

Murray Brothers Tarmacadam Ltd

ARDCAHAN QUARRY SECTION 37L
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT (EIAR)

VOLUME I
NON-TECHNICAL SUMMARY

February 2026

Non-Technical Summary

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1 Introduction to EIAR

1.1 Introduction

This Environmental Impact Assessment Report (hereinafter referred to as the EIAR) has been prepared to accompany an application to An Coimisiún Pleanála (ACP) under Section 37L of the Planning and Development Act 2002, as amended (the Act) for proposed development at Ardcahan Quarry, Dunmanway, Co. Cork.

This NTS provides a concise and comprehensive summary of the assessments carried out, description of the development, the baseline environment, the effects of the project on the environment, any proposed mitigation/remediation measures and proposed monitoring arrangements, where relevant.

Please note that a Natura Impact Statement (NIS) has also been prepared and accompanies this application under separate cover.

The 37L application will be made concurrently with an application under Section 177E of the Act for substitute consent. The substitute consent process provides a procedural pathway for developers to obtain permission for developments which should have been subject to EIA and/or Appropriate Assessment (AA) but were not, due to exceptional circumstances.

1.2 Requirement for an EIAR

Environmental Impact Assessment (EIA) requirements derive from EU Directives. Council Directive 2014/52/EU amended Directive 2011/92/EU and is transposed into Irish Law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

Proposed development which falls within one of the categories of development specified in Schedule 5 of the Planning and Development Regulations 2001, as amended, which equals or exceeds, a limit, quantity, or threshold prescribed for that class of development must be accompanied by an EIAR.

Part 1 of Schedule 5

Paragraph 19 of Part 1 of Schedule 5 states that the following form of development requires an EIA:

19. Quarries and open-cast mining where the surface of the site exceeds 25 hectares.

The subject development does fall within the development class 'Quarry' set out in Part 1 of Schedule 5. The development site area of 19.1 hectares does not trigger the 25-hectare threshold. Therefore, EIA is not mandatory under Part 1 of Schedule 5. It is noted that the overall landholding/ownership area (including the macadam plant) measures 25ha, but the extraction and associated/ancillary areas included in this S37 application is less than that (i.e. the red line planning application boundary is 10.4).

1.3 Design Team and Competency

It is a requirement that the EIAR must be prepared by competent experts. Information on the competency of the relevant consultant is provided at the start of each chapter. EIAR Co-Ordinator and Study Team, McCutcheon Halley Planning Consultants (MH Planning) are the planning consultants and project co-ordinators of the EIAR. The EIAR structure and consultant responsible for each of the chapters is set out in Table 1.

Table 1 Ardcahan Quarry EIAR: List of Consultants and Responsibility

Consultant	Chapters prepared
McCutcheon Halley Planning, 6 Joyce House, Barrack Square, Ballincollig, Cork. Tel: (021) 4208710 e-mail: info@mhplanning.ie	Chapter 1 Introduction Chapter 2 Planning Policy Framework Chapter 3 Project Location and Description Chapter 4 Project Need and Reasonable Alternatives Chapter 5 Population and Human Health Chapter 13 Material Assets: Services, Infrastructure, Waste and Utilities Chapter 16 Significant Interactions Chapter 17 Screening for Major Accidents Chapter 18 Summary of Mitigation and Monitoring
Viridus Consulting Ltd 087 6503582 e-mail: Darragh.musgrave@viridus.ie	Chapter 6 Land, Soils and Geology
	Chapter 7 Hydrology and Hydrogeology
AWN Consulting, The Tecpro Building, Clonshaugh Business & Technology Park, Dublin 17, Ireland. Tel: 353(0)1 8474220 e-mail: info@awnconsulting.com	Chapter 8 Air Quality Chapter 9 Climate
CLV Consulting, The NSC Campus, Mahon, Cork, Ireland. Tel: 021 242 8704 email: info@clvconsulting.ie	Chapter 10 Noise and Vibration
Cathal O'Meara Landscape Architects 087 9202549 e-mail: Cathal@cathalomeara.com www.cathalomeara.com	Chapter 11 Landscape and Visual Impact
MHL Consulting Engineers 021 484 0214 087 279 0851 e-mail: smoriarty@mhl.ie	Chapter 12 Traffic and Transport
Malone O'Regan Environmental Office 423, Horgan's Quay, Waterfront Square, Cork, T23 PPT8 Tel: 021 2340523 e-mail: info@mores.ie	Chapter 14 Biodiversity Natura Impact Statement
Lane Purcell Archaeology Tel: 353 (021) 421 4368 e-mail: info@lpa.ie	Chapter 15 Cultural Heritage and Archaeology

1.4 EIAR Report Structure

This EIAR has been prepared according to the 'Grouped Format Structure'. This means that each topic is considered as a separate section and is drafted by relevant specialists.

The EIAR is divided into three Volumes as follows:

Volume 1:	Non-Technical Summary
Volume II:	Environmental Impact Assessment Report
Volume III:	Appendices

1.5 Study Area

A study area has been defined for each environmental topic to inform the related technical assessments. This study area has been determined by reference to relevant guidance and the geographic scope of potential impacts. The potential impacts may be temporary or permanent and may be positive or negative. All types of impact are considered when defining the study area.

The individual chapters provide details of the study area, including a description of baseline conditions, for each discipline.

1.6 Public Consultation

On behalf of the applicant, McCutcheon Halley Planning engaged in pre-application consultation with statutory authorities listed below to inform the EIAR preparation process. Prescribed bodies shown in bold text below provided a response. Where the response included comments or recommendations, these have been considered by the EIAR contributors and are addressed in the relevant chapters, as appropriate.

1. **Cork County Council**
2. Department of Housing, Local Government and Heritage (Development Applications Unit)
 - a. National Monuments Service
 - b. **National Parks and Wildlife Service**
 - c. The Heritage Council
3. Department of Environment, Climate and Communications
4. Department of Rural and Community Development
5. Department of Agriculture, Food and the Marine
6. An Chomhairle Ealaíon - The Arts Council
7. Environmental Protection Agency
8. **Geological Survey Ireland**
9. **Transport Infrastructure Ireland**
10. An Taisce - The National Trust for Ireland
11. The Health and Safety Authority
12. **The Health Service Executive**
13. Birdwatch Ireland
14. Bat Conservation Ireland
15. **Uisce Eireann**
16. Department of Education
17. **Inland Fisheries Ireland**
18. **Faite Ireland**

In addition to the above, the required information has been issued for the Department of Housing, Planning, and Local Government's EIA Portal. This tool informs the public in a timely manner of applications accompanied by an EIAR.

1.7 Impact Assessment

Each chapter of this EIAR assesses the direct, indirect, cumulative, and residual impact of the development.

Having regard to the nature of this development, there is no traditional ‘construction phase’. Rather there is an initial development phase that includes stripping of the topsoil and placement in berms to screen the active area. For the purpose of this EIAR, this phase is referred to as the Construction Phase.

The identified quality, significance, and duration of effects for each aspect is primarily based on the terminology set out in the EPAs Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022)

2 Planning Policy Framework

This chapter sets out the planning and development context relating to quarry development and reviews the national, regional and local planning policy.

In recent years, there has been a conscious move in Ireland towards strategic planning with various policy documents and plans introduced to support strategic planning and development. Policies and objectives of the Government filter down from the national level to regional plans and to the local authority level in County Development Plans and Local Area Plans.

The Planning Statement prepared by McCutcheon Halley Planning, which accompanies this application, addresses the principal planning issues of relevance to this 37L application. It should be referred to for a full assessment of the proposed development, having regard to the relevant national, regional and local policy objectives.

The following policy documents are assessed in this chapter:

- National Planning Framework: First Revision (2025)
- Quarries and Ancillary Activities Guidelines for Planning Authorities (2004)
- Regional Spatial and Economic Strategy for the Southern Region (2020-2032)
- Cork County Development Plan 2022-2028

The chapter concludes that the proposed development is consistent with national level guidelines for the provision of aggregates to meet local construction requirements and Cork County Council policies for the provision of sustainable locally sourced aggregates.

3 Project Location and Description

3.1 Site Context

The Ardcahan Quarry is in the townland of Ardcahan, approximately 3.5km north-east of Dunmanway in West Cork. The site is situated off the L4621-9 local road (‘Hospital Road’), approximately 300m east of its junction with the R587 regional road, which links Dunmanway and Macroom (see Figure 1).

