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ALLSTONE, MYERS ROAD, GLOUCESTER

**INERT WASTE CRUSHING, SCREENING &
STONE WASHING OPERATIONS**

UPDATED NOISE IMPACT ASSESSMENT

Technical Report: R9439-2 Rev 1

Date: 26th April 2023




For: Allstone
Allstone House
Myers Road
Off Horton Road
Gloucester
GL1 3QD

24 Acoustics Document Control Sheet

Project Title: Allstone, Myers Road, Gloucester, MRF/ Recycling Operations- Inert Waste Crushing, Screening and Stone Washing Operations Updated Noise Impact Assessment

Report Ref: R9439-2 Rev 1

Date: 26th April 2023

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For and on behalf of 24 Acoustics Ltd				

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EXECUTIVE SUMMARY

24 Acoustics Ltd has been retained by Allstone Ltd (Allstone) to provide ongoing technical services relating to the assessment of the potential impact of noise from their operations at their recycling and MRF operation at their Myers Road site in Gloucester.

Allstone propose to apply for planning consent for the continued use of part of their site for crushing, screening and washing of inert waste materials to produce secondary aggregate. Unlike previous applications (which have resulted in temporary planning consents, each three years in duration) this is a permanent application and also includes the permanent operation of their crusher plant and the noise impact from a new, bespoke, wash plant.

It has been established that the noise from the crushing, screening and associated operations create a low noise impact at the housing and care home receptors off Horton Road. The impact will potentially be high in the gardens of Gas Holder Cottages. However, these properties are owned by Allstone and will remain in their ownership for the duration of the lifetime of the works on the site. The noise impact at the housing to the north-east of Myers Road (eg Etheridge Place) will be present and intrusive, however, it is considered acceptable in planning terms on the basis that it is considered mitigated to a minimum.

On this basis it is considered that the proposals will not cause loss of amenity or harm to the occupants of the nearest residential dwellings and, on this basis, it is considered that there is no reason on noise grounds why planning consent for the proposals should not be granted.

CONTENTS	PAGE
1.0 INTRODUCTION	5
2.0 SITE DESCRIPTION AND OPERATION	5
3.0 NOISE IMPACT ASSESSMENT CRITERIA	8
4.0 SITE NOISE SURVEYS	12
5.0 CALCULATIONS AND NOISE IMPACT ASSESSMENT	15
6.0 CONCLUSIONS	17
REFERENCES	18
APPENDIX A: Acoustic Terminology	22
APPENDIX B: Background Noise Survey Results	24
APPENDIX C: Plant Sound Power Calculations	25
APPENDIX D: Noise Management Plan	28

1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been retained by Allstone Ltd (Allstone) to provide ongoing technical services relating to the assessment of the potential impact of noise from operations at their Myers Road site in Gloucester.
- 1.2 In September 2022 Allstone applied for planning consent (Gloucester County Council Reference 22/0033/GLMAJW) for the continued use of part of the site for crushing, screening and washing of inert waste materials to produce secondary aggregate. Unlike previous applications (which have resulted in temporary planning consents, each three years in duration) this is a permanent application.
- 1.3 The previous consent for operations on this part of the site was granted by Gloucester County Council in January 2020 [Reference 19/01060/DC] for a temporary period of three years.
- 1.4 This report provides an assessment of the noise impact, updated to reflect the noise impact from the new wash plant and permanent operation of the crushing plant, and is produced in support of the planning application.
- 1.5 All noise levels in this report are provided in dB relative to 20 μ Pa. A glossary of the acoustic terminology used is provided in Appendix A.

2.0 SITE DESCRIPTION AND OPERATION

- 2.1 The Allstone site is located off Myers Road in Gloucester. The operations across the entire site are effectively divided into three, as follows:
- Retailing of stone and aggregate for the construction industry. This material is stored in bays at the eastern end of the site. Materials are generally distributed in bulk using wheeled loaders to load customer and Allstone's own delivery vehicles;
 - Recycling and processing of construction waste. Material is bought to site in bulk/ by skip and processed and sorted within the MRF building;

- Recycling and processing of inert construction waste. Material is brought to site in bulk/ by skip and generally deposited within the aggregate sorting (and crushing) area on the western side of the site. Where material is mixed with other types of waste and deposited at the MRF it is sorted and relocated to the aggregate area.
- 2.2 This technical report addresses the noise impact from the operations within the redline boundary of the planning application- namely the aggregate crushing, screening and washing area.
- 2.3 The site is located in a mixed industrial, commercial and residential area. The nearest residential properties to the site are located to the north/ north-east and north-west. The area to the south is industrial and commercial in nature comprising a Morrisons Supermarket and filling station, a Mercedes-Benz commercial dealership and Breedon Gloucester Concrete Plant. The Gloucester to Cheltenham railway line bounds the site to the immediate south and the A4302 Mertz Way is an (elevated) source of ambient noise to the south.
- 2.4 Figure 1 shows an aerial image of the site, surrounding area and noise-sensitive receptors.
- 2.5 The operations on site currently occur under an existing temporary planning consent (Gloucester County Council planning consent reference 19/00070/GLMAJW]). This defines the hours of operation, as follows:

No operations shall take place, no machinery shall be operated, no process shall be carried out and no skips shall be moved, onto, around or from the Site except between the following hours (Condition 16):

- ■ 0730hrs to 1730hrs Monday to Friday;
- ■ Deliveries shall only be taken at or dispatched from the site between the following hours
- ■ 0730hrs to 1730hrs Monday to Friday;
- ■ 0730hrs to 1300hrs Saturday

There shall be no operations on Sundays, Bank Holidays or Public Holidays.

Reason: To protect the amenities of local residents in accordance with Saved Policies 37 and 38 of the adopted Gloucestershire Waste Local Plan.

2.6 Condition 17 defines noise limits for the operations as stated below.

17 Noise limit

Provided that 1 and 2 Gas Holder Cottages are occupied by employees of Allstone Limited, the freefield noise level in the rear garden of Gas Holder Cottages shall not exceed 55 dB LAeq (1 hour) except during crushing activities which may occur for up to 20 days per year when the freefield noise levels shall not exceed 65dB LAeq (1 hour).

