Noise Assessment

Environmental Permit Application, Recycling, Importation, Processing, Storage and Sale of Inert Materials, Bardon Hill Quarry, Leicestershire

AGGREGATE INDUSTRIES UK LIMITED

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REPORT DETAILS

Client	Aggregate Industries UK Limited
Report Title	Noise Assessment – Environmental Permit Application, Recycling, Importation, Processing, Storage and Sale of Inert Materials
Site Address	Bardon Hill Quarry, Coalville, Leicestershire LE67 1TL
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QUALITY ASSURANCE

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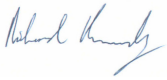
1	24/05/22		
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COMPETENCY AND EXPERTISE

The Company

Vibrock Ltd is an established independent environmental consultancy who has been providing noise, dust and vibration consultancy services to industry since 1991. Vibrock Ltd is a member of the Association of Noise Consultants (ANC) and its consultants are Associate or Corporate Members of the Institute of Acoustics (IOA).

The Authors

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NON-TECHNICAL SUMMARY

1. Aggregate Industries are seeking an Environmental Permit for the Recycling, Importation, Processing, Storage and Sale of Inert Materials at Bardon Hill Quarry, Leicestershire. Vibrock Limited has been commissioned to conduct a noise impact assessment of the proposals.

2. As part of the assessment, background noise levels have been measured at locations chosen to represent noise-sensitive premises in the vicinity of the proposed site. This information has been used to characterise the existing acoustic environment.

3. Predicted noise levels from the site have been calculated at nearby noise-sensitive premises. The proposed development has been assessed with reference to BS 4142 '*Methods for rating and assessing industrial and commercial sound*' in line with Environment Agency stipulations.

4. The outcome of the assessment demonstrates that the proposed scheme is likely to have a 'low impact' in accordance with BS 4142. It is therefore considered that there will be no significant or unacceptable adverse impacts at noise-sensitive premises in the vicinity of the site.

5. A range of best practice noise control measures have been recommended and incorporated in to a Noise Management Plan to minimise potential noise emissions associated with the proposed waste recycling facility.

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1.0 INTRODUCTION

1.1 Overview

1.1.1 Vibrock Limited are commissioned to undertake a noise impact assessment in relation to an Environmental Permit application for the Recycling, Importation, Processing, Storage and Sale of Inert Materials at Bardon Hill Quarry, Leicestershire.

1.1.2 An assessment of the potential impact of the proposals at identified noise-sensitive premises in the vicinity of the site has been made with reference to the guidance presented within BS 4142 as required by the Environment Agency.

1.1.3 Further explanation of the terminology used within this report is provided in Appendix 1.

1.2 Proposed Development

1.2.1 Bardon Hill Quarry is located near Coalville, approximately 15 km to the north-west of Leicester, and is accessed from the A511 Bardon Road. The quarry operator, Aggregate Industries, are seeking an Environmental Permit to establish a waste recycling facility which will produce recycled aggregate materials. The materials which will be brought onto site will be Incinerator Bottom Ash (IBA) and construction and demolition wastes.

1.2.2 The area the subject of the Environmental Permit application is shown on Figure 1. The proposed recycling area is located within the ancillary plant site and is currently used as a stocking area, but was formerly used for concrete products and masonry manufacture. It is proposed that 300,000 tonnes of material would be imported to site per annum by HGV. This material would require crushing and screening on a campaign basis and the material would be stocked within the recycling area prior to sale.

1.2.3 It is understood that the proposed operating hours of the recycling operations will be Monday – Saturday 07:00 – 22:00 hours with no operations on Sunday or any Bank or Public holidays

1.3 Noise Limits

1.3.1 Noise emissions from the site are currently limited by Condition 23 of the extant permission as detailed below:

Noise Limits

23. Except for temporary operations and subject to the limits included in the table below the noise levels arising from the development when measured 3.5 metres from the most exposed façade of any noise sensitive property shall not exceed:
- 55dB(A)$L_{Aeq\ 1h}$ during the hours of 07:00 – 22:00; and
- 42dB(A)$L_{Aeq\ 1h}$ during the hours of 22:00 – 07:00.

Measurement Location and reference.	Daytime Limit (07:00 – 22:00)
2. Bradgate Drive	54
4. Flannagan Way	52
10. Kirton Road	48
12. Irish Farm	49

2.0 GUIDANCE

2.1 Environment Agency Guidance: Noise and Vibration Management (2021)

2.1.1 Operators (or permit applicants) must consider the potential noise impact of their site. They may need to carry out noise impact assessments:

- at the permit application stage
- when applying to vary a permit
- to comply with specific permit conditions

2.1.2 Where noise is possibly causing an impact, the operator must carry out an assessment to determine:

- the level of impact
- how much work needs to be done to prevent or minimise noise pollution

2.1.3 For assessment purposes, '*BS 4142: Methods for rating and assessing industrial and commercial sound*' must be used to quantify the level of environmental noise impact from industrial processes.

2.1.4 Noise impact assessments should be carried out to an appropriate standard and by competent personnel, for example, holders of either an Institute of Acoustics:

- Diploma in Acoustics and Noise Control
- Certificate of Competence in Environmental Noise Measurement, with relevant experience

2.1.5 Operators must prevent significant pollution and also comply with the requirements to use 'appropriate measures' (Waste Framework Directive 2018/851) or 'best available techniques' (BAT) to prevent or minimise noise pollution.

2.1.6 For any particular case, the environment agencies have to decide whether or not you are causing (or are likely to cause) unacceptable noise pollution, even if appropriate measures are used. It is the responsibility of the operator to avoid significant pollution and to demonstrate the use of BAT or appropriate measures to prevent, or where that is not practicable, to minimise noise impact.

2.2 BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

2.2.1 This British Standard was amended in June 2019. BS 4142:2014+A1:2019 supersedes BS 4142:2014, which is withdrawn.

2.2.2 This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

1) sound from industrial and manufacturing processes;
2) sound from fixed installations which comprise mechanical and electrical plant and equipment;
3) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
4) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

2.2.3 The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

2.2.4 This standard is intended to be used for the purposes of:

a) investigating complaints;
b) assessing sound from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and
c) assessing sound at proposed new dwellings or premises used for residential purposes.

2.2.5 This standard is not intended to be applied for the following purposes:

- The determination of noise amounting to a nuisance;
- The assessment of indoor sound levels;
- The assessment of low-frequency noise;
- The assessment of sound from the passage of vehicles on public roads and railway systems;

- The assessment of sound from recreational activities, including all forms of motorsport;
- music and other entertainment;
- shooting grounds;
- construction and demolition;
- domestic animals;
- people;
- public address systems for speech;
- The assessment of sound from other sources falling within the scopes of other standards or guidance.

2.2.6 The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. When making assessments and arriving at decisions it is essential to place the sound in context.

2.2.7 The sound level from a source when determined as a discrete entity, distinct and free of other influences contributing to the ambient sound, is referred to as the 'specific sound level'. The specific sound level is evaluated, at an identified assessment location, over the appropriate reference time interval which is as follows:

- 1 hour during the daytime (07:00 – 23:00); and
- 15 minutes during the night-time (23:00 – 07:00).

NB. The shorter reference time interval at night means that short duration sounds with an on time of less than 1 hour can lead to a greater specific sound level when determined over the reference time interval during the night than when determined during the day.

2.2.8 The specific noise may be subject to an acoustic character correction if the noise level at the assessment location is subjectively considered to exhibit certain acoustic features that could increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level.