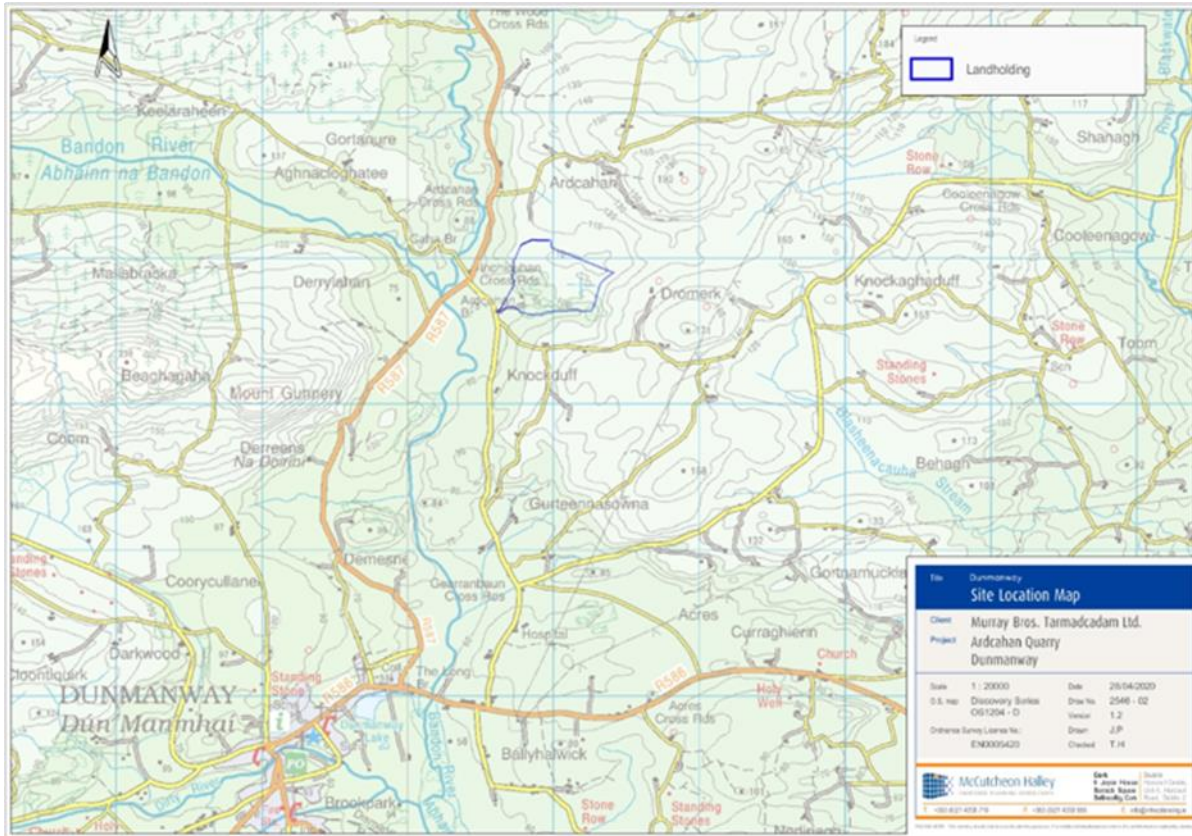


Figure 1 Site Location (applicant's landholding outlined in blue)

The site is located in a rural setting characterised by undulating topography, irregularly shaped fields and clusters of mixed woodland. The land immediately around the quarry consists of scrub, woodland and agricultural grassland. Land uses in the surrounding area primarily comprise livestock farming and rural housing.

The nearest dwellings to the quarry site (red line boundary) are located approximately 300m south; 275m west; 450m north and 400m east of the site. There are no commercial premises or community facilities in the immediate environs.

The junction of the Caha and Bandon Rivers is located approximately 400m west of the site. A small watercourse that flows into the Bandon River extends along the eastern and southern boundaries of the landholding.

The area within the overall landholding measures approx. 25 hectares (ha). The lands are sloped with lower ground levels in the south-west (~72 to 75 MOD¹) rising to the north (118 MOD).

A quarry has existed on the landholding since pre-1963 and was operated by Cork County Council until it was acquired by the applicant in the 1990's. The former extraction areas are located within the southern half of the site (as seen in Figure 3-2).

The south-east of the site was quarried prior to 1990 and includes a macadam production plant and buildings used for administration, welfare, production and storage purposes, which were granted planning permission under Reg. Ref. 98/294.

¹ Metres over Ordnance Datum

The south-west of the site was quarried between 1990-2014 and is subject to a concurrent substitute consent application (SC) and remedial EIAR.

The northern part of the landholding has not previously been used for extraction, but portions of it were used for ancillary uses such as storing crushed product, settling ponds, access tracks and for backfilling. These were developed when the quarry was previously active and have been included within the concurrent SC planning application. There are no new access roads/tracks or settlement ponds proposed as part of this S37L application as the intention is to avail of the existing access routes and ponds throughout the site.

Figure 2 shows the overall landholding (blue) and area subject to the concurrent substitute consent (SC) application (dashed orange), and the proposed area subject to this S37L application (red).



Figure 2 Aerial image of Ardcahan Quarry showing an indicative outline of the landholding (blue), the substitute consent area (dashed orange), and the S37L area (red)

3.2 Extent of Project Site

The subject site measures 10.4 ha in area. It incorporates proposed extraction areas measuring 5.01 ha, principally along the north of the application site, and the balance of the application lands comprises ancillary areas including the existing quarry floor, which is proposed to be used for aggregate processing, settling ponds, stockpiling etc, associated with the proposed future quarrying, and stormwater wetland/attenuation ponds.

The project site overlaps with lands under consideration for Substitute Consent by way of a concurrent planning application². The former post 1990 extraction area (now quarry floor) overlaps with this prospective application and will accommodate ancillary quarry activities, internal roads, aggregate

² An application for Substitute Consent under Section 177E of the Planning and Development Act 2000, as amended, has been submitted to An Coimisiún Pleanála to regularise extraction and ancillary quarrying activities which took place at Ardcahan Quarry between 1990 and 2014.

processing including crushing, screening and washing, settling ponds, stockpiling etc, associated with the proposed future quarrying.

The application site does not include or propose any works within the southeast part of the landholding occupied by the macadam plant, administration buildings and associated development permitted under Reg. Ref. 98/294.

3.3 Proposed Development

This proposed development involves quarrying of quartzitic sandstone, thereby extending the existing quarry and extraction area. Reserves at the quarry are estimated to equate to be 3.7 million tonnes of aggregate. The proposed extraction area measures 5.01 ha, and the stone will be extracted from the existing levels down to a level resembling the existing quarry floor i.e. approximately 75 metres over Ordnance Datum (MOD).

The rock will be extracted using industry-standard blasting methods to produce broken rock by creating a variable bench depth of 15-20m. The number of benches will vary depending on the existing ground level and depth of overburden; however, the final quarry floor level across the site will be approximately 75 MOD.

Depending on demand and market conditions, it is anticipated that the proposed quarrying activities will generally produce between 175,000 to 200,000 tonnes of aggregate per annum, with an anticipated upper annual output of 225,000 tonnes.

Recognising that the scale of output may fluctuate during the lifetime of the quarry due to commercial, economic and/or operational factors, this application seeks permission for a 20-year duration. A 20-year lifespan is considered appropriate and commensurate with the facilitate extraction of the estimated known reserves and implementation of the proposed remediation plan, while factoring in potential fluctuations in quarrying activity over the period.

This approach is in line with the *Quarries and Ancillary Activities Guidelines for Planning Authorities* (2004) which note that in deciding the length of planning permission for quarries, planning authorities should have regard to the expected life of the reserves within the site.

3.4 Decommissioning

Restoration works on site cannot practically include reinstatement to previous ground levels, and the quarry void is to be left open. As part of the decommissioning phase all stockpiles, plant and equipment will be removed and will include the cultivation of two native woodland pockets in the east and west of the proposed quarried area. In addition, the settlement ponds on the southwest of the site, will form a seasonal lagoon(s) which will be planted in its margins with native wetland plugs.

A Regeneration Plan is included as part of the application and as Appendix 11.1 of the EIAR.

4 Alternatives Considered

The EIA Directive requires consideration of reasonable alternatives relevant to the proposed project.

4.1 Do Nothing Scenario

A Do-Nothing Alternative would result in the quarry remaining in its current state, not operational and not extracting any additional aggregates from the area.

The existing steep quarry faces, and open excavated areas would remain as they are, and there would be no further extraction of the large accessible bedrock.

