



8.0 NOISE

8.1 Introduction

This Chapter of the EIAR assesses the likely impacts of noise on the environment during the operation of the proposed inert waste recovery facility and restoration activities at the Application Site.

The primary source of noise from this development will include traffic, general plant and machinery, reversing alarms, and intermittent noises.

Vibration has not been considered as part of this assessment due to the mechanical nature of the development.

8.1.1 Relevant guidance

The most recent Irish guidance document in relation to noise 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).

The document assists licensed sites and proposed licensed sites with the assessment of their potential and actual noise impact on the local environment. For proposed sites the guidance outlines pertinent factors for consideration when conducting a screening process and a presents a structured approach to baseline monitoring. 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.

Other guidance reviewed as part of the assessment process include:

- As well as the EPA's NG4 guidance, noise monitoring at the Site is based on procedures outlined in ISO 1996: Description, Measurement and Assessment of Environmental Noise, and, BS4142:2014 Method for Rating and Assessing Industrial and Commercial Sound; and
- The EPA's 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports', (August 2017). Environmental Protection Agency.

8.2 Method

8.2.1 Study Area and Sensitive Receptors

Figure 8.1 highlights residences which lie within 250 m and 500 m of the Application Site boundary. A total of 15 dwellings were found to be within 250 m of the Site, and a further 10 dwellings to lie between 250 m and 500 m from the Site. The number of residences is based on a review of the aerial photograph and dwellings identified by Department of Communications, Climate Change and Environment mapping resources.

Measurements were undertaken using a Norsonic 140 sound meter (Serial Number: 1402742). This instrument is a Type 1 data-logging integrated sound level meter and meets the requirements of the International Electrotechnical Commission (IEC) Publication 651. A polypropylene windshield was utilised in order to reduce the effects of wind and air movement across the microphone. The meter was calibrated by Campbell Associates Ltd on 4 January 2017. Prior to monitoring a field calibration was completed, using the Norsonic 1251 acoustic calibrator (Serial Number: 33002).

The sound level meter was mounted on a tripod at approximately 1.2 – 1.5 m above ground level and at least 3.5 m away from any sound reflecting objects, in accordance with the method set out in ISO 1996-1:2003. The time weighting used was 'Fast' and the frequency weighting was 'A weighted' in accordance with ISO 1996-2:2007.

8.2.2 Evaluation Criteria

In relation to licensed developments and ancillary activities, it is recommended that noise from the activities on extractive sites do not exceed the noise ELVs at the nearest noise-sensitive receptor displayed in Table 8.1. It is also recommended that audible tones or impulsive noise is be avoided at noise sensitive locations.



The Applicant proposes that the hours of operation for the development are from 07:00 hours to 18:00 hours Monday to Friday and 07:00 hours to 14:00 hours on Saturdays, with the Site being closed on Sundays and Public/Bank Holidays. As there will be no site operations taking place during the evening and night-time these periods are not considered in the Site’s baseline assessment.

Table 8.1: Typical Noise Limits Set Out Under EPA/OEE NG4 Guidance, 2016.

Period	Emission Standard
Daytime (07:00 to 19:00hrs)	55 dB(A) L _{Ar,T}
Evening (19:00 to 23:00hrs)	50 dB(A) L _{Ar,T}
Night-time (23:00 to 07:00hrs)	45 dB(A) L _{Aeq,T}

