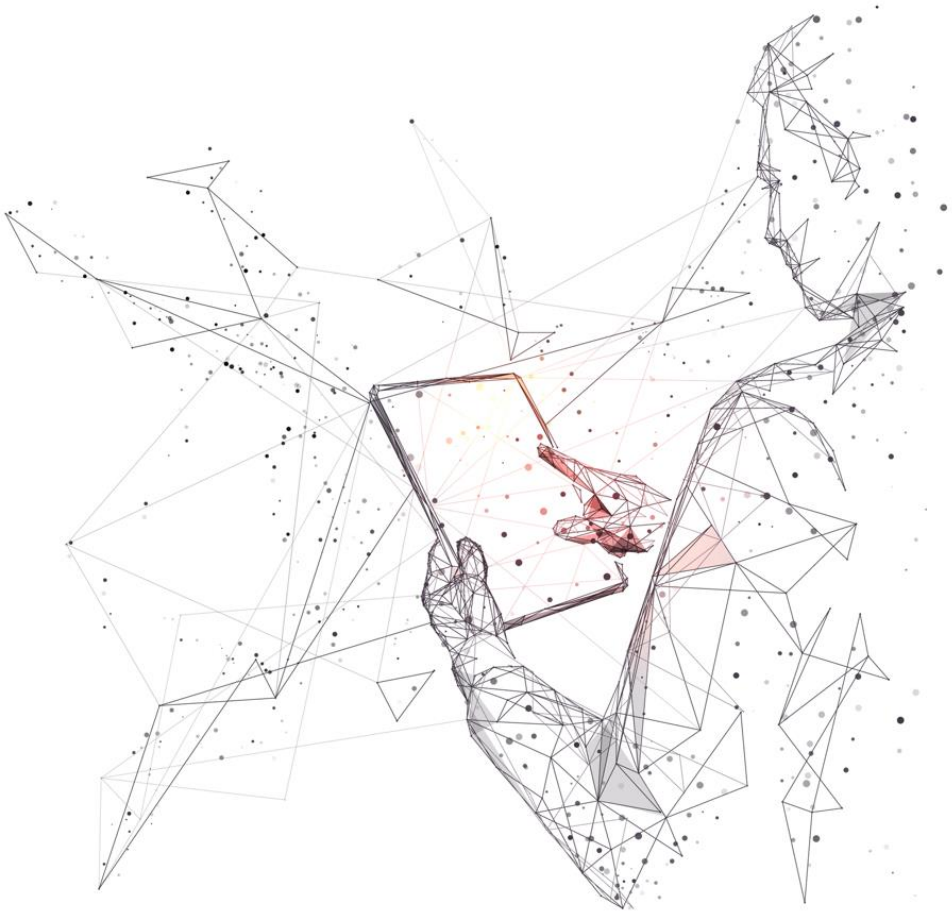
APRIL 9, 2025



BS4142 Assessment of Lees Hall Road, Dewsbury, West Yorkshire, WF12 9EQ

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Contents

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1.0 Introduction

1.0.1 This report has been commissioned to determine the noise predict noise break-out impact of a new workshop/office upon the nearest residential receptor, 438 Lees Hall Road.

1.0.2 The assessment has been done in line with the BS4142:2014+A1:2019

2.0 Site Details

2.0.1 The site, located at, Lees Hall Road, Dewsbury, West Yorkshire, WF12 9EQ is situated within a mixed-use area, see Figure 1.

2.0.2 To the immediate north is open space for approx. 180m to a train line. To the east of the site, are industrial units. To the south of the site is Lees Hall Road and Ravensthorpe Road with residential properties. To the west of the site are more commercial units and residential properties, and the property of concern for this assessment, more precisely located at the 438 Lees Hall Road.

Figure 1: Site Location

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3.0 Survey

3.0.1 A survey that comprised of one unattended meter commenced on 24th March 2025 at 14:14 and was completed by 26th March 2025 at 13:30.

3.0.2 Figure 2 shows the location of:

- Proposed Workshop in red.
- Noise Measurement Position location in blue.

Figure 2: Proposed Site and Measurement Position.

3.0.3 The monitoring was conducted using 1 x Type 1 NTi XL2 sound level meter with batteries and outdoor microphone protection.