In time a Do-Nothing Scenario may result in recolonisation of the land by vegetation and resulting in a long-term improvement on the current biodiversity on the land. However, without the proposed regeneration landscape plans being implemented, the natural recolonization would take longer and may result in the invasive species on site negatively impacting the native ecology.

4.2 Alternative Locations

The proposed development consists of an expansion of an existing quarry and therefore the potential for alternative locations is not as relevant as a greenfield site. If the proposal consisted of a quarry in an alternative location, it would not constitute an extension to the existing Ardcahan quarry and would instead be the creation of a new quarry and the existing quarry would remain as existing, without the extraction of the remaining available aggregate.

The location of quarries is limited by the proximity to sensitive receptors, the availability of material for extraction, and the surrounding transport network. These factors reduce the possibility of relocating a quarry or establishing new quarries.

The existing Ardcahan quarry is strategically located within West Cork, to the north of Dunmanway. As shown in Figure 4-1, the quarry location is approximately 20km of Macroom, Clonakilty, Rosscarbery, Bandon, Skibbereen, and Bantry and is located 40km from Cork City.

Therefore, the quarry location, combined with the existing road network, provides clear access to quarried aggregates for construction within these main towns and key villages in West Cork and the wider Cork area. This ensures that any construction within the area has access within a relatively short distance for key construction materials to support the ongoing construction and development of the city, towns and villages.

This strategic location will allow the sustainable transport of aggregates/materials to construction sites within the West Cork and wider area, which will contribute towards Ireland meeting the carbon budget and emissions targets by reducing the distance required to travel between quarries and construction sites.

4.3 Alternative Expansion and Layout

The Alternative Considered chapter outlines three alternative layouts that were considered for the expansion of the existing quarry. The third, and final, layout has been informed by surveys and assessment completed on site, the location of existing equipment on site, and the location of the bedrock available for extraction.

5 Population and Human Health

5.1 Introduction

This chapter addresses the likely significant environmental impacts of the proposed development on population and human health. It is noted that other chapters of the EIAR also deal with likely significant environmental effects on population and human health arising from traffic and transportation, air quality and climate, noise and vibration, landscape and visual, material assets: utilities and the risk of major accidents and/or disasters and those chapters should be referenced in conjunction with this chapter of the EIAR.

The Study Area for the assessment of potential impacts on Population and Human Health include the Electoral Division (ED) in which the proposed development site is located (Aultagh ED), and the 3 bordering EDs which include Coolmountain, Dunmanway, and Manch ED.

5.2 Population

The CSO data shows that population of the study area (i.e. all 4 EDs combined) was 2,678 persons in 2022. This represents an increase of c.10.66% from the 2016 Census, higher than the increase in County Cork and the State in the same period (8% and 8.13% respectively).

The density for Coolmountain and Manch has remained roughly the same between 2011 to 2022, while Aultagh and Dunmanway North has experienced a steady increase in population density over time.

The average population density for the state decreased from 65.2 per sq. km in 2011 to 52 in 2022. The average population density for the total study area of c. 107 sq. km was 28. Overall, the figures for Aultagh, Coolmountain and Manch indicate a sparse population.

5.3 Impact Assessment

In identifying potential impacts and receptors, consideration was given to the proposed residential scheme and the identified receiving environment. The principal potential receptors that will be affected by the development proposals have been identified in the following sections.

- Economic Activity
- Population and Settlement Patterns
- Land Use and amenity
- Health and Safety

5.4 Do Nothing Scenario

The 'Do Nothing Scenario' would mean no resumption of quarrying activities, leaving the quarry inactive, with operations having ceased since 2014. The site would continue to host the Murray Brothers Tarmacadam Plant, which is assumed to remain operational. However, the long-term viability of Murray Brothers as a business could be at risk without the quarry's aggregate supply, potentially undermining its sustainability.

Currently, the macadam plant employs 13 staff. Under the 'Do Nothing Scenario' the absence of quarrying activity will likely limit future employment opportunities at the site, as well as the potential economic contribution of this former quarry to the region from this proven source of aggregates.

The impact on aggregate supply under this scenario is challenging to assess without projections for future demand and data on alternative sources. However, maintaining the quarry's inactivity would likely place increased pressure on nearby quarries to meet regional aggregate needs over the medium to long term. These quarries would need to compensate for Ardcahan's lack of output, potentially straining local supply chains. The effect on land use is considered neutral to be indeterminable.

Economically, the 'Do Nothing Scenario' could result in a moderately negative long-term impact on the local area by restricting job growth, reducing business activity, and limiting the quarry's contribution to the regional economy.

5.5 Construction and Operational Phase Impacts

The potential impacts arising during the construction and operational phase relate to employment and economics, health, local amenity and

5.5.1 Population

During both the construction and operational phase of the proposed development, the quarry will have no impact on the population of the study area with regards to population demographics or trends.

No significant impact on population in this regard is identified.

5.5.2 Employment and Economics

The planned development will sustain direct employment for up to five to six full-time staff and up to six part-time staff. It will also support a range of indirect jobs, including roles for haulage operators, subcontractors, suppliers of materials, and maintenance personnel. Furthermore, by ensuring a steady supply of construction aggregates, the project will indirectly bolster the local and regional economy, contributing to its stability and growth.

The existing operations contribute to local employment, and the proposed development will ensure that existing direct and indirect employment is maintained during its lifetime. Workers employed directly by the Applicant are predominantly members of the local community, and so any revenue generated from this employment is in large part returned to the local economy in the form of purchasing goods and services.

This represents a positively significant, medium-term impact that would primarily be local, with some regional benefits due to the supply of aggregates.

5.5.3 Health

The operation of heavy machinery during the Construction and Operational Phases may present health and safety risks to workers. Additionally, the presence and operation of plant and heavy machinery, working faces and open pit edges at the site can also pose a potential risk to members of the public who might access the site from the main site entrance to the site. However, access by the public would be considered trespassing on private property.

5.5.4 Local Amenity

During the Construction and Operational Phases, aggregate extraction may produce dust, noise, and vibrations. Additionally, vehicle movements related to the quarry operations and alterations to the landscape could occur.

Additionally, alterations to the landscape due to quarry operations could affect the aesthetic and functional characteristics of the surrounding area. However, the potential for these impacts to adversely affect local amenities is minimized due to the site's specific location and the absence of sensitive receptors in close proximity.

5.6 Mitigation Measures and Residual Impacts

The chapter outlines incorporated design mitigation measures, construction and operational phase mitigation measures, and decommissioning and restoration phase mitigation measures.

There will be no residual, adverse, significant effects on population and human health during the Construction, Operational, or Decommissioning and Restoration Phase(s).

5.7 Conclusion

There are no significant adverse effects with respect to socio-economic factors, land use, or the amenity value potential of the area. Issues which may cause risks and hazards during the construction and operational phase of the development are given due consideration. All necessary mitigation measures will be put in place to ensure the health and safety of all site personnel and neighbouring properties. All other environmental aspects relating to the human environment which could have an adverse effect on the local population such as soils, geology & hydrogeology, water and ecology have been addressed in the relevant chapters of this EIAR.

6 Land, Soils and Geology

6.1 Introduction

This is the non-technical summary for the Land use/Soil (Geology) Environmental Impact Assessment Report (EIAR), for the proposed resumption of quarrying at the existing Ardcahan Quarry, at Ardcahan near Dunmanway, Co. Cork. The subject site is part of an established quarry site located adjacent to an active Tarmacadam processing facility. Background information on the sites soils, geology its characteristics and status was obtained from a wide variety of available documents, current online references and a number of site visits.

The site is to be developed by Murray Bros (Tarmacadam) Ltd., with the proposed excavation of approximately 1.5 million m³, (c. 3-4 million tonnes), of quartz rich sandstone and siltstone rock over 20 years with an average excavation of about 200,000 tonnes per year. The study quantifies the current land use, soil and geological attributes of the site and looks at the potential effects of the development. Excavations will be extend from the old quarry face and will use existing access roads.

6.2 Existing Environment

The Geological Survey of Ireland (GSI) and Environmental Protection Agency (EPA) soils mapping data indicates that the top and subsoils in the area comprise of thin (<1m) non-calcareous soils over bedrock. Based on GSI vulnerability rating criteria the site specific vulnerability rating identified as Extreme (E).

