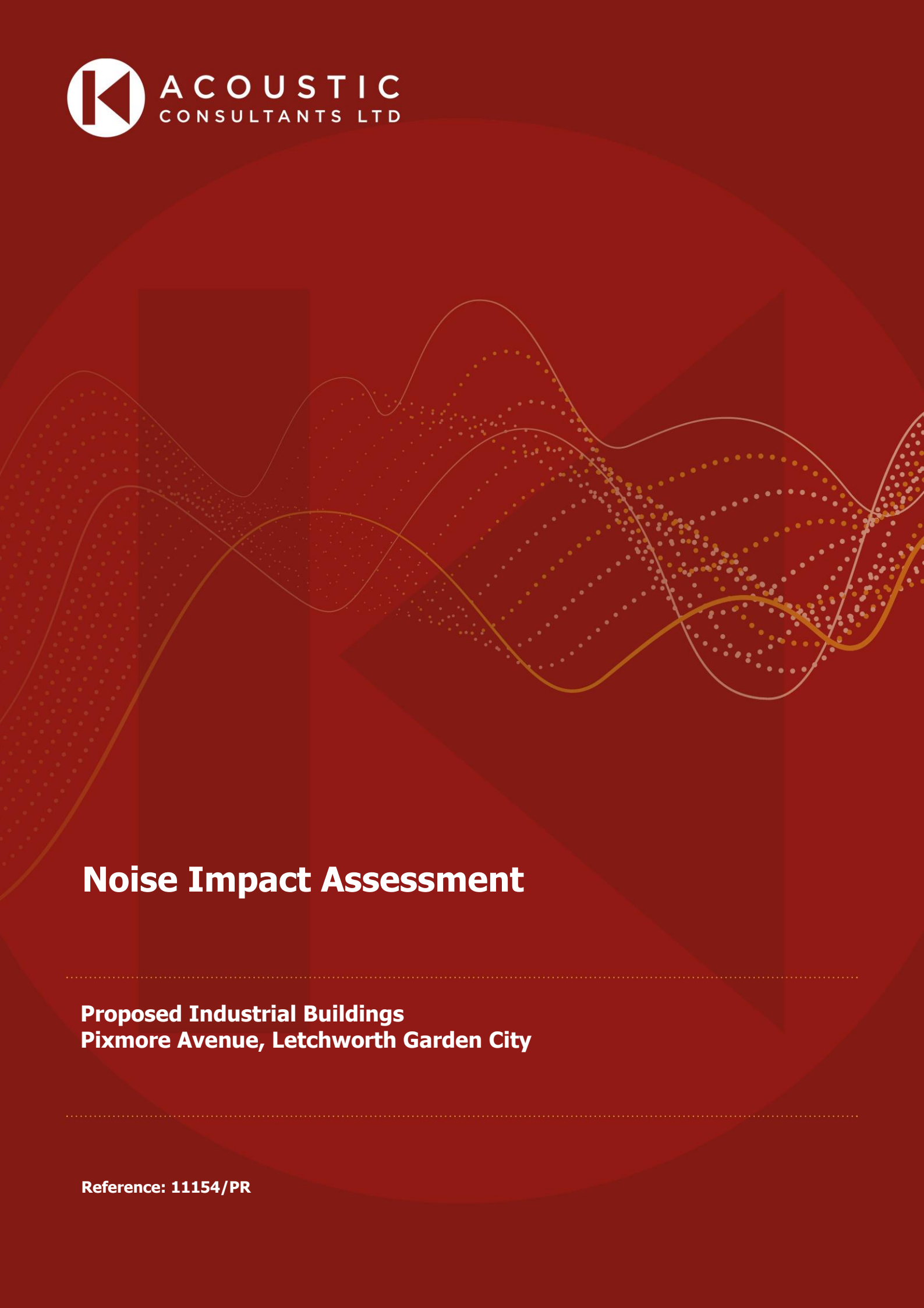




Noise Impact Assessment

**Proposed Industrial Buildings
Pixmore Avenue, Letchworth Garden City**

Reference: 11154/PR

Client:

ASHE GROUP

Document Control

Version:	Revision Description:	Date:	Author:	Reviewed by:	Approved by:
1.0	1st Issue	05/12/2024	Pedro Rodrigues, MIOA	Daniel Oldaker, MIOA	Daniel Oldaker, MIOA

The report has been prepared in good faith, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the Client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above. The report is provided for the sole use of the named Client and is confidential to them and their professional advisors. No responsibility is accepted to other parties.

