

PLANNING NOISE REPORT

13 BEDFORD ROAD

HARINGEY

LONDON N22 7AU

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ENVIRONMENTAL NOISE SURVEY

AND

NOISE IMPACT ASSESSMENT

1. Introduction

A planning application is to be made for construction of a new block of flats on the site at 13 Bedford Road.

The existing two storey garage buildings on the site is to be demolished and replaced with a new five storey building with commercial accommodation at ground floor and flats at upper floors.

The development lies within the London Borough of Haringey.

This report establishes noise levels that will arise within the living rooms and bedrooms of the flats.

The acoustic terms used in this report are defined in the glossary in the Appendices.

2. Description of the Site.

An aerial photograph of the site from Google Maps is in Figure 1 of this report.

The existing building is a motor repair garage and car wash at ground floor with a small office at first floor. It is on the corner of Bedford Road and Alexandra Park Road.

Bedford Road is a bus route with mostly ordinary motor car traffic but occasional buses and goods vehicles. The gradient of the road outside the premises is level.

There is a railway track on the opposite side of Bedford Road at a distance of 50 metres from the development site. The railway tracks are in a cutting so that the track bed is 10 metres below Bedford Road.

At the time of the site surveys there was extensive road construction works being carried out about 10 metres north of the site. The works included use of a pneumatic percussion hammer mounted on a JCB back loader. The road traffic was controlled to single lane by works traffic lights. It is apparent from the recordings taken and reported in this report that the background noise was completely dominated by the construction noise during the day and the traffic lights at night.

3. Description of Proposed Development.

The existing building is to be demolished and a new building with residential flats on four floors and commercial units at ground floor constructed.

The proposals are shown on drawings by CG Architects that are submitted with the planning application:

1544/05	Floor Plans as Proposed Ground First and Second.
1544/06	Floor Plans as Proposed Third, Fourth and Roof.
1544/07	Elevations
1544/08	Sections.

The elevation facing Bernard Road is straight and vertical from the pavement boundary to the top of the third floor and sets back with a balcony at the top, fourth floor.

The rear elevation (west) faces towards private houses and has no significant noise source nearby. There are no windows on the north elevation. The south elevation faces towards Alexandra Park Road that is a quiet residential street and does not have a significant background noise.

4. Acoustic Requirements of the London Plan and the London Borough of Haringey.

4.1 The current requirement of the London Plan March 2021 with respect to noise is in Policy D14 that states:

Policy D14 Noise

In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

- 1) avoiding significant adverse noise impacts on health and quality of life*
- 2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change*
- 3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses*
- 4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)*
- 5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation*
- 6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles*
- 7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.*

And paragraph 3.14.3 says

3.14.3 The management of noise also includes promoting good acoustic design of the inside of buildings. Section 5 of BS 8223:2014 provides guidance on how best to achieve this. The Institute of Acoustics has produced advice, Pro:PG Planning and Noise (May 2017), that may assist with the implementation of residential developments. BS4214 provides guidance on monitoring noise issues in mixed residential/industrial areas.

4.2 Haringey Unitary Development Plan Saved Policies (post Local Plan Adoption) Adopted July 2006 Policies Saved March 2013 states in ENV6

Noise Pollution

The Council will ensure that new noise sensitive development is located away from existing, or planned sources of noise pollution. Potentially noisy developments should only be located in areas where ambient noise levels are already high and where measures are proposed to mitigate its impact.

3.20 Noise pollution has a major effect on amenity and health and therefore the quality of life in general. Its effect can be minimised by separating new noise sensitive development from major noise sources, by separating new noisy development from existing noise sensitive development and by taking measures to reduce any impact. The Council will support new technologies and encourage sensitive design and construction, for example by positioning buildings and landscaping as noise barriers. Noise sensitive development includes housing, schools and hospitals.

The plan also includes paragraph 3.21 that makes reference to PPG 24, This document was, however, withdrawn in 2012 and is not used in this report.

4.3 Haringey Development Management DPD Adopted July 2017 includes in DM23 the following

Noise and Vibration

D The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution. Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.

E A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise.

4.4 Standard Noise Criteria

The London Plan refers to British Standard BS 8233 2014 and The Institute of Acoustics Pro:PG Planning and Noise (May 2017),

Guidance contained in British Standard BS 8233 2014 includes recommendations for noise levels within domestic accommodation.