The interbedded sandstone and siltstone sequences which underlie the site are identified by the GSI as the Caha Formation, (CH), which is a very common bedrock sequence in West Cork and Kerry. The Caha bedrock has a very good quartz content and polished stone value which makes it ideal for road surfacing and aggregate use. The soil and bedrock would be considered to be of low importance except for the aggregate potential which has a high importance. The local land use was previously wood and heath.

The bedrock and soil exposures in the established quarry confirm the GSI classifications with thin topsoil and subsoil occurring over shallow northwardly dipping sequences of interbedded sandstone and siltstone. Test hole drilling at eight locations to 20m depth completed in the northern portion of the quarry in 2003. identified potentially good, (sandstone rich), rock in the north eastern area of the site.

There are no 'Legacy Landfills', IPPC licensed facilities, active or historical mines, geological resource or heritage areas, proposed National Heritage Areas (NHA), or Special Protection Aresa (SPA) within the vicinity of the proposed development site. The local stream on the southern site boundary is connected to the Bandon River Special Area of Conservation (SAC) about 40m to the west of the sites main gate.

6.3 Predicted Impacts

There are no major 'construction phase' actions required for the development as the site is in an established quarry area and rock excavation and aggregate production can commence without any further development works. Predicted impacts during the operational 'quarrying' phase of development include: 1) removal of the thin soil cover (if present) and underlying bedrock strata in the proposed development area, 2) potential for accidental contamination of soils, bedrock and the underlying aquifer through fuel spillages or loss of ammonia rich explosive product, 3) stability of the exposed quarry face after blasting and 4) potential for dust generation creating sediment runoff in surface storm water from the active quarry areas, internal roads and aggregate crushing and process areas.

'Remediation Phase' works will include the re-instatement of available soil material over the final floor level and planting with native grasses and trees in order to re-establish the oak woodland habitat that would have originally been present on the site and help augment the residual oak woodland that still remains adjacent to the site boundary.

6.4 Mitigation Measures

Good construction management such as controlled refuelling of machinery and bunding of any fuel storage and chemical storage areas will be undertaken during the operational phase. Any storage of subsoils for re-use in the sites reinstatement will be away from drainage features and the water course.

Best practice guidelines such as the EPA and ICF documents with regard to environmental management and pollution control for the extractive industry will be implemented for the proposed quarry expansion.

Any runoff or ponding in the excavation areas will be controlled through drainage to the sites water attenuation and sediment settlement pond located down gradient of the proposed quarry area.

Any exposed bedrock sections will be quarried and managed in such a way that the potential for long term slope instability to occur will be minimised. Earthen berms and a buffer zone will be maintained around the boundary of the site to ensure that the risk of off-site impact are minimised.

All excavated rock material will be used as raw aggregate product for distribution to clients and as product for the adjacent tarmacadam plant.

6.5 Conclusion

The land use and geological attributes are considered to be of low importance, except for the potential use of the bedrock as aggregate. Following the EIAR impact assessment of the operational development phase and taking recommended mitigation measures into account, the final residual impact for all the potential identified effects associated with the Land Use/Soil (Geology) is rated to be Imperceptible.

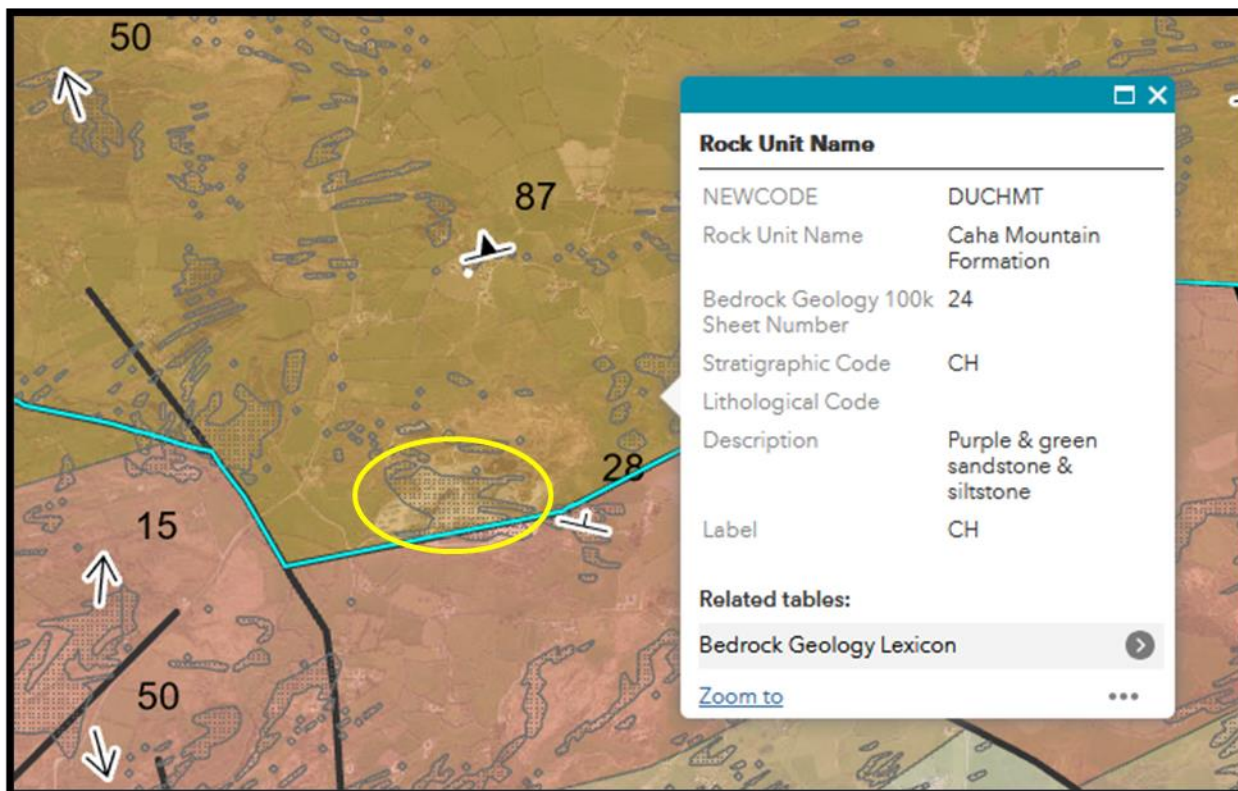


Figure 6-1 Screen Grab of GSI Bedrock Mapping with Ardcahan Quarry site location shown by yellow line.

7 Hydrology and Hydrogeology

7.1 Introduction

This is the non technical summary for the Hydrology and Hydrogeology (Water) Environmental Impact Assessment Report (EIAR) completed for the proposed 5.5Ha expansion of the Adcahan quarry by Murray Bros (Tarmacadam) Ltd., at the established Ardcahan quarry near Dunmanway in West Cork. The study quantifies the current hydrological and hydrogeological characteristics of the site and looks at the potential impact of the operational phase and proposes mitigation measures to reduce any potential impacts.

The site is to be developed by Murray Bros (Tarmacadam) Ltd., with the proposed excavation of approximately 1.5 million m³, (c. 3-4 million tonnes), of quartz rich sandstone and siltstone rock over 20 years with an average excavation of about 200,000 tonnes per year. Background information on the sites hydrology and hydrogeology, its characteristics and status was obtained from a wide variety of documents and online references. A number of site visits and rounds of water sampling were undertaken by VCL.

7.2 Existing Environment

The proposed Ardcahan Quarry expansion site is located in the River Bandon catchment area and is bounded on its eastern and southern sides by a small un-named watercourse which is a tributary of the River Bandon. The stream, (called the boundary stream), has a small catchment area of about 1km² around the quarry area and it joins the River Bandon about 400m to the southwest of the site area.

The 'boundary stream' flows along the eastern and southern sides of the existing quarry and the proposed development area will drain into it in the south western corner of the site. Three surface water ponds have developed due to rainfall trapped by changes in surface water drainage changes by berms created in the northern part of the site but these are outside the extent of the proposed quarry expansion. A number of sediment settlement and surface water attenuation ponds are present in the central part of the site. Surface water is stored in these central ponds and used in the tarmacadam production in the adjacent Tarmacadam Plant. Where possible process water is recycled rather than discharged from the site.

Stormwater runoff from the site drains away via surface water attenuation ponds to ground through old soakaways or the exposed bedrock. An earthen berm constructed along the southern boundary of the site prevents direct runoff to the boundary stream from the access road and site. The established surface pond at the south western corner of the site has the ability to contain large volumes of water and the characteristics of runoff to it will not change with the proposed future rock excavations.

