9 Noise and Vibration

9.1 Introduction

This Chapter of the remedial Environmental Impact Assessment Report (rEIAR) considers the potential noise and vibration impacts associated with the operation of Ballykelly Quarry (referred to as 'the quarry' and the 'Project'). The disused quarry is located in the townland of Coolsickin or Quinsborough, Monasterevin, Co. Kildare (referred to as the 'Application Site' or 'Site').

The Project Site is wholly located in the townland of Coolsicken or Quinnsborough, which is situated ca. 2.7km north of Monasterevin and ca. 9 km southwest of Kildare Town. The Site comprises a quarry void area which has been used for sand and gravel and limestone rock extraction between the years 2000-2006. The grid reference coordinates (Irish Transverse Mercator) for the approximate centre of the Site are E663403, N713199.

Operations at the quarry are predicted to have consisted of the following Project activities:

- Stripping of soils and not economically valuable overburden from within the quarry void area and associated working areas and subsequently storage of this material within the Application Site.
- Extraction of sand, gravel and limestone rock through drilling, blasting, and mechanical breaking;
- Mobile crushing, and screening of the rock into specific aggregate sizes;
- Temporary stockpiling of screened aggregate;
- Loading aggregate materials onto road trucks for sale and distribution; and,
- Dewatering of the quarry void during extraction for bedrock.

A detailed description of quarry operations is provided in Chapter 2 (Project Description).

This Chapter of the rEIAR was prepared by SLR Consulting and authored by Alasdair Baxter, BSc. Hons (Dunelm), MSc., Member of the Institute of Acoustics. Alasdair has more than 20 years' experience in the assessment of environmental noise and vibration.

9.2 Technical Scope

The technical scope of this assessment is to consider the potential noise and vibration impacts associated with the operation of Ballykelly Quarry. This assessment considers the potential sources of change resulting from Project activities detailed in the project description (Chapter 2 of this rEIAR).

The scope of this chapter includes the following:

- Review of quarry activities, layout and available information;
- Review of historical noise and vibration monitoring records, where available;
- Review of site-specific noise and vibration limits (if applicable); and

- Prediction & evaluation of noise and vibration from the quarry that occurred during the quarries operational life time, based on the estimates set out in Chapter 2 of the rEIAR.

9.3 Geographical and Temporal Scope

Historical arial mapping and documentation held by Kildare Country Council indicates extraction of aggregates within the Application Site is estimated to have commenced within 2000 and the operation had ceased within 2006. Accordingly, the baseline for this rEIAR has been set to 01 January 2000, and the rEIAR process has assessed environmental impacts from that date to 31 December 2006 (see Chapter 2 Project Description for detail).

The study area considered in this assessment comprises a buffer approximately 400 metres beyond the Site Application Boundary (show in Figure 9-1). This area includes the receptors anticipated to have been impacted by quarry operations. The closest receptors are located approximately 120 metres west of the quarry boundary.

Representative Noise Sensitive Receptors (NSRs) considered within this assessment are shown in Figure 9-1 and are listed in Table 9-1.

Table 9-1 - Identified representative NSRs

Receptor	Representative of	X	Y
NSR1	House to the east of the quarry	663707	712935
NSR2	Houses south of the quarry	663827	713133
NSR3	Houses to the southwest of the quarry	663140	713013