Reason: In the interests of limiting noise pollution and to protect the residential amenities enjoyed by neighbouring residents, in accordance with Saved Policy 37 of the adopted Gloucestershire Waste Local Plan and the adopted Waste Core Strategy Policy WCS4.

2.7 Conditions 18 to 22 also relate to noise, requiring adherence to the approved noise management plan (Condition 18), actions to be undertaken in the event of a complaint about noise (Condition 19), restrictions on the use of crushing/ screening machinery (Condition 20), plant noise control requirements (Condition 21) and a requirement to notify the local waste planning authority in advance of undertaking crushing works (Condition 22).

2.8 It is proposed that the operations will continue as existing, however, it is now proposed that crushing will occur on an unrestricted basis (within the site operational hours) and not be limited to 20 days per year. In addition a new stone washing plant has been procured and this updated assessment includes the noise impact associated with its operation.

2.9 The operations will utilise the following plant:

- Aggregate crusher;
- New wash plant.

2.10 Inert waste material is loaded into the plant and the final product removed to stockpile using the following plant:

- 360 degree loader;
- wheeled loader.

2.11 Figure 1 shows an aerial image of the site, identifying the approximate areas of each operation/ receptors and Figure 2 provides a drawing of the proposed new wash plant.

3.0 NOISE IMPACT ASSESSMENT CRITERIA

National Planning Policy Framework and Noise Policy Statement for England

3.1 The National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions, while recognising that many developments will create some noise.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.4 The National Planning Practice Guidance (NPPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The NPPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.
- 3.5 The NPPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system. Table 1 is reproduced from the NPPG and summarises the noise exposure hierarchy, based on the likely average response.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life	No Observed Adverse Effect	No specific measures required
Lowest Observable Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/ or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/ or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extension and regular changes in behaviour and/ or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/ awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 1: NPPG Noise Exposure Hierarchy

- 3.6 In general terms it is considered that a noise impact with an effect level which is lower than SOAEL is acceptable (providing the effect is mitigated to a minimum). There is currently, however, a discontinuity between the above guidance and objective technical criteria for use in planning noise impact assessments.

British Standard 4142:2014

- 3.7 British Standard 4142:2014 [Reference 4] provides a methodology for the assessment of commercial sound at (the exterior of) residential properties. The standard advocates a comparison between the prevailing typical L_{A90} background noise level and the L_{Aeq} source noise level. For rating purposes, if the noise source is tonal, or impulsive, in character, a rating correction of up to 15 dBA is applied. Several methods of determining the rating penalty are described. The standard states that a difference between the rating level and the background level of around +10 dBA is an indication of a 'significant adverse impact', depending on the context and a difference of around +5 dBA is likely to be an indication of an adverse impact again depending on the context. Where the rating level does not exceed the background noise (sound) level, this is an indication of the specific sound source having a low impact (depending upon the context).

Technical Guidance to the NPPF

- 3.8 The technical guidance to the NPPF (relating to minerals) advises that mineral planning authorities should aim to establish a noise limit through a planning condition. This should be designed to ensure that the noise level does not exceed the background noise level (dB $L_{A90, 1 \text{ hr}}$) by more than 10 dB(A), or as near as practicable. It also states that in any event the total noise level from the operations should not exceed 55 dB $L_{Aeq, 1 \text{ hour}}$ for operations during the day (between 07:00 and 19:00 hours).
- 3.9 The guidance also states that where site noise has a significant tonal or impulsive elements it may be appropriate to set specific noise limits to control this.

Site Noise Limit

- 3.10 Condition 17 of the existing planning consent was negotiated and agreed with Gloucester County Council during previous planning rounds and states the following:

Provided that 1 and 2 Gas Holder Cottages are occupied by employees of Allstone Limited, the freefield noise level in the rear garden of Gas Holder Cottages shall not exceed 55 dB LAeq (1 hour) except during crushing activities which may occur for up to 20 days per year when the freefield noise levels shall not exceed 65dB LAeq (1 hour).

Adopted Assessment Criteria

- 3.11 Given the history of the site and the fact that the application is now for the permanent operation of the crushing and wash plant it is considered appropriate to assess the noise impact relative to the prevailing background noise level using the rating methodology of BS 4142:2014+A1:2019.

4.0 SITE NOISE SURVEYS

Background Noise Surveys

- 4.1 Background noise surveys were undertaken at residential receptor locations between 14th and 20th April 2023. Measurements were undertaken at the following locations (as shown in Figure 1):
- Location 1: Garden of Gas Holder Cottages, 1.5 m above local grade;
 - Location 2: Chapel House Care Centre, Horton Road, 3 m above local grade;
 - Location 3: Myers Road/ to rear of 7 Etheride Place, 3 m above local grade.
- 4.2 The following instrumentation was used in the surveys:
- 3 * Rion NL32 Class 1 accuracy sound level meters;
 - Bruel and Kjaer Type 4231 Class 1 accuracy acoustic calibrator.
- 4.3 The sound level meters were calibrated before and after the surveys in accordance with the manufacturer's instructions. No drift in calibration was recorded. Data was recorded in terms of the overall A-weighted L_{eq} , L_{90} and $L_{Max,f}$ sound pressure levels in samples of 5 minutes. Hourly values were then calculated from the measured data for analysis. The weather during the survey was variable. Periods with unsuitable weather (wind speeds greater than 5 m/s and/ or precipitation) and also where there was a contribution from Allstone's operations have been removed from the analysis.
- 4.4 The results of the survey are shown graphically in Appendix B and are summarised below for the proposed periods of operation.