The Bandon River and small boundary stream down gradient of the site is a designated Special Area of Conservation (SAC) with vulnerable populations of the Freshwater Pearl Mussel (FPM) identified in this section of the main river system. The Bandon River is located in the South Western River Basin District and is regarded as being of very high regional importance due to its proximity to the Bandon SAC and suitability for FPM and salmonid habitat.

A water quality assessment of the small boundary stream was undertaken by the acquisition and laboratory testing of some water samples up and down stream of the existing quarry and Tarmacadam site. The stream was found to have good water quality and there was no evidence of impact from the old quarry or active tarmacadam plant. A large portion of the boundary stream is within an agricultural grass and livestock land use catchment and animals were observed directly accessing the water during a number of VCL site visits.

The Geological Survey of Ireland (GSI) mapping identifies the interbedded sandstone and siltstone sequences which underlie the site are identified as the Caha Formation, (CH), which is a very common bedrock sequence in the West Cork and Kerry. The formation is classified by the GSI as being a poor aquifer (PI) which is generally unproductive, except in local zones. The Tarmacadam Plant has its own well on the east side of the old quarry.

The GSI soil mapping identifies that the soils in the area comprise of thin (0m to <3m) non calcareous soils and the GSI vulnerability rating criteria gives a site specific vulnerability rating as Extreme (E) indicating very limited protective soil cover over the bedrock.

A number of new groundwater monitoring boreholes were installed around the proposed expansion site in 2024 and these indicate the water table to typically be at 2m to 4m. The borehole drilling encountered water strikes but no major groundwater flows. It is interpreted that the rock mass has a low permeability and the groundwater table in the higher ground at the northern end of the site represents a 'perched' water table which will lower as the topography of the site is reduced. The previous quarrying lowered the perched water table as it progressed into the higher ground to the north but the local water table outside the quarry area did not reduce showing the low transmissivity of rock mass. The permanent fully saturated water table is anticipated to be at about 72m to 73m OD which is under the level of the old quarry floor in the south western portion of the site. Any groundwater seeps will follow the stormwater drainage to the SW corner of the site.

7.3 Potential Impacts

Potential construction or development phase impacts relate to the removal of the soil cover, development of internal roads, berms and ponds while potential operational phase impacts relate to the quarrying and aggregate preparation processes, water management and transport.

The proposed quarry expansion development will not change the runoff characteristics of the site as the existing environment has bedrock at or close to the ground surface, so no changes in peak flows or flow volumes will occur. In the northern part of the site quarrying will reduce the perched groundwater where excavations occur but this impact will be very local and groundwater levels will not reduce outside the quarry area. No excavations below the permanent water table are proposed and the final floor level of the quarry expansion will be close to that of the existing quarry floor in the SW portion of the site, i.e. 74m to 75m OD.

No in-stream works are required or proposed for the development.

The main potential impacts to groundwater and/or surface water quality and character of the receiving waters are associated with potentially increased sediment runoff, accidental spillage of polluting substances, such as oils, fuels or chemicals entering the groundwater and/or site drainage and going to the receiving watercourse. These potential impacts are of concern primarily for the operational phase of the proposed quarry works but some could arise during the initial site development and/or final re-instatement phases.

7.4 Mitigation Measures

Control of sediment generation by prompt re-vegetation of earthen berms and landscaped areas, use of a wide buffer zone (~15m) on the edge of the site, dedicated internal transport routes and development of a large attenuation pond area with sluice gate and/or decanter system with interceptor at the discharge point of the expansion area in the SW corner of the site, will mitigate the risk of fine sediments and hydrocarbons entering the adjacent water course.

The use of dedicated re-fuelling areas, drip trays, double skinned bowsers, spill kits and good site management will mitigate the risk of hydrocarbons being lost to ground in the quarry expansion area.

Any water runoff will be diverted through the large surface water attenuation pond system. All wash water will be re-used, retained on site or allowed to percolate to ground via the bedrock as necessary.

Maintenance and management of the attenuation ponds will ensure that the risk of suspended sediments or peak storm flows reaching the downstream watercourse is controlled and mitigated.

Dust suppression will be achieved by using water bowsers on internal roads or process plant in dry weather.

Daily visual inspections and regular (monthly to quarterly) sampling of the adjacent stream will be undertaken upstream and downstream of the proposed development area to monitor surface water quality. Annual to bi-annual sampling of the sites new groundwater monitoring boreholes will be undertaken.

Good practice guidelines for the quarry industry will be followed such as; the ICF Environmental Good Management Practices (2nd Edition) and the EPA Environmental Guidance for the Extractive Industry.

7.5 Conclusion

The Hydrology and Hydrogeological attributes are considered to be of low (groundwater) to high (Bandon River SAC) importance. Following the EIA impact assessment of the operational development phase and taking recommended mitigation measures into account, the final residual impact for all the potential identified effects associated with the water attributes are rated to be Imperceptible.



Figure 2 Screen Grab of EPA Water Mapping with Ardcahan Quarry site with boundary stream (light blue line).

8 Air Quality

The potential air quality impacts associated with the proposed development are detailed within Chapter 8 of the EIA. The assessment focussed on potential impacts to air quality as a result of operational quarrying activities.

8.1 Baseline

In terms of the existing air quality environment, data available from similar environments indicates that levels of dust, particulate matter less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$), and nitrogen dioxide (NO_2) are generally well below the National and European Union (EU) ambient air quality standards.

8.2 Impact Assessment

Impacts to air quality associated with the development will result from day-to-day quarrying activities, movement of vehicles on site and processing of materials. Air dispersion modelling was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of dust, PM_{10} and $PM_{2.5}$ from the proposed operations at the quarry to off-site levels of the pollutants. This study was carried based on worst case predicted levels of operation at the quarry and the operational hours proposed.

The worst-case dust deposition level at the site boundary, including background levels, peaks at 57.5 $mg/m^2/day$ which is 16% of the TA Luft Limit Value of 350 $mg/m^2/day$. With regard to PM_{10} , the modelling assessment has found that ambient PM_{10} concentrations (including background concentrations) are in compliance with the relevant limit values, reaching at most 21% of the 24-hour

limit value (measured as a 90.4thile) and 21% of the annual limit value at the worst-case residential receptor. With regard to PM_{2.5}, the modelling assessment has found that ambient PM_{2.5} concentrations (including background concentrations) are in compliance with the relevant limit values, reaching at most 24.25% of the annual limit value at the worst-case residential receptor.

Dust and particulate matter emissions from the quarrying activities on site have been assessed to be **localised, long-term, negative and not significant**.

Air dispersion modelling of operational activities at the site was undertaken to assess the impact of the development with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the modelling results, emissions of dust, PM₁₀ and PM_{2.5} as a result of the development are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

8.3 Mitigation Measures

There are a number of mitigation measures proposed to reduce dust emissions. These measures were included in the assessment. Provided these measures are implemented on site, no significant air quality impacts are predicted. The required measures are listed in Section 8.6 of Chapter 8 of the EIAR.

8.4 Residual Impacts

Overall, there are no significant air quality impacts predicted as a result of the proposed development. The predicted impact is **long-term, direct, localised, negative and not significant**.

9 Climate

The potential impact on climate associated with the proposed development is detailed within Chapter 9 of the EIAR. The climate assessment has focussed on:

- The potential greenhouse gas emissions during the construction and operational phases of the development.
- The vulnerability of the project to climate change, including considerations for increased rainfall and other projected climate impacts.

Baseline Environment

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA state that Ireland had total GHG emissions of 57.64 Mt CO₂e in 2024. This is 1.03 Mt CO₂e higher than Ireland's annual target for emissions in 2024. EPA data indicate that from 2021- 2024 Ireland has used 82.5% of the 295 Mt CO₂e Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a substantial 10.3% annual emissions reduction for 2025 to stay within budget.

9.1 Impact Assessment

The potential impacts on climate have been assessed in two distinct ways – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA). The GHGA quantifies the GHG emissions from a project over its lifetime and compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude. The CCRA considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

The impact of the construction and operation of the proposed development on Ireland's total national greenhouse gas emission is compared to Ireland's 2024 total greenhouse gas emissions, the relevant sectoral emissions ceilings and 2030 carbon budgets. Any adverse impacts are predicted to primarily occur during the operational phase, with the dominant sources of greenhouse gas emissions as a result of the development due to site activities, fuel usage and traffic emissions.

