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Proposed Residential Conversion 613-615 New Hey Road, Huddersfield

Noise Impact Assessment

For: Farrar Bamforth

7th May 2025

Ref: NIA-12017-25-12280-v1 New Hey Road
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Farrar Bamforth to undertake a noise impact assessment for the proposed change of use of an existing hotel at 613-615 New Hey Road, Huddersfield, HD3 3YE (hereafter referred to as 'the site') to form a single residential dwelling.

The objectives of the noise impact assessment were to:

- Determine existing noise levels at the site
- Assess the potential impact of the external noise climate on the proposed residential development with reference to relevant guidelines
- Provide recommendations for a scheme of sound attenuation works as necessary

This report details the methodology and results of the assessment and provides recommendations as appropriate. It has been prepared to support a planning application to be submitted to Kirklees Council.

The report has been prepared for Farrar Bamforth for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Farrar Bamforth and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Development Proposals

The site is located in Mount, to the west of Huddersfield, adjacent to residential properties along New Hey Road. The existing building which is the subject of the planning application is indicated (in red) in Figure 1.1 below.

Figure 1.1: Location of Proposed Development

The site is bound by:

- The M62 slip road to the north and west, with the M62 motorway beyond
- Open land to the south
- Residential properties along New Hey Road to the east

The ambient noise climate at the site is characterised by road traffic on the M62 motorway during the daytime and night-time.

The proposals are for the change of use of the existing hotel to form a single residential dwelling. This report details a noise impact assessment for the development and provides recommendations for noise mitigation measures to achieve appropriate levels of acoustic amenity.

2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 187 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of…..noise pollution'.

Paragraph 198 advises that:

'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…..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'.

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England[2] (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision 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
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- 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

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

'….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.'

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)
2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance[3] (PPG) is an online resource which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur
- Whether or not an adverse effect is occurring or likely to occur
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

'...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation'.

The PPG also provides general advice on the typical options available for mitigating noise, suggesting that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. The following guidance documents provide some meaningful context.

2.4 ProPG Planning and Noise: New Residential Development

ProPG Planning and Noise: New Residential Development (ProPG)[4] was published in 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233), see Table 2.1.

Table 3.1: Summary of Noise Measurement Data

Activity	Location	Indoor Ambient Noise Level Targets	
Resting	Living Room	35 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700\text{-}2300)}$	30 dB $L_{Aeq\ (2300\text{-}0700)}$ 45 dB $L_{AFmax\ (2300\text{-}0700)}$

3 Planning Practice Guidance on Noise: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

4 'ProPG Planning and Noise: New Residential Development (ProPG)', 2017. Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH)

Note 4 to the above table states:

'A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night.'

Note 5 to the above table states:

'Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7'.

3 Noise Survey

3.1 Overview

In order to determine the level of external noise affecting the proposed development, a noise survey was undertaken from Thursday 3rd April through to Friday 4th April 2025.

For the purposes of the assessment, the following noise monitoring locations were adopted (see Appendix 2 for illustrated measurement locations):

- MP1, located at first-floor to the north, overlooking the M62, at 1 metre from the facade
- MP2, located at first-floor to the west, overlooking the M62, at 1 metre from the façade
- MP3, located at first-floor to the south, at 1 metre from the façade
- MP4, located at first-floor to the east, at 1 metre from the façade
- MP5, located at the proposed external amenity area, at 1.5 metres above ground level

Noise measurements were made using NTi Audio XL3 and Bruel & Kjaer 2250 integrating sound level meters. A windshield was fitted for all measurements. The calibration of each measurement system was verified immediately before and after the survey using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted.

The weather conditions during the survey were appropriate for monitoring, with dry conditions and wind speeds of generally < 5 m/s.

Measurements consisted of A–weighted broadband parameters, together with linear octave band data.

3.2 Summary

Table 3.1 presents a summary of the noise data for each measurement period, rounded to the nearest decibel.

A correction of -3 dB has been applied to MP1-4 to account for the effect of reflections from the building façade. The L_{AFmax} level stated for night-time periods is the 11th highest during the measurement period.