2.2.9 This standard requires the assessor to consider the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention. Such features are taken into account by applying the following corrections to the specific sound level to obtain the rating level as follows:

Subjective Prominence	Tonality	Impulsivity	Intermittency	Other Sound Characteristic (neither tonal, nor impulsive, nor intermittent)
Just Perceptible	+2 dB	+3 dB	-	-
Clearly Perceptible	+4 dB	+6 dB	-	-
Highly Perceptible	+6 dB	+9 dB	-	-
Readily Distinctive Against Residual Environment	-	-	3 dB	3 dB

2.2.10 If characteristics likely to affect perception and response are present in the specific sound, within the same reference period, then the applicable corrections ought normally to be added arithmetically. However, if any single feature is dominant to the exclusion of the others then it might be appropriate to apply a reduced or even zero correction for the minor characteristics. The rating level is equal to the specific sound level if there are no such features present or expected to be present.

2.2.11 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level, and consider the following.

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB or more is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.2.12 Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following.

1) The absolute level of sound.

2) The character and level of the residual sound compared to the character and level of the specific sound.

3) The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

    i) façade insulation treatment;

    ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and

    iii) acoustic screening.

2.2.13 Response to sound can be subjective and is affected by many factors both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood. This edition of the standard recognises the importance of the context in which a sound occurs.

3.0 BACKGROUND NOISE SURVEY

3.1 Survey Methodology

3.1.1 Background noise levels were measured over a 24 hour period from 9 – 10 March 2022 at 2 locations selected to represent noise-sensitive premises in the vicinity of the site.

3.1.2 The assessment and monitoring locations used for the purpose of this study are shown in Figure 2.

3.2 Instrumentation

3.2.1 Monitoring was undertaken using the following equipment.

Manufacturer	Type	Serial No.	Date of last calibration
Cirrus	Class 1 Integrating Sound Level Meter CR:171B	G300481	23/03/21
Cirrus	Class 1 Integrating Sound Level Meter CR:171B	G300592	05/03/21
Cirrus	Acoustic Calibrator CR:515	78059	23/12/21

3.2.2 During all measurements the microphones were protected with an outdoor windshield and mounted on tripods.

3.2.3 The monitoring positions were 'free field' (no vertical reflective surfaces within 3.5 metres of the microphone) and at a height of between 1.2 – 1.5 metres above ground level.

3.2.4 The following set-up parameters were used:

- Time Weighting: Fast
- Frequency Weighting: A
- Averaging-Integrating Period: 15 minutes
- Data Logging: Repeat (contigous)

3.2.5 With the equipment set up in the configuration used during measurement, field calibration checks were performed on site immediately before and after the survey period using a sound calibrator. No significant drift (i.e. no greater than ±0.5 dB) in the calibration value was observed between the initial and final checks.

3.3 Observations

3.3.1 The acoustic environment in the vicinity of the site predominantly comprises noise from road traffic using the A511, along with occasional aircraft movements and birdsong. Noise from existing operations at the quarry site were occasionally audible but were not considered to be significantly affecting the measured background sound levels which were influenced predominantly by road traffic. Waste recycling operations the subject of the permit application were not taking place at the site during the survey.

3.3.2 Weather conditions during the survey were dry and settled with average wind speeds of around 2 – 3 ms^{-1} and predominantly from a southerly direction. Cloud cover varied between 4 and 8 oktas, relative humidity was in the region of 65 – 85% and temperatures ranged from 8 – 11°C.

3.3.3 Winds speeds were quantified at each monitoring location using a Munro IM161 Anemometer, temperature and relative humidity were measured at the start and end of the survey period using a Precision Gold N18FR Meter and cloud cover was visually estimated by eye.

3.4 Results

3.4.1 The measurement data collected during the survey is presented in Table 1 and Figure 3 and summarised below for time periods pertinent to this assessment based on the proposed operating hours of 07:00 – 22:00.

Noise-Sensitive Premises	**Background Sound Level $L_{A90,T}$ (dB)**	
	Daytime 07:00 – 19:00	**Evening 19:00 – 22:00**
Bardon House	63	55
The Vicarage	55	49
Woodside Cottages	63	55

4.0 POTENTIAL NOISE EMISSIONS

4.1 Introduction

4.1.1 The level of noise in the local environs that arises from a site will depend on a number of factors. The more significant of which are:

(a) the sound level output of the plant or equipment used on site;

(b) the periods of operation of the plant on site;

(c) the distance between the source noise and the receiving position;

(d) the presence of screening due to barriers;

(e) the reflection of sound;

(f) soft ground attenuation.

4.1.2 Noise levels from site operations have been calculated at the identified assessment locations based on the following methodologies and assumptions.

4.2 Calculation Methodology

4.2.1 In order to assist in the calculation of predicted noise levels from the site, CadnaA noise modelling software has been used. The noise prediction software has been configured to undertake the noise calculations in accordance with ISO 9613 '*Acoustics - Attenuation of sound during propagation outdoors*'. Noise model configuration details are outlined in Table 2.

4.2.2 Within the model, HGVs, dump trucks and conveyors have been modelled as line sources. Point sources have been used to represent stationary or quasi-stationary activities such as fixed plant and the unloading/loading of materials.

4.2.3 For all noise prediction calculations, the ground absorption coefficient has been estimated according to the combination of soft and hard ground conditions present between the source and receiver position. 'Soft' ground is taken to refer to surfaces which are absorbent to sound, e.g. grassland, cultivated land or plantations as opposed to 'hard' ground surfaces which reflect sound such as paving, asphalt and surface water.

4.2.4 The modelling software predictions assume conditions favouring sound propagation from source to receiver. The ISO 9613 calculation methodology assumes wind direction with $\pm 45^0$ of the direction connecting the centre of the dominant sound sources and the centre of the specified receptor region, together with wind speeds of between 1 – 5 ms^{-1}. It should therefore be noted that in practice the eventual longer-term measured levels are invariably lower than predicted levels due to the temporal variation in meteorological conditions.

4.2.5 Predictions have been made to locations representing both ground floor and first floor positions of noise-sensitive premises. Sound levels during the daytime period (07:00 – 23:00), which are most pertinent to this assessment given the operating hours of the proposed recycling facility, have been predicted at a height of 1.5 m above ground level.

4.2.6 The predictions made by the modelling software are for 'free-field' sound levels to allow for an appropriate comparison with the free-field background sound levels measured during the survey.

4.2.7 The convention applied within BS 4142, and throughout this report, is that all measured or calculated numbers are rounded to the nearest whole number with 0.5 being rounded up.

4.3 Noise Source Details

4.3.1 Information regarding the proposed working of the site has been based on discussions with the applicant along with proposed development plans.

4.3.2 A list of noise generating plant and activities, from which the noise predictions have been made, is presented in Tables 3 and 4 along with a number of assumptions regarding typical operating times and vehicle movements. The sound power levels used within this assessment are based on sound pressure level measurements of current plant and activities at the existing site which were made by Vibrock Limited in March 2022. Where it was not possible to obtain representative noise measurements during the site visit, source noise levels have been derived from measurements of plant and activities made by Vibrock at similar sites across the UK. These similar sites include quarries, recycling facilities, asphalt/concrete plants, landfill sites and other industrial facilities of comparable scale and where noise source measurements were obtained for the purposes of a noise impact assessment for a planning or permit application.