Calculation of the GHG emissions associated with the operational site fuel usage and traffic emissions was calculated using the online Transport Infrastructure Ireland Carbon Tool. The GHG emissions associated with the proposed development are predicted to be a small fraction of Ireland's 2030 carbon budget of 27.7 MtCO₂e and the sectoral emissions ceilings for the Industry and Transport sectors. The proposed development will incorporate some mitigation measures which will aim to reduce climate impacts while the development is operational.

A climate change risk screening assessment was conducted to consider the vulnerability of the proposed development to climate change, as per the TII 2022 PE-ENV-01104 guidance. This involves an analysis of the sensitivity and exposure of the development to future climate hazards which together provide a measure of vulnerability. The hazards assessed included flooding (pluvial, fluvial); extreme heat; extreme cold; and landslides. The proposed development is predicted to have at most low vulnerabilities to the various climate hazards and therefore climate change risk is considered direct, long-term, negative and imperceptible, which is considered overall not significant with regard to the operational phase.

Overall, no significant impacts to climate are predicted during the construction or operational phases of the proposed development.

9.2 Mitigation Measures

A number of best practice mitigation measures are proposed for the proposed development to minimise GHG emissions which will impact climate. A key target in CAP25 is reducing the embodied carbon of construction materials. The proposed development will provide a local source of high value quarried raw materials. By providing a local source of materials it reduces the requirement for importation of these same materials from greater distances thereby reducing transport-related GHG emissions. Full details of the mitigation measures is included in Chapter 9 of the EIAR.

9.3 Residual Impacts

The impact to climate as a result of a proposed development must be assessed as a whole for all phases. The proposed development will result in some impacts to climate through the release of GHGs. TII PE-ENV-01104 guidance references the ISEP guidance which states that the crux of assessing significance is "not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050". The proposed development has incorporated some measures to reduce climate change impacts. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered **direct, long-term, negative** and **slight**, which is overall **not significant** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change. The residual effect of climate change on the proposed development is considered **direct, long-term, negative** and **imperceptible**, which is overall **not significant** in EIA terms.

10 Noise and Vibration

The assessment of Noise & Vibration is contained within Chapter 10 of Volume II.

10.1 Baseline Environment

The baseline noise environment has been established through an environmental noise survey conducted in the vicinity of the site in order to quantify the existing noise environment. The survey was conducted in general accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

10.2 Do Nothing Scenario

In the absence of the proposed development being constructed, the noise and vibration emission levels from the quarry would be expected to remain consistent with existing.

10.3 Potential Significant Effects

10.3.1 Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the development phase of a project. Local Authorities typically control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion.

Reference has therefore been made to BS 5228 2009+A1 2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise to set appropriate construction noise limits for the development.

Two primary sources of noise were identified in relation to the Construction Phase activities. Worst-case noise levels were predicted for each of these sources at each of the nearest noise sensitive receptors to the development and were confirmed to be within the established noise emission limits at each.

For the nearby noise sensitive receptors in the vicinity of the proposed development, noise emissions from the development were determined as likely being not significant and temporary.

In respect of vibration, the only potential for impact at neighbouring sensitive locations during the Construction Phase is limited to lorry movements on uneven road surfaces which is expected to be imperceptible and temporary at all adjacent noise sensitive receptors.

10.3.2 Operational Phase

Guidance for the Operational Phase was referenced from planning permission noise criteria limits that were established for the existing permitted tarmacadam plant and associated operations during general operations (as permitted under Cork County Council planning decision 98/294). The established criteria is also consistent with that recommended by Environmental Protection Agency's Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals) which sets out recommended noise limits for quarries and sand pits.

Seven primary sources of noise were identified in relation to the Operational Phase activities. Worst-case noise levels were predicted for each of these sources was predicted at each of the nearest noise sensitive receptors to the development and were confirmed to be within the established noise emission limits at each. Any potential noise impact caused by the proposed development Operational

Phase general quarry activities is therefore expected to be long term but not significant at all the nearby noise sensitive receptors.

In respect of blasting noise, the subject expansion areas are located a similar distance or greater to all of the nearest noise sensitive receptors in all directions except to the north where the nearest receptors are all $\geq 500\text{m}$ away and therefore much further than the assessed receptors in both this report and all previous applications. It can therefore be reasonably confirmed that blasting events will only give rise to slight to moderate negative impacts of momentary duration due to their audibility.

In respect of vibration, the only potential for impact from general quarry activities is again limited to lorry movements on uneven road surfaces which is expected to be imperceptible and temporary at all adjacent noise sensitive receptors.

Given the similar (or greater) proximity of the distance between the nearest noise sensitive receptors and the existing and future expansion blasting areas, it was concluded that vibration magnitudes are expected to be within the established criteria and thus would only be expected to give rise to slight to moderate negative impacts of momentary duration (given the audibility associated with them).

The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact are further minimised.

10.3.3 Decommissioning & Remediation Phase

The Decommissioning & Restoration Phase of the proposed development will not include reinstatement of previous ground levels. There will therefore be no noise and vibration impact once the Operation Phase has been completed.

10.3.4 Cumulative Impact

The cumulative effects for each phase were considered in respect of their individual phases and are therefore as detailed in each of the three previous sections.

10.4 Mitigation

10.4.1 Construction Phase

Mitigation measures proposed during the Development Phase are in line with the guidance contained within BS 5228: 2009 + A1 2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Part 1 Noise for appropriate mitigation measures, which offers detailed guidance on the control of noise and vibration from construction phase activities.

In addition, limiting the hours of operation and constructing a perimeter berm out of excavated soil to reduce pit noise emissions during all three phases are being employed.

10.4.2 Operational Phase

A number of mitigation measures were recommended for the Operational Phase. The primary mitigation measures consist of the following:

- Limiting hours of work (similar to the Construction Phase).
- Appropriate selection / maintenance of quarry process equipment.
- Vibration monitoring during blasting events.
- Screening of pit noise emissions by the perimeter berm (provided during the Construction Phase).

- Appointing a Noise Liaison Officer to communicate with local residents and ensure noise emissions are properly monitored.

10.4.3 Decommissioning & Remediation Phase

There were no mitigation measures required for the Decommissioning & Remediation Phase.

10.5 Residual Impact Assessment

A noise impact assessment has been undertaken for the proposed development. Noise impacts for all phases were assessed against relevant guidance and confirmed as being not significant and brief, medium-term, temporary for the Construction, Operational and Decommissioning & Remediation Phases respectively.

Further to appropriate mitigation measures being incorporated into the proposed development, it was found that noise emissions from the proposed development are likely to have a negligible impact on nearby noise sensitive receptors.

Given the above, it can be concluded that residual effects from all phases of the proposed development would not be deemed significant.

10.6 Monitoring

Vibration monitoring should be carried out in the vicinity of the nearest noise sensitive receptors during the initial blasting period to confirm the findings of this assessment and ensure that vibration from blasting events is within acceptable thresholds.

11 Landscape and Visual Impact

11.1 Introduction

This is the non-technical summary of the Landscape and Visual Impact Assessment Chapter associated with the 37L (proposed future quarrying) at Ardcahan Quarry Ardcahan Quarry near Dunmanway, in West Cork.

The subject site was part of an established sandstone aggregate quarry located adjacent to an active Tarmacadam processing facility. Background information on the landscape and visual impact characteristics and status was obtained from a wide variety of National and European documents and online references as well as site visits.

The site was originally owned by Cork Co. Co. and then McSweeney Bros prior to Murray Bros taking over the quarry in the late 1990's. The Murray Bros Tarmacadam Plant was opened on the site in 1998.

11.2 Existing Environment

The applicant site is located 3.5km northeast of Dunmanway, in West Cork Co, approximately 300 meters east of the regional road the R587. Dunmanway serves as the local population centre with smaller villages dispersed within the wider area.

The site is located in a rural setting characterised by undulating topography, irregularly shaped fields and clusters of mixed woodland. The land immediately around the quarry consists of scrub, woodland and agricultural grassland. Land uses in the surrounding area primarily comprise livestock farming and rural housing.

The nearest dwellings to the quarry site are located approximately 300m south; 275m west; 450m north and 400m east of the site. There are no commercial premises or community facilities in the immediate environs.

11.3 Summary of Landscape Characteristics

The Cork County Council Draft Landscape Strategy identifies the site as being located a “middle ground landscape comprising of rolling topography with rugged rocky ridges” with the subcategorisation of “Shanlaragh: Middle Valley of Rugged Moorland and Patchwork Moraines”. Shallow river basins; low hills and rocky ridges define this terrain. The vegetation is characterised by irregular, patchy pastureland, moorland scrub and small clusters of trees, exhibiting a mottled colour and texture in the landscape.