Table 3.1: Summary of Noise Measurement Data

Location	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{AFmax} (dB)	Comment
MP1	03/04/2025	1040–2300	75	72	77	-	Dominated by traffic on the M62
	03/04/2025	0700–1120	76	74	78	-	
	03-04/04/2025	2300–0700	71	63	76	80	Dominated by traffic on the M62
MP2	03/04/2025	1045–2300	76	73	79	-	Dominated by traffic on the M62
	03/04/2025	0700–1120	78	76	80	-	
	03-04/04/2025	2300–0700	73	65	78	81	Dominated by traffic on the M62
MP3	03/04/2025	1219-1235	67	62	69	-	Dominated by traffic on the M62
MP4	03/04/2025	1249-1305	68	66	70	-	Dominated by traffic on the M62
	03/04/2025	1629-1929	67	65	69	-	
MP5	03/04/2025	1316-1416	60	58	61	-	Dominated by traffic on the M62
		1416-1516	60	58	61	-	
		1516-1616	60	58	61	-	

Noise levels throughout the site were found to be wholly controlled by road traffic noise from the M62 and slip road.

Noise levels measured at MP1 and MP2 were found to be broadly similar. The noise levels measured at MP1 and MP2 during the daytime and night-time were up to **77 dB $L_{Aeq\ (0700–2300)}$** and **73 dB $L_{Aeq\ (2300–0700)}$** respectively. Typical (11th highest) maximum noise levels during the night-time were measured at up to **81 dB L_{AFMax}**.

Noise levels at MP3 and MP4 were found to be circa 9 dB lower than those measured at MP2. As such, daytime and night-time noise levels at the facades are taken to be **68 dB $L_{Aeq\ (0700–2300)}$** and **64 dB $L_{Aeq\ (2300–0700)}$** respectively. Typical (11th highest) maximum noise levels during the night-time are taken to be **72 dB L_{AFMax}**.

For the prediction of daytime road traffic noise, the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN) explains that the following shortened measurement procedure may be used. Measurements of L_{A10} are made over any three consecutive hours between 10:00 and 17:00 hours. Using $L_{A10\ (3\ hour)}$ as the arithmetic mean of the three consecutive values of hourly L_{A10}, the $L_{A10\ (18\ hour)}$ can be calculated from the equation:

$$L_{A10\ (18\ hour)} = L_{A10\ (3\ hour)} - 1\ dB$$

A study prepared by TRL Limited on behalf of the Department for Environment, Food and Rural Affairs (DEFRA) entitled 'Converting the UK Traffic Noise Index $L_{A10\ (18\ hour)}$ to EU Noise Indices for Noise Mapping' presents a methodology for calculating daytime $L_{Aeq\ (0700\text{-}2300)}$ ambient noise levels based on the $L_{A10\ (18\ hour)}$ noise levels, as follows:

$$L_{Aeq\ (0700\text{-}2300)} = 10 * \log\left(\frac{[(10^{((0.95 * L_{A10\ (18\ hour)} + 1.44)/10)*12] + [10^{((0.97 * L_{A10\ (18\ hour)} - 2.87)/10)*4}]}{16}\right)$$

Based on the above formulae, the daytime ambient noise level at MP5 (external amenity area) is measured / calculated at **58 dB $L_{Aeq\ (0700–2300)}$**.

4 Noise Assessment

4.1 Design Noise Levels

The noise levels measured at the site have been used to determine the design noise levels for each of the facades. Design noise levels for the north and west facades (overlooking the M62) are summarised as follows:

- ≤ 77 dB $L_{Aeq,(0700\text{-}2300)}$ during the daytime
- ≤ 73 dB $L_{Aeq,(2300\text{-}0700)}$ during the night-time
- ≤ 81 dB $L_{Amax,F}$ during the night-time

Design noise levels for the rear facades are summarised as follows:

- ≤ 68 dB $L_{Aeq,(0700\text{-}2300)}$ during the daytime
- ≤ 64 dB $L_{Aeq,(2300\text{-}0700)}$ during the night-time
- ≤ 72 dB $L_{Amax,F}$ during the night-time

4.2 Scheme of Sound Attenuation

In order to calculate the sound insulation requirements of the building envelope for habitable rooms throughout the development, the Building Research Establishment (BRE) building envelope insulation calculation spreadsheet was used. This spreadsheet is based on the calculation methodology advocated in BS 8233. The spreadsheet allows input of external noise levels, typical room dimensions and reverberation time together with parameters for the various elements of the building envelope and calculates the internal noise level in terms of the external noise level metric (L_{Aeq} and L_{AFMax} in this case).

Due to high noise levels from the M62 motorway, it is recommended that the development is provided with a mechanical ventilation system with heat recovery (MVHR) to provide the required ventilation rates for compliance with Approved Document F of the Building Regulations without trickle/wall vents. The proposed scheme of mitigation (glazing and ventilation) has been determined on this basis.

