PROFESSIONAL CONSULT

FUTURE ENVIRONMENTS

CONSTRUCTION NOISE & VIBRATION MANAGEMENT PLAN

Proposed Residential Development

Watermill Gardens, Penistone

13 February 2026

QUALITY ASSURANCE & REPORT INFORMATION

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EXECUTIVE SUMMARY

This CNVMP has detailed the appropriate guidance, legislation and British Standards relating to the control of construction noise and vibration impacts at neighbouring residential dwellings.

This CNVMP has recommended best practice noise and vibration control measures which should be adhered to wherever reasonably possible throughout the duration of the construction phase of the Development.

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1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Mulgrave Property Group Limited to prepare a Construction Noise & Vibration Management Plan (CNVMP) in support of a proposed residential development ('the Development') off Watermill Gardens in Penistone, Sheffield to be referred to hereafter as 'the Site'

1.1.2 Professional Consult previously issued a Noise Impact Assessment in support of a planning application for the Development which has now receive planning permission and Condition 5 of the planning permission states the following:

> *'5 Prior to any work commencing, the applicant shall submit to the Local Planning Authority for their approval a noise management plan detailing how they will control noise during construction. Once approved the applicant shall adhere to the noise management plan at all times.'*

1.2 Purpose of This Construction Noise & Vibration Management Plan

1.2.1 The purpose of this Construction Noise & Vibration Management Plan (CNVMP) is to set out the key management and monitoring procedures that will be required to adopt during the construction phase of the Development.

1.3 The Development

1.3.1 The Development will comprise of 17 residential dwellings.

1.4 Limitations

1.4.1 The limitations of this report are presented in Appendix 1.

1.5 Confidentiality

1.5.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 7th February 2025 and its associated National Planning Practice Guidance (NPPG) on 14th February 2024. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments.

2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.

2.1.3 Noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.

2.1.4 Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

- 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; and
- whether or not a good standard of amenity can be achieved.

2.1.5 In line with the Explanatory note of the noise policy statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.

2.1.6 The Observed Effect Levels are as follows:

- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
- Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
- No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.

2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. Noise Exposure Hierarchy

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 & 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 Observed Adverse Effect Level			
Present & 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			
Present & 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 Effect**	Avoid
Present & very disruptive	Extensive 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

2.1.8 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.

2.1.9 These factors include:

- the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- for a new noise making source, how the noise from it relates to the existing sound environment;
- for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- the spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features), and
- the local arrangement of buildings, surfaces and green infrastructure, and the extent to which it reflects or absorbs noise.

2.1.10 More specific factors to consider when relevant include:

- the cumulative impacts of more than one source of noise;

- whether any adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time (and the effect this may have on living conditions). In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations;

- In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in the overall noise level may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur;

- Noise Action Plans (where these exist), and, in particular the Important Areas identified through the process associated with the Environmental Noise Directive and corresponding regulations should be taken into account. Defra's website has information on Noise Action Plans and Important Areas. Local authority environmental health departments will also be able to provide information about Important Areas;

- the effect of noise on wildlife. Noise can adversely affect wildlife and ecosystems. Particular consideration needs to be given to the potential effects of noisy development on international, national and locally designated sites of importance for biodiversity;

- where external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended; and

- some commercial developments including restaurants, hot food takeaways, night clubs and public houses can have particular impacts, not least because activities are often at their peak in the evening and late at night. Local planning authorities will wish to bear in mind not only the noise that is generated within the

2.2 Environmental Protection Act 1990

2.2.1 Under the provisions of the Environmental Protection Act 1990, noise, such as a dog barking from premises or land, may be considered a statutory nuisance. The Environmental Protection Act 1990 requires the council to take reasonably practicable steps to investigate a complaint of a statutory nuisance made by a person living in its area. This is the law the council uses to take action where noise is found to be excessive and causing a disturbance.

2.2.2 For the noise to count as a statutory nuisance it must do one of the following:

- unreasonably and substantially interfere with the use or enjoyment of a home or other premises; and

- injure health or be likely to injure health.