Date	Period	Background Noise Level, dB LA90,1 hour	
		Range	Typical
Friday 14/4/2023	07:30 - 17:30	51-60	50
Monday 17/4/2023	07:30 - 17:30	49-74	45
Tuesday 18/4/2023	07:30 - 17:30	48-71	46
Wednesday 19/4/2023	07:30 - 17:30	50-75	53
Saturday 15/4/2023	07:30 - 13:00	50-53	49
Representative			49

Table 2: Background Noise Survey Results, Location 1, Gas Holder Cottages

Date	Period	Background Noise Level, dB LA90,1 hour	
		Range	Typical
Friday 14/4/2023	07:30 - 17:30	51-60	52
Monday 17/4/2023	07:30 - 17:30	51-59	51
Tuesday 18/4/2023	07:30 - 17:30	53-59	54
Wednesday 19/4/2023	07:30 - 17:30	53-59	54
Saturday 15/4/2023	07:30 - 13:00	46-49	46
Representative			51

Table 3: Background Noise Survey Results, Location 2, Horton Road

Date	Period	Background Noise Level, dB LA90,1 hour	
		Range	Typical
Friday 14/4/2023	07:30 - 17:30	49-58	48
Monday 17/4/2023	07:30 - 17:30	45-57	47
Tuesday 18/4/2023	07:30 - 17:30	47-55	48
Wednesday 19/4/2023	07:30 - 17:30	48-56	49
Saturday 15/4/2023	07:30 - 13:00	45-47	45
Representative			48

Table 4: Background Noise Survey Results, Location 3, Myers Road

Source-Term Noise Surveys

4.5 Source-term noise surveys of the crushing and associated plant in operation on site were undertaken on 6 September 2019. The following instrumentation was used:

- Norsonic Nor-118 Class 1 accuracy sound level meter;
- Bruel and Kjaer Type 4231 Class 1 accuracy acoustic calibrator.

- 4.6 The sound level meter was installed on a tripod at a height of approximately 1.2 m above local grade. An environmental windshield was fitted. The weather during the surveys was calm (wind speeds below 5 m/s) with no precipitation.
- 4.7 Measurements were undertaken at a number of locations and distances around the plant (which included the crusher, screen and two wheeled loading vehicles) in octave bands. This data has been used to calculate the sound power level of the plant. The results of the surveys are shown in Appendix C and summarised below.

Overall L_{Aw}	Octave Band Frequency (Hz) and Sound Power Level, dB L_w								
	31.5	63	125	250	500	1 k	2 k	4.0 k	8.0 k
116	111	117	115	113	112	110	110	104	92

Table 5: Calculated Crusher & Associated Plant Sound Power Level

- 4.8 The new wash plant is currently installed on the site and was operated for a short period in order to quantify its noise emission. Its shape and the nature of its noise emission does not make robustly determining its sound power level practicable. For this reason noise measurements were undertaken of the noise from the plant when operational at the same receptor locations as the background noise surveys. Attended measurements were typically taken over a duration of several minutes with noise from any extraneous events 'paused out' of the measurements. These surveys were undertaken during a visit to the site on 3rd April 2023 under fine, dry and still weather conditions. The results of the noise surveys are shown below.

Receptor	Noise Level, dB $L_{Aeq,T}$
Garden, Gas Holder Cottages	68
Chapel House Care Centre, Horton Road	55
Myers Road, Rear of 5 Norman Ball Road	59

Table 6: Noise Level Associated with the Operation of New Wash Plant

- 4.9 These surveys were all undertaken prior to the completion of the noise barrier structure on the northern element of the site (as shown in Figure 1). This will be constructed to sufficient height to ensure elimination of line of sight between all areas of the wash plant and the residential receptors. Barrier effect calculations have been undertaken using standard acoustic theory and this has determined the following noise levels at receptors from the wash plant at receptors when the barrier is in place.

Receptor	Noise Level, dB LAeq,T
Garden, Gas Holder Cottages	54
Chapel House Care Centre, Horton Road	43
Myers Road, Rear of 5 Norman Ball Road	46

Table 7: Noise Level Associated with the Operation of the New Wash Plant with Acoustic Barrier

5.0 CALCULATIONS AND NOISE IMPACT ASSESSMENT

Calculations

5.1 The sound power data for the crusher plant described above has been used to populate an acoustic model of the operations. This has used the propagation methodology of ISO 9613 [Reference 5] to determine the likely noise level at receptor locations from the operations taking into account geometric divergence, acoustic screening and ground and atmospheric absorption. The model uses near worst-case light downwind propagation conditions and the following specific parameters:

- Ambient temperature of 10 degrees C;
- Relative humidity of 70%;
- Soft ground propagation (G=1) on land/ hard ground propagation (G=0).

5.2 The associated noise contour map is provided in Figure 3 and includes the new screen on the northern boundary (as shown in Figure 1). This will be of sufficient height to eliminate line of site between all plant and the receptor locations. Table 8 below shows the noise level associated with crushing operations at each receptor.

Receptor	Noise Level, dB LAeq,T
Garden, Gas Holder Cottages	55
Chapel House Care Centre, Horton Road	44
Myers Road, Rear of 5 Norman Ball Road	51

Table 8: Calculated Noise Levels from Crushing Activities

Receptor	Noise Level, dB LAeq,T		
	Crushing plant	Wash plant	Total
Garden, Gas Holder Cottages	55	54	58
Chapel House Care Centre, Horton Road	44	43	47
Myers Road, Rear of 5 Norman Ball Road	51	46	52

Table 9: Noise Levels from All Activities

Assessment

- 5.3 Tables 10- 12 below show the assessment of noise impact relative to the prevailing background noise level using the rating methodology of BS4142. The noise emission from the operations is not considered impulsive or tonal at receptors but does contain a degree of intermittency. For this reason a noise character correction of + 3 dB has been applied in accordance with the standard.