4.4 Calculation Results

4.4.1 The results of the noise level predictions at the identified assessment locations are presented below.

Assessment Location	Floor	Calculated Specific Sound Level $L_{Aeq,Tr}$ (free-field) dB		
		Existing Operations	Proposed Operations	Total Combined Site Operations
Bardon House	Ground	43.8	40.3	45.4
	First	44.7	40.8	46.2
The Vicarage	Ground	43.0	48.2	49.4
	First	44.9	51.4	52.3
Woodside Cottages	Ground	43.1	33.2	43.5
	First	44.7	36.1	45.3

5.0 ASSESSMENT

5.1 This assessment has been undertaken with reference to the guidance provided within BS 4142.

5.2 This standard requires the following levels to be established:

- The Background Sound Level
- The Specific Sound Level
- The Rating Level

Background Sound Level

5.3 BS 4142 requires the quantification of typical background sound levels at locations representing the noise-sensitive receptors. The results of the survey are presented in Section 3 of this report.

Specific Sound Level

5.4 The specific sound level has been determined by calculation following the guidance within Section 7 of BS 4142. The method of calculation is explained in Section 4 of this report.

Rating Level

5.5 In determining the Rating Level it is recognised that certain acoustic features can increase the significance of noise impact.

5.6 Noise emissions associated with operations at the site are considered to contain occasional impulsive features associated with the unloading and loading of material. In accordance with BS 4142 it is considered appropriate to apply a correction of + 3 dB to the calculated specific sound levels to account for the presence of these characteristics which could at times be perceptible at The Vicarage.

5.7 At all other assessment locations these features are unlikely to be discernible due to the masking effect of the residual sound and no acoustic feature correction has therefore been applied. Noise emissions from the proposed operations are significantly below the residual sound level of 63 – 69 dB $L_{Aeq,1h(0700-2200)}$ at these noise-sensitive premises which are located close to the A511.

Initial Estimate of Impact

5.8 The tables below present an 'initial estimate' of the potential impact of the proposals in accordance with BS 4142.

Proposed activities associated with the Environmental Permit					
Assessment Location	**Background Sound Level $L_{A90,15min}$ dB**	**Specific Sound Level $L_{Aeq,15min}$ dB**	**Acoustic Feature Correction dB**	**Rating Level $L_{Ar,Tr}$ dB**	**Initial Estimate Excess of rating over background sound level (dB)**
Daytime 07:00 – 19:00					
Bardon House	63	40	0	40	**-23**
The Vicarage	55	48	+3	51	**-4**
Woodside Cottages	63	33	0	33	**-30**
Evening 19:00 – 22:00					
Bardon House	55	40	0	40	**-15**
The Vicarage	49	48	+3	51	**+2**
Woodside Cottages	55	33	0	33	**-22**

Proposed activities associated with the Environmental Permit combined with Existing Site Operations					
Assessment Location	**Background Sound Level $L_{A90,15min}$ dB**	**Specific Sound Level $L_{Aeq,15min}$ dB**	**Acoustic Feature Correction dB**	**Rating Level $L_{Ar,Tr}$ dB**	**Initial Estimate Excess of rating over background sound level dB**
Daytime 07:00 – 19:00					
Bardon House	63	45	0	45	**-18**
The Vicarage	55	49	+3	52	**-3**
Woodside Cottages	63	44	0	44	**-19**
Evening 19:00 – 22:00					
Bardon House	55	45	0	45	**-10**
The Vicarage	49	49	+3	52	**+3**
Woodside Cottages	55	44	0	44	**-11**

5.9 Typically, the greater the difference between the rating level and the background sound level, the greater the magnitude of the impact.

5.10 BS 4142 states that where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact. A difference of around +5 dB is likely to be an indication of an adverse impact. A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

5.11 It should be noted that the initial estimate is not to be considered in isolation and due regard to the following sections on context and uncertainty should also be made.

Context

5.12 In addition to the initial estimate of noise impact which has determined the excess of rating level over background sound level, the following should also be considered as part of the impact assessment process:

- *Operational Period* – The noise sources under assessment will operate during the daytime only when there is a lower likelihood of adverse impact compared to operations during more sensitive periods such as the night-time. It is understood that the crushing and screening of materials would take place on a campaign basis and would therefore not be an omnipresent sound source at the proposed facility.
- *Character of the Sound* – As part of the assessment the potential character of the sound has been assessed and an acoustic feature correction applied accordingly in accordance with BS 4142. Overall, the character of the sound from the proposed scheme is not considered incongruous with the existing acoustic environment and the development is unlikely to introduce any new acoustic features at the site. The proposed recycling area is located within the ancillary plant site and is currently used as a stocking area, but was formerly used for concrete products and masonry manufacture.
- *Absolute Level of Sound* – In some circumstances, absolute noise levels can be as, or more, relevant than the margin by which the rating level exceeds the background. Worst-case noise levels from combined total site operations are not expected to exceed 49 dB (52 dB at first floor level) at the nearest noise-sensitive premises and noise emissions from the site are therefore considered likely to have a low impact on residents using private external amenity areas during the daytime when the recycling facility is operational. Noise emissions from the proposed facility are also below the residual sound level which is in the region of 52 – 60 dB $L_{Aeq,1h(0700-2200)}$ at the nearest noise-sensitive premises to the site.
- *Planning Permission* – The extant planning permission associated with the site specifies noise limits at noise-sensitive premises. The predicted noise levels are within the daytime limit of 55 dB specified within this condition.

Uncertainty

5.13 Whilst it is accepted that uncertainty can occur throughout all aspects of the noise measurement and assessment process, the approach undertaken at all stages has been adopted with the aim of reducing uncertainty via the implementation of good practice. During this process reference has been made to BS 4142 Annex B '*Consideration of uncertainty and good practice for reducing uncertainty*'.

5.14 The following list details the key steps taken to reduce uncertainty:

- Monitoring carried out by a qualified acoustician who is an Associate Member of the Institute of Acoustics;
- Background sound level measurements were made in close proximity to the assessment locations and over a long duration to ensure that the acoustic environment was fully characterised. Existing operations at the site were not considered to be influencing the noise levels measured during the survey;
- Measurement procedures were in accordance with Section 6 of BS 4142 including precautions against interference such as unsuitable weather conditions;
- Site noise levels were determined by calculation with reference to Section 7 of BS 4142 and utilising the methodology outlined within ISO 9613 which is a widely accepted standard for the calculation of outdoor sound propagation;
- Operations during the on-site sample measurements at the existing quarry site were considered to be representative of typical operating conditions and the measurement durations were considered to be representative of any longer term fluctuations in the specific sound. The influence of sound from other sources was minimised by measuring at times when the residual sound had subsided to a relatively low level. Care was taken to avoid measurements in close proximity to plant (particularly large noise sources) to avoid near-field effects which could result in an inaccurate determination of the sound power level;
- The instrumentation used was in accordance with Section 5 of BS 4142. Use of digital transfer methods and equipment whose conformity and calibration have been checked periodically.