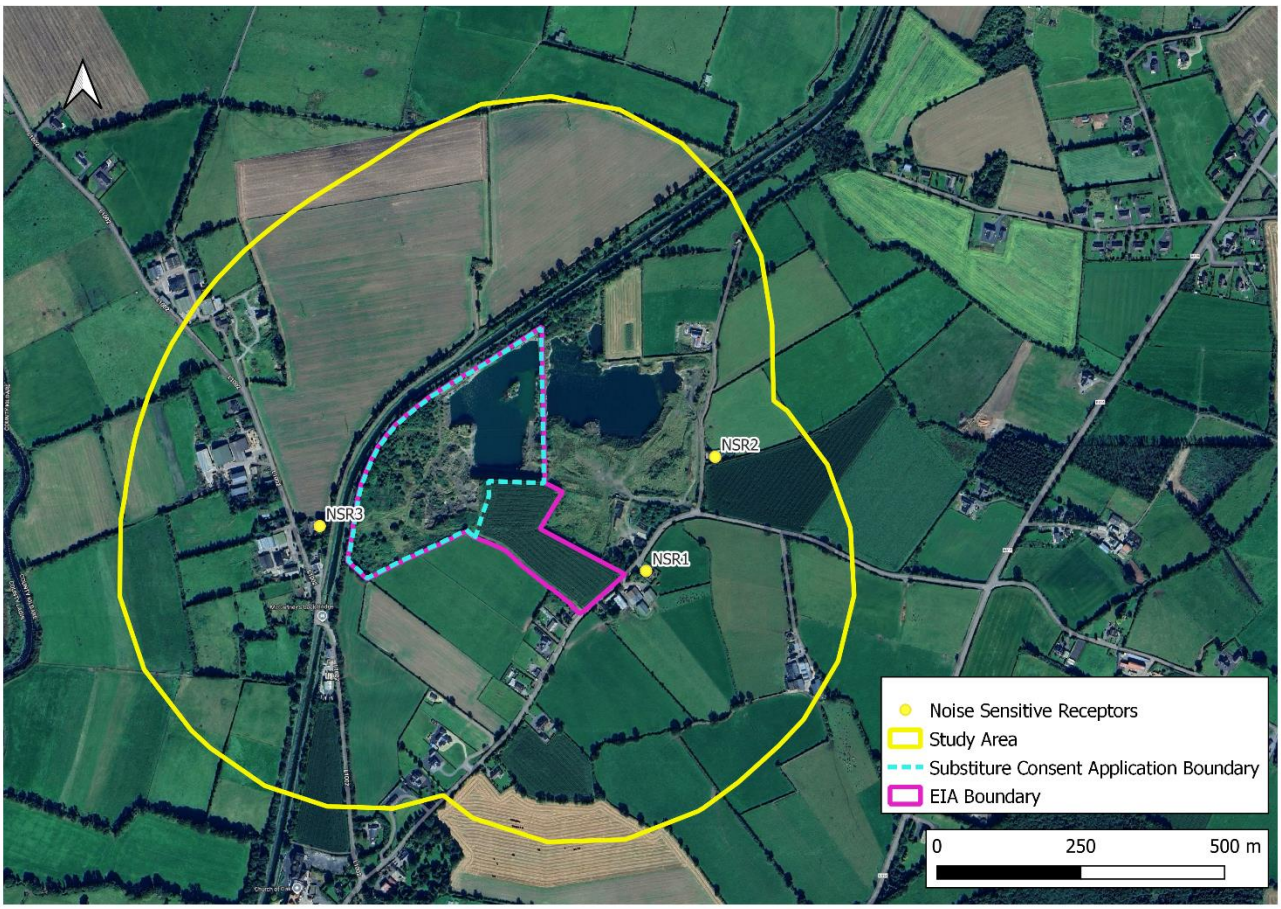

Figure 9-1 - Study area and Noise Sensitive Receptors

9.4 Project Description Summary

The Project seeking substitute consent consists of extraction of sand, gravel and rock over an area of 7.87 ha through blasting, mechanical excavation and rock breaking along with aggregate processing and stockpiling. The Project was operational between the years 2000-2006.

A full project description is presented in Chapter 2 (Project Description).

9.5 Legislative and Policy Context

9.5.1 Legislation

This assessment has been made with cognisance to relevant legislation, including but not limited to:

- European Union Directive 2011/92/EU as amended by Directive 2014/52/EU – these Directives required that certain private and public projects which are likely to have significant resultant environmental impacts are subject to a formalised Environmental Impact Assessment prior to their consent.

- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000, and the Planning and Development Regulations, 2001. The 2014/52/EU Directive was transposed into Irish law through this Directive.

9.5.2 Policies and Plans

The following relevant policies and plans have been considered:

- The Kildare County Development Plan (CDP) 1999 is the strategy document for County Kildare which covers most of the temporal scope of this assessment period. The key policies and objectives of this plan are listed in Section 2.5.1 of the Project Description (Chapter 2).
- The Kildare CDP 2005-2011 was adopted on 18 May 2005 and covers the temporal scope from this date to 31 December 2006. The key policies and objectives of this current plan are listed in Section 2.5.2 of the Project Description (Chapter 2).