The report limits itself to addressing solely on the noise, acoustic, and vibration aspects as included in this report. We provide advice only in relation to noise, vibration and acoustics. It is recommended that appropriate expert advice is sought on all the ramifications (e.g. CDM, structural, condensation, fire, legal, etc.) associated with any proposals in this report or as advised and concerning the appointment. It should be noted that noise predictions are based on the current information as we understand it and, on the performances noted in this report. Any modification to these parameters can alter the predicted level. All predictions are in any event subject to a degree of tolerance of normally plus or minus three decibels. If this tolerance is not acceptable, then it would be necessary to consider further measures.

Table of Contents

1.	Introduction	4
2.	The Site and Proposals	5
3.	Planning and Noise	8
4.	Assessment Criteria	12
5.	Noise Monitoring	14
6.	Noise Modelling	17
7.	Noise Assessment	20
8.	Plant Noise Limits	23
9.	Summary & Conclusions	24
10.	Appendix 1 – Glossary of Acoustic Terminology	25

1. Introduction

Ashe Group appointed Acoustic Consultants Ltd (ACL) to undertake an environmental noise assessment for the proposed development on vacant land located at Pixmore Avenue. The proposals aim to reconfigure the land into four new units designated as B2 and B8.

The report identifies relevant planning, and noise guidance. The report also presents baseline environmental noise levels, operational noise assessment from known items such as deliveries, and noise limits for other sources.

The noise impact assessment has been undertaken in accordance with the guidance in the National Planning Policy Framework (NPPF), Noise Policy Statement for England (NPSE), Planning Practice Guidance (PPG) and British Standard 4142:2014+A1:2019 (BS4142), and the local authority's comments.

This report was completed by a Member of the Institute of Acoustics (MIOA) and Chartered Engineer (CEng) with over fifteen years' experience in the field and, as such, is suitably qualified.

2. The Site and Proposals

Ashe Group appointed Acoustic Consultants Ltd (ACL) to undertake an environmental noise assessment for the proposed development on vacant land located at Pixmore Avenue. The proposals aim to reconfigure the land into four new units designated as B2 and B8.

The site is situated in the south-western part of the existing large industrial area, which comprises multiple businesses of similar or larger scale than the one currently proposed. The surrounding area, in close proximity, contains a mix of small commercial units similar to the proposed development. To the south-west, residential dwellings are identified as the nearest sensitive receptors with regard to commercial noise emissions from the site.

Operational hours of the proposals are currently unknown once the site is speculative; however, due to the size of the scheme and proposed units, it is expected to be operating during daytime hours only.

Noise from the proposed site is expected to include but not be limited to: HGV movements, delivery noise including unloading and loading of goods, forklift movements, reversing beeps and potentially fixed mechanical plant noise.

Anticipated HGV deliveries to the site are estimated at 1 to 2 per hour, based on the size of the scheme. However, we have assumed a total of 4 per hours, one for each proposed unit based and as shown in the current proposed site plan. The proposed site plan and elevations is shown in figures below.

Figure 3: Proposed Elevations



3. Planning and Noise

3.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published in March 2012 and revised in December 2024. Section 15 entitled 'Conserving and enhancing the natural environment' addresses noise as a requirement of planning. Paragraph 180 states:

"187. 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 or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."*

Paragraph 191 states:

"198. 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 impacts 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; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation. "*

The document does not prescribe any assessment methodology or criteria to assess the adverse effect of noise and refers you to the NPSE.

3.2. Noise Policy Statement for England

The NPPF refers to the Noise Policy Statement for England (NPSE). This was published in March 2010 and aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion and applies to all forms of noise including environmental noise, neighbour noise and neighbourhood noise.

The NPSE sets out the long term vision of Government noise policy. This long term vision is supported by three noise 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."*

The NPSE introduces the concept of "Significant adverse" and "Adverse" impacts of noise which relate to the noise policy aims. These are applied as follows:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The Noise Policy Statement for England (NPSE) states that noise levels above the Lowest Observed Adverse Effect Level are acceptable in planning where reduced to a minimum.

With regard to where there is potential for noise impact it states the following in relation to the second noise policy aim:

"The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur."

The NPSE does not provide any assessment criteria for the noted effect levels and each case must be considered on its merits.

The NPSE does, however, emphasise that in dealing with noise Local Planning Authorities are required to take a balanced approach in considering the benefits of development as against any adverse effects which arise. Paragraph 2.18 of the NPSE is particularly relevant in this respect and states:

"There is a need to integrate consideration of the economic and social benefits of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focusing solely on the noise impact without taking into account other related factors."