The Bandon River Special Areas of Conservation (SAC) is located to the west of the site. The small watercourse which borders the eastern and southern side of the site is a tributary of the Bandon River and forms part of the SAC from about 40m to the southwest of the site.

11.4 Potential Impacts

This development relates to the expansion of a quarry. As the Construction Phase and the Operation Phase concern the transportation of soil and materials these activities are similar in visual respects. Construction Phase impacts include...

- Excavation and removal of soils and vegetation and trees
- Construction of any internal roads
- Construction of settlement ponds
- Construction of berms

11.5 Mitigation Measures

Many of the exposed quarry faces are hidden from view owing to the angle of the receptors, the sunken nature of the quarry and the intervening vegetation. Screening vegetation as well as raised berms along the southern boundary and south-western boundaries will be retained undisturbed to restrict views from the nearby receptors.

These berms and their associated planting were inspected as part of this report. Screen planting at these locations is developing well and needs to be retained to enable their screening function. These berms merge with the existing hedgerows and peripheral scrub vegetation lending a consistent naturalistic appearance when viewed from a distance.

11.6 Conclusions

The impact assessment of the proposed construction and operational works does not indicate that any significant negative effects on the Landscape and Visual attributes will occur due to the site activities.

These resultant landscape measures will represent a **Moderate-Slight** and on balance **Neutral Impact** on visibility and landscape character.

Overall, the development has had a Slight or Imperceptible impact to the existing views (visual impact) of the majority of receptors found within the study zone.

For the 9No. views examined:

- 5 are deemed Not Significant or Imperceptible
- 2 are deemed Slight and Neutral
- 1 is deemed Moderate Negative tending to Slight Neutral as intervening vegetation matures.
- 1 is deemed Moderate Negative tending to Moderate Neutral as intervening vegetation matures.

12 Traffic and Transport

12.1 Introduction

This Traffic & Transportation chapter assesses and evaluates the likely impact the proposed development will have on the existing roads network in the vicinity of the site, as well as identifying proposed mitigation measures to minimise such impacts.

The site is located in the townland of Ardcahan, Dunmanway. The site is located off the L4621 Road (Hospital Road) which is approximately 300m from the R587/L4621 junction. The R587 regional road links Dunmanway town with Macroom town via Kilmichael parish.

12.2 Description of Existing Environment

The quarry is primarily accessed via the R587, followed by a left or right turn at the priority junction with L4621. This junction has standard geometry with 2 x 3.5m wide lanes on the R587 with wide splays turning onto the L4621 with comprises of 2 x 3.0m lanes.

Turning count surveys were undertaken at the R587/L4621 junction as part of this study on 2nd March, 2023. On-site measurements including lane widths, junction turning radii, and lane lengths were undertaken by MHL.

The traffic data recorded shows the morning and evening peak hour traffic periods to be 07:45 to 08:45 and 17:15 to 18:15, respectively

12.3 Potential Impacts

In order to assess the impact of the proposed development on the local road network, the R587/L4621 junction has been assessed both with/without development traffic for both AM and PM peak development traffic hours. The junction was modelled for the current year 2026, Design Year 2027 when the full development would be in operation, 5 years after the full operation start 2032, and 15 years after the full operation start 2042.

Staff in general will avoid the peak traffic hours of the local roads network.

The number of HGVs entering and exiting the quarry due to the new development is calculated by taking the upper annual output into account. This ensures that a robust analysis of the local roads network is completed. The Upper Annual Output is proposed at 225,000 tonnes per year which converts approximately 5 HGV loads per hour or 10 movements (5 entering and 5 exiting).

Typically, HGV's carrying material to and from the site will arrive interspersed throughout the day avoiding a clustered arrival. Where feasible, HGV's will restrict movements on the local road network to during off-peak periods.

HGV access to the quarry will be solely from the R587 direction with a prohibition of HGV's accessing via the L4621 road from the south

The traffic assessment concludes that the proposed development would have a slight impact on the local roads network during both construction and operational stages. The surrounding road network is shown to continue to operate well within capacity up to and including design year 2042 with the development traffic added.

13 Material Assets – Services, Infrastructure and Utilities

This chapter assesses the potential impact of the proposed development on material assets including the existing utility network, including the following infrastructure:

- Water Supply
- Surface Water Drainage
- Foul Water Drainage
- Electricity Supply
- Natural Gas
- Telecoms

The quarry benefits from its own well, and no significant demands on water supply have been identified. Chapter 7 assesses hydrology and hydrogeology in further detail.

The impacts on surface water and foul water services are also assessed in Chapter 7 Water. No significant negative impacts have been identified.

Quarry activities are not anticipated to have a result on a significant demand for power. There are no historical reports of interruptions to supply for the wider area. Any works which may be required to the electrical network during the assessment period will be carried out according to ESB Network Guidelines.

There is no gas supply to the site, and there are no gas distribution pipelines within or in proximity to the quarry. The closest gas pipeline is c. 10km to the east of the quarry. The construction and operation of the quarry would not have had any impacts on Gas services or Gas networks in proximity.

There is no evidence that any significant negative impacts on telecommunications at the site or wider area will occur as a result of construction and operations at the quarry.

14 Biodiversity

A comprehensive suite of ecological surveys and assessments, based on best practice guidance, were conducted at the Site. The assessments considered the full life cycle of the Proposed Development, including the construction, operational and Rehabilitation phases. The Site was assessed by suitably qualified MOR Environmental ecologists. Site walkovers were conducted to assess the extent and quality of habitats present. The field surveys conducted onsite were extended to also identify the potential for these habitats to support other features of nature conservation importance and protected species.

A separate Natura Impact Statement ('NIS') has been produced, which evaluates the likely significant effects of the Proposed Development on the Bandon River SAC. The NIS accompanies this application as a separate document and should be read in conjunction with Chapter 14. From the assessment, it is concluded that the Development will not result in any significant impacts on the integrity or qualifying interest of any Natura 2000, provided that the mitigation measures are fully adhered to, either on its own or in combination with other plans / projects.

Natural Heritage Areas ('NHA') and proposed Natural Heritage Areas ('pNHA') within 5km of the Site were also considered. No NHAs were identified within 5km of the Site. However, one pNHA was identified within 5km of the Site - Bandon Valley South of Dunmanway pNHA. It was not considered that the Proposed Development would have any significant effects on any NHA or PNHA.

14.1 Habitats

The Site was primarily comprised of the former rock quarry, with large areas of exposed bedrock and steep side quarry faces. In addition, there were areas of hardstanding and internal quarry roads, and built infrastructure. Steep quarry faces were also a key feature of the habitat.

Areas of scrub, broadleaved woodland and waterbodies / ponds were also dotted around the Site, with sections of dry silicious heath and native woodland located in the northern section. Grassy verges and native woodland were present along the southern site boundary, with some situated at the western boundary.

The Proposed Development will result in the loss of wet grassland, marsh, scrub and native woodland. The proposed loss of marsh, scrub and native woodland is considered to be imperceptible in the long term.

However, the loss of some species-rich wet grassland will reduce habitat for the Irish marsh orchid, an endemic and rare species. In addition, the loss of wet grassland will reduce the connectivity between wetter habitats such as marshes and artificial ponds, and drier grassland and scrub areas. Similarly, any disturbance to native woodland onsite will impact species that use this habitat for activities such as foraging, nesting or commuting purposes. Therefore, mitigation and restoration measures have been included in the Biodiversity Chapter to ensure the protection of any species utilising potentially impacted habitats and to replace the wetland to be removed. Specific mitigation measures have been included for dry siliceous heath, mixed broadleaved woodland, and artificial lakes and ponds. The Regeneration Plan will also include habitat creation for new woodland areas, ponds and wetland and the protection of dry silicious heath, long-established woodland and ponds.

The Proposed Development has been designed to avoid any significant effects on the existing Oak-Birch-Holly woodland and Dry Siliceous Heath within the land holding, as these habitats correspond with Annex I habitats listed under the EU Habitats Directive. These habitats correspond to Annex I Old Sessile Oak Woods with Ilex and Blechnum (91A0) and Annex I European Dry Heaths (4030).

The creation and protection of on-site habitats will ensure that the Proposed Development does not have a significant negative effect on biodiversity. As such, the impact of the Proposed Development on habitats is considered to be not significant.