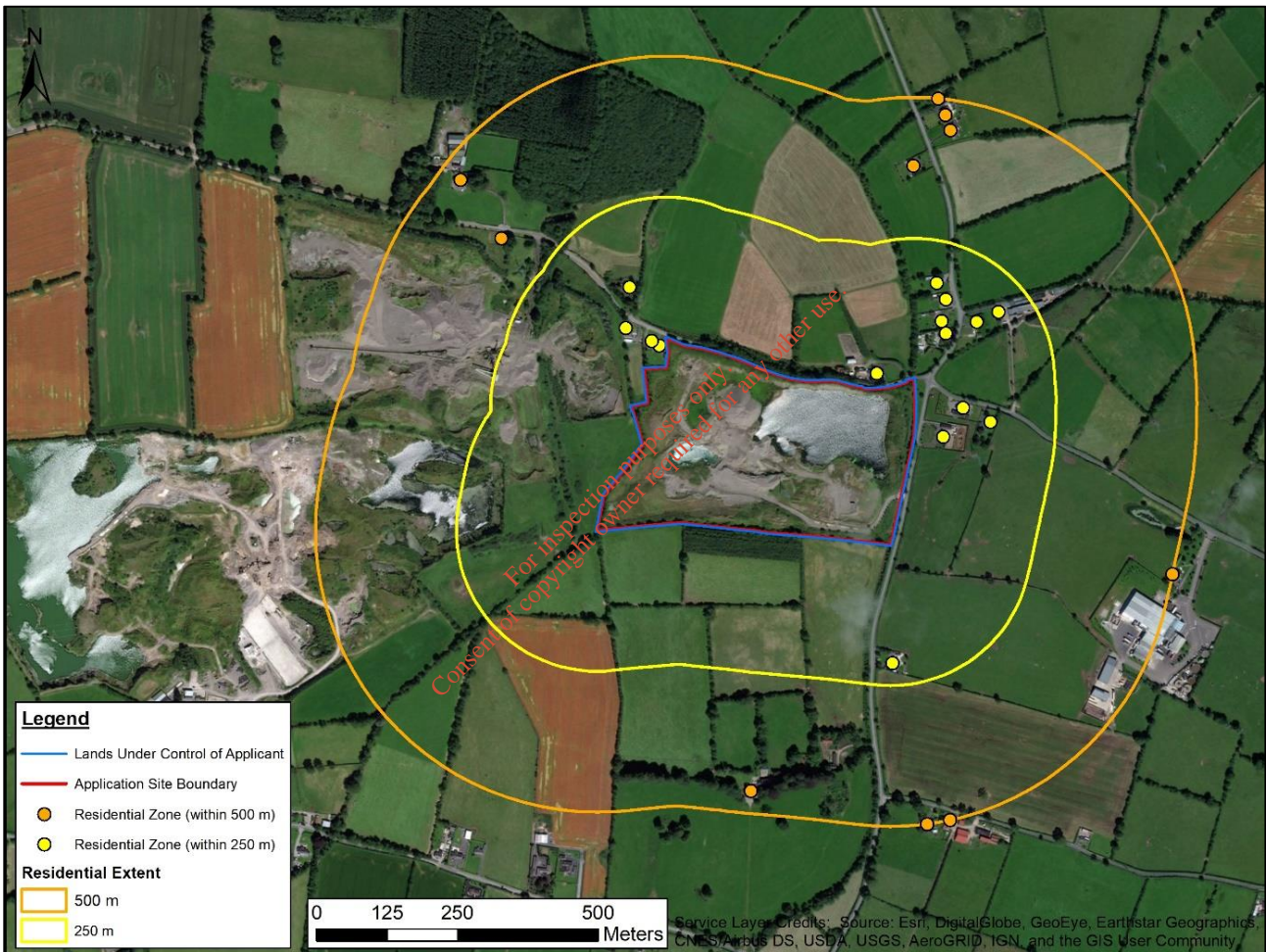


Figure 8.1: Location of residential properties and farmsteads within 250 & 500m of the proposed development (red line)

8.3 Existing Environment

The Application Site is located in the townland of Ballinderry, in Carbury, Co. Kildare, approximately 5 km north of Carbury and 3.5 km south of the M4 junction near Broadford. The Site measures ca. 13.9 hectares in total and comprises a former worked out sand and gravel pit with three ponds on site.

The lands are bordered to the south by agricultural lands and to the west by an existing sand and gravel quarry (County Kildare Reg. Ref. 99/1200). The northern boundary is formed by local road with arable lands and a dwelling located beyond this. A tributary of the River Glash (flowing from south to north) borders the Application Site to the east and passes under the L1002 on the northern boundary at Clonuff Bridge. Beyond this stream is agricultural lands and residential dwellings. The L1002 runs along the eastern boundary in a north/south direction, and crosses over the M4 motorway 3 km to the north of the Application Site. The L1002 is an important linkage between the the R148 regional road (Moyvalley) to the north and the R402 to the south.