9.5.3 Guidance

The following relevant guidance have been used and applied in this assessment:

9.5.3.1 Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (Jan 2016)

With regards to noise, the most recent Irish guidance was published in 2016 by the Environmental Protection Agency (EPA), Office of Environmental Enforcement (OEE), entitled 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)'.

NG4 sets methods for addressing noise from operations that fall under IPPC and Waste Licensing functions of the Environmental Protection Agency Office of Environmental Enforcement (OEE). NG4 provides detailed consideration of a range of noise related issues including basic background to noise issues, various noise assessment criteria and procedures, noise reduction measures, Best Available Techniques (BAT) and the detailed requirements for noise surveys. NG4 identifies typical limit values for noise from licensed sites as: Daytime (07:00 to 19:00hrs) – 55dB $L_{Ar,T}$; Evening (19:00 to 23:00hrs) – 50dB $L_{Ar,T}$; and, Night-time (23:00 to 07:00hrs) – 45dB $L_{Aeq,T}$.

NG4 identifies the following guidance as potentially appropriate for assessing noise, subject to the use of the methodology being considered and justified by a competent person:

- BS 4142: 2014 +A1 2019: Methods for rating and assessing industrial and commercial sound – evaluation of industrial and commercial noise sources at residential properties;
- BS 8233: 2014 Guidance on sound insulation and noise reduction for buildings – outline guidance on noise matters and deals specifically with noise within buildings; and
- BS 5228-1: 2009 + A1: 2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise – outline guidance on prediction and control of noise from construction and open sites.

9.5.3.2 BS5228:2009+A1:2014 Code of practice for noise and vibration control on open sites: Part 1 Noise and Part 2 Vibration

BS5228 provides a procedure for the estimation of construction noise and vibration levels and for the assessment of the significance of the predicted effects at the nearest sensitive receptors. Annex D of the Standard includes measured typical noise levels for a range of construction plant and activities.

Part 1 of the Standard provides several methods for the evaluation of the significance of construction noise effects. The ABC method considers significance by comparison to the measured baseline $L_{Aeq,T}$ noise level, rounded to the nearest 5 dB. Three categories of threshold values are provided; A, B and C, in increasing 5 dB bands, for the periods “daytime and Saturdays”, “evenings and weekends” and “night time”. Where the measured baseline exceeds the highest category (C), a 3 dB increase over baseline is considered significant. The evaluation periods are defined as follows:

- Daytime: 07:00 – 19:00 on weekdays and 07:00 – 13:00 on Saturdays.
- Evenings and weekends: 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.
- Night-time: 23:00 - 07:00 (all days).

BS 5228-1:2009+A1:2014 describes several methods for assessing noise impacts during construction projects.

The approach utilised in this assessment is the threshold based “ABC” method. The method is detailed within BS 5228-1:2009+A1:2014, which specifies a construction noise limit based on the existing ambient noise level and for different periods of the day. Table 9-2, reproduced from BS 5228-1:2009+A1:2014 Table E.1, presents the criteria for selection of a noise limit for a specific receptor location.

Table 9-2 - Construction Noise Threshold Levels Based on the ABC Method (BS 5228:2009+A1:2014)

Assessment category and threshold value period (L_{Aeq})	Threshold value, in decibels (dB)		
	Category A[A)]	Category B[B)]	Category C[C)]
Night time (23.00 – 07.00)	45	50	55
Evenings and weekends (D)	55	60	65
Daytime (07.00 – 19.00) and Saturdays (07.00 – 13.00)	65	70	75
Sundays and Bank Holidays			
A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.			
B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.			
C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.			
D) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.			

The “ABC method” described in BS 5228 establishes that there is no significant impact below the three thresholds presented above.

BS 5228 states:

“If the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. The assessor then needs to consider other project-specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect.”

Part 2 of the Standard provides threshold levels at which vibration may be perceptible to people, through to becoming intolerable, and frequency-weighted thresholds at which vibration may cause cosmetic damage to structures.

The thresholds are dependent on frequency and the type of building, however, in the worst-case, residential or light commercial structures may see the onset of damage at 15 mm/s PPV at 4 Hz, increasing to 20 mm/s PPV at 15 Hz and above.