2.2.3 If they agree that a statutory nuisance is happening or will happen in the future, councils must serve an abatement notice. This requires whoever's responsible to stop or restrict the noise. The notice will usually be served on the person responsible but can also be served on the owner or occupier of the premises.

2.2.4 The abatement notice can be delayed for up to 7 days while the council tries to get the person responsible to stop or restrict the noise.

2.2.5 Councils are responsible for looking into complaints about noise from:

- premises including land like gardens and certain vessels (for example, loud music or barking dogs); and

- vehicles, machinery or equipment in the street (for example, music from car stereos)

2.2.6 Statutory noise nuisance laws don't apply to noise from:

- traffic or planes (they do apply to model planes);
- political demonstrations and demonstrations about a cause; and
- premises occupied by the armed forces or visiting forces

2.2.7 Councils can decide what level of service they provide to deal with noise complaints, for example, whether to have officers on call at night.

2.3 British Standard 5228: Noise and Vibration Control on Construction and Open Sites - Part 1: Noise: 2009+A1 2014

2.3.1 This British Standard sets out techniques required to predict and assess the likely noise effects from construction works, based on detailed information on the type and number of plant being used, their location, and the length of time they are in operation.

2.3.2 The noise prediction method is used to establish likely noise levels in terms of the LAeq,T over the core working day.

2.3.3 This British Standard also documents a database of information, comprising previously measured sound power levels for a variety of different construction plant undertaking various common activities.

2.3.4 Example criteria are presented for the assessment of the significance of noise effects. Such criteria maybe concerned with fixed noise limits and/or ambient noise level changes. With respect to fixed noise limits, BS 5228-1 presents the following noise limits which are taken as an average over a 10-hour working day:

- 70.0dB(A) in rural, suburban and urban areas away from main road traffic and industrial noise; and,
- 75.0dB(A) in urban areas near main roads and heavy industrial areas.

2.4 British Standard 5228: Noise and Vibration Control on Construction and Open Sites - Part 2: Vibration: 2009+A1 2014

2.4.1 This standard provides recommendations for basic methods of vibration control relating to construction and open sites. The legislative background to vibration control is described and guidance is provided concerning methods of measuring vibration and assessing its effects on the environment.

2.4.2 Guidance criteria are suggested for the assessment of the significance of vibration effects, such criteria are provided in terms of Peak Particle Velocities (PPV) and are concerned with both human and structural responses to vibration. Those applicable to human perception and disturbance are presented within Table 2.

Table 2. PPV Criteria – Human Exposure

Vibration Level Peak Particle Velocity (mm/s)	Effect
0.14mm/s	Vibration might just be perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3mm/s	Vibration might be just perceptible in residential environments
1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

2.4.3 The Standard goes on to present guidance criteria applicable to the vibration response limits of buildings in terms of the component PPV, these are presented within Table 3.

Table 3. Guidance Criteria – Buildings

Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
	4Hz – 15Hz	≥ 15Hz
Reinforced or framed structures Industrial and heavy commercial buildings	50mm/s at 4Hz and above	50mm/s at 4Hz and above
Unreinforced or light framed structures Residential or light commercial buildings	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above
Note 1: Values referred to are at base of the building Note 2: At frequencies below 4Hz, a maximum displacement of 0.6mm (zero to peak) is not to be exceeded.		

2.4.4 It should be noted that the values presented within Table 3 are applicable to cosmetic damage only. It is stated within BS 5228-2 that minor damage is possible at vibration magnitudes which are greater than twice those given in the Table. It can be seen that the guide values for building damage are an order of magnitude higher than for human disturbance.

3 INDICATIVE PROPOSED CONSTRUCTION PLANT

3.1.1 It is understood that the following construction plant will be used during the construction phase:

- 360 Track and wheeled excavators;
- 7 ton dumpers;
- Generators;
- Telescopic Forklift truck;
- Small Plant & hand tools; and
- Scaffolding etc.

4 CONSTRUCTION NOISE & VIBRATION MANAGEMENT PLAN

4.1 General Management

4.1.1 The best practicable means (as defined in Section 72 of the Control of Pollution Act 1974) will be applied to all construction works to ensure noise and vibration effects are minimised.

