would be described as poor and further east of the site there are extensive belts of coniferous forest both in private and state ownership.

2.2 Site Description

The development consists of a quarry located on a 3.45-hectare site in the rural townland of Drumbeagh. The site is located immediately north of the N56 between the villages of Mountcharles and Inver.

The quarry features an access track that leads to a levelled area in the central portion of the quarry. Worked and working faces are to the east and a guillotine processing area lies in the west of the quarry.

There is an excavator, telehandler and small tractor in use at the site. Most of the product is transported in tonne bags by customers collecting directly from the site. There are some stockpiles of cut and uncut material on site and a small area of loaded tonne bags ready for shipment. Murray Stone do not deliver product and there are no delivery lorries.

Structures at the quarry include small shelter structures around the guillotine and generator which powers the guillotine and a mobile home which serves as an office located to the east of the central levelled area. There are also several abandoned vehicles and redundant pieces of quarry equipment/plant which are mainly located in the northern part of the quarry.

2.3 Quarrying Operations

There has been a quarry recorded on the site since the mid 1800's. The primary product from the quarry is cut sandstone for decorative cladding or garden stone.

Rock is extracted by mechanical means using an excavator with a ripping claw. Larger boulders are then further broken down into manageable sizes using a hydraulic breaker attachment on the excavator. Manageable pieces are then guillotines cleaving the rock along natural bedding planes into decorative stone. The quarry produces a beige/light brown cut stone and a blue cut stone from the available lithology.

A water management system including settlement ponds ensures runoff from the quarry is treated to a high standard before discharge off site.