6.0 NOISE CONTROL RECOMMENDATIONS

6.1 The following noise control measures should be considered during the implementation of the scheme to demonstrate best practice and minimise the potential impact at noise-sensitive receptor locations within the vicinity of the site:

(a) Adhere strictly to the stated operating hours of the site and ensure that site working hour restrictions are effectively communicated to all site staff and subcontractors;

(b) All plant and equipment should comply with the relevant statutory requirements regarding noise emissions;

(c) Audible reversing warning systems on mobile plant and vehicles should be of a type which, whilst ensuring that they give proper warning, has a minimum noise impact on persons outside sites;

(d) Ensure machinery is regularly well maintained and where appropriate fitted with exhaust silencers. Any defective items should not be used. Regular inspections of plant should be undertaken to identify any faults or wear and tear that may be resulting in excessive noise;

(e) Minimise drop heights of materials;

(f) Plant and vehicles should be started up sequentially rather than all together. Any period of idling required to warm up mobile plant at the start of the working day should be undertaken in locations away from residential premises;

(g) Unnecessary horn usage, revving of engines and aggressive accelerating/braking should be avoided.

(h) Equipment should be switched off or throttled down to a minimum when not required. Any covers, panels or enclosure doors to engines should be kept closed when the equipment is in use;

(i) Where reasonably practicable, noisy equipment should be located as far from sensitive premises as possible. Plant from which the noise generated is known to be particularly directional should, wherever practicable, be orientated so that the noise is directed away from noise-sensitive areas;

(j) Keep internal vehicle routes clear and well maintained. Avoid steep gradients and the use of speed bumps where possible. Regularly inspect routes for potholes and repair as necessary;

(k) Operatives should be trained to employ appropriate techniques to keep site noise to a minimum, and should be effectively supervised to ensure that best working practice in respect of noise minimisation is followed. All operational staff and contractors should be responsible for reporting any noise problems immediately to the site supervisor.

7.0 SUMMARY

7.1 An assessment of potential noise impact associated with the proposed permit application has been made following the guidance presented within BS 4142.

7.2 Following an initial estimate of noise impact, along with consideration of the context and any potential effects of uncertainty, the operation of the waste recycling facility Plan is considered likely to have a 'low impact' in accordance with BS 4142.

7.3 It is therefore considered that there will be no significant or unacceptable adverse impacts at existing noise-sensitive premises in the vicinity of the site. A range of best practice noise control recommendations have been made and incorporated into a Noise Management Plan (see Appendix 2) to minimise potential noise emissions associated with the proposed waste recycling operations.

8.0 REFERENCES

1. ANC Guidelines: *Environmental Sound Measurement Guide*. ANC. May 2021.

2. BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*, British Standards Institution 2019.

3. British Standard 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites. Part 1: Noise*. British Standards Institution 2014.

4. BS 7445-1:2003 *Description and measurement of environmental noise – Part 1 Guide to quantities and procedures*. British Standards Institution 2003.

5. *Guidelines for Environmental Noise Impact Assessment*, v1.2. Institute of Environmental Management & Assessment. November 2014.

6. *Guidance: Noise impact assessments involving calculations or modelling*. Environment Agency. November 2019.

7. *Guidance: Noise and vibration management: environmental permits*. Environment Agency. July 2021.

8. *Guidance: Risk assessments for your environmental permit.* Environment Agency and Department for Environment, Food and Rural Affairs. March 2021.