The planning need is outside the scope of noise and acoustics and will need to be addressed by others.

3.3. **Planning Practice Guidance, Noise**

The Planning Practice Guidance (PPG) on noise referred to here is based on the current version (January 2019) as provided on the Planning Guidance Website. It 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 provides generic guidance on how to determine the noise impact and what factors could be a concern.

It includes the option types to mitigate any adverse effects of noise stating that there are four broad types of mitigation. These are engineering, layout, using planning conditions or obligations and noise insulation.

Paragraph 5 of the PPG provides a table identifying the effect level and examples of effect relating to the impact effect levels provided in the NPSE. The table is duplicated below:

Table 1: PPG Noise – Perception of Effect Levels

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The table does not provide any objective assessment which equates to the noted effect levels. However, the PPG identifies that where noise is audible, it is not necessarily intrusive. The effect and impact on people are based primarily on the level of noise.

4. Assessment Criteria

The following section identifies guidance which is considered to provide noise criteria equivalent to or below the LOAEL described in PPG and NPSE, i.e. *"Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life"*.

For industrial and commercial noise, the most relevant guidance is provided within BS 4142:2014+A1:2019. The methods described in the British Standard use outdoor sound levels to assess the likely effects of sound upon people who might be inside or outside a dwelling or other premises used for residential purposes.

The principle is that of establishing the 'difference' between the 'rating level' and the 'background sound level'. The 'rating level' is the 'specific sound level' of the source over a period of one hour during the day (07:00 to 23:00 hours) and over a period of 15 minutes during the night (23:00 to 07:00 hours). Clause 9 entitled 'Rating Level' states:

"Certain acoustic features can 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."

An acoustic character correction should be added to the 'specific sound level' if it exhibits any tonality, impulsivity, other specific characteristics and/or intermittency at the assessment location. The value of the character correction varies, dependent on the prominence of the character of the sound source at the assessment location.

In Clause 11 of the Standard, entitled 'Assessment of the Impacts', it states:

"Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level (see Clause 8) from the rating level (see Clause 9), and consider the following."

- *Typically, the greater this difference, the greater the magnitude of the impact.*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- *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."*

Based on the initial assessment outcomes of British Standard 4142, and depending on context, it is our opinion that the NOEL, LOAEL and SOAEL levels stated in the Noise Policy Statement for England would generally fall within the following categories when considered in conjunction with the effect levels of the PPG Noise.

Table 2: BS4142 difference in relation to effect levels

BS4142 Assessment Difference	Corresponding Effect level*	Action*
≤ -10 dB	No Observed Effect	No specific measures required
-9.9 dB to 0 dB	No Observed Adverse Effect	No specific measures required
	Lowest Observed Adverse Effect Level	
0.1 dB to 5 dB	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Adverse Effect Level	
5.1 dB to 10 dB	Significant Observed Adverse Effect	Avoid
≥ 10.1 dB	Unacceptable Adverse Effect	Prevent

*BS4142 states that “*where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration*”. Therefore, the assessment levels and effect levels above are not definitive and maybe modified in some instances due to context.

It should be noted that the numerical outcome only represents the initial estimate of impact, as stated in the first paragraph of Clause 11, and that contextual matters should be considered before determining what the potential impact is. This paragraph states:

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. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level (see Clause [8](#)) from the rating level (see Clause [9](#)).

NOTE 1 More than one assessment might be appropriate.

The second part of Clause 11 sets out three contextual matters that should be taken into account once the initial numerical estimate has been determined. It is important to note that the three listed is not exhaustive and all pertinent factors should be considered.

5. Noise Monitoring

5.1. Monitoring Equipment

Sound Pressure Levels were measured using a Class 1 sound level meter with a half-inch condenser microphone, using the 'fast' setting. The equipment is checked regularly using a Quality System meeting the requirements of British Standard EN ISO/IEC 17025:2017 "General requirements for the competence of testing and calibration laboratories"; in accordance with British Standard EN 10012:2003 "Measurement management systems. Requirements for measurement processes and measuring equipment"; and traceable to the National Standards.

This equipment was checked and calibrated as noted below and the certificates are available for inspection.