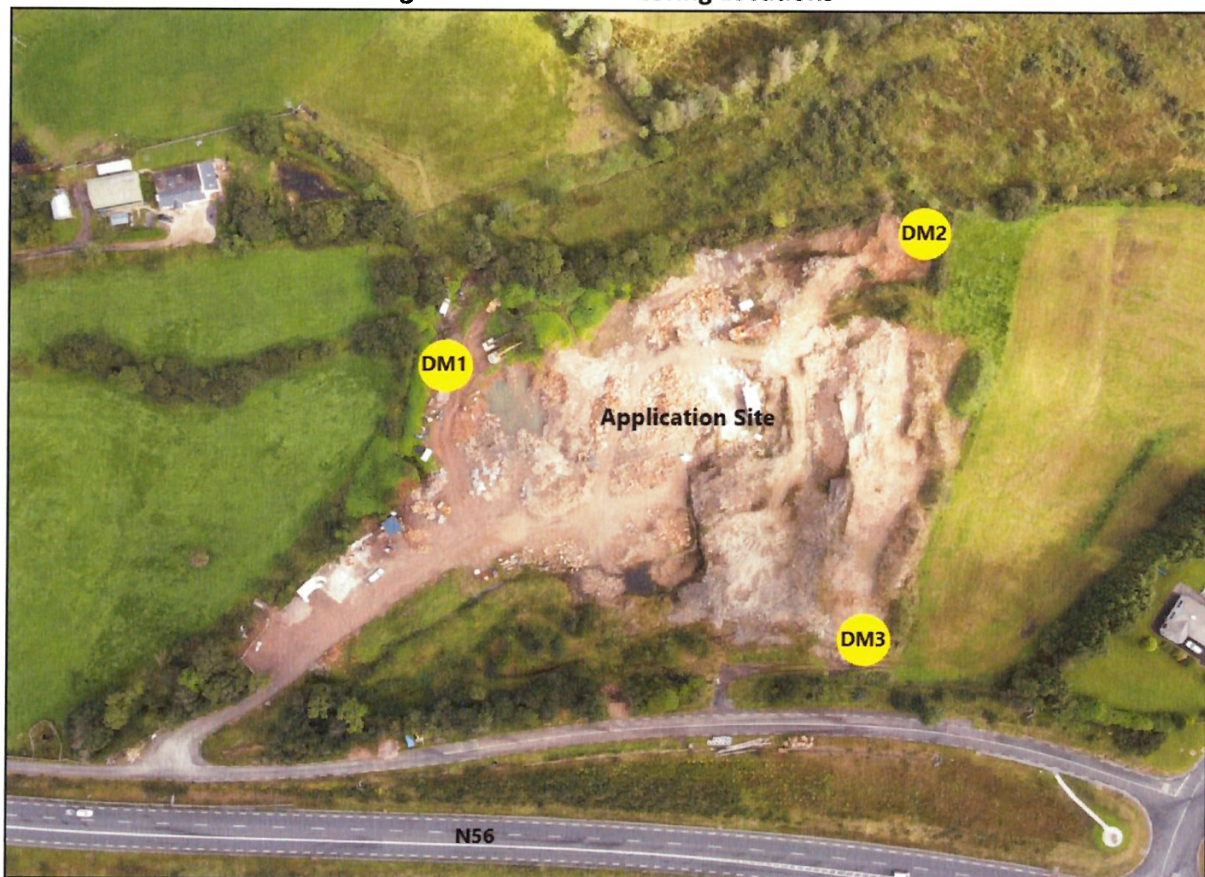
3 DUST MONITORING METHODOLOGY

Three dust monitoring station have been installed on site.

- One Dust Monitor (DM 1) was placed near the north-western boundary of the site.
- A second Dust Monitor (DM 2) was placed in the north-eastern corner of the site.
- A third Dust Monitor (DM 3) was placed in the southeast corner of the site.

The positions of these dust monitors are indicated on Figure 3.1, and photographs of the dust monitors in position are shown in Photographs 3.1, 3.2 & 3.3 below.

Figure 3.1: Dust Monitoring Locations



Photograph 3.1: Location of Dust Monitor 1 on the NW boundary of the site.



Photograph 3.2: Dust Monitor 2, placed in the NE corner of the site.



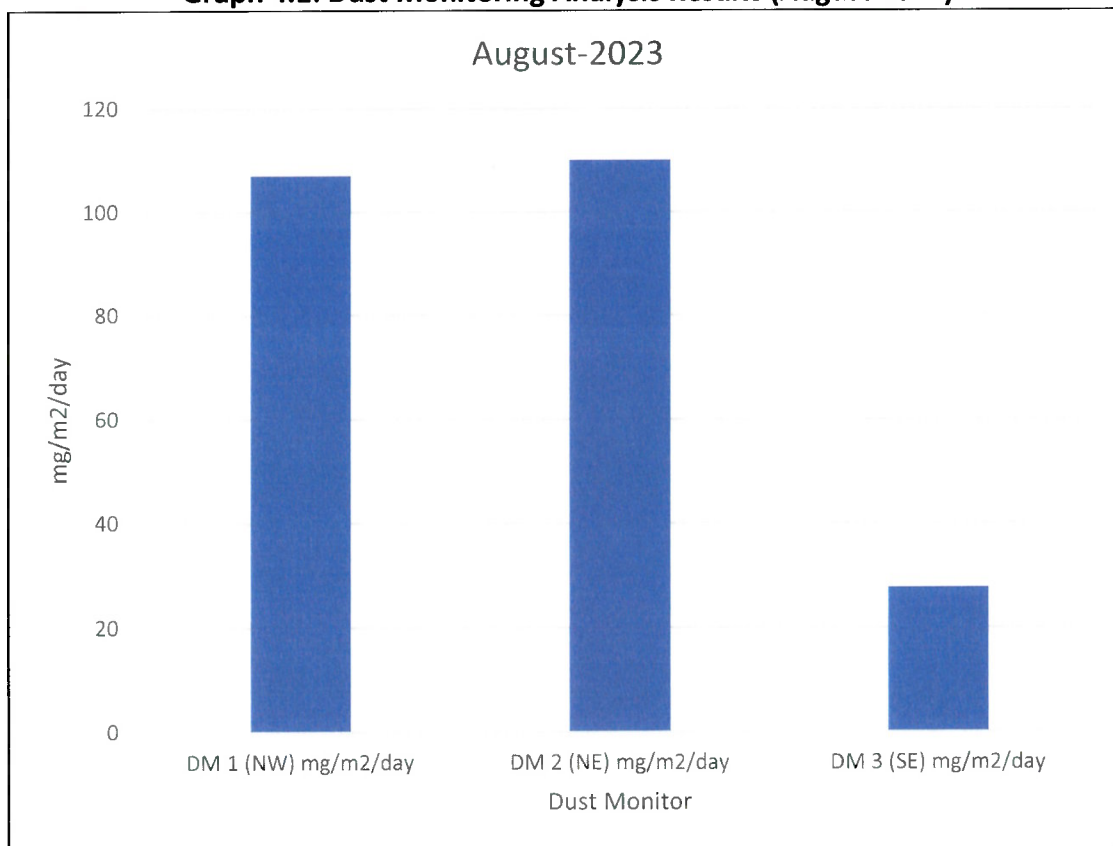
Photograph 3.3: Dust Monitor 3 in the SE corner of the site.