9.5.3.3 BS7385: Evaluation and measurement for vibration in buildings, Part1 1990 Guide for measurement of vibrations and evaluation of their effects on buildings and Part 2 1993 Guide to damage levels arising from ground borne vibration

BS 7385 states that there should typically be no cosmetic damage if transient vibration does not exceed 15 mm/s at low frequencies rising to 20 mm/s at 15Hz and 50 mm/s at 40 Hz and above.

BS7385 also provides further context with regards to air overpressure:

"Windows are generally the weakest parts of a structure exposed to air overpressure. Research by the United States Bureau of Mines has shown that a poorly mounted window that is pre-stressed can crack at around 150 dB(lin), with most windows cracking at around 170 dB(lin). Structural damage would not be expected at air overpressure levels below 180 dB(lin)."

9.5.3.4 BS7445-1:2003 Description and Measurement of Environmental Noise. Guide to Quantities and Procedures

BS7445 provides guidance on appropriate environmental noise monitoring, including specification of equipment and appropriate calibration intervals, suitable weather conditions and observations to note regarding the nature of the noise environment.

9.5.3.5 ISO 9613-2, Second Edition, 2024. Acoustics-Attenuation of sound during propagation outdoors-Part 2: General method of calculations

ISO 9613 describes a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions.

9.5.3.6 EPA, 2006, Environmental Management Guidelines-Environmental Management in Extractive Industry (Non Scheduled Minerals)

This guidance outlines primary sources of noise associated with quarrying and offers guidance in relation to the correct approach to be followed in respect of assessment and mitigation. Recommended noise limit values are 55dB $L_{Aeq,1hr}$ and 45dB $L_{Aeq,15min}$ for daytime and night-time respectively.

9.5.3.7 Design Manual for Roads and Bridges (DMRB)

DMRB provides standards and advice regarding the assessment, design and operation of roads in the UK and sets out screening criteria, by which percentage changes in traffic flow can be related to a predicted change in road traffic noise and vibration. The guidance also provides significance criteria, by which the percentage of people adversely affected by traffic noise can be related to the total noise or vibration level due to road traffic, or the increase over an existing level.

DMRB provides a method for predicting the Basic Noise Level (BNL), a measure of the source noise level of a road. The BNL is a function of the composition, flow and speed of traffic and the quality of the road surface. Changes in the BNL, arising from changes in traffic flow, may be used as a means of determining the significance of operational noise effects.

9.5.3.8 Other guidance

Other guidance reviewed as part of the assessment process include:

- Department of the Environment, Heritage and Local Government (DEHLG) – Quarries and Ancillary Activities: Guidelines for Planning Authorities, 2004;
- BS 6472:1992 - The Evaluation of Human Exposure to vibration in buildings;
- Department of the Environment, Heritage and Local Government – Quarries and Ancillary Activities: Guidelines for Planning Authorities, 2004; and
- Environmental Code (2005) Irish Concrete Federation (ICF). EPA guidelines in relation to blasting activities outlining the methodology and limits to be used for vibration measurement.

9.6 Assessment Methodology

9.6.1 Characterisation of Historical Baseline Noise Levels

Baseline noise data was not collected either before or during operations at the quarry. Baseline conditions at the closest residential receptors to the quarry have therefore been characterised using monitoring data collected after quarry operations ceased, during 2024.

This document presents a comprehensive noise assessment based on the criteria specified in the EPA's *'Advice notes on Current Practice in the Preparation of Environmental Impacts Statements' and the 'Guidelines on the Information to be contained in Environmental Impact Statements'* also published by the EPA and with reference to *'ISO 1996,2, 2007: Acoustics – Description, Measurement and Assessment of environmental noise'*.

9.6.1.1 Noise Measurement Indices

At the measurement positions, the following noise level indices have been recorded:

- LAeq,T – the A-weighted equivalent continuous sound pressure level over the measurement period T, effectively represents an "average" energy level of all the sampled levels. The ambient sound level is usually measured as an LAeq,T and is made up of all the sound in the area from sources near and far;
- LA90,T – the A-weighted noise level exceeded for 90% of the measurement period, T. This parameter is often used to describe the" background" noise level, it gives a clear indication of the underlying noise level, or the level that is almost always there in between intermittent noisy events; and
- LAmax,T – the A-weighted maximum noise level of the measurement period, T. This parameter is often used to identify single loud noise events.