9. ISO 9613-2:1996 *Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation*.

FIGURE 1

Permit Application Site Plan

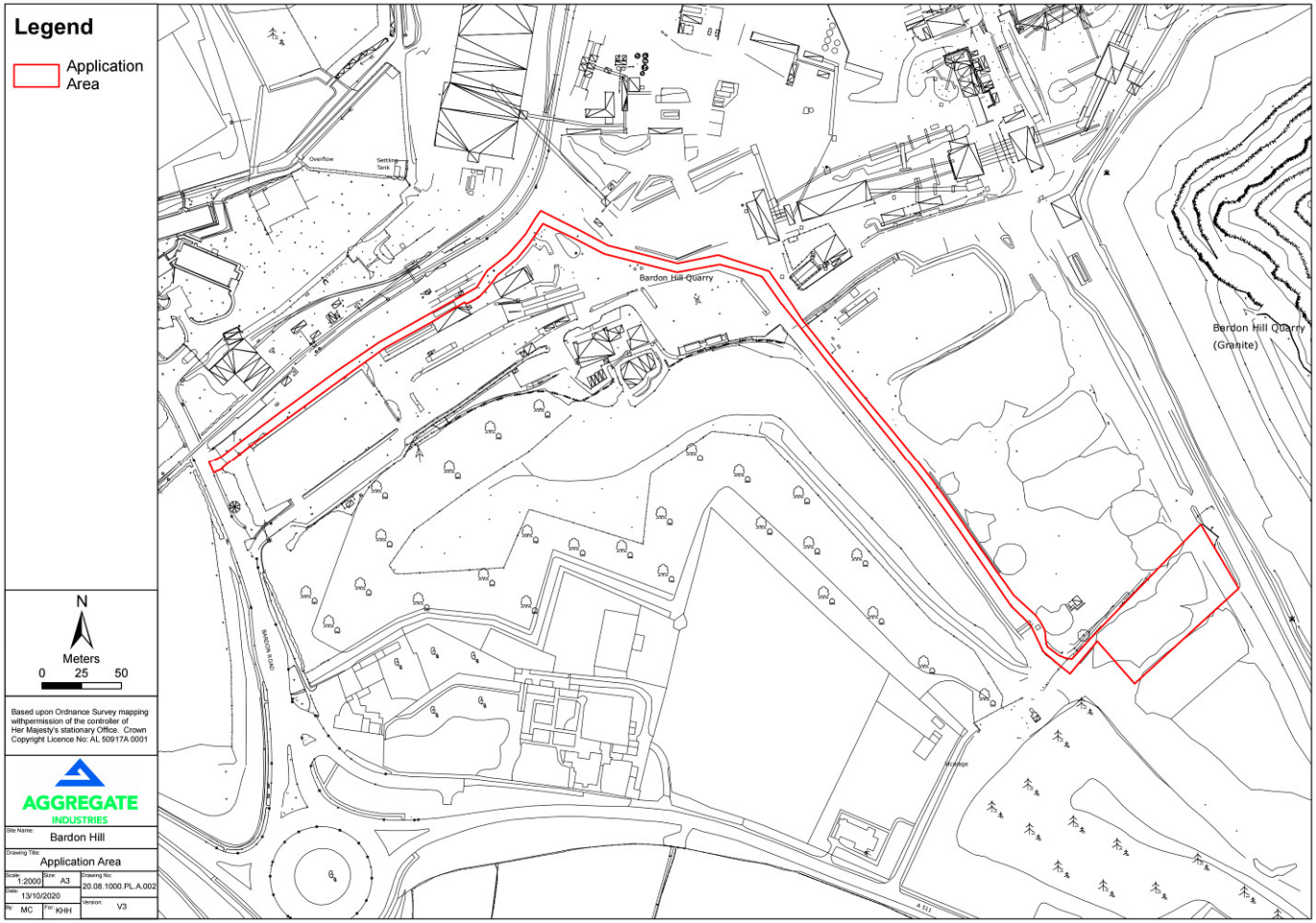


FIGURE 2

Noise Monitoring and Sensitive Receptor Location Plan

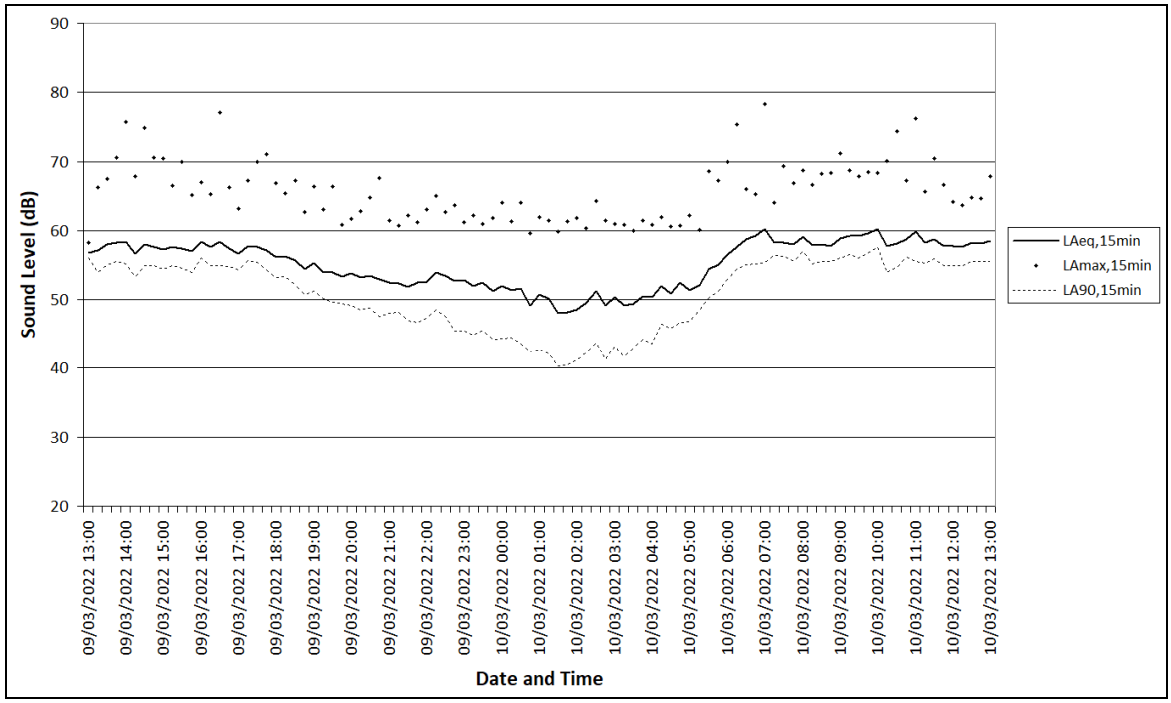
Receptor	Type	Floor	Coordinates (m)		
			X	Y	Z
Bardon House	Residential	Ground	444820	312616	180.7
		First	444820	312616	183.2
The Vicarage	Residential	Ground	445008	312622	177.3
		First	444820	312616	179.8
Woodside Cottages	Residential	Ground	445217	312458	176.5
		First	444820	312616	179.0

Monitoring Locations	Coordinates (m)		
	X	Y	Z
M1	445031	312615	176.9
M2	445103	312516	175.0

FIGURE 3

Measured Sound Levels - Charts

Location M1: Representing The Vicarage



Location M2: Representing Bardon House and Woodside Cottages

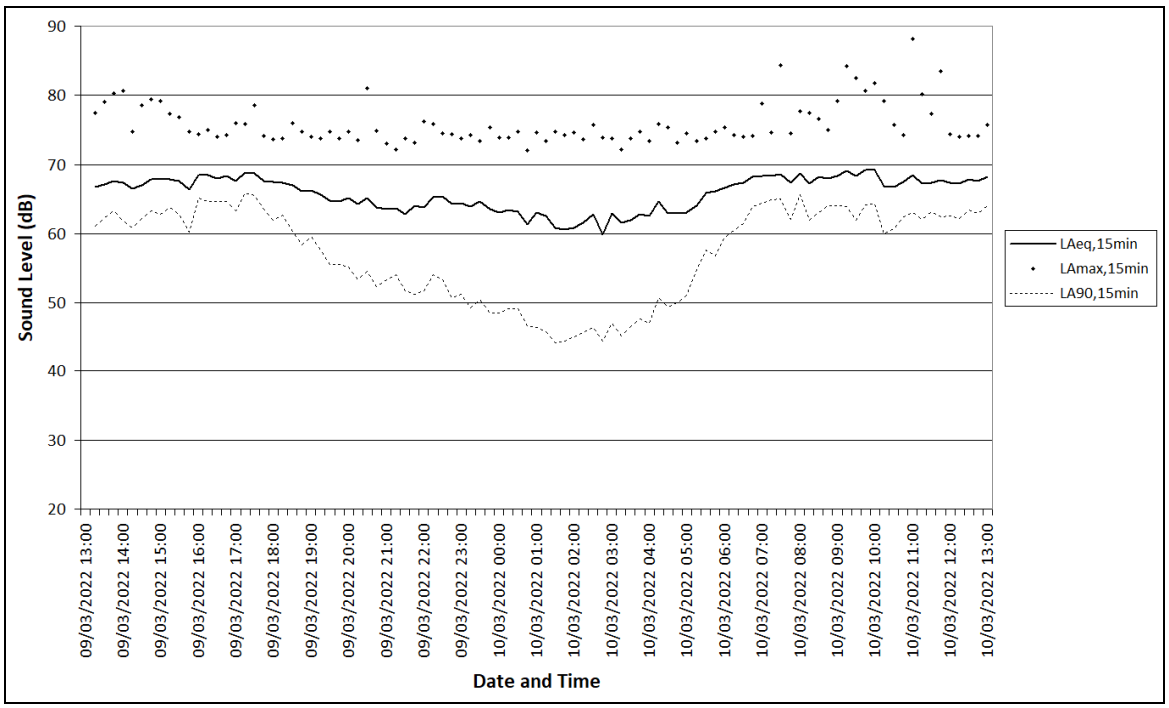


TABLE 1

Measured Sound Levels – Tabular

Date and Time	M1				M2		
	$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB		$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB
09/03/2022 13:00	56.8	58.2	56.0		67.1	74.5	62.6
09/03/2022 13:15	57.1	66.2	54.0		66.8	77.5	61.1
09/03/2022 13:30	58.0	67.5	55.1		67.1	79.0	62.3
09/03/2022 13:45	58.2	70.6	55.5		67.6	80.3	63.3
09/03/2022 14:00	58.4	75.7	55.2		67.4	80.6	61.8
09/03/2022 14:15	56.6	67.8	53.4		66.5	74.8	60.8
09/03/2022 14:30	58.0	74.9	55.0		67.0	78.5	62.2
09/03/2022 14:45	57.6	70.6	54.9		67.8	79.4	63.3
09/03/2022 15:00	57.3	70.5	54.4		67.8	79.2	62.8
09/03/2022 15:15	57.7	66.5	54.9		67.8	77.3	63.8
09/03/2022 15:30	57.4	69.9	54.6		67.6	76.8	62.8
09/03/2022 15:45	57.0	65.2	54.0		66.4	74.8	60.2
09/03/2022 16:00	58.4	67.0	56.0		68.5	74.4	65.1
09/03/2022 16:15	57.7	65.3	54.9		68.5	75.0	64.6
09/03/2022 16:30	58.4	77.1	55.0		68.0	74.0	64.6
09/03/2022 16:45	57.4	66.2	54.8		68.4	74.2	64.6
09/03/2022 17:00	56.6	63.2	54.3		67.6	76.0	63.3
09/03/2022 17:15	57.8	67.2	55.7		68.8	75.9	65.9
09/03/2022 17:30	57.7	69.9	55.4		68.7	78.5	65.5
09/03/2022 17:45	57.2	71.0	54.3		67.6	74.1	63.5
09/03/2022 18:00	56.2	66.9	53.2		67.5	73.6	62.0
09/03/2022 18:15	56.3	65.4	53.4		67.4	73.8	62.7
09/03/2022 18:30	55.7	67.3	52.1		67.0	76.0	60.4
09/03/2022 18:45	54.4	62.7	50.8		66.1	74.8	58.4
09/03/2022 19:00	55.3	66.4	51.3		66.2	74.0	59.6
09/03/2022 19:15	54.0	63.0	50.2		65.7	73.7	57.6
09/03/2022 19:30	53.9	66.4	49.6		64.8	74.8	55.6
09/03/2022 19:45	53.4	60.8	49.4		64.7	73.7	55.5
09/03/2022 20:00	53.8	61.7	49.1		65.2	74.8	55.2
09/03/2022 20:15	53.2	62.8	48.6		64.3	73.5	53.4
09/03/2022 20:30	53.5	64.8	48.8		65.2	81.0	54.6
09/03/2022 20:45	53.0	67.6	47.6		63.8	74.9	52.4
09/03/2022 21:00	52.5	61.4	48.1		63.6	73.0	53.4