4 DUST MONITORING ASSESSMENT

The dust monitors were installed on 1st August 2023 were left in place for 30 days and removed on 31st August 2023. The dust collected was sent to Aqualab in Killybegs for Bergerhoff dust analysis. The results for August 2023 are presented in Table 4.1 and Graph 4.1, below. The analyses certificates from Aqualab are presented in Appendix 1.

Table 4.1: Dust Monitoring Results (August 2023)

Analytical Period	Dust Monitor 1 (NW) mg/m ² /day	Dust Monitor 2 (NE) mg/m ² /day	Dust Monitor 3 (SE) mg/m ² /day
August 2023	107	110	27.6

Graph 4.1: Dust Monitoring Analysis Results (August 2023)

4.1 Interpretation of Results

Dust generation rates depend on the site activity, particle size, the moisture content of the material and weather conditions. Dust emissions are dramatically reduced where rainfall has occurred due to the cohesion created between dust particles and water and the removal of suspended dust from the air. It is typical to assume very little dust is generated under "wet day" conditions where rainfall greater than 0.2 mm has fallen.

Large particle sizes (greater than 75 microns) fall rapidly out of atmospheric suspension and are subsequently deposited in close proximity to the source. Particle sizes of less than 75 microns are of interest as they can remain airborne for greater distances and give rise to the potential dust nuisance at the sensitive receptors.

The guidelines applied to the extractive industry are widely used as best practice (DoEHLG (2004)). Threshold limits are usually indicated at 350 mg/m²/day at the boundary of a site for acceptable dust deposition levels.

It is noted that the dust deposition monitoring has been in compliance with the 350 mg/m²/day DoEHLG (2004) threshold limits.

The overall impact of activities on site, in terms of dust emissions, has been imperceptible to the local air environment beyond the site boundaries.

References

Department of the Environment, Heritage and Local Government (2004) Quarries and Ancillary Activities, Guidelines for Planning Authorities.

Department of Environment, Community and Local Government (2013) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

Department of Communications, Climate Action and Environment (2017) Draft National Mitigation Plan.

Environmental Protection Agency (2006) Environmental Management in the Extractive Industry: Guidelines for Regulators.

TA Luft (1986) Technical Instructions on Air Quality Control – TA Luft in accordance with Article 48 of the Federal Emission Control Law (BImSchG) dated 15th March 1974 (BGBl, I p. 721). Federal Ministry for Environment, Bonn 1986 and amendments.

APPENDIX 1: Aqualab Berghoff Dust Analysis



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CERTIFICATE OF ANALYSIS

Page 1 of 1

Customer: Greentrack
4 Roe House,
Dry Arch Business Park ,
Dromore ,
Letterkenny ,

Report no.: 23-05255
No. of samples: 3
Acceptance date: 04/09/2023
Analysis date: 04/09/2023
Date of issue: 06/09/2023
Contact: Denis Faulkner

Comments

3 x samples water ex Murray Stone

Sample ID	Sample type	Client reference	Test method	Test description	Result / Units
23-05255-(01)	Water	DM1 (NW)	E-128	Bergerhoff Dust	107 mg/m ³ /day
23-05255-(02)	Water	DM2 (NE)	E-128	Bergerhoff Dust	110 mg/m ³ /day
23-05255-(03)	Water	DM3 (SE)	E-128	Bergerhoff Dust	27.6 mg/m ³ /day

The results in this electronically produced test report have been checked and approved. The test report meets the requirements of IS EN ISO/IEC 17025 2017 and is also valid without signature.

Report authorised by:

Brid Ward
Brid Ward
Technician

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Revision: 1.3