The area around the Application Site is characterised by a flat to undulating landscape with elevations ranging from 80 to 100m AOD. The surrounding lands can be characterised as rural in nature, (predominantly agricultural and single-house residential), however other industries in the area include Roadstone which is located immediately adjacent to the Application Site to the west, Kilglass Quarry (ca. 400 m to the south west) and an EPA licensed facility Moyvalley Meats (P0192-02; ca. 500 m to the east).

An electricity transmission line traverses the Site south west to north east across the Site with one pylon situated on the Site.

8.3.1 Potential Noise Sources on Site

The principal potential noise impacts arising from any future activities, is nuisance from the movement of inert wastes and the restoration activities. Noise sources that relate directly to the proposed activity will include mobile plant. Mobile plant will include; excavators, a dozer and road trucks delivering the inert wastes. A water bowser may be employed from time to time depending on the site conditions.

8.4 Screening and Baseline Assessment

The Application Site was screened according to NG4 to determine if it is located in an area that could be considered a 'Quiet Area' in open country according to the EPA publication 'Environmental Quality Objectives - Noise in Quiet Areas'. This involved an assessment of the below minimum distance criteria:

- At least 3 km from urban areas with a population >1,000 people;
At least 10 km from any urban areas with a population >5,000 people;
At least 15 km from any urban areas with a population >10,000 people;
At least 3 km from any local industry;
At least 10 km from any major industry centre;
At least 5 km from any National Primary Route; and;
At least 7.5 km from any Motorway or Dual Carriageway.

It was determined the Application Site was not situated in a 'Quiet Area' due to:

- Located approximately 8.5 km north east of Edenderry, which had a population of 7,001 in the 2016 census; and
Located approximately 3 km south of the M4 motorway.

Following the screening process a series of attended noise measurements were conducted on the 14th May 2018 at the noise monitoring locations detailed in Table 8.2 and displayed in Figure 8.2. As detailed in Section 8.2.2 these were conducted during the daytime hours as evening (19:00 to 23:00hrs) and night-time (23:00 to 7:00hrs) operations will not take place at the Application Site. Monitor locations were selected within the site boundary, and can be relocated at the adjacent noise sensitive locations if requested by the relevant property owners. The monitoring periods chosen are considered to be representative of typical daytime noise at each of the locations.

Table 8.2: Description of the Site Noise Monitoring Locations

Table with 2 columns: Location, Description. Rows include N1, N2, and N3 monitoring locations.

The sound level meter was mounted on a tripod at approximately 1.5 m above ground level and at least 3.5 m away from any sound reflecting objects, in accordance with the method set out in ISO 1996-1:2003.



The following parameters were recorded during the survey:

- $L_{Aeq,T}$ - the equivalent continuous noise level in dB(A) over a specified measurement period, T, e.g. 15 minutes;
- $L_{A10,T}$ - the noise level in dB(A) equalled or exceeded for 10% of the measurement period, T;
- $L_{A90,T}$ - the noise level in dB(A) equalled or exceeded for 90% of the measurement interval i.e. 15 minutes;
- $L_{AMAX,T}$ - the highest noise level in dB(A) measured over the specified period, 15 minutes; and
- Frequency analysis – third octave band analysis.

Weather conditions

The weather conditions were in accordance with the requirements of ISO 1996-1:2003. During the survey the wind speed did not exceed 5 m/s, as required by the standard. Light gusts were noted during monitoring at N2, however these were measured at a maximum of 3 m/s. There was no precipitation and the roads nearby were dry at the time of monitoring.

Comments on Existing Noise Conditions

The results of the noise survey are typical of the levels expected for a rural environment which is not significantly influenced by a continuous or dominant noise source. Descriptions of measured noise have been noted in Table 8.3. In general the main noise sources noted are intermittent passing traffic on adjacent roadways, activities in adjacent properties (including an adjacent quarry and the peat processing operation to the south) and birdsong.