Paragraph 7 includes Table 4 that gives the following criteria

Table 4 **Indoor ambient noise levels for dwellings**

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

The Pro PG Planning and Noise adds to the notes of the above Table 4 of BS 8233 with the following recommendation in blue:

*NOTE 1 The Table provides recommended **internal L_{Aeq} target** levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.*

*NOTE 2 The **internal L_{Aeq} target** levels shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure*

*consistency with the **internal L_{Aeq} target** levels recommended in the Table.*

*NOTE 3 These **internal L_{Aeq} target** levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.*

NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. 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. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

NOTE 5 Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. 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.

NOTE 6 Attention is drawn to the requirements of the Building Regulations.

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (see Section 3.D)

The principal effect of this guidance in Pro PG is the recommendation that noise inside bedrooms should not exceed 45dBA more than ten times at night.

5. Instrumentation

The surveys of ambient noise have been conducted using the following equipment:

Sound level meter.

- Manufacturer Pulsar Instruments Limited
- Instrument type Dosimeter
- Model Model 30 Sound Level Meter and Spectrum Analyser
- Serial number T222059
- Standards EN 60651:94/A1:97 / A2:01 type 1
IEC 61260:1995/A1:01 type 1
- Calibration Cirrus Research Certificate 228976
- Measurement range 0-137.0 dB

Site Calibrator Cirrus CR:513A 94/104 dB

Analysis programme Cesva Capture Studio Version 2.2.0. and Microsoft Excel.

6. Method for Measurements:

6.1. Recording locations:

Recording locations are shown in Figure 1 of this report.

6.1.1 Location 1 Unattended :

The recording instrument was installed with the microphone outside the window at first floor facing towards Alexandra Road. It was hoped that this location would provide an indication of the noise at night when there was no activity at the road works on Bedford Road.

Subsequent examination of the results and comparison with the manned survey at Location 2 shows that the noise at night was dominated by traffic controlled by the traffic lights for the road works. Since the road works are temporary the recordings taken have no meaningful significance for this report.

6.1.2 Location 2 Attended.

At the end of the unattended recordings on 12th June it was apparent that the noise recorded was dominated by the road works.

A 15 minute manned noise survey was therefore undertaken at Location 2 100 metres from the road construction works.

At this location the noise of the road works was not audible but the noise of passing cars, busses, lorries and trains was similar to that that will arise at the development site.

6.2. Procedure:

The instrument was site calibrated and showed error of less than 0.1 dB.

At Location 1, measurements were taken continuously of the A weighted noise level with integration time of 1 minute 6 days from 6th June to 12th June 2024.

At Location 2, measurements were taken continuously of the A weighted noise level with integration time of 1 second for 15 minutes from 12.10.

The instrument was set for fast response with exponential averaging time constant of 125 milliseconds.

The recorded values were downloaded to a computer running Cesva Capture Studio.

The equivalent continuous sound values for each whole period was recorded by the instrument.

Readings were taken continuously Any noisy activities were recorded in notes.

7. Calculations

In order to meet the recommendations of BS 8233 for noise inside the flats, the external noise level near the windows needs to be established. The recordings were taken in the manned survey at Location 2 are representative for the noise close to the locations for windows to the proposed flats. Windows at higher levels will have slightly lower ambient noise.

BS 8233-2014 Annex G gives internal noise level 15dB below ambient with windows open and 30dB with windows closed.

8. Results

The results of the 6 day noise survey at Location 1 are disregarded because noise from the road works nearby. At night there were traffic lights controlling traffic very close to the recording instrument. The traffic lights caused vehicles to stop and start resulting in noise that will not exist when the road works are completed.

8.1 Location 2.

The noise readings from the manned survey at Location 2 are given in graphical form in Figure 3 of this report.