3.0.4 Measurements were made in 15-minute periods, on 1 second averaging, to allow for the removal of anomalies and increased accuracy.

3.0.5 All measurements were taken after a field calibration was undertaken to ensure accuracy and repeatability of measurements. Checks were also made post measurement for drift in order to validate the data collected.

3.0.6 Further data such as wind speed, wind direction, rainfall intensity, temperature and cloud cover were all recorded at the beginning and end of the assessment at the monitoring location, Table 2.

3.0.7 Anomalies were removed from the survey for a true reflection of the ambient levels in the vicinity. Examples of anomalies for this survey include bird song, only when the audio confirms the bird is sitting in very close proximity to the microphone, unknown max noise levels at night that the audio determines as not part of the usual soundscape, along with the usual engineer setting up and taking down of the survey equipment.

3.1 Survey Results

3.1.1 .

3.1.2 Table 1 provides a summary of the measured data.

Table 1: Summary of measured data

Time Period	L_{Aeq_Tmin} (Average)	L_{A90} (Representative)	L_{Amax} (10th Highest)
24th Mar 2025 Day (14:14-23:00)	58	43	--
24th Mar 2025 Night (23:00-07:00)	48	40	67
25th Mar 2025 Day (07:00-23:00)	71	44	--
25th Mar 2025 Night (23:00-07:00)	52	37	73
26th Mar 2025 Day (07:00-13:30)	60	52	--

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** This noise levels excludes the measured levels when the plant was in operation and any other erroneous data*

3.1.3 .

3.1.4 Table 1 provides a visual summary of the measured data and shows areas where anomalous data which has been removed from this assessment.

Figure 3: Measured Data.

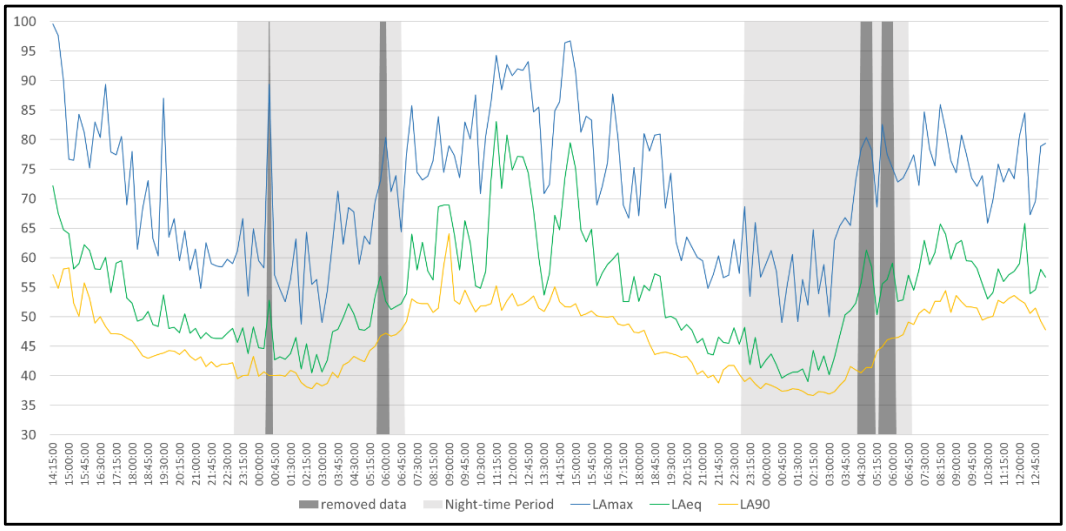

*Table 2: Weather *based on Appendix C*

Time Period	Cloud Cover	Temperature (Celcius)	Prescence of fog/snow/ice	Wind Speed (m/s)	Wind Direction
Installation	2	11	No	2.4	W
Collection	2	13	No	1.8	W

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4.0 Legislation

4.1 The National Planning Policy Framework (NPPF

4.1.1 The National Planning Policy Framework (NPPF) sets out the Government's economic, environmental and social planning policies for England and "these policies articulate the Government's vision of sustainable development." In respect of noise, Paragraph 174 of the NPPF states the following:

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *e) Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution…."*

4.1.2 Paragraph 185 goes on to mention:

> *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
>
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;"*

4.1.3 The NPPF reinforces the March 2010 DEFRA publication, "Noise Policy Statement for England" (NPSE), which states three policy aims, as follows:

> *"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life;*
- *and where possible, contribute to the improvement of health and quality of life."*

4.1.4 Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

> *"... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."*

4.2 BS4142:2014 +A1 (2019)

4.2.1 Noise effects on residential properties due to the current operational hours have been assessed according to the guidance in BS 4142:2014. This standard primarily provides a numerical method by which to determine the significance of sound of an industrial nature (i.e. the 'specific sound' from the proposed development) at residential sensitive receptors.