Table 3: Monitoring equipment and calibration

Equipment Description / Manufacturer / Type	Serial Number	Date of Calibration	Calibration Certification
SLM, NTI, XL2	A2A-19376-E0	23/06/2023	UK-23-070
Pre-Amp, NTI, MA220	8322	23/06/2023	UK-23-070
Microphone, NTI, MC230A	A20671	23/06/2023	UK-23-070
Larson Davies, CAL 200	18914	24/07/2024	1509121-2

Measurement systems were calibrated before and after the survey with no significant drift detected.

5.2. Weather Conditions

During the measurement the weather was dry with an average temperature of approximately 10 - 12 degrees Celsius and low wind. These weather conditions are not expected to have adversely affected the measured noise data.

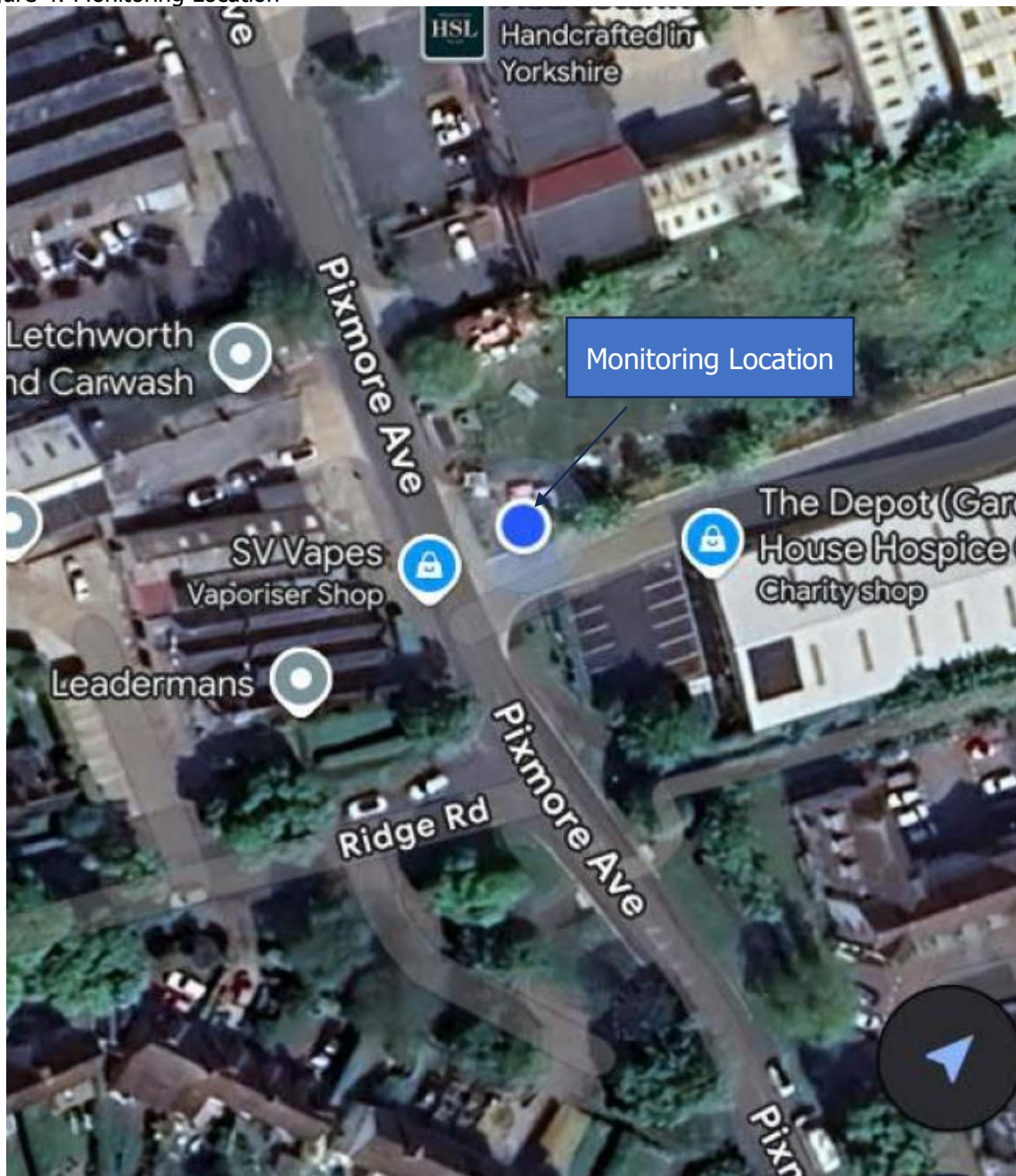
5.3. Monitoring Procedure

A baseline noise survey was undertaken at the site between the 14th and 15th of November 2024 to determine the noise climate at the site and surrounding area.