14.2 Fauna

Following the initial assessment of the Site and to ensure a comprehensive assessment of the potential impacts of the Development, the following surveys were undertaken:

- Amphibian Surveys;
- Bat Surveys;
- Breeding Bird Surveys;
- Peregrine Falcon Surveys
- Wintering Bird Surveys;
- Freshwater Pearl Mussel Surveys; and,
- Invasive Species Survey.

It is considered that the Development created habitat for amphibians and peregrine falcon (Annex I of the EU Birds Directive).

Overall, the Site has high local ecological value due to the presence of established woodland, scrub, heath / wet grassland / dense bracken mosaic, quarry and dystrophic lakes and the presence of both notable and protected species.

The River Bandon, which is hydrologically connected to the Site, was confirmed to support the freshwater pearl mussel.

The Site and ecological survey area were noted to be suitable for nesting and foraging bird species on both the quarry's cliff faces and its waterbody. Peregrine falcons were confirmed to be using the Site.

The Site was considered to have suitable habitats for a number of notable and protected species including amphibians (common frog and smooth newt) birds, badgers, otters and bats. Site surveys confirmed the presence of these species within the Site. Given that the Proposed Development has the potential to result in some disturbances to wildlife in the area, specific mitigation measures have been included for the protection of amphibians, birds, badgers, otters and bats.

The Regeneration Plan will also support these potentially impacted species and species in general. The measures proposed include the creation of new wetland habitat for amphibians and Irish Marsh Orchids. Supervision by the Ecological Clerk of Works ('ECoW') of wetland construction and pond closures, taking cognisance of amphibian presence / breeding season. Quarry faces will be retained for peregrine falcon.

Japanese knotweed noted both on the Site and within the land holding will be remediated as part of the Proposed Development, which will have a positive effect on the local environment.

Considering the nature of the Proposed Development, the mitigation measures to be implemented and the proposed Regeneration Plan for the Site, it is considered that in the longer term, following cessation of the quarry activities at the Site and the successful implementation of the Regeneration Plan, it is considered that the Proposed Development will have a long-term imperceptible effect on biodiversity.

15 Cultural Heritage and Archaeology

15.1 Introduction

Chapter 15 of the EIAR identifies the direct and indirect impacts on the archaeological, architectural and cultural heritage environment of the proposed quarry extension at Ardcahan, Dunmanway.

15.2 Existing Environment

There are no recorded archaeological sites within the proposed development site or the wider Land Ownership Boundary (LOB). The nearest recorded archaeological sites are located in Dromerk townland: a ringfort (CO108-001) c.250m and an enclosure and burial ground (CO108-002001/002), c.350m to the east. In total, twenty-two recorded monuments lie within a 2km radius, eight of which are located within 1km of the quarry. No Protected Structures or National Inventory of Architectural Heritage (NIAH) buildings are located within the proposed development site, LOB or the surrounding study area.

15.3 Impact Assessment

15.3.1 Do-Nothing Scenario

If the proposed development does not proceed, any previously unknown archaeological remains would remain undisturbed beneath vegetation and natural ground surface. No additional cultural heritage effects would arise.

15.3.2 Construction Phase

15.3.2.1 Archaeology

Registered Archaeological Monuments

There are no recorded archaeological sites within the proposed development footprint. Accordingly, no direct or indirect impacts on registered archaeological monuments are anticipated.

Potential for Previously Unknown Archaeological sites or Features

The site comprises dense scrub and exposed rock, with limited surface visibility. Walkover surveys in 2014, 2020 and 2023 identified no archaeological features, but inaccessible areas mean the presence of unknown subsurface remains cannot be ruled out. Any such archaeology would be directly affected where ground is reduced.

Area of Archaeological Potential

An unnamed tributary of the Bandon River forms the eastern boundary of the proposed development and coincides with the townland boundary between Ardcahan and Dromerk. Watercourses and townland boundaries are considered Areas of Archaeological Potential (AAP). No direct or indirect effects on this boundary are anticipated.

15.3.2.2 Architectural Heritage

There are no Protected Structures or NIAH-listed buildings within the proposed development site or LOB. No significant effects are predicted.

15.3.2.3 Cultural Heritage

Cultural heritage includes the wider historic landscape, waterways and placenames. Townland names such as Ardcahan (high land of the River Caha), Knockduff (black hill), and Dromerk (ridge) reflect the area's original upland character.

Earlier quarrying has already altered this landscape. The proposed development will continue this trend resulting in a direct, moderate negative impact on the natural landscape character and cultural setting of the site and surrounding area. Retention of remaining woodland and heath, combined with future reinstatement planting, will support long-term recovery

15.3.3 Operational Phase

No archaeological, architectural, or cultural heritage effects are predicted during the operational phase.

15.3.3.1 Visual Impacts

There are no archaeological or architectural sites within the proposed quarry extension area or LOB. Nearby sites, including two ringforts, an enclosure, a burial ground and Caha Bridge, are either subsurface, obscured by vegetation, or are too distant to be visually affected. Accordingly, no significant visual impacts on archaeological or architectural sites are predicted.

The principal visual impact concerns the cultural landscape, where continued landform modification constitutes a moderate negative effect.

15.4 Conclusion

There are no recorded archaeological or architectural heritage assets within the development footprint. Walkover surveys identified no archaeological finds or features, although the potential for unknown subsurface remains exists. Licenced archaeological monitoring during groundworks will mitigate this risk.

The proposed development will result in moderate negative effects on the cultural landscape due to continued change to topography; however, retention of existing woodland and reinstatement native planting will provide long-term visual benefits. While planting will enhance landscape character, the permanent lowering of ground levels represents an irreversible cultural landscape change.

No significant effects on archaeological sites or architectural heritage are anticipated during construction, operation or decommissioning. Visual impacts on known heritage sites will be imperceptible or not significant.

Residual Impacts will be neutral for archaeological and architectural heritage and minor negative for cultural landscape, reflecting permanent alteration of landform. With mitigation, the development complies with national heritage policy and best-practice archaeological standards.

16 Significant Interactions of Impacts

The construction, operational and cumulative impacts of the proposed development have been assessed within each chapter of the EIAR. This chapter describes the significant interactions of impacts identified in the previous chapters.

All potential inter-relationships impacts between the various areas covered in the EIAR are listed and the key interactions and interrelationships are summarised. Significant interactions are highlighted and remediation/mitigation measures outlined where required.

17 Screening for Major Accidents

In order to ensure a comprehensive assessment of potential environmental effects due to risks of major accidents and/or disasters as relevant to the development, this chapter presents a review of the characteristics of the proposed development and of the project location to consider potential for accident scenarios.

A major accident can be defined as an acute or chronic accident or disaster, of human or natural origin, which occurs either as a consequence of, or which interacts with, the construction or operation of the proposed Scheme, and which has substantial consequences for people or the environment.

17.1 Baseline Environment

17.1.1 Flood Risk

No parts of the Proposed Development Site are mapped within any fluvial flood zones (Flood Zones A - B). The Ardcahan Quarry Site is located above the mapped 1,000-year flood level and therefore all infrastructure is located in Flood Zone C (Low Risk).

17.1.2 Seismic Activity

The principal seismic events have occurred along/ beyond the east, south-east and south of Ireland with seismic movements generally up to 2.9 Magnitude recorded on land with no large seismic events recorded in the immediate vicinity of the subject site.

17.1.3 COMAH/SEVESO Sites

There are 14 no. lower tier Seveso sites and 15 no. upper tier Seveso sites located in the Cork County administrative area. The closest Seveso site to the subject site is the Carberry Food Ingredients site in Balineen, Co. Cork, c. 7.6km from the subject site. This is a 'lower tier establishment'. Given the distances between the subject site and this Seveso site, it is not considered a concern for the proposed development at construction or operational phase.

17.2 Residual Impact Assessment

17.2.1 Construction Phase

No scenarios of concern have been identified during the construction phase. As such the predicted impact is considered to be short term, imperceptible and neutral.

17.2.2 Operational Phase

Once the mitigation measures designed into the scheme are implemented correctly, the predicted impact as a result of flooding is long term, imperceptible and neutral.

17.2.3 Cumulative Impact

Cumulative impacts are considered imperceptible and neutral.

18 Summary of Mitigation Measures and Monitoring

Chapter 18 of the Environmental Impact Assessment provides a summary of the mitigation measures proposed for each discipline throughout the EIAR document. Monitoring provides assurance that proposed systems are operating as intended