4.1.2 Noise control measures will be consistent with the recommendations of the current version of BS 5228 - Part 1: Noise and Part 2: Vibration. Statutory requirements and legislation will be fully complied with during the construction works.

4.1.3 Construction contractors would carry out the works in a manner which minimises the noise and vibration wherever feasible whilst giving consideration to the following measures:

- Core working hours that will be included in the CEMP;
- There will be a preference given to the use of plant fitted with effective silencers and noise insulation. Where required, works will limit the use of particularly noisy plant at certain times of the working day, i.e. do not use particularly noisy plant equipment early in the morning;
- The number of plant items in use at any one time will be limited, where practicable ;
- Plant maintenance operations will be undertaken as far away from noise sensitive receptors as practicable;
- Any compressors brought to the construction works site will be silenced or will be sound reduced models which are fitted with acoustic enclosures;
- The speed of vehicle movements within the construction site will be limited to below 5 miles per hour;
- Activities will be designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors where practicable;
- A banksman may be used to minimise the use of reversing alarms. Where reversing alarms are required, the use of pink noise reversing alarms that produce a “static” sound as opposed to a beep will be used where reasonably practicable to reduce the noise generated by the reversing bleepers of on-site vehicles;
- Construction plant will be regularly serviced, maintained, and operated in accordance with manufacturer’s instructions;
- Plant that is intermittently used should be shut down in the intervening periods between work or throttled down to a minimum;
- The use of local noise screening or site hoardings to reduce noise where necessary;
- The appointment of a site contact to whom complaints/queries about construction activity can be directed - any complaints should be investigated, and action taken where appropriate;
- Local residents and businesses will be kept informed of construction activities, including working hours These activities will be agreed by giving at least 48 hours’ notice in advance of the works to the relevant planning authority;

- Emergency works may also be undertaken outside of the core working hours. In the event of any emergency, notification of the emergency will be given to the relevant planning authority and highways authority as soon as reasonably practicable;

- The relevant local planning authority will be notified of any emergency works required within five working days after the event, including the hours during which they were undertaken and their duration;

- Where noise complaints are received, construction noise and vibration monitoring may be undertaken at the relevant receptors to ensure the threshold values are not exceeded and notify the Principal Contractor if exceedances occur;

- Any idling vehicles will have their engines switched off while stationary;

- Construction traffic control measures will be implemented such as agreed routes and the number of vehicle movements at any given time;

- Construction which would be closest to nearby residential receptors will be undertaken as efficiently and quickly as reasonably possible;

- All plant and equipment would be expected to be shut down when it is not in use with the exception of generators, pumps and electric plant;

- Site personnel will be informed about the need to minimise noise as well as about the health hazards of exposure to excessive noise. Their training should include advice relating to the proper use and maintenance of tools and equipment, the positioning of machinery on site to reduce noise emissions to neighbouring residents. As well as ensuring where possible unnecessary noise is avoided when carrying out manual operations and operating plant and equipment;

- No audible music or radios will be played on the construction sites; and

- Construction contractors will adhere to the codes of practice for construction working set out in BS 5228:2009+A1:2014 insofar as these are reasonably practicable and applicable to the construction works.

4.2 Construction of Physical Barriers Adjacent to Existing Dwellings

4.2.1 The construction of temporary noise barriers to minimise the effects of construction noise to the nearest receptors may be required at appropriate locations. The barriers will be located to ensure that an enhanced level of noise reduction is provided to the most sensitive receptors.

4.2.2 The barrier locations will be defined by the Applicant in consultation with the relevant authority considering the methods of construction to be used. Particular consideration will be given to the following methods:

- Temporary noise barriers, where required, will be installed around works areas or equipment in order to provide screening for sources located at low heights (note however that it is likely to be impractical to provide noise barriers that are high enough to screen the drilling rigs associated with trenchless techniques);

- Consideration will be given to the potential effect of noise reflection from acoustic barriers impacting upon other receptors.

4.3 Personnel Training

4.3.1 A site induction is carried out for all new starters and contractors visiting the site. As part of this process, employees and contractors should be made aware of the potential of noise causing a disturbance to neighbouring properties.