Representative background, dB LA90, 1 hour	49
Site Specific Noise Level, dB LAeq, 1 hour	58
Rating correction, dB	+3
Rating noise level, dBA	61
Difference between background and rating level, dB	+12

Table 10: BS 4124 Noise Impact Assessment, Location 1, Gas Holder Cottage

Representative background, dB LA90, 1 hour	51
Site Specific Noise Level, dB LAeq, 1 hour	47
Rating correction, dB	+3
Rating noise level, dBA	50
Difference between background and rating level, dB	-1

Table 11: BS 4124 Noise Impact Assessment, Location 2 Horton Road

Representative background, dB LA90, 1 hour	48
Site Specific Noise Level, dB LAeq, 1 hour	52
Rating correction, dB	+3
Rating noise level, dBA	55
Difference between background and rating level, dB	+7

Table 12: BS 4124 Noise Impact Assessment, Location 3, Myers Road

- 5.4 The assessment indicates a 'low impact' subject to context at the receptors in Horton Road.
- 5.5 At Gas Holder Cottages a noise impact which may be considered 'significant adverse' could be expected (as defined in BS 4142). It must be stressed, however, that Gas Holder Cottages are wholly owned by Allstone and occupied by their staff. The occupants have reduced sensitivity as a result. Allstone would be prepared to sign up to a legal agreement with Gloucester Council to ensure that the properties remain in their ownership for the duration of the life of the operations.

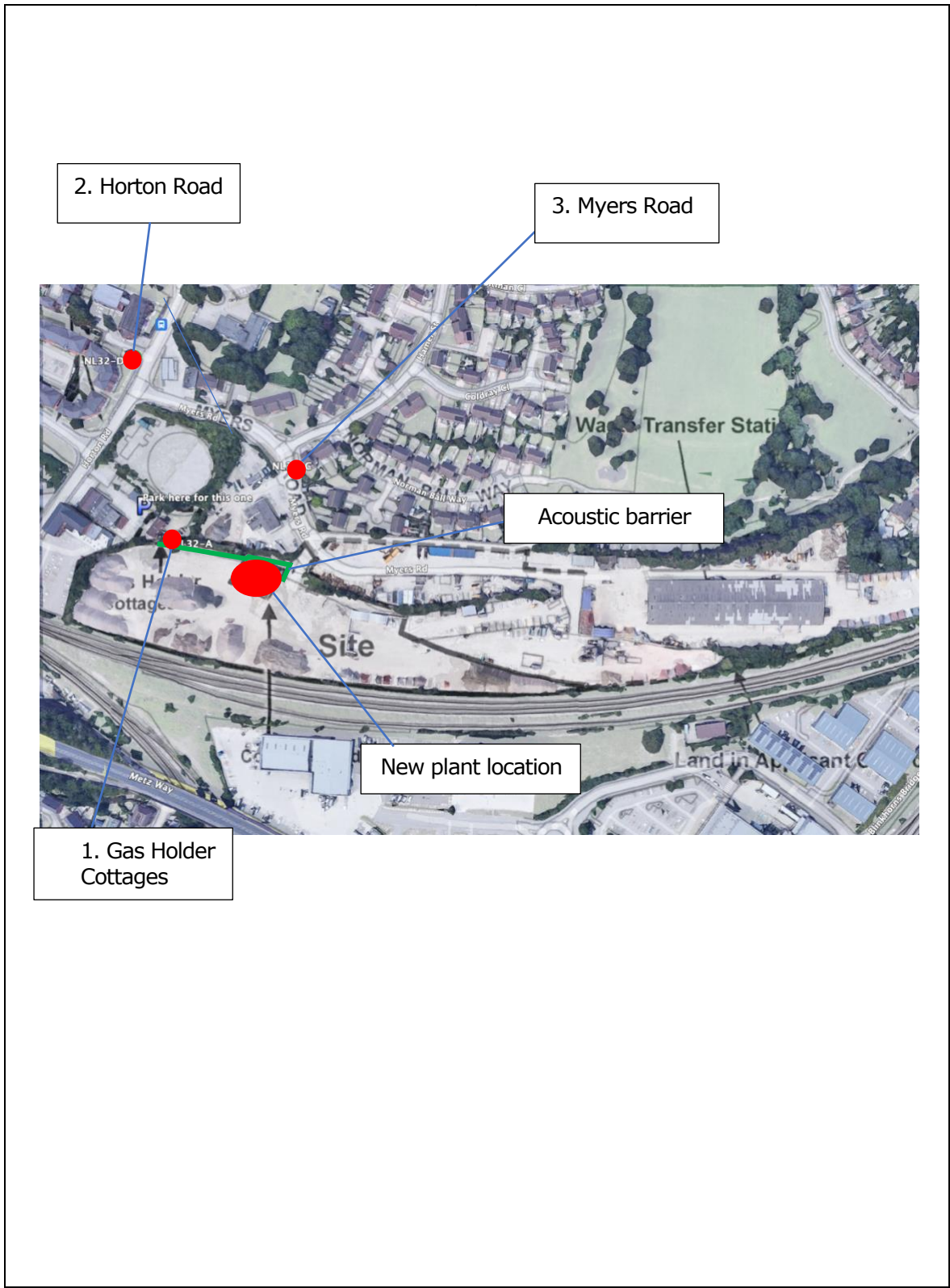
5.6 At the closest properties in Myers Road (and those to the immediate north such as Etheridge Place) an adverse noise impact (subject to context) can be expected. Context is particularly relevant in this case as the housing and Allstone have co-existed for a significant period of time and occupants in the housing in this area have 'grown up' with a degree of noise impact from their operations. At this location it is considered that a noise impact above LOAEL (the Lowest Observed Adverse Effect Level) can be expected (as defined in the PPG). This is acceptable, however, providing it is mitigated and reduced to a minimum. It is considered that the introduction of the substantial barrier on the northern boundary of the site will mitigate the noise impact to a minimum accordingly.