9.6.1.2 Measurement Method

Monitoring was undertaken using a Cirrus Class I integrating sound level meter (SLM). The SLM was within its two-year laboratory calibration period, and a calibration check was performed before and after each measurement, with no drift in calibration noted.

Monitoring was undertaken at two noise monitoring positions (NMP) for a duration of 4 hours at NMP1 and c2hrs at NMP2. The noise indices L_{Aeq}, L_{A90} and L_{Amax} were recorded. Weather conditions were in accordance with the requirements of BS7445 and BS4142 throughout the survey with low wind speeds, no rain and dry roads. Noise monitoring locations are shown in Figure 8.1. Full monitoring data is provided in Appendix 9A.

9.6.1.3 Evaluation Criteria

Appropriate criteria have been adopted for the derivation of impact magnitude and are provided in Table 9-3. The criteria have been adapted from DMRB. DMRB provides criteria for construction phases of developments, which are appropriate for this evaluation.

Table 9-3 - Impact Magnitude Criteria

Exceedance of threshold value OR change in noise level, dB $L_{Aeq,T}$	**Subjective reaction**	**Impact Magnitude**
≥5	Clearly perceptible	High adverse
≥3, <5	Perceptible	Medium adverse
>0, <3	Barely perceptible	Low adverse
≤0	Inaudible	No change / none

The criteria in Table 9-3 have been used to determine the significance of noise effects for receptors of different sensitivities, as shown in Table 9-4.

Table 9-4 - Assumed sensitivity of representative NSRs

Magnitude	**Level of significance, relative to sensitivity of receptor**		
	Low	**Medium**	**High**
High	Moderate	Moderate/Large	Large
Medium	Slight	Moderate	Moderate
Low	Neutral	Slight	Slight
No change / none	Neutral	Neutral	Neutral

This assessment considers that effects of moderate and large significance are significant, and that effects of neutral and slight significance are not significant.

All NSRs considered in this assessment are assumed to be of 'High' sensitivity.

9.6.1.4 Target Noise Levels

The EPA has produced the Environmental Management Guidelines 2006. The document references to 'A Guidance Note for Noise in Relation to Scheduled Activities'. It deals with the approach to be taken in the measurement and control of noise and provides advice in relation to the setting of emission limits values and compliance monitoring.

In relation to quarry developments and ancillary activities, noise from the activities on site should not exceed the following noise limits at the nearest NSR:

- Daytime - 08:00 – 20:00. Target level - L_{Aeq1hr} = 55 dBA

9.6.1.5 Method of Prediction

A 3D model of the quarry was constructed within noise prediction software CadnaA and noise levels were predicted at the representative NSRs. The software enables prediction of noise levels under atmospheric conditions using the method provided in BS5228.

Appropriate source noise terms from BS5228 were applied to all plant present on site. Table 9-5 presents the sound power data and sources included in the noise model. The type and number of plant that operated within the quarry during its operation life have been estimated based on similar development from that time period (see Chapter 2 Project Description for Details)

Table 9-5 - Source Noise Terms

Item	Resultant sound power level, dBA	Data source	Effective Height, m	Utilisation, on-time, mins
Screen stockpiler	109.1	BS:5228 C10_15	2	615
Crusher	109.4	BS:5228 C1_14	2	615
Excavator	104.0	BS:5228 C2_2	2	615
Haul Trucks x 2	108.0	BS:5228 C2_32	2	615
Loader	102.2	BS:5228 C4_13	2	615
Generator for dewatering pump	101.7	BS_5228_2009_C4_84	1	615

The operational hours for the adjoining Site through which vehicles accessed the application Site, were 07.00 to 17:00 hours Monday to Friday, and 07.00 to 14:00 hours Saturday. There was no working on Sundays or Bank/Public Holidays.

Based on the above timing of activities one scenario has been modelled to establish baseline noise impacts during historic quarry operations.

In the absence of detailed information regarding activities at the adjacent quarry site, it has been assumed that similar activities, plant and equipment were in use at that site. Cumulative impacts have therefore been assessed based on concurrent operations at the site and the adjacent site.