The primary noise source at the Monitoring Location, deemed representative of the noise environment at the nearest noise-sensitive receptors, was identified as local road traffic and commercial activity from the nearby car wash site. The sound level meter was fixed to a pole at ground level, some 1.5 metres above ground in a free-field position.

This is shown in the figure below:

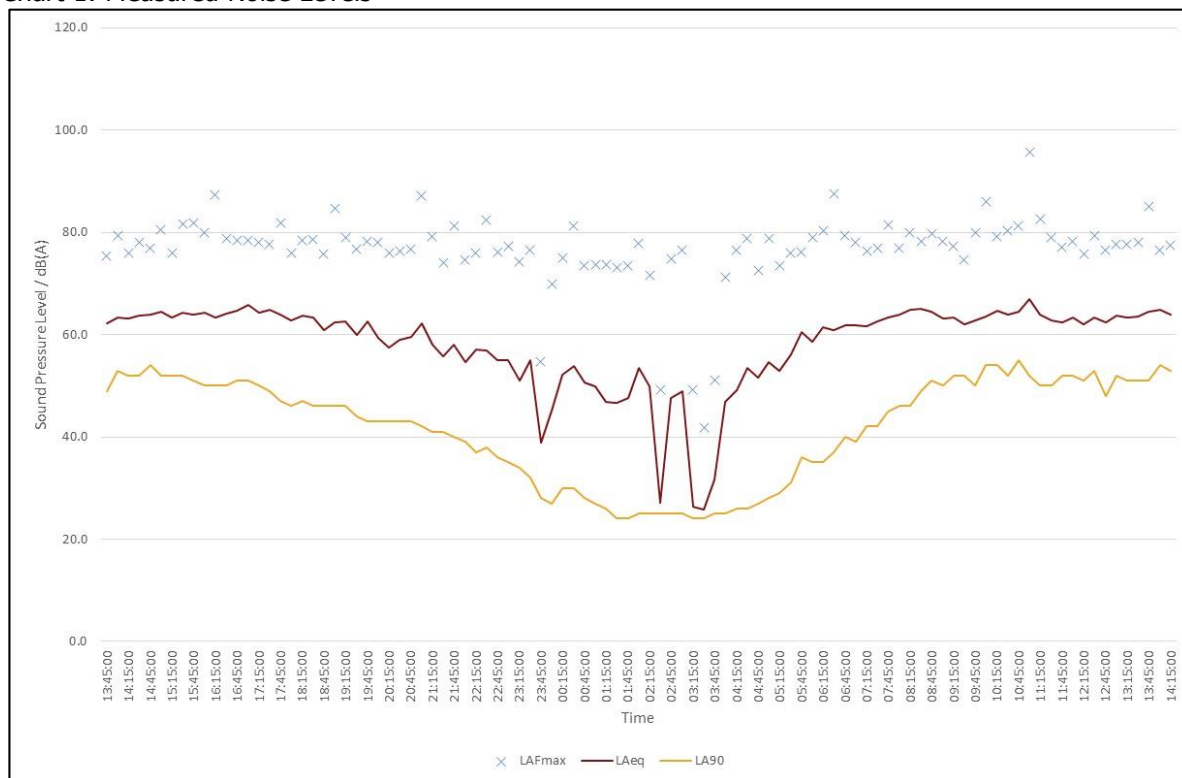
Figure 4: Monitoring Location



5.4. Measured Noise Levels

The full 15-minute A-weighted baseline background sound levels (L_{A90}), equivalent noise levels (L_{Aeq}) and maximum noise levels (L_{AFMax}) are provided in the chart below.

Chart 1: Measured Noise Levels



From the measured data we have summarised and determined the following design background sound levels and equivalent noise levels from the monitoring period.

Table 4: Measured background and equivalent noise levels

Period	LA90, 15 minutes (dB)		LAeq, 15 minutes (dB)	
	Range	Mode	Range	Typical
Day (07:00 - 23:00)	36 - 55	52	55 - 67	63
Night (23:00 - 07:00)	24 - 40	25	26 - 62	55

6. Noise Modelling

The operational noise emission has been modelled in the noise modelling software Cadna:A by DataKustik. As the application is outline, details of plant or internal operations have not been specified. These sources can be controlled via condition. Delivery yard noise is considered.