Habitable rooms fronting towards the M62 should be provided with glazing rated at least **34 dB R_w+C_{tr}**, (such as 6 mm glass / 16 mm cavity / 8.8 mm Phon).

As evidenced in the calculation sheets below, this configuration will provide circa 44 dB(A) sound insulation from external to internal at the site.

Habitable rooms on the eastern and southern elevations should be provided with glazing rated at least **31 dB R_w+C_{tr}**, (such as 8 mm glass / 6-20 mm cavity / 4 mm glass).

As evidenced in the calculation sheets below, this configuration will provide circa 39 dB(A) sound insulation from external to internal at the site.

Figure 4.1– Daytime Assessment for Bedroom 3 (West Façade)

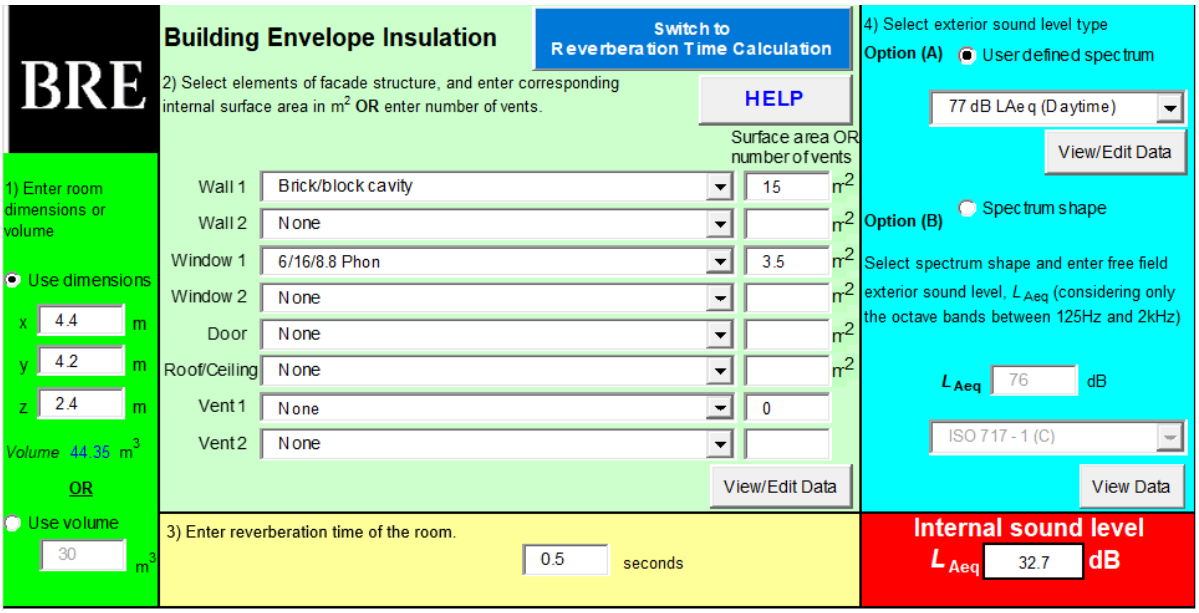
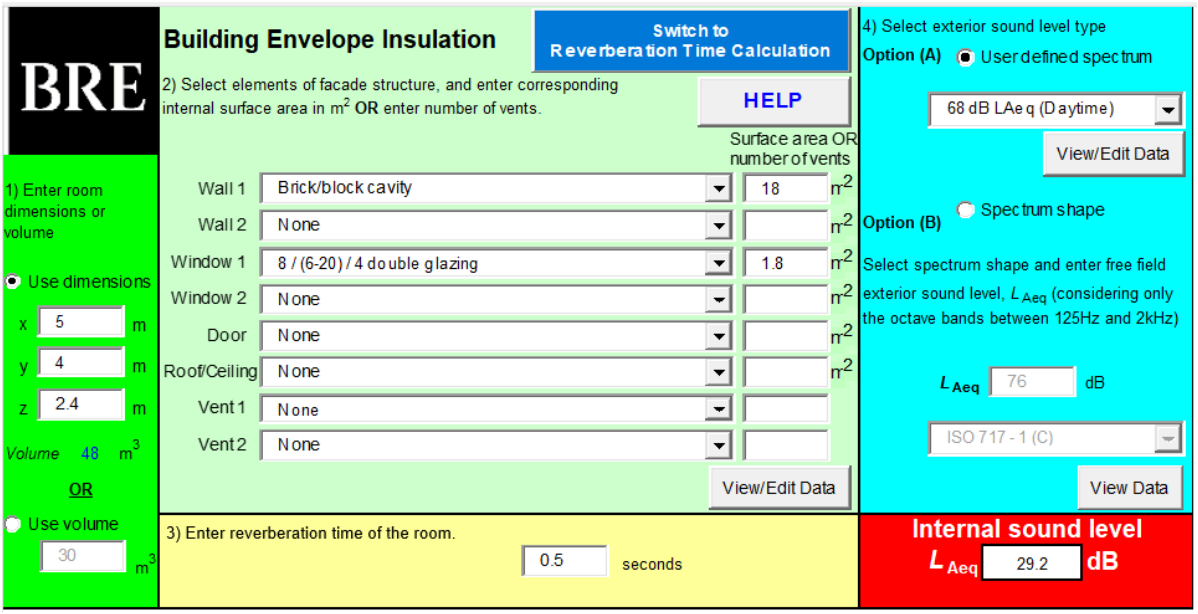