4.4 Noise Complaints

4.4.1 If a complaint is received from a local resident, an investigation shall be instigated within one working day to identify the cause of the non-compliance/complaint and appropriate action will be taken to remedy the problem should the complaint be validated.

4.4.2 It is recommended that noise measurements are taken at the locations identified in Appendix 3 of this Noise Management Plan and a comparison made to the noise criteria levels presented in Table 2. Care should be taken to minimise extraneous noise (road traffic) interference with the noise measurement, particularly at locations D - F.

4.5 Example Specific Noise & Vibration Management Measures

4.5.1 This section sets out the selection of general and specific construction noise and vibration mitigation measures that will be implemented by the Applicant.

Table 4. Example Noise Control Mitigation Measures Relating to Noise & Vibration

Mitigation Measure	Indicative Noise Level Reduction	Justification for Indicative Noise Level Reduction
Localised acoustic screening, including earth bunds, partially reducing the line of sight between noise source and receiver	Up to 5dB(A)	Section F.2.2.2 of BS 5228:2009+A1:2014 states: '*if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver*'
Localised acoustic screening, including earth bunds, preventing any line of sight between noise source and receiver	Up to 10dB(A)	
Fitting more efficient exhaust sound reduction equipment to earth moving plant	5 - 10dB(A)	Table B.1 of BS 5228:2009+A1:2014
Enclose breakers and rock drills in portable or fixed acoustic enclosures with suitable ventilation	Up to 20dB(A)	Table B.1 of BS 5228:2009+A1:2014
Use rotary drills and boring plant inside acoustic shed with adequate ventilation	Up to 15dB(A)	Table B.1 of BS 5228:2009+A1:2014
Reduction of simultaneous use of plant	Up to 3dB(A)	Halving the amount of plant being utilised simultaneously thus halving the sound energy being generated could provide a 3 dB reduction.
Re-positioning plant as far away from noise sensitive receptors as reasonably practicable	Up to 6dB(A)	Doubling the distance between a noise source and a receiver can provide up to a 6 dB reduction
Not using particularly noisy items of plant pieces at night as far as reasonably practicable	Up to 3dB(A)	Reducing the quantity of plant operating simultaneously at night-time will reduce the overall construction noise level at the receptor. As an example, halving the amount of plant being utilised
Limiting or eliminating certain works during more sensitive periods	Varies	Would depend on what works/plant was limited or eliminated.
Use of electric or hybrid construction plant	Varies	Dependent on item of plant.

5 CONCLUSION

5.1.1 Professional Consult Limited was instructed by Mulgrave Property Group Limited to prepare a Construction Noise & Vibration Management Plan in support of a proposed residential development off Watermill Gardens in Penistone, Sheffield.

5.1.2 Professional Consult previously issued a Noise Impact Assessment in support of a planning application for the Development which has now receive planning permission and Condition 5 of the planning permission states the following:

> *'5 Prior to any work commencing, the applicant shall submit to the Local Planning Authority for their approval a noise management plan detailing how they will control noise during construction. Once approved the applicant shall adhere to the noise management plan at all times.'*

5.1.3 The purpose of this Construction Noise & Vibration Management Plan (CNVMP) is to set out the key management and monitoring procedures that will be required to adopt during the construction phase of the Development.

5.1.4 The Development will comprise of 17 residential dwellings.

5.1.5 This CNVMP has detailed the appropriate guidance, legislation and British Standards relating to the control of construction noise and vibration impacts at neighbouring residential dwellings.

5.1.6 This CNVMP has recommended best practice noise and vibration control measures which should be adhered to wherever reasonably possible throughout the duration of the construction phase of the Development.

APPENDIX 1: LIMITATIONS

The purpose of this Assessment is to satisfy the requirements of the regulator and to provide the Client with reasonable advice in supporting their development.

This Noise Impact Assessment has been prepared using reasonable skill and care based on the information available to us at the time of undertaking the noise survey and preparing the Assessment.

All noise sources evident to us during the period of the noise survey will be considered, where required, for the purposes of informing the Assessment. We cannot be held accountable for any unknown noise impacts brought about by noise sources which were not evident to us during the period of the noise survey.

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 1: Typical Sound Pressure Levels

Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, 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} & L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.