Date and Time	M1			M2		
	$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB	$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB
09/03/2022 21:15	52.3	60.7	48.2	63.7	72.2	54.1
09/03/2022 21:30	51.9	62.2	47.0	62.8	73.8	51.8
09/03/2022 21:45	52.5	61.2	46.7	64.0	73.2	51.2
09/03/2022 22:00	52.6	63.0	47.3	63.8	76.2	51.8
09/03/2022 22:15	53.9	65.0	48.5	65.3	75.9	54.1
09/03/2022 22:30	53.5	62.7	47.5	65.4	74.5	53.3
09/03/2022 22:45	52.7	63.7	45.5	64.3	74.4	50.7
09/03/2022 23:00	52.9	61.2	45.5	64.4	73.7	51.3
09/03/2022 23:15	52.0	62.2	44.9	63.9	74.2	49.3
09/03/2022 23:30	52.5	61.0	45.6	64.6	73.4	50.5
09/03/2022 23:45	51.3	61.8	44.2	63.5	75.3	48.6
10/03/2022 00:00	52.0	64.0	44.3	63.1	73.9	48.6
10/03/2022 00:15	51.4	61.3	44.5	63.4	73.9	49.1
10/03/2022 00:30	51.6	64.1	43.6	63.2	74.7	49.1
10/03/2022 00:45	49.1	59.6	42.4	61.3	72.0	46.7
10/03/2022 01:00	50.8	62.0	42.7	63.1	74.6	46.5
10/03/2022 01:15	50.2	61.5	42.2	62.6	73.4	45.8
10/03/2022 01:30	48.1	59.9	40.3	60.9	74.8	44.2
10/03/2022 01:45	48.2	61.3	40.6	60.6	74.2	44.5
10/03/2022 02:00	48.6	61.8	41.2	60.8	74.6	45.1
10/03/2022 02:15	49.5	60.4	42.3	61.6	73.6	45.7
10/03/2022 02:30	51.3	64.3	43.7	62.8	75.7	46.4
10/03/2022 02:45	49.2	61.4	41.3	59.9	73.9	44.5
10/03/2022 03:00	50.4	61.0	43.2	62.9	73.8	47.1
10/03/2022 03:15	49.1	60.8	41.6	61.6	72.2	45.2
10/03/2022 03:30	49.4	60.0	43.0	61.9	73.8	46.6
10/03/2022 03:45	50.5	61.4	44.2	62.8	74.8	47.7
10/03/2022 04:00	50.4	60.9	43.6	62.6	73.4	47.1
10/03/2022 04:15	52.0	62.0	46.4	64.6	75.8	50.8
10/03/2022 04:30	50.9	60.6	45.8	62.9	75.4	49.4
10/03/2022 04:45	52.5	60.7	46.7	62.9	73.1	50.0
10/03/2022 05:00	51.4	62.2	46.8	63.1	74.5	51.1
10/03/2022 05:15	52.1	60.1	48.6	64.1	73.4	54.8
10/03/2022 05:30	54.5	68.6	50.3	65.9	73.8	57.7
10/03/2022 05:45	55.1	67.3	51.3	66.1	74.8	56.8
10/03/2022 06:00	56.5	69.9	53.0	66.6	75.3	59.5
10/03/2022 06:15	57.7	75.3	54.5	67.1	74.2	60.5

Date and Time	M1				M2		
	$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB		$L_{Aeq,T}$ dB	$L_{Amax,T}$ dB	$L_{A90,T}$ dB
10/03/2022 06:30	58.7	66.0	55.1		67.4	74.0	61.4
10/03/2022 06:45	59.3	65.3	55.2		68.2	74.1	63.9
10/03/2022 07:00	60.2	78.3	55.4		68.4	78.8	64.4
10/03/2022 07:15	58.2	64.0	56.4		68.3	74.6	64.9
10/03/2022 07:30	58.3	69.3	56.3		68.6	84.4	65.0
10/03/2022 07:45	58.0	66.9	55.6		67.4	74.5	62.1
10/03/2022 08:00	59.1	68.7	57.0		68.7	77.7	65.7
10/03/2022 08:15	57.9	66.6	55.2		67.3	77.4	62.0
10/03/2022 08:30	58.0	68.2	55.5		68.2	76.6	63.1
10/03/2022 08:45	57.8	68.3	55.5		68.0	75.0	64.1
10/03/2022 09:00	58.9	71.2	56.1		68.4	79.2	64.1
10/03/2022 09:15	59.2	68.7	56.5		69.1	84.2	63.9
10/03/2022 09:30	59.2	67.8	56.0		68.3	82.5	61.9
10/03/2022 09:45	59.6	68.5	56.8		69.2	80.7	64.2
10/03/2022 10:00	60.2	68.4	57.6		69.2	81.7	64.3
10/03/2022 10:15	57.8	70.1	54.0		66.9	79.2	60.0
10/03/2022 10:30	58.1	74.4	54.7		66.7	75.7	60.7
10/03/2022 10:45	58.8	67.2	56.2		67.5	74.3	62.5
10/03/2022 11:00	59.9	76.2	55.5		68.5	88.2	63.0
10/03/2022 11:15	58.2	65.6	55.3		67.3	80.2	62.1
10/03/2022 11:30	58.8	70.5	55.9		67.4	77.3	63.2
10/03/2022 11:45	57.8	66.6	55.0		67.7	83.5	62.4
10/03/2022 12:00	57.8	64.2	55.0		67.4	74.4	62.6
10/03/2022 12:15	57.6	63.7	54.9		67.2	74.0	62.2
10/03/2022 12:30	58.2	64.8	55.6		67.9	74.1	63.4
10/03/2022 12:45	58.1	64.7	55.6		67.6	74.1	62.9
10/03/2022 13:00	58.5	67.8	55.5		68.2	75.7	64.1

TABLE 2

Noise Model Configuration Details

Parameter	Input
Software	DataKustik GmbH CadnaA 2022 MR 1 (build: 191.5229)
Calculation Standards/Guidelines	ISO 9613
Model of Terrain	Triangulation
Max. Order of Reflection	3
Ground Absorption	0.5 (Resolution 1.0m) 1.0 for grassland/woodland
Ground Attenuation	Spectral
Receiver Heights	Ground Floor - 1.5m above ground level First Floor - 4.0m above ground level
Topographic data	On-site Topographic survey data Off-site DTM 1.0m LiDAR (3D contours)
Frequency Band Calculation	Octave Bands (63Hz – 8kHz)
Temperature	10°C
Relative Humidity	70%