6.0 CONCLUSIONS

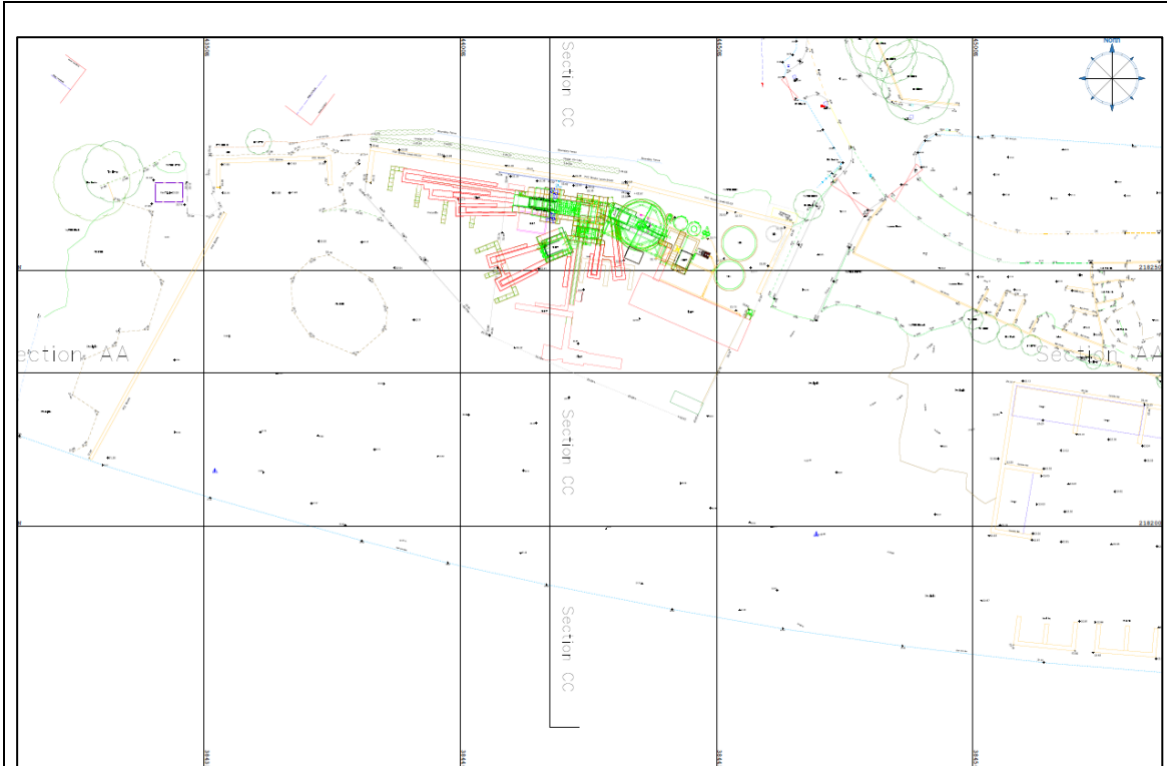
- 6.1 24 Acoustics Ltd has been retained by Allstone Ltd (Allstone) to provide ongoing technical services relating to the assessment of the potential impact of noise from their operations at their recycling and MRF operation at their Myers Road site in Gloucester.
- 6.2 Allstone propose to apply for planning consent for the continued use of part of their site for crushing, screening and washing of inert waste materials to produce secondary aggregate. Unlike previous applications (which have resulted in temporary planning consents, each three years in duration) this is a permanent application and also includes the permanent operation of their crusher plant and the noise impact from a new, bespoke, wash plant.
- 6.3 It has been established that the noise from the crushing, screening and associated operations create a low noise impact at the housing and care home receptors off Horton Road. The impact will potentially be high in the gardens of Gas Holder Cottages. However, these properties are owned by Allstone and will remain in their ownership for the duration of the lifetime of the works on the site. The noise impact at the housing to the north-east of Myers Road (eg Etheridge Place) will be present and intrusive, however, it is considered acceptable in planning terms on the basis that it is considered mitigated to a minimum.
- 6.4 On this basis it is considered that the proposals will not cause loss of amenity or harm to the occupants of the nearest residential dwellings and, on this basis, it is considered that there is no reason on noise grounds why planning consent for the proposals should not be granted.


REFERENCES

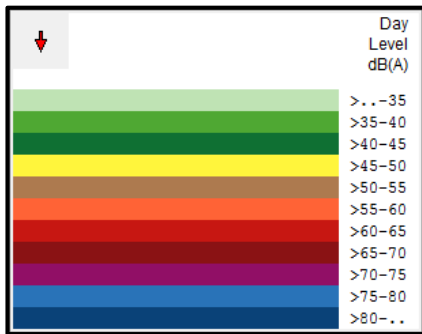
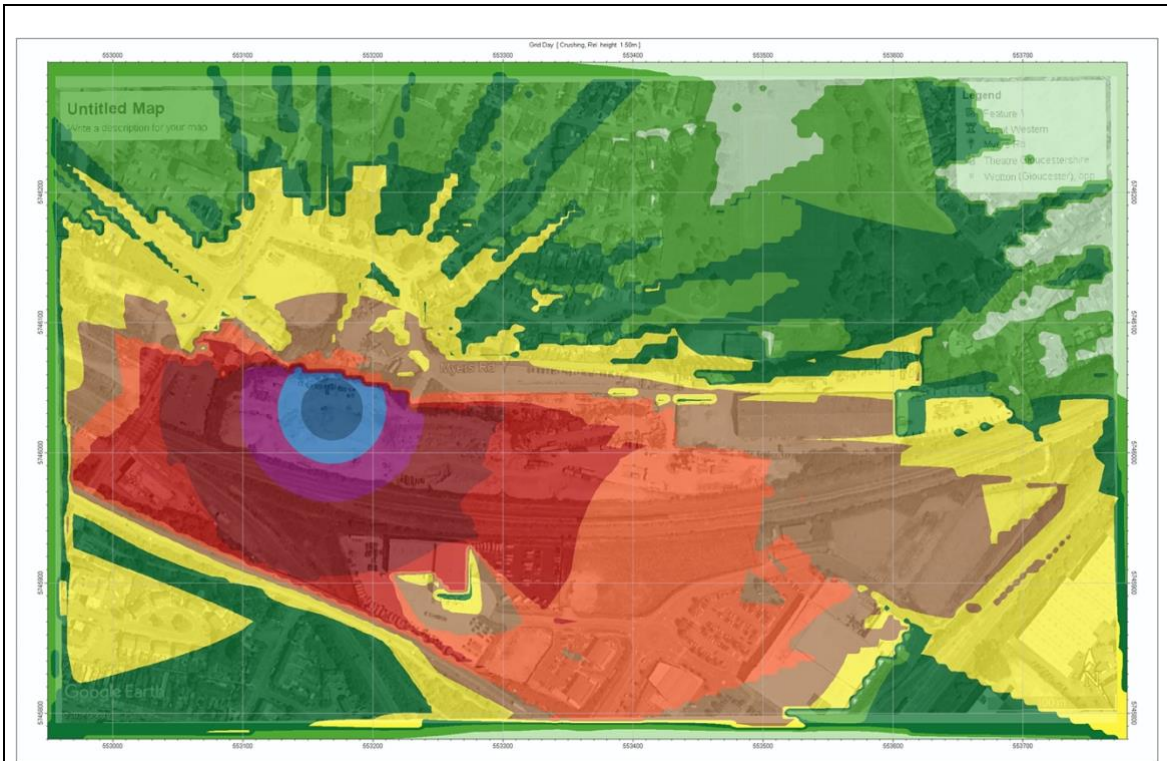
1. Department for Communities and Local Government. National Planning Policy Framework, 2012.
2. DEFRA. Noise Policy Statement for England, 2010.
3. Department of Communities and Local Government. National Planning Practice Guidance, March 2014.
4. British Standards Institution. British Standard 4142:2014 Methods for rating and assessing industrial and commercial sound, 2014.
5. International Standards Institution. ISO 9613. Acoustics- Attenuation during Propagation of Sound Outdoors, Parts 1 and 2, 1993.