9.6.1.6 Model settings

A typical air temperature of 10^{o}C and relative humidity of 70% have been assumed within the model. Ground absorption within the quarry has been assumed to be G=0, representative of hard ground conditions. The ground absorption for the area surrounding the site has been modelled as G = 0.5 representative of mixed ground conditions.

Local topography has been included within the model for all scenarios, using detailed contour line data provided by WSP.

9.6.2 Vibration

The most significant potential sources of ground borne vibrations generated during the operational phase of the development was the extraction of rock from the active face. Rock extraction requires the use of a pneumatic rock breaker and blasting techniques.

Vibration monitoring at nearby sensitive receptors was not conducted during blast events and monitoring data is required in order to assess potential vibration impacts. No evidence of complaints due to historical blasting at the quarry has been identified; vibration from quarry activities and blasting is, therefore, not considered further within this report.

9.7 Baseline Conditions and Existing Conditions

The results of the noise monitoring campaign from 2024 are presented in Table 9-6. In the absence of noise data from pre-2000 at the Application Site, data from 2024 is adopted as a proxy for baseline conditions prior to the Project commencement at the Application Site (see section 9.6 for detail).

Table 9-6 - Noise Survey Results 2024 – Monitoring position 1 (N1)

NMP	$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A90,T}$
NMP1	45.2	73.7	36.0
NMP2	42.2	79.3	33.2

Predicted noise levels resulting from Project activities is presented in Section 9.8.

9.8 Potential Effects

9.8.1 Noise impacts

Recorded baseline noise levels (see section 9.6.1) include noise from all sources, including road traffic from the surrounding road network. Noise modelling has predicted noise from quarry activities only to determine the likely worst-case contribution of quarry operations to the noise environment. The predicted noise levels are presented in Table 9-7. The magnitude of impact and significance of effect have been determined with reference to criteria provided in Table 9-3 and Table 9-4 respectively.

Table 9-7 - Evaluation of Predicted worst-case levels for Scenario 1 against daytime target level

Noise Sensitive Receptor	Predicted Noise Level dB(A)	Predicted level minus target level, 55 dB(A) $L_{Aeq,1hour}$	Magnitude of Impact	Significance of effect
NSR1	50.3	-4.7	No change	Neutral
NSR2	48.4	-6.6	No change	Neutral
NSR3	45.8	-9.2	No change	Neutral

Predicted noise levels at all NSRs are below the daytime target level (55 dB(A) L_{Aeq}) during this conservatively predicted scenario for operations at the quarry up to 2006. The highest predicted levels were at NSR1, with predicted levels 4.8 dB below the daytime target level.

Noise effects at all NSRs associated with quarry operations during the daytime period have been evaluated as being of ‘neutral’ significance and are therefore ‘not significant’.

9.9 Remedial Monitoring and Mitigation

There are no effects from the Project that require remedial measures or monitoring.

9.9.1 Residual Effects

The assessment concludes that the Project has not given rise to significant adverse effects on NSRs during the assessment period of 01 January 2000 to 31 December 2006. In all cases the residual adverse effect is **Not Significant** and not greater than of ‘neutral’ significance.

9.10 Cumulative Impacts

Noise modelling has predicted noise from quarry activities at both the application site and the adjacent quarry site to determine the likely worst-case contribution of quarry operations to the noise environment. The predicted noise levels are presented in Table 9-8. The

magnitude of impact and significance of effect have been determined with reference to criteria provided in Table 9-3 and Table 9-4 respectively.

Table 9-8 - Evaluation of Predicted worst-case levels for cumulative operations against daytime target level

Noise Sensitive Receptor	Predicted Noise Level dB(A)	Predicted level minus target level, 55 dB(A) $L_{Aeq,1hour}$	Magnitude of Impact	Significance of effect
NSR1	53.5	-1.5	No change	Neutral
NSR2	53.7	-1.3	No change	Neutral
NSR3	46.7	-8.3	No change	Neutral

Predicted noise levels at all NSRs are below the daytime target level (55 dB(A) L_{Aeq}) during this conservatively predicted scenario for cumulative operations at the quarry and adjacent quarry up to 2006. The highest predicted levels were at NSR2, with predicted levels 1.3 dB below the daytime target level.