6.1. Delivery Operations

Deliveries associated with the industrial development are expected to be the predominant industrial/commercial noise source that could be impacting upon nearby noise-sensitive receivers.

We have assumed that unloading activities from HGVs to the proposed units will be completed via a Forklift or by hand. It has been assumed that these can occur during daytime period. ACL have completed numerous surveys and assessments with such processes, and we have found that the noise levels do not vary significantly from site to site.

ACL have measured the arrival, unloading and departure of delivery HGVs from stores over several years, at several different sites. We have found that the noise level of the HGV movements does not vary significantly from site to site as the process and site conditions are typically consistent. The measured noise levels noted are provided below; these are free-field levels at 10 metres.

Table 5: Typical Delivery Operation Noise Emission

Duration, T(min)	L_{Aeq}(T) (dB)	Activity
5	61	HGV Arrive (at 10m)
2	63	HGV Depart (at 10m)
60	58	Unloading Goods via diesel forklift (at 10m)

We have assumed that a total of 4 deliveries (2No. Arrivals and 2No. Departures) can occur during the daytime time assessment periods of 1-hour.

6.2. Internal Industrial Operations

The noise modelling is theoretical as it is based on a number of assumptions related to the potential use of the site as the occupiers and precise use of the units is not currently known. To ensure a robust assessment the source noise levels are at the higher end of what would be considered typical for a E/B8 use and the actual noise level from a number of units could be significantly lower. The basis for the predictions is provided in this report and determine the predicted noise level.

As the operators are not yet known, we have assumed within each building the internal noise levels are in accordance with the noise at work guidelines, i.e., the lower action level of 80 dB(A) working L_{Aeq} during the daytime period.

The walls and roof are assumed to be a lightweight steel structure with a sound reduction rating of 25 dB R_w . We have assumed that for all operations, the doors and windows are closed, and these elements achieve a sound reduction rating of 25 dB R_w . The sound insulation of the industrial building's envelope built on site is generally higher than the one considered above.

We have included a 4mx4.8m open door in the centre of the front of each of the buildings. These have been assumed to be open during the daytime period only.

6.3. Modelling Parameters

To determine noise levels across the site, noise modelling has been undertaken using computer modelling package Cadna:A by DataKustik and the measured data noted above. The software predicts industrial noise using the general method of calculation from ISO 9613-1.

The parameters within the Cadna:A model are as follows and are considered reasonable assumptions:

- The proposed building heights are determined from architect's drawings.
- The existing building heights are based on site observations and Google Maps imagery.
- The 'max. Order of Reflection' is 3.
- The ground across the site and surrounding area is considered hard and reflective ($G=0$, worst case).
- Buildings are reflective (absorption within Cadna:A assumed to be 0.21).
- The generated noise map is given in a 4x4 metre calculation grid.
- Topography of the site was considered to be flat based on site observations
- The delivery noise levels are based on data provided above.
- The locations of the moving delivery vehicle (line source) entering and exiting the sites are based on reasonable assumptions due to site layout and the vehicle swept path analysis provided in the transport statement. These are at a height of 0.5 meters.
- Unloading activities have been input into the model as point source at a height of 0.5 metres. A total of 4no. sources have been considered, one for each unit.
- During the daytime period, we have allowed for open doors on each of the buildings.

6.4. Noise Modelling Results

Based on the above parameters, we provide the following noise modelling predictions at the sensitive areas around the site.

The following figure provides the daytime noise maps based on the above parameters for deliveries and assumed operational indoors noise levels.

7. Noise Assessment

A British Standard 4142:2014 assessment of the impact of industrial noise from the proposed commercial premises on the nearby noise-sensitive receivers is provided below.

7.1. Background Sound Level

The proposed operating hours are within the daytime only. The measured background level during the day, representative of the nearby noise-sensitive receivers was 52 dB $L_{A90, 1 \text{ hour}}$ during the day.

7.2. Specific Sound Level

The predicted daytime cumulative specific sound levels of noise due to operational activities are 40 dB $L_{Aeq, T}$.

7.3. Character Corrections

Character corrections should be applied to the specific sound level if the noise source is expected to exhibit tonality, intermittency, impulsivity, or any other sound characteristic at the noise-sensitive receiver. The character corrections are as follows.

