

Report

Maes y Droell Quarry

Appendix 6.2: Acoustics Glossary

For Stephenson Halliday Ltd

16 February 2026

Document Control

Project Title:	Maes y Droell Quarry
Project Number:	16314A-20
Client:	Stephenson Halliday Ltd
Principal Contact:	Richard Hunt (Planning Director)
Document Title:	Appendix 6.2: Acoustics Glossary
Document Number:	16314A-20-R03-01
Prepared By:	Tom Everson (Principal Consultant)
Reviewed By:	Jon Sims (Technical Director)

Revision History

01	16/02/2026	First Issue
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3rd Floor St Augustine's Court, 1 St. Augustine's Place, Bristol, BS1 4UD Tel: +44(0)117 974 1086
 24 Greville Street, Farringdon, London, EC1N 8SS Tel: +44(0)20 3873 4780
 First Floor, Patten House, Moulders Lane, Warrington WA1 2BA Tel: +44(0)1925 937 195
 8-9 Ship St, Brighton and Hove, Brighton BN1 1AD Tel: +44(0)20 3873 4780
 Avenue du Port, 86c Box 204, 1000 Bruxelles Tel: +44(0)20 3873 4780

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1 Glossary

Term	Definition
A-weighting	Frequency weighting applied to measured sound in order to account for the relative loudness perceived by the human ear.
Ambient Sound Level, $L_a = L_{Aeq,T}$	The A-weighted equivalent continuous sound level over a given time period. It is the sound level of a steady sound that has the same energy as a fluctuating sound over the same time period. Daytime is typically 07:00 – 23:00 and night-time is typically 23:00 – 07:00.
Background Sound Level, $L_{A90,T}$	The A-weighted sound level exceeded for 90% of the measurement period. Often referred to as the background sound level.
Basic Noise Level, BNL	The basic noise level (BNL) is a measure of source noise. For road traffic noise, this is calculated using the traffic flow volume, speed and heavy goods vehicle (HGV) percentage to determine a reference noise emission at a distance of 10 metres from the kerb for an individual road link.
Decibel, dB	The logarithmically scaled measurement unit of sound which is used to describe the magnitude of sound.
$D_{n,e,w}$	Standardised (normalized to a reference reverberation time of 0.5 s), weighted (single-number quantity representing a spectra of values), sound level difference between an external location and a receiving room.
Façade Sound Level	A sound level which is measured or calculated typically 1 m in front of a window, door, wall or other structure or reflective surface other than the ground which therefore includes reflections from the façade.
Free-field Sound Level	A sound level which is measured or calculated in the open without any reflections from nearby surfaces except the ground. Measurements are typically carried out at 1.2 m to 1.5 m above ground level and at least 3.5 m from other reflective surfaces such as buildings which is in accordance with British Standard 7445-2: 1991 <i>Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use</i> .
$L_{A10,T}$	The A-weighted sound level exceeded for 10% of the measurement period. In the UK, it is widely used as a descriptor of road traffic noise, often over an 18-hour period between 0600 hrs and 0000 hrs ($L_{A10,18hr}$).
L_{Amax}	The A-weighted maximum recorded noise level during a measurement period. L_{AFmax} noise levels are measured using a fast (F) measurement weighting (125 ms) and L_{ASmax} noise levels are measured using a slow (S) measurement weighting (1 s).
Lowest Observed Adverse Effect Level, LOAEL	The level above which adverse effects on health and quality of life can be detected, as defined in Noise Policy Statement for England (NPSE) and Planning Practice Guidance Noise (PPG-N).
Noise	In basic terms, unwanted sound. In the context of this assessment, environmental sound sources which typically includes transportation and industrial/commercial.

Noise Mapping	Computer generated maps showing the variation of predicted noise levels across an area.
Noise Modelling	The use of computer software to predict noise levels.
Noise Monitoring	The measurement of sound levels at a specific location.
Noise Sensitive Receptor, NSR	Receptors which are particularly sensitive to noise. Examples include residential dwellings, hospitals, healthcare facilities, education facilities, community facilities, quiet areas designated under the European Noise Directive (END), international and national or statutorily designated sites, public rights of way and cultural heritage assets.
Noise and Vibration Sensitive Receptors, NVSR	Receptors which are particularly sensitive to noise and vibration.
Peak Particle Vibration, PPV	Peak particle velocity (PPV) is a ground vibration metric, with units in mms^{-1} . PPV is typically used to describe, measure and assess vibration from construction activities.
Rating Level, $L_{A,T,r}$	The specific sound level plus any adjustment for the characteristic features of the sound.
Residual Sound Level	The A-weighted equivalent continuous sound pressure level produced in the absence of the specific sound source at the reference location over a reference time interval, T.
R_w	The weighted Sound Reduction Index which characterises the airborne sound insulation of a building element over a range of frequencies with a single number quantity.
Significant Observed Adverse Effect Level, SOAEL	The level above which significant adverse effects on health and quality of life occur, as defined in Noise Policy Statement for England (NPSE) and Planning Practice Guidance Noise (PPG-N).
Sound	The physical vibration in the air, propagating away from a source, whether heard or not.
Sound Exposure Level / Single Event Level (SEL)	The sound level at a receptor which, if maintained at a constant level for a period of one second, would have the same amount of energy as a given event (of any duration) at the same receptor.
Sound Power Level	The sound power level (L_w) of a source is a measurement of the total acoustic power that it radiates. The sound power level is an intrinsic characteristic of a source (analogous to its volume or mass), which is not affected by the environment within which the source is located.
Sound Pressure Level	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0 dB, while the threshold of pain is approximately 120 dB. Normal speech is approximately 60 dB at a distance of 1 metre and a change of 3 dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10 dB is subjectively twice, or half, as loud.
Sound Reduction Index Spectrum Adaptation Terms, C and C_{tr}	Spectrum adaption terms that use a standard reference curve to determine the weighted value of airborne sound insulation. C and C_{tr} take into account different source spectra, where C considers

	the A-weighted pink noise spectrum and C_{tr} considers the A-weighted urban traffic noise spectrum.
Specific Sound Level $L_s = L_{Aeq,Tr}$	The A-weighted equivalent continuous sound pressure level produced by the specific sound source at the reference location over a reference time interval, T.
Unacceptable Adverse Effect Level, UAEL	An effect level higher than the significant adverse effect level (SOAEL) above which unacceptable adverse effects on health and quality of life occur, as defined in Planning Practice Guidance Noise (PPG-N).
Vibration	Vibration may be expressed in terms of displacement, velocity or acceleration. Velocity and acceleration are most commonly used when assessing the risk of building damage, human comfort or structure borne noise issues.
Vibration Dose Value, VDV	Vibration Dose Value (VDV) is a parameter which combines the magnitude of vibration and the time for which it occurs. It provides a cumulative measurement of the vibration level received at a receptor over a specific time period. It is typically used to describe the human response to vibration in buildings from intermittent/transient vibration. The VDV is the fourth root of the time integral of the fourth power of the weighted acceleration. VDV is measured in units of $ms^{-1.75}$. VDV, frequency weightings and calculation methodologies are defined in BS 6472-1:2008.



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