4.2.2 The specific sound level may then be corrected for the character of the sound (e.g. perceptibility of tones and/or impulses), if appropriate, and it is then termed the 'rating level', whether or not a rating penalty is applied. The 'residual sound' is defined as the ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.

4.2.3 According to BS 4142:2014, the background sound levels adopted for the assessment should be representative of the periods being assessed. The standard recommends that the background sound level should be collected from continuous measurements of normally not less than 15-minute intervals. However, the Standard states that there is no 'single' background sound level that can be derived from such measurements. It is particularly difficult to determine what is 'representative' of the night-time period because it can be subject

to a wide variation in background sound levels between the shoulder night periods.

4.2.4 The method chosen for this section of the report is to use the data collected at the nearest NSR for the day and night periods to provide the ambient and background noise levels. The mode $L_{Aeq\_1hr(Day)}$ and $L_{Aeq\_15min(Night)}$) value will then be used for each time period over the course of the measurement as the most appropriate way of creating a representative value.

4.2.5 The specific sound levels have been determined separately in terms of the L_{Aeq1hr} during the daytime $L_{Aeq15min}$ during the night-time. Daytime is typically between 07:00 and 23:00 hours and night-time is typically between 23:00 and 07:00 hours, so these periods have been adopted for this assessment.

4.2.6 At each of the most likely sensitive receptor locations, the rating level has been determined from the predicted specific sound level. Where it has considered it to be appropriate, a rating penalty has been applied for tonality, impulsivity and/or intermittent specific sounds as described in the commentary to paragraph 9.2 of BS4142:2014. This has been applied with consideration for the main sound sources from site that contribute to the level of specific sound at the receptor location.

4.2.7 As per the requirements of the standard, an initial estimate of the impact of the specific sound has been obtained by subtracting the measured background sound level from the rating level of the specific sound. Table 3 provides the initial evaluation of impact following this method.

Table 3: Initial evaluation of impact

Magnitude	Difference Between rating Level and Background Level	Comments
High	+10dB	Significant Adverse impact Likely
Medium	+5 to +10dB	Adverse Impact likely
Low	0 to +5 dB	Low Chance of Adverse Impact
Negligible	Less than 0dB	Low Chance of Adverse Impact

4.2.8 Following the initial evaluation of impact, the context of the sound has also been considered, which is a key requirement of the

Standard. In evaluation of the context, the following factors have been considered:

- the absolute level of the sound;
- the character and level of the residual sound compared to the character and level of the specific sound and
- 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.

5.0 Assessment

5.0.1 A CadnaA model was built to predict noise break-out levels from the proposed workshop at the façade of 438 Lees Hall Road (the nearest noise sensitive receptor), shown in Figure 1.

5.0.2 At this stage, there is no internal layout design and no specific source types set. To ensure a robust assessment following assumptions have been made:

- A maximum of 5 welding machines are to be used at any one time (see Table 4).
- A maximum of 5 grinding machines are to be used at any one time (see Table 4).
- No windows or openings face the residential receptor.
- All doors are kept closed whilst internal activities happen.
- No external plant is being installed.
- The workshop has been built as a single skin building so as to provide a robust assessment.
  - 75mm solid breeze or clinker blocks, unplastered, 25Rw (see Table 5).
- The workshop is
  - A single room, dimensions 31m x 16m.
  - 7m high.
  - has no absorption.
- The workshop operating hours would be between 07:00 - 23:00 and therefore only a daytime BS4142 assessment Is required.