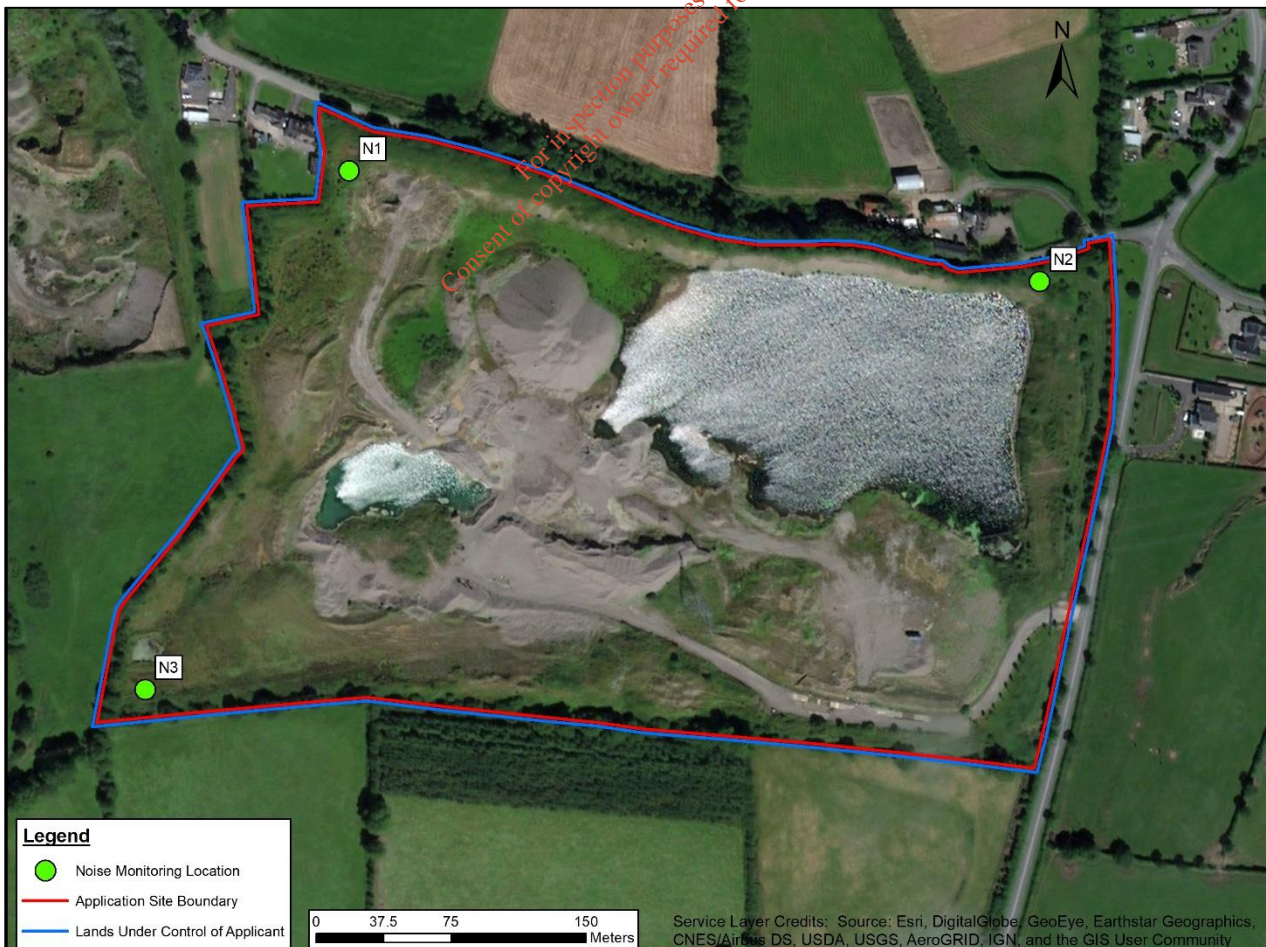


Figure 8.2: Location of noise monitoring locations



NOISE - BALLINDERRY EIAR 2018

Table 8.3: Baseline Noise Monitoring Data N1, N2 and N3, 14th May 2018.