TABLE 3

Noise Source Model Inputs – Existing

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height (relative to ground)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Secondary Breaker	105.1	109.5	105.3	107.8	103.8	100.9	98.3	89.4	109	2.0m	446947	312549	187	50%
Excavator Loading Dump truck	108.7	109.5	101.3	102.0	102.9	100.4	94.8	86.3	107	2.0m	447141	312337	192	75%
											447083	312323	192	
Primary Crusher	111.4	114.9	105.2	101.7	98.3	95.3	88.5	81.3	105	2.0m	447042	312721	169	100%
Dumper Tipping (into primary crusher)	112.1	110.1	108.7	111.4	112.6	113.5	109.6	101.2	118	2.0m	447025	312717	154	25%
MMD Overburden Machine	97.4	94.8	91.4	92.9	86.9	83.7	80.8	70.9	93	3.0m	446366	312297	188	100%
Transfer Towers	99.2	96.4	91.9	91.7	88.6	86.9	81.7	74.8	94	4.0m	446752	312732	202	100%
											446341	312288	188	
											445430	312444	185	
											445380	312449	181	
											445262	312643	185	

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height (relative to ground)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Loading Shovels	101.7	99.3	96.3	94.9	101.1	99.6	94.9	87.1	105	2.0m	444788	313220	174	50%
											444917	313163	177	
											445121	313251	187	
											444834	313003	176	
											445068	312825	178	
											444915	313053	174	
											445186	312617	182	
											445085	313090	184	
Rinse Shed	91.4	89.1	90.0	85.8	81.0	78.0	76.7	71.9	88	3.0m	445017	313084	179	100%
Load Out Toast Rack	98.0	97.9	94.8	94.4	99.2	96.1	92.7	92.5	103	3.0m	444770	313168	175	75%
Asphalt Plant (Standard Havens)	106.5	115.1	104.8	106.6	101.3	97.9	95.1	90.1	108	4.0m	444819	313038	174	100%
Asphalt Plant (Beninhoven)	114.0	116.1	110.9	106.7	103.2	101.3	95.6	87.0	110	4.0m	444942	313058	176	100%

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height (relative to ground)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Recycled Asphalt Screen + Excavator	116.2	109.5	102.1	98.2	95.6	93.3	88.4	80.1	102	2.0m	444901	313123	175	100%
10 Plant Load Out (Dust)	95.8	95.5	93.5	91.7	90.2	86.4	80.0	71.4	94	2.5m	444909	312967	175	75%
Tower 6 Scalping Screen	102.0	102.7	100.0	100.7	101.2	100.5	95.9	87.3	106	4.0m	445101	312962	184	100%
Wash Plant	99.4	96.1	94.5	94.0	93.8	93.3	93.0	89.2	100	3.0m	445115	313199	187	100%
Selector 1	107.5	107.7	101.8	101.6	103.0	99.5	95.1	87.9	107	3.0m	445186	313141	193	100%
Selector 2	100.4	99.0	97.9	91.8	89.8	87.3	84.3	74.6	96	4.0m	445151	313124	190	100%
Selector 3	97.0	96.3	91.8	89.9	86.4	83.5	79.6	74.3	92	2.0m	445175	313100	190	100%
Secondary Crusher	102.1	103.3	103.1	100.5	98.9	94.2	87.3	77.8	103	4.0m	445076	313014	182	100%
Tertiary Crusher	103.4	104.5	104.4	101.1	96.3	93.8	89.8	82.6	103	4.0m	445032	313003	176	100%
Surface Dressing Plant	103.9	101.2	96.7	91.8	88.7	86.7	83.3	77.4	95	5.0m	444994	313005	177	100%
Screening Plant	101.4	102.0	96.2	91.1	88.1	85.4	83.0	76.0	95	5.0m	444956	312975	178	100%
Radial Stacker	100.4	98.0	93.9	92.4	89.4	93.1	85.9	83.2	97	5.0m	444993	312900	177	75%

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height (relative to ground)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Conveyors	98.3	96.9	94.3	92.6	87.9	87.2	85.5	76.2	95	1.5m	(line source)			100%
Dump trucks (Quarry)*	112.2	109.3	101.7	102.9	102.9	99.6	92.4	87.8	107	2.5m	(line source)			25 movements/hour Speed = 15mph
Dumptrucks (Overburden)*	112.2	109.3	101.7	102.9	102.9	99.6	92.4	87.8	107	2.5m	(line source)			10 movements/hour Speed = 15mph
Dump trucks (Processing)*	106.3	105.1	102.6	99.2	101.1	99.8	97.3	93.5	106	2.0m	(line source)			16 movements/hour Speed = 15mph
HGV*	103.1	98.9	96.1	94.1	94.5	92.2	87.7	79.8	99	1.5m	(line source)			55 movements/hour Speed = 15mph

** Drive-by maximum sound level in Lmax (octave bands) and LAmax (overall level)*

TABLE 4

Noise Source Model Inputs – Proposed

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height (relative to ground)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Processing Plant	81.8	91.5	96.7	103.2	106.2	103.8	98.9	90.0	110	2.0m	445174	312726	181	25%
Loading Shovel	100.1	98.8	97.5	94.7	93.9	99.4	91.2	84.0	103	2.0m	445155	312707	181	100%
HGV*	103.1	98.9	96.1	94.1	94.5	92.2	87.7	79.8	99	1.5m	(line source)			10 movements/hour Speed = 15mph

** Drive-by maximum sound level in Lmax (octave bands) and LAmax (overall level)*

APPENDIX 1

Terminology and Definitions

Acoustic Environment
Sound from all sound sources as modified by the environment.

Sound Power Level, L_{WA}
The total amount of sound energy per unit of time generated by a particular sound source independent of the acoustic environment that it is in. It is a logarithmic measure of the sound power in comparison to a specified reference level.

Equivalent continuous A-weighted sound pressure level $L_{Aeq,T}$
Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval *T*, has the same mean square sound pressure as a sound under consideration whose level varies with time.

A-weighting
The human ear is most sensitive to frequencies in the range 1 kHz to 5 kHz. On each side of this range the sensitivity falls off. A-weighting is used in sound level meters to replicate this sensitivity and respond in the same way as the human ear.

Ambient Sound Level $L_{Aeq,T}$
Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Specific Sound Level (also referred to as 'site noise') $L_{Aeq,Tr}$
Sound in the neighbourhood of a site that originates from the site i.e. the sound being assessed. The equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment position over a given reference time interval.

Rating Level $L_{Ar,Tr}$
The specific sound level plus any adjustment for the characteristic features of the sound.

Residual Sound Level $L_{Aeq,T}$
Ambient sound remaining at a given position in a given situation when the specific sound source is suppressed to a degree such that it does not contribute to the ambient sound.

Background Sound Level $L_{A90,T}$
The A-weighted sound pressure level of the residual sound at the assessment position that is exceeded for 90% of a given time interval, *T*, measured using time weighting F.

Reference Time Interval, T_r
The specified interval over which the specific sound level is determined.
NOTE This is 1hr during the day (07:00-23:00) and a shorter period of 15 min at night (23:00-07:00).

Free-field Level
The sound pressure level away from reflecting surfaces.
NOTE Measurements made 1.2 - 1.5 metres above the ground and at least 3.5 metres away from other reflecting surfaces are usually regarded as free-field.