Table 4: Noise Data

Name	Third octave spectrum (dB)								
	63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	***A***
Welding Bay	39.7	55.4	65.4	70.8	74.8	75.3	78	78.4	***83.3***
Grinder Bay	38.7	52.4	65.1	71.8	73.1	77.4	79	77.8	***83.9***

Table 5: Sound Reduction Data

Name	Third octave spectrum (dB)								
	63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	***Rw***
clinker blocks, unplastered.	12	17	18	20	24	30	38	43	***25***

5.0.3 Noise level in this area is dominated by HGV movements, the noise levels from the internal noise break out of the workshop is unlikely to be heard over the existing noise and would not bring a new type of noise to the soundscape, therefore no acoustic feature corrections have been added.

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Table 6: BS4142 assessment - Day

Measurement Type	Parameter	Result	Comment
		438 Lees Hall Rd	
Ambient sound	L_{Aeq}	67	Measured with Source present
Background sound level	$L_{A90,1hr}$	43	Representative background taken outside of operation hours.
Specific Sound Level	L_{Aeq1hr}	41	Calculated
Acoustic Feature Correction	dBA	0	
Rating Level	dBA	41	
Difference of Background vs Rating level	dBA	-2	
Likelihood of complaints		**Adverse impact unlikely**	

5.0.4 Figure D1 in Appendix D provides a 1.5m high noise map showing noise propagation from the proposed workshop.

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6.0 Conclusion

6.0.1 E2 Consultants Ltd were commissioned to undertake a BS4142 noise assessment to support a change of use for the site at Lees Hall Road, Dewsbury, West Yorkshire, WF12 9EQ.

6.0.2 Environmental noise surveys have been completed to quantify the prevailing noise environment at the boundary of the site.

6.0.3 The outcome of the noise break-out of the workshop assessment indicates that noise levels produced by the proposed development is unlikely to cause adverse Impact at the neighbouring residential properties.

6.0.4 This assessment has shown that, proposed development at Lees Hall Road, Dewsbury, West Yorkshire, WF12 9EQ does meet the regulations for acoustic performance in accordance with BS8233:2014.

7.0 Credentials

Name	Title	Credentials
James Flitton BSc AMIOA	**Acoustic Consultant**	**CSCS Professionally Qualified person**
		Associate Member Institute of Acoustics
		Diploma in Acoustics and Noise Control
		Affiliate Member of IDE
Signed	Redacted	

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Appendix A – Acoustic Terminology

Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 log10 (s1/s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise. $L_{A10,18h}$ is the A –weighted arithmetic average of the 18 hourly $L_{A10,1h}$ values from 06:00-24:00.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time over the period T. Generally used to describe background noise level.

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Appendix B – Survey Instrumentation

Type	Manufacturer	Model	Serial Number	Last Cal	Cal Due
SLM	NTi	XL2-TA	A2A-18475-E0	12/11/2024	12/11/2026
Pre-amp	NTi	MA220	9378	12/11/2024	12/11/2026
Microphone	NTi	MC230A	A19093	12/11/2024	12/11/2026
Calibrator	NTi	CAL200	19829	12/11/2024	12/11/2025

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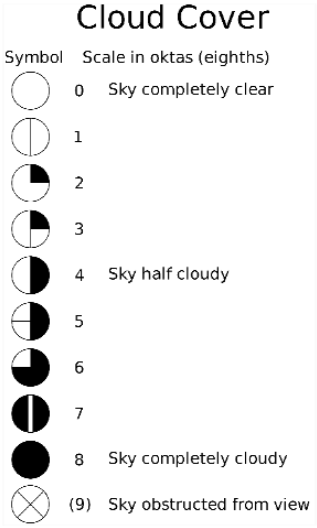
Appendix C – Weather Conditions Chart Used

Weather Conditions				
Measurement Location	Date/Time	Description	Beginning of Survey	End of Survey
	24/03/2025 – 26/03/2025	Temperature:	11	13
		Precipitation:	No	No
		Cloud cover (oktas - see guide)	2	2
		Presence of fog/snow/ice	n/a	n/a
		Presence of damp roads/wet ground	no	no
		Wind Speed (m/s)	5.4	5.8
		Wind Direction	W	W
		Conditions that may cause temperature inversion (i.e. calm nights with no cloud)		

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Appendix D – CadnaA Noise Maps

Figure D1: 1.5m high noise map - Daytime