Location / Reading	Date / Time	Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)				Comments
		L _{Aeq}	L _{AF max}	L _{AF10}	L _{AF90}	
N1 Reading 1	10:49	36	57	40	26	Vehicles audible passing on local roads to the east. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. A banging noise noted faintly to the south on two short periods.
N1 Reading 2	12:12	38	53	42	29	Vehicles audible passing on local roads to the east. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Faint noise from an industry in the south east direction was noted at times during the survey.
N1 Reading 3	12:27	36	53	39	28	Vehicles audible passing on local roads to the north and east. A tractor passed on the local road to the north (once). Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. A loud bang was noted from the quarry to the south west.
N1 Reading 4	14:24	43	63	45	31	Vehicles audible passing on local roads to the north and east. A tractor passed on the local road to the north (three times) and was perceived to be louder than the passing of cars or other vehicles. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. A dog was barking in an adjacent property on numerous occasions during the survey. Faint noise from an industry in the south east direction was noted at times during the survey.
Arithmetic Average of L_{AF90}					28	



NOISE - BALLINDERRY EIAR 2018

Table 8.3 continued: Baseline Noise Monitoring Data N1, N2 and N3, 14th May 2018.

Location / Reading	Date / Time	Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)				Comments
		L _{Aeq}	L _{AF max}	L _{AF10}	L _{AF90}	
N2 Reading 1	11:44	53	73	52	35	Vehicles audible passing on local roads to the north and east in close proximity to the noise meter. A truck with loud empty trailer passed twice during the survey. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Activities in an adjacent house were audible which included and engine idling for a period of a minute.
N2 Reading 2	13:40	51	72	50	37	Vehicles audible passing on local roads to the north and east in close proximity to the noise meter. Three trucks passed during the survey. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Faint noise from an industry in the south east direction was noted at times during the survey. Activities in an adjacent house were audible.
N2 Reading 3	13:55	60	84	55	36	Vehicles audible passing on local roads to the north and east in close proximity to the noise meter. Three tractor journeys were noted, two of which passed on the adjacent road to the north of the monitoring location. Three trucks passed during the survey. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Faint noise from an industry in the south east direction was noted at times during the survey. A faint ringing noise was noted in the distance to the east, this was noted when other noise sources were calm.
N2 Reading 4	15:14	60	84	57	39	Vehicles audible passing on local roads to the north and east in close proximity to the noise meter. Three trucks passed during the survey. Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Faint noise from an industry in the south east direction was noted at times during the survey. Animals in adjacent fields were audible during the survey.
Arithmetic Average of L_{AF90}					37	



NOISE - BALLINDERRY EIAR 2018

Table 8.3 continued: Baseline Noise Monitoring Data N1, N2 and N3, 14th May 2018.

Location / Reading	Date / Time	Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)				Comments
		L _{Aeq}	L _{AF max}	L _{AF10}	L _{AF90}	
N3 Reading 1	11:12	47	64	52	32	Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Plant audible in quarry to the west and plant audible to the south. Intermittent cracking audible from overhead powerlines. Scraping noises were audible to the south west (likely from a front-end loader in the quarry).
N3 Reading 2	12:52	44	61	48	35	Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Plant audible in quarry to the west and plant audible to the south. Intermittent cracking audible from overhead powerlines. A sound similar to a grass strimmer was noted to the south of the site for a period of 5 minutes.
N3 Reading 3	13:07	45	58	49	33	Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Plant audible in quarry to the west and plant audible to the south. Intermittent cracking audible from overhead powerlines. Plane audible at low level overhead on one occasion.
N3 Reading 4	14:47	45	61	49	32	Birdsong constant in background but dominant at times, due to the proximity of the monitoring location to the adjacent treeline. Plant audible in quarry to the west and plant audible to the south. Intermittent cracking audible from overhead powerlines.
Arithmetic Average of L_{AF90}					33	

For inspection purposes only. Consent of copyright owner required for any other use.