The observed noise readings for trains and road vehicles passing are:

12.08.10 Thru train 60.9dBA
12.08.58 Two typical cars passing 62.8dBA
12.09.10 Typical bus 64.0 dBA
12.11.25 Typical bus 65.2
12.11.51 Typical thru train 58.3dBA
12.12.11 Train track squeal 58.5dBA
12.12.50 Truck passing 62.6dBA
12.14.18 Train passing 63dBA
12.14.37 Plane overhead 65dBA

From these readings it is ascertained that the typical noise levels for different vehicles at a location at pavement level are:

Average as LAeq 15 mins 59.8 dBA
Busses passing 65dBA
Cars passing 63dBA
Trains passing less than 60dBA

These levels are at Location 2 but will be the same at the proposed development site.

8.2 Department for Environment and Rural Affairs .Road and Rail Noise Survey

The values from Road Noise Department for Environment and Rural Affairs .Road and Rail noise surveys as Figures 4 and 5 of this report are:

Road Lden 24 hour annual average with separate weighting for evening and night. Below 55dBA

Road LAeq 16h Annual Average noise levels for 16 hour period between 0700 and 2300: Below 55dBA

Rail Lden 24 hour annual average with separate weighting for evening and night. 65 to 69.9dBA

Lnight Nighttime annual average noise level 2300 - 0700: 55 to 55.9 dBA .

These values are at variance with the site measurements taken at Location 2. They give much lower results for road traffic but higher results for rail. The site readings in Location 2 are more reliable and are therefore used for this report.

8.3 Noise inside rooms of the flats.

Noise levels inside the rooms are then 15dB lower than outside (as BS 8233 Annex G) as follows;

	Outside window	Windows open	BS8233 Recommended maximum. Daytime Living Rooms	BS8233 Recommended maximum. Night time Bedrooms
Day 07:00 to 23:00 LAeq	59.8 dBA	45 dBA	40dBA	
Night 23:00 to 07:00 by Lnight Rail	55dBA	40 dBA		30dBA
Bus passing	65dBA	50dBA		Not to exceed 45dBA 10 times
Car passing	62dBA	47dBA		
Trains passing	63dBA	48dBA		

9. Discussion

Background noise levels have been measured on site and compared with the DEFRA noises surveys. The 7 day site noise survey was rendered useless by the presence of road works and traffic control measures immediately outside the site.

The 15 minute manned survey at Location 2 does however provide accurate measurement of passing busses cars and trains; These readings are actual readings for the site and are more reliable that the DEFRA noise results.

The trains are in a deep cutting and are not a significant noise source. The predominant noise arises from passing busses. There are few heavy goods vehicles on this road.

This lower part of Bedford Road at Location 2 has ordinary houses that have no special provision for noise control as would be the case for most residential accommodation on bus routes.

The noise levels inside the rooms of the development facing Bedford Road will, however, exceed the recommendations of the Pro PG by the exceedance of 45dBA more than ten times at night.

It is therefore recommended that bedrooms in the development that face Bedford Road should be provided with a means of ventilation to prevent overheating in summer with windows closed at night.

Part F of the Building Regulations recommends that rooms that cannot be provided with purge ventilation by open windows should have mechanical ventilation to provide 4 air changes per hour.

Living rooms can be ventilated by open windows but should be provided with means of background ventilation with acoustic vents. Open area to be 5000 square mm in accordance with Part F of the Building Regulations.

10. Conclusion

The background noise levels at the rear elevation of the building is similar to that prevailing in quiet residential streets in London and no special provision of ventilation is necessary. Windows can be opened for ventilation at any time without disruptive noise.

Rooms on facing Bedford Road would benefit with provision of acoustic ventilation.

Living rooms should be provided with acoustic background ventilators with a sound reduction rating of 10dB. Windows to be openable for purge ventilation on hot summer days.

Bedrooms may be ventilated by opening windows at the discretion of occupants, but provision should be made for mechanical ventilation if required. The ventilation should provide 4 air changes per hour in accordance with the recommendations of Part F of the Building Regulations. If preferred the rooms can be provided with air conditioning units.

In either case the ventilation system should be designed to ensure noise inside the bedrooms does not exceed 30dBA.

Use of the commercial units at ground floor should be confined to shops and offices with no workshop, restaurants or public houses or noisy activities. The floor separating the first floor flats from the commercial units should have a noise reduction for air borne noise 10dB greater than the requirements of Part E of the Building Regulations.

Any air-conditioning or ventilation equipment for the flats or commercial units should comply with the requirements of the Local Authority and BS 4142:2014

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Figure 1 Site Plan