Cumulative noise effects at all NSRs associated with quarry operations during the daytime period have been evaluated as being of 'neutral' significance and are therefore 'not significant'.

9.11 Difficulties encountered

Due to the limited publicly available information held for the extraction activities carried out onsite in the early to mid-2000s, assumptions have been made with regards to the operational timeline for extraction and extraction processes. Assumptions have also been made with regards to the nature and volume of plant uses for extraction, stockpiling and processing activities. The rationale for these assumptions is set out in Chapter 2 (Project Description), and where relevant, within this chapter.

9.12 References

Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (Jan 2016)

BS5288: 2009+A1:2014 Code of practice for noise and vibration control on open sites: Part 1 Noise and Part 2 Vibration

BS 7385: Evaluation and measurement for vibration in buildings, Part1 1990 Guide for measurement of vibrations and evaluation of their effects on buildings and Part 2 1993 Guide to damage levels arising from ground borne vibration

BS7445-1:2003 Description and Measurement of Environmental Noise. Guide to Quantities and Procedures

ISO 9613-2, Second Edition 2024-12-15. Acoustics-Attenuation of sound during propagation outdoors-Part 2: General method of calculations

EPA, 2006, Environmental Management Guidelines-Environmental Management in Extractive Industry (Non-Scheduled Minerals)

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

Design Manual for Roads and Bridges (DMRB)

BS 6472:1992 - The Evaluation of Human Exposure to vibration in buildings

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

Environmental Code (2005) Irish Concrete Federation. EPA guidelines in relation to blasting activities outlining the methodology and limits to be used for vibration measurement

Appendix 9A

Measured Noise Levels

Table 0-1 - Measured Noise Levels, NMP1

Time	LAeq (dB)	LAFMax (dB)	Ln3 (10) (dB)	Ln5 (90) (dB)	Instrument
07/06/2024 10:02	56.7	83.5	49.9	37.6	G053886
07/06/2024 10:15	50.3	73	47.1	37.6	G053886
07/06/2024 10:30	46.5	62.3	49	35.8	G053886
07/06/2024 10:45	45.8	73.7	42.4	36.7	G053886
07/06/2024 11:00	44.8	63.7	47.1	35.7	G053886
07/06/2024 11:15	43.8	61.3	46.8	35.9	G053886
07/06/2024 11:30	42.5	62.8	42.8	35.6	G053886
07/06/2024 11:45	41.9	64	43.9	35	G053886
07/06/2024 12:00	43.3	64.3	44.7	34.9	G053886
07/06/2024 12:15	42.3	59.2	45.1	35.5	G053886
07/06/2024 12:30	42.5	64.7	43.8	36.5	G053886
07/06/2024 12:45	48.5	68	45.3	35.2	G053886
07/06/2024 13:00	40.5	55.1	42.9	35.3	G053886
07/06/2024 13:15	45.8	65.8	44.6	36.8	G053886
07/06/2024 13:30	42.5	64.4	43.3	35.1	G053886
07/06/2024 13:45	45.3	63.8	46.1	35.4	G053886
07/06/2024 14:00	44.3	61.4	46.1	38.7	G053886
07/06/2024 14:15	45.7	61.7	47.8	37	G053886

Table 0-2 - Measured Noise Levels, NMP2

	Leq	Lmax	L10	L90
07/06/2024 11:40	47.6	78.6	45.3	33.4
07/06/2024 11:50	38.8	58.7	40.4	32.2
07/06/2024 12:00	39.5	61.1	38.4	31.1
07/06/2024 12:10	38.5	53.4	41.3	33.7
07/06/2024 12:20	41.3	56.2	44.7	31.6
07/06/2024 12:30	38.2	56	40.3	33.4
07/06/2024 12:40	43.3	63.7	39.8	32.5
07/06/2024 12:50	39.6	50.6	41.6	35.4
07/06/2024 13:00	37.7	61.1	38.8	33.1
07/06/2024 13:10	39.3	53	42.3	33.1
07/06/2024 13:20	40.6	59	43.5	34.6
07/06/2024 13:30	37.1	56.7	37.9	31.9
07/06/2024 13:40	35.2	47.8	37	31.9
07/06/2024 13:50	38.9	55.4	41.9	32.7
07/06/2024 14:00	48.6	79.3	46.1	37.6