8.5 Mitigation

Noise mitigation measures will be incorporated into the Site design, management and working practices. Through implementation of these mitigation measures it is considered that the restoration activities will have no significant impacts at nearby noise sensitive receptors. Measures to reduce potential noise impacts will include:

- A noise monitoring programme will be maintained at the three existing locations annually. This will ensure noise levels are compliant with the 55 dB(A) threshold as specified in the EPA/OEE NG4 Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities;
- Site activities will only take place during the hours of 07:00 and 18:00 Monday to Friday and 07:00 and 14:00 on Saturdays. There will be no activities on site on Sundays or Public Holidays;
- Perimeter screening mounds will be maintained along the site boundary to facilitate noise attenuation;
- Screening mounds are planted with tree and shrub species and will be improved where required;
- All haul routes will be kept clean and maintained in a good state of repair;
- Heavy goods vehicles entering and leaving the existing the Site will have tailgates securely fastened; all mobile plant used at the proposed development will have noise emission levels that comply with relevant guidance;
- Plant will be operated in a proper manner with respect to minimising noise emissions, e.g. no unnecessary revving of engines, plant used intermittently not left idling;
- Plant will be subject to regular maintenance, i.e. all moving parts kept well lubricated, the integrity of silencers and acoustic hoods maintained; and
- Plant will be fitted with effective exhaust silencers and maintained in good working order to meet manufacturers' noise rating levels. Defective silencers will be replaced.

Mitigation measures for noise control will be included in a site specific Environmental Management System (EMS) with Best Practicable Means being adopted for site activities. The effective application of these mitigation measures will also be monitored during any future restoration activities.

Table 8.4 assess the potential noise impacts from the proposed development on the local environment with and without the establishment of appropriate mitigation measures detailed above. Definitions of effect significance is as defined in the EPA's 2017 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (Draft).

Noise impacts have been assessed over the medium term, however it is noted that operations and noise generating activities are limited to the opening hours of the Site. Noise impacts from Site operations can be considered to be 'Not Significant', (an effect which causes noticeable changes in the character of the environment but without significant consequences).

Table 8.4: Assessment of noise impacts and mitigation measures employed

Impact	With / Without the establishment of Mitigation Measures	Type of Effect	Quality of Effects	Significance of Effects	Duration of Effects
Noise from site processing activities	Without	Direct	Negative	Slight	M-T
Noise from site processing activities	With	Direct	Negative	Not Significant	M-T
Noise from site traffic	Without	Direct	Negative	Slight	M-T
Noise from site traffic	With	Direct	Negative	Not Significant	M-T

Notes:

- Type of Effect – Direct and Indirect
- Quality of Effects – Positive; Neutral and Negative
- Significance of Effects – Imperceptible; Not significant; Slight Effects; Moderate Effects; Significant Effects; Very Significant; and Profound Effects
- Duration of Effects – Momentary Effects (Seconds to minutes); Brief Effects (Less than a day); Temporary Effects (Less than a year); Short-term Effects (1 to 7 years); Medium-term Effects (7 to 15 years); Long-term Effects (15 to 60 years); and Permanent Effects (Lasting over 60 years)



8.6 Residual Impacts

At present the noise environment at the Application Site is indicative of a rural setting with slight influences of local industry noted. Any impacts resulting from inert waste related activities at the Application Site are considered **imperceptible**. The mitigation measures outlined above will be implemented throughout the concurrent operational and restoration phases of the project.

It is considered that there will be no detrimental effect from noise at the Application Site on the local environs; if the mitigation measures outlined in Section 8.5 are adhered to.

8.7 Cumulative Impacts

Other noise generating industries in the area include Roadstone which is located immediately adjacent to the Application Site to the west, Kilglass Quarry (ca. 400 m to the south west) and Moyvalley Meats (ca. 500 m to the east). On occasion activities from these sites were audible at low levels. However, with the implementation of the mitigation measures proposed in Section 8.5 cumulative impacts related to noise environment are not envisaged. There will be no discernible effect in cumulative noise anticipated as a result of proposed activities at the Application Site.

*For inspection purposes only.
Consent of copyright owner required for any other use.*



8.8 References

ISO 1996-1:2003 Acoustics Description, Measurement and Assessment of Environmental Noise - Part 1: Basic quantities and assessment procedures.

ISO 1996-2:2007 Acoustics -- Description, Measurement and Assessment of Environmental Noise - Part 2: Determination of environmental noise levels.

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

Environmental Protection Agency (EPA) Office of Environmental Enforcement (OEE) - Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4).

Environmental Protection Agency (2017) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft).

*For inspection purposes only.
Consent of copyright owner required for any other use.*