APPENDIX 2

Noise Management Plan

CONTENTS

1. Introduction

1.1 The Noise Management Plan (NMP) outlines the methods by which Aggregate Industries will systematically assess and minimise the potential impacts of noise generated by the proposed waste recycling operations at development at Bardon Hill Quarry.

1.2 The aims of the NMP are:

- to prevent pollution and minimise disturbance and annoyance to residents;
- to develop a control strategy which can be implemented during site operations;
- to ensure that noise impacts are considered as part of routine inspections;
- to demonstrate good practice and that all appropriate measures are taken to prevent or, where that is not practicable, to reduce emissions from the operations;
- to consolidate any noise issues on the site to assist Aggregate Industries in complying with Planning and Permit conditions;
- to assist the Environment Agency in enforcement and complaint responses.

2. Site Details

2.1 Bardon Quarry is an operational hard rock quarry located in North West Leicestershire.

2.2 The site address is as follows:

Bardon Hill Quarry
Bardon Hill
Coalville
Leicestershire
LE67 1TL

2.3 Operating hours: Monday to Saturday 07:00 – 22:00.

3. Noise Sources

3.1 The development comprises an inert construction and demolition waste recycling facility which will produce recycled aggregate materials.

3.2 It is proposed that material would be imported to site by HGV where it will be crushed and screened on a campaign basis and stocked within the recycling area prior to sale.

3.3 These activities will take place in combination with ongoing mineral extraction and processing operations across the site.

3.3 The main sources of noise at the site are detailed below:

- Processing with fixed and mobile plant;
- Transport of material via conveyor and dump truck;
- Stockpiling and loading activities;
- Site preparation works including the transport and storage of soils and overburden;
- The winning and working of minerals;
- Water pumping;
- Asphalt production;
- Mobile plant movements;
- HGV movements.

4. Sensitive Receptors

4.1 The nearest noise sensitive premises are shown below along with the boundary of the site the subject of the Environmental Permit application.

5. Control Measures

5.1 The following noise control measures will be adhered to during site operations. These measures demonstrate best practice and minimise any potential noise impacts:

- The permitted operating hours of the site will be strictly adhered to and effectively communicated to all site staff and subcontractors;
- Plant and machinery will be maintained in good working order and used in accordance with the manufacturer's instructions. Any defective items will not be used. Regular inspections of plant will be undertaken to identify any faults or wear and tear that may be resulting in excessive noise;
- Vehicle routes through the site will be kept maintained and free from defects such as pot-holes. The use of speed humps and steep gradients will be avoided where possible;
- Unnecessary horn usage, excessive revving of engines, rapid acceleration and sharp braking will be avoided. Equipment will be switched off or throttled down to a minimum when not required. Any covers, panels or enclosure doors to engines will be kept closed when the equipment is in use;
- Any cladding or enclosures around plant will be regularly inspected for defects/damage/weathering that may negatively impact upon the sound insulation performance of the structure. Once identified any repairs will be carried in a timely manner;
- The drop height of materials will be minimised where possible;
- Equipment will be located as far from sensitive premises as possible. Plant from which the noise generated is known to be particularly directional will, wherever practicable, be orientated so that the noise is directed away from sensitive areas;
- Plant and vehicles will be started up sequentially rather than all together. Any period of idling required to warm up mobile plant at the start of the working day will be undertaken in locations away from residential premises;
- In the event of any emergency or unforeseen circumstances arising that cause safety to be put at risk, every effort be made to ensure that the work in question is completed as quickly and as quietly as possible and with the minimum of disturbance to people living or working nearby;
- Operatives will be trained to employ appropriate techniques to keep site noise to a minimum, and will be effectively supervised to ensure that best working practice in respect of noise minimisation is followed.

6. Monitoring

6.1 Routine noise monitoring is undertaken in accordance with a Noise Monitoring Scheme approved by the Mineral Planning Authority (Leicestershire County Council) to determine compliance with noise limits stipulated within the site's extant planning permission.

6.2 Additional monitoring will be undertaken at the request of the Environment Agency.

6.3 Condition 23 of the extant planning consent states the noise levels arising from the site when measured 3.5 metres from the most exposed façade of any noise sensitive property shall not exceed 55 dB(A) $L_{Aeq,1h}$ during the hours of 07:00 – 22:00 and 42 dB(A) $L_{Aeq,1h}$ during the hours of 22:00 – 07:00.

7. Community Engagement and Complaints

7.1 It is the duty of all members of staff to receive and record complaints, which will be processed by the Site Manager. Aggregate Industries shall ensure that all neighbours know how to contact the site if they consider noise to be a problem.

7.2 The Operator will maintain a record of all complaints received. Any complaints will be responded to and recorded in accordance with the Complaints Procedure which forms part of the site Environmental Management System. The complaints log will be made available for inspection upon request.

7.3 All complaints will be investigated to identify the likely source of the noise. If it is established that the operator could be the source then further investigation will be undertaken to determine the scale of impact.

7.4 Should clear impacts from site operations be identified then, if practicable, the operator will implement suitable control measures in consultation with the Environment Agency.

7.5 Action will be taken promptly and during any investigation and subsequent remedial works, the complainant will be kept updated of progress.

8. Incident Management

8.1 The risk of incidents will be minimised by effective maintenance of equipment and good housekeeping. Where standby equipment for critical plant is unavailable, the site will maintain stock levels of required spares to ensure that critical plant can be repaired quickly.

8.2 In the event of an incident causing significant noise pollution, the Site Manager will take immediate action and the plant/activity will be reduced or stopped until effective controls are in place.

9. Management, Training and Responsibility

9.1 The Site Manager will have responsibility for ensuring that nuisances and hazards arising from the operations due to noise are minimised, and that the measures outlined in this NMP are implemented, documented and subject to ongoing evaluation and review.

9.2 Employees training requirements are identified and suitable resources provided to ensure they have the required competency and expertise to carry out their duties. This includes their roles and responsibilities in complying the Operator's management systems and all relevant legislation. This is achieved through induction, training for new employees, awareness training for all and specific training as required.

9.3 Contractors and all persons performing tasks on behalf of Aggregate Industries will also be made aware of the policy and relevant management system requirements and will be competent in the roles undertaken.

9.4 Operatives will be trained to employ appropriate techniques to keep site noise to a minimum and will be effectively supervised by the Site Manager to implement best working practice. All operational staff and contractors will be responsible for reporting any problems relating to noise directly to the Site Manager.

9.5 All staff at the site will be made fully aware of the need to be constantly vigilant about the control and management procedures in place. To minimise the risk of noise emissions, emphasis will be given to:

- Awareness of their responsibilities for avoiding noise nuisance;
- The timely reporting of noise issues directly to the Site Manager; and
- Actions to minimise noise emissions during abnormal operating scenarios that could give rise to noise issues.

10. Plan Review

10.1 The Noise Management Plan will be reviewed and updated, as appropriate, in consultation with the Environment Agency.

10.2 In particular, the scheme should be reviewed:

- following the receipt of complaints relating to noise from permitted operations;
- following the addition of new plant or modification to existing plant; or
- when a new noise-sensitive receptor is introduced in the vicinity of the site.

10.3 During the review, particular reference should be made to the following:

- The results of previous compliance monitoring;
- Noise monitoring locations and survey frequency;
- Noise complaint record; and
- Operational changes or plant modifications.