- **Tonality:** We do not consider a character correction is necessary for tonality. However, any fixed plant should be chosen to ensure this is considered. The manufacturer of any procured plant should confirm the equipment is not tonal in noise characteristics.
- **Impulsivity:** We do not consider a character correction is necessary for impulsivity since predicted noise levels are not expected to be clearly perceivable against residual noise levels during the daytime period at the nearest noise sensitive receiver.
- **Intermittency:** We do not consider a character correction is necessary for intermittency, or other sound characteristics for delivery activity noise sources.
- **Other Sound Characteristics:** We do not consider a character correction is necessary for intermittency, or other sound characteristics for delivery activity noise sources.

7.4. Initial Estimate of Impact

Considering the data and information provided above, the British Standard 4142:2014 initial estimate at the sensitive receiver location is as follows.

Table 6: British Standard 4142:2014 Initial Estimate

Parameter	Daytime
Background Sound Level, $L_{A90,1\text{hour}}$	52 dB
Cumulative Specific Sound Level $L_{Aeq,1\text{hour}}$	40 dB
Acoustic Character Correction	0 dB
Rating Level $L_{Ar,T}$	40 dB
Difference between rating and background level	-12 dB

This means that the rating noise level will result in a British Standard 4142:2014 assessment 'difference' of -12 dB during the daytime period at the most affected residential dwelling to the east.

BS4142 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, depending on the context".

7.5. Context

With regard to context, British Standard 4142:2014 states:

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

7.5.1. Residual Sound Levels

- 1) *"The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it."*

The lowest day time free-field residual sound level is 55 dB $L_{Aeq, 15\text{min}}$. The daytime specific sound level is 40 dB $L_{Aeq, T}$.

The predicted specific sound level is 15 dB below the residual sound level during the daytime period, and as such the specific sound level is not expected to be clearly distinguishable or an incongruous sound by comparison to the acoustic environment.

This is a clear indication that commercial noise, including delivery vehicle movements is considered to have a low impact when compared to existing residual sound levels.

The noise levels generated by road traffic along Pixmore Avenue are expected to have a significantly greater or similar impact compared to those anticipated from the proposed site.

7.5.2. **Existing Commercial Activity in Vicinity of the Site**

The proposed commercial site is situated among other commercial units with comparable operational noise levels, such as delivery noise from HGVs and forklift activity.

7.6. **Summary of Assessment**

We would consider the noise impact of the proposed delivery noise activities to fall within the No Observed Adverse Effect Level (NOAEL) of the PPG and NPSE. Industrial noise would not be dominant over the residual noise climate and therefore would not cause any change in behaviour or attitude; as such, this achieves the aims of the National Planning Policy Framework (NPPF).

8. Plant Noise Limits

Proposals for the site include commercial units that are likely to contain associated fixed plant. The following provides cumulative noise limits to be applied across the site, when measured at the nearby residential dwellings.

The noise limits are the cumulative effect of all plant on the development site, including any character corrections required for plant noise characteristics.

These limits are based on the measured survey results, British Standard 4142:2014+A1:2019.

From the measured site data, a typical background sound level has been determined for the overall daytime and night-time periods. The most onerous criteria should be applied for the period during which the plant operates. We would advise that plant noise is designed not to exceed a maximum cumulative 'free-field' Rating Sound Level ($L_{Ar,T}$) as follows, when measured at the noise sensitive receivers.

We advise that plant limits are set to not exceed the existing typical background noise climate.

Table 7: Noise limits from plant units associated with the site

Parameter	All Nearby Dwellings	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Cumulative Plant Noise Level Limit at Dwelling Façade $L_{Ar,T}$	52 dB, L_{Aeq} , 1 hour	25 dB, L_{Aeq} , 15min

The rating sound level of the plant unit(s) should account for any reasonable character corrections, i.e., tonality, intermittency, impulsivity, and other sound characteristics. Plant mitigation and/or enclosures may be required to achieve the above. ACL will be able to further assess when a schedule of plant and commercial operations is available and if required by the Local Authority.

If considered necessary, noise levels could be controlled via planning condition. The condition should refer to the above noise limits.

9. Summary & Conclusions

Ashe Group appointed Acoustic Consultants Ltd (ACL) to undertake an environmental noise assessment for the proposed development on vacant land located at Pixmore Avenue. The proposals aim to reconfigure the land into four new units designated as B2 and B8.

The report identifies relevant planning, and noise guidance. The report also presents baseline environmental noise levels, operational noise assessment from known items such as deliveries, and noise limits for other sources.

The noise impact assessment has been undertaken in accordance with the guidance in the National Planning Policy Framework (NPPF), Noise Policy Statement for England (NPSE), Planning Practice Guidance (PPG) and British Standard 4142:2014+A1:2019 (BS4142), and the local authority's comments.