Project: Allstone, Myers Road, Gloucester	Title: Site Aerial Image and Background Noise Survey Locations		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: -	
Date: April 2023	Drawn By: RP	Job No: 9439-2	



Project: Allstone, Myers Road, Gloucester	Title: Proposed Plant Locations		
DWG No: Figure 2	Scale: N.T.S.	Rev: -	
Date: April 2023	Drawn By: RP	Job No: 9439-2	



Project: Allstone, Myers Road, Gloucester	Title: Site Noise Contours- Crushing Operations		 24Acoustics
DWG No: Figure 3	Scale: N.T.S.	Rev: -	
Date: April 2023	Drawn By: RP	Job No: 9439-2	

APPENDIX A: Acoustic Terminology

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

- i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

- ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "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".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: Background Noise Survey Results

Figure B1: Background Noise Survey Results, Location 1, Rear Garden, Gas Holder Cottages



Figure B2: Background Noise Survey Results, Location 2, Horton Road

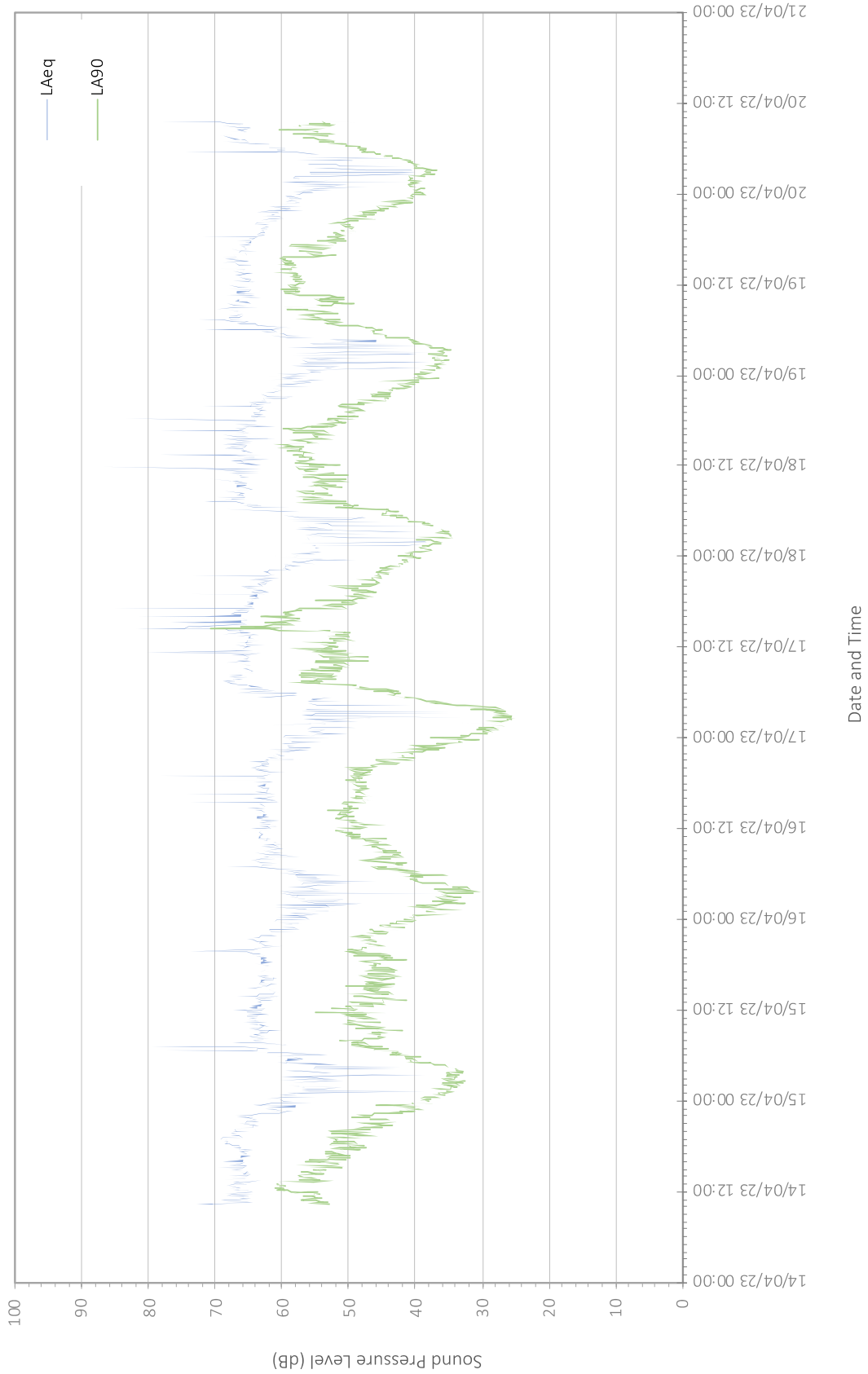
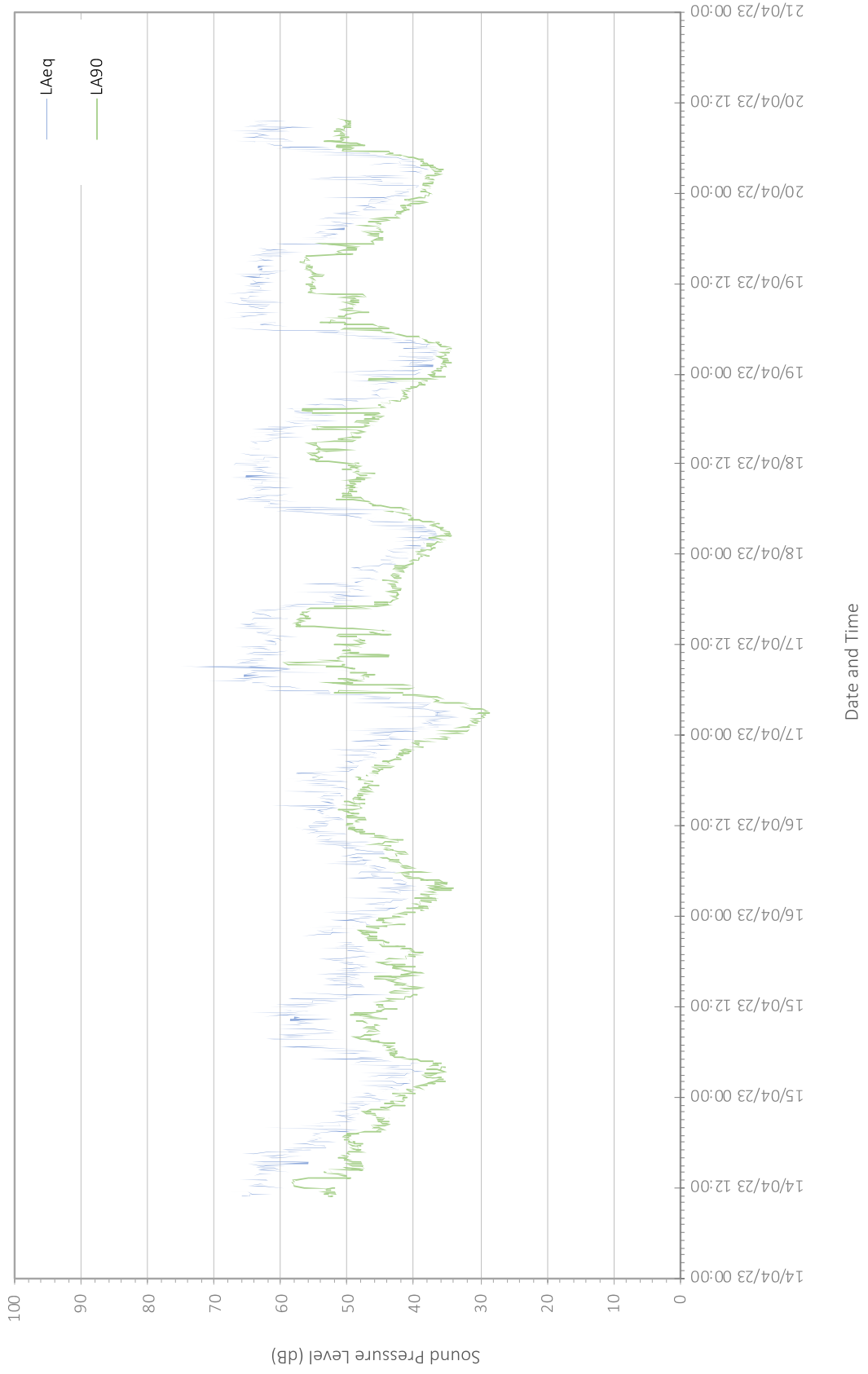