Figure 4.2– Daytime Assessment for Bedroom 5 (South Façade)



The resultant internal noise levels are set out in the table below.

Table 4.1 – External Noise Levels and Resultant Internal Noise Levels

Location	External Noise Level	Reduction	Resultant Internal Level
Habitable rooms on north and west elevations	≤ 77 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 73 dB $L_{Aeq\ (2300\text{-}0700)}$ ≤ 81 dB L_{AFMax}	–44 dB	≤ 33 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 29 dB $L_{Aeq\ (2300\text{-}0700)}$ ≤ 37 dB L_{AFMax}
Habitable rooms on east and south elevations	≤ 68 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 64 dB $L_{Aeq\ (2300\text{-}0700)}$ ≤ 72 dB L_{AFMax}	–39 dB	≤ 29 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 25 dB $L_{Aeq\ (2300\text{-}0700)}$ ≤ 33 dB L_{AFMax}

The following points should be noted:

- The glazing recommendations apply to the window within a sealed unit. It is the responsibility of the window supplier to ensure that the window frame does not compromise the performance of the glazing.
- The ventilation provision should be checked by a mechanical service engineer before designs are finalised.
- Internal noise levels due to any mechanical ventilation plant should not exceed 26 dB(A) in bedrooms and 30 dB(A) in living rooms

4.3 External Amenity

BS 8233 recommends a guideline range for external amenity noise of 50-55 dB $L_{Aeq,16\text{-}hour}$ but states that "These guideline values may not be achievable in all circumstances where development might be desirable."

The standard states that for developments adjacent to transport networks (i.e. motorways), "…a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited".

In Section 3 of this report, it was established that daytime free-field noise levels were around 58 dB L_{Aeq} in the proposed external amenity areas.

In order to reduce noise levels as far as practicable, it is recommended that the garden should be provided with a circa 2.4m high solid timber fence or equivalent (e.g. solid masonry wall or close boarded timber fence with a minimum mass per unit area ≥ 10 kg/m^2).

BS 5228-1 states that: *'in most practical situations the overall attenuation will be limited by transmission over and around the barrier, provided that the barrier material has a mass per unit of surface area in excess of about **7 kg/m2** and there are no gaps at the joints'.*

Typical timber used for fencing such as Larch or Douglas Fir has a density of circa 550 kg/m^3, meaning that the minimum mass would be met with a standard 15 mm board (i.e. = 8.25 kg/m^2).

The fence should be fully sealed at the ground (i.e. include a gravel board) and should be designed (e.g. through the use of cover strips) so that gaps do not develop between abutting panels through warping or shrinking.

It is understood that on similar residential sites, Kirklees Council has previously relaxed the BS 8233 external amenity guidelines to 58 dB $L_{Aeq,16\text{-}hour}$ for properties which are adjacent to motorways. Noise levels measured at the site are readily compliant with such levels and would be expected to reduce further with the provision of boundary screening as discussed above.

5 Summary and Conclusions

A noise impact assessment has been undertaken for the proposed change of use of an existing hotel at 613-615 New Hey Road, Huddersfield to form a single residential dwelling.

Noise monitoring was carried out at the site from Thursday 3rd April through to Friday 4th April 2025. The noise environment at the site was found to be wholly controlled by road traffic on the M62 motorway.

A scheme of sound attenuation works (glazing, fenestration, ventilation and boundary treatments) has been developed to protect the proposed development from the ambient noise climate in accordance with pertinent guidelines. On this basis, the ambient noise climate does not pose a constraint to the proposed residential development.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)
The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_o)$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_o = reference sound pressure (20 μPa).

A-weighting
A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$
The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$
The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})
The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)
Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2 –Noise Measurement Positions