A background noise survey was undertaken to establish baseline noise levels representative of the existing noise climate.

Based on our assessment in accordance with BS4142 and with context considered, the proposed site will be of no adverse impact on the nearest existing dwellings to the south and south west of the site during the daytime period.

Proposals for the site include commercial units that are likely to contain associated plant. However, the proposed use is unknown and at this stage of development, there are no further details available. Noise limits for plant activities for the nearest noise sensitive receiver have been provided. If considered necessary, noise levels could be controlled via planning condition.

We would consider that noise from the delivery noise activities, will achieve the aim of the National Planning Policy Framework (NPPF) and development noise will not cause any change in behaviour or attitude.

10. Appendix 1 – Glossary of Acoustic Terminology

A-weighted sound pressure p_A – value of overall sound pressure, measured in pascals (Pa), after the electrical signal derived from a microphone has been passed through an A-weighting network.

A-weighted sound pressure level, L_{pA} – quantity of A-weighted sound pressure given by the following formula in decibels (dBA)

$$L_{pA} = 10 \log_{10} (p_A/p_0)^2$$

where:

p_A is the A-weighted sound pressure in pascals (Pa);
 p_0 is the reference sound pressure (20 μ Pa)

Background sound level, $L_{A90,T}$ – A-weighted sound pressure level that is exceeded by the residual sound assessment location for 90% of a given time interval, T, measured using weighting F and quoted to the nearest whole number of decibels.

Break-in - noise transmission into a structure from outside.

Decibel (dB) – The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$ – value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time, and is given by the following equation:

$$L_{Aeq,T} = 10 \log_{10} \left\{ (1/T) \int_{t_1}^{t_2} [p_A(t)^2/p_0^2] dt \right\} \quad (1)$$

where:

p_0 is the reference sound pressure (20 μ Pa); and

$p_A(t)$ is the instantaneous A-weighted sound pressure (Pa) at time t

NOTE The equivalent continuous A-weighted sound pressure level is quoted to the nearest whole number of decibels.

Facade level – sound pressure level 1 m in front of the façade. Facade level measurements of L_{pA} are typically 1 dB to 3 dB higher than corresponding free-field measurements because of the reflection from the facade.

Free-field level – sound pressure level away from reflecting surfaces. Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source).

Octave and Third Octave Bands – The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequencies than to low frequencies within the range. There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example, two adjacent octave bands are 250 Hz and 500 Hz. Third octave bands provide a fine resolution by dividing each octave band into three bands. For example third octave bands would be 160 Hz, 250 Hz, 315 Hz for the same 250 Hz octave band.

Sound pressure level – Sound pressure level is stated on many of the charts. It is the amplitude of the acoustic pressure fluctuations in a sound wave, fundamentally measured in Pascals (Pa), typically from 20 micro-Pascals to 100 Pascals, but commonly simplified onto the decibel scale.

Sound reduction index, R – laboratory measure of the sound insulating properties of a material or building element in a stated frequency band.

Specific sound level, $L_s = L_{Aeq,T_r}$ – equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r .

Structure-borne noise – audible noise caused by the vibration of elements of a structure, the source of which is within a building or structure with common elements

Rating level, L_{A,r,T_r} – Specific sound level plus any adjustment for the characteristic features of the sound.

Reverberation Time, T – The reverberation time is defined as the time taken for a noise level in an enclosed space to decay by 60 dB from a steady level, once the noise source has stopped. It is measured in seconds. Often a 60 dB decay cannot be measured so the reverberation time is measured over a lesser range and corrected back to the time for a 60 dB drop assuming a constant decay rate. Common parameters are T_{20} (time taken for a 20 dB decay multiplied by three) and T_{30} (time taken for a 30 dB decay multiplied by two).

Vibration Dose Value, VDV – measure of the total vibration experienced over a specified period of time.

Estimated Vibration Dose Value, $eVDV$ – estimation of the total vibration experienced over a specified period of time. This is usually based on the number of events and shortened measurement data.

Weighted sound reduction index, R_w – Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies. The weighted sound reduction index is used to characterize the insulation of a material or product that has been measured in a laboratory (see BS EN ISO 717-1).



ACOUSTIC
CONSULTANTS LTD

Head Office: 194 West Street, Bedminster, Bristol, BS3 3NB
T: 0117 986 2956

www.acoustic-ltd.co.uk

Registered Office: 194 West St, Bristol, BS3 3NB Registered No: 8544901