Figure B3: Background Noise Survey Results, Location 3, Myers Road



APPENDIX C: Plant Sound Power Calculations



Parameter	L _{Aeq}	Octave Band Frequency, Hz & Measured Sound Pressure Level/ Calculated Sound Power Level, dB								
		31.5	63	125	250	500	1 k	2 k	4 k	8 k
L _p @ 35 m	77	71	80	78	76.	72	72	71	66	54
L _w	116	110	119	117	115	111	111	110	105	93
L _p @ 53 m	76	69	78	74	74	73	69	69	63	50
L _w	118	111	120	117	117	116	111	112	105	92
L _p @ 24 m	79	71	80	78	76	74	74	74	68	56
L _w	115	107	116	114	112	109	109	109	104	92
L _p @ 25 m	76	72	78	74	71	70	72	71	62	54
L _w	112	108	114	109	107	106	108	107	98	89
L _p @ 26 m	78	77	78	77	73	73	74	72	66	58
L _w	114	113	114	113	109	110	110	108	102	94
Average L_w	116	111	117	115	113	112	110	110	104	92

Table C1: Crusher Noise Data

APPENDIX D: Noise Management Plan

Objective

This noise management plan has been written to inform Allstone, customer and subcontractor operatives involved in the crushing/ screening of inert waste at the Myers Road site of their obligations to minimise environmental noise emissions.

Allstone is a responsible operator and as such we respect and value the considerations of our neighbours.

Any staff or supplier operative found not to be adhering to this policy will be subject to disciplinary action.

Staff Awareness

- All Allstone staff are to be made aware of this NMP and the nature of the site as a noise-sensitive site;
- Awareness of the NMP is to form part of the induction for new starts;
- All Allstone and supplier delivery drivers are to be made aware of this NMP via their own company procedures;

Hours of Working

No operations to take place outside of the consented hours of work as follows:

- 0730hrs to 1730 hrs Monday to Friday.

Vehicle Movements

- All vehicles under Allstone's control will be fitted with broadband (white noise) reversing alarms;
- No delivery vehicles to be allowed on site outside of the consented delivery times, as follows:
 - ▪ 0730hrs to 1730hrs Monday to Friday;
 - ▪ 0730hrs to 1300hrs Saturday
- Delivery vehicle radios to be switched off before arriving on site;
- All unloading and re-loading of any vehicle shall be undertaken in a manner which makes the least amount of noise and shall ideally be undertaken behind existing stockpiles which act as noise bunds to the nearest noise-sensitive properties;
- Vehicle horns only to be sounded if required in safety-critical situations;
- Engines to be shutdown when vehicles are stationary;
- Driver should seek to:
 - Engage gears with a minimum of noise;
 - Keep engine revs to a minimum;
 - Apply brakes gently;
 - Close doors with minimum noise.

Operation of Crushing and Screening Plant

- Any plant/ machinery which is used on the site for the purposes of crushing and/ or screening shall be operated in accordance with the manufacturer's instructions with particular regard to noise emissions;
- The company will inspect the operations at least twice a day (when the site is operational and plant/ machinery is being used) and will carefully check to make sure that excessive noise is not being caused. In the event that excessive amounts of noise is being created, the company will ensure that any plant/ machinery is switched off until they have been able to identify the source of the malfunction;
- Any plant/ machinery which is used on the site for the purposes of crushing and/ or screening and washing should be operated within any existing stockpiles between plant and receivers wherever reasonably practicable;
- Where any plant item has an associated directivity pattern, the plant should be operated with the noisiest direction facing away from the nearest noise sensitive receivers wherever reasonably practicable.

Operation of Other Plant

- Plant operating on site which is not directly associated with loading/ unloading, crushing, washing or screening operations will be operated in accordance with the manufacturer's instructions with particular regard to noise emissions;
- The company will inspect this plant at least twice a day (when the site is operational and this plant being used) and will carefully check to make sure that excessive noise is not being caused;
- In the event that excessive amounts of noise is being created the company will ensure that any plant/ machinery is switched off until they have been able to identify the source of the noise;
- Where any plant item has an associated directivity pattern, the plant should be operated with the noisiest direction facing away from the nearest noise sensitive receivers wherever reasonably practicable.

Stockpile Height and Acoustic Screening

- The appointed site manager will undertake a daily inspection when the plant is used to ensure that all stockpile heights are kept at approximately 6 metres in height.

Noise Monitoring

On an annual basis a community noise survey will be undertaken in line with the following procedure:

- Measurements to be undertaken at a height of 1.5 m above local grade at the following locations:
 - Rear of 5 Norman Ball Way (from Myers Road);
 - Front of 5 Normal Ball Way;
 - Junction of Myers Road & Hamer Street.
- An approved environmental windshield should be fitted to the microphone.
- Measurements will be undertaken in samples of 5 minutes for at least 1 hour in total at each location of the course of a single working day. Extraneous events (unassociated with the works) should be 'paused out' of the measurements;
- Measurements should be undertaken using a fast time-weighting and should include the overall A-weighted L_{eq} , $L_{Max,f}$ and L_{90} sound pressure levels;
- Measurements should be undertaken using a class 1 (as defined by IEC 61672-1:2002) accuracy sound level meter which should have been calibrated by an independent body within the last 2 years. The instrument should be calibrated on site using a Class 1 accuracy

hand-held calibrator which should have been calibrated independently in the past 12 months;

- The survey results should be compiled in a technical report for issue to the LPA within 10 working days of completion of the survey. If necessary the survey data analysis should take into account the benefits of any acoustic screening between the survey location and the receptor.

Communication

- Spoken communication between staff/ vehicle delivery drivers to be undertaken at normal vocal effort. Shouting or raised voices are not permitted at any time (unless to warn of a safety-critical situation).

Training and Ongoing Management

The following training and management measures will be implemented.

- Regular training will be delivered by Allstone management to operatives to ensure the Noise Management Plan is adhered to;
- Allstone management will undertake checks that the NMP is being implemented on a weekly basis during crushing campaigns;

Complaints

- Should a complaint from a member of the public be received, the site manager will be responsible for recording, investigating and identifying the nature of the complaint according to the following procedure:
 - The date and time of the complaint together with the complainant's location will be noted;
 - Where possible, the complaint will be acknowledged on the day of receipt;
 - In investigating the complaint the following measures will be taken:
 - An inspection of the plant in use will be made to identify any excessive noise from any particular item of plant;
 - An inspection of the location of the plant relative to the stockpile bunds will be undertaken to ensure that the receptors remain adequately screened;
 - A check of working practices;
 - The complaint will be logged in the site log book;
 - Feedback will be given to the resident within 2 working days of receipt of the complaint.
- Where necessary additional staff training will be provided to ensure compliance with the Noise Management Plan;
- Where necessary the Noise Management Plan will be revised.

Communication with Stakeholders

- Local residents will be advised of a dedicated email address and phone no that they may use to contact the site in the event of concerns about noise.

Record Keeping & Document Review

- A site log book will be retained by the site manager and will record the following information:
 - Dates and times of crushing, screening, washing and sorting activities;
 - Records of contact and correspondence with stakeholders (local residents and the local authority) regarding noise;
 - Records of days when noise surveys are undertaken.
- The log book will be made available to the Waste Planning Authority on request.
- This document will be reviewed on an annual basis or sooner should the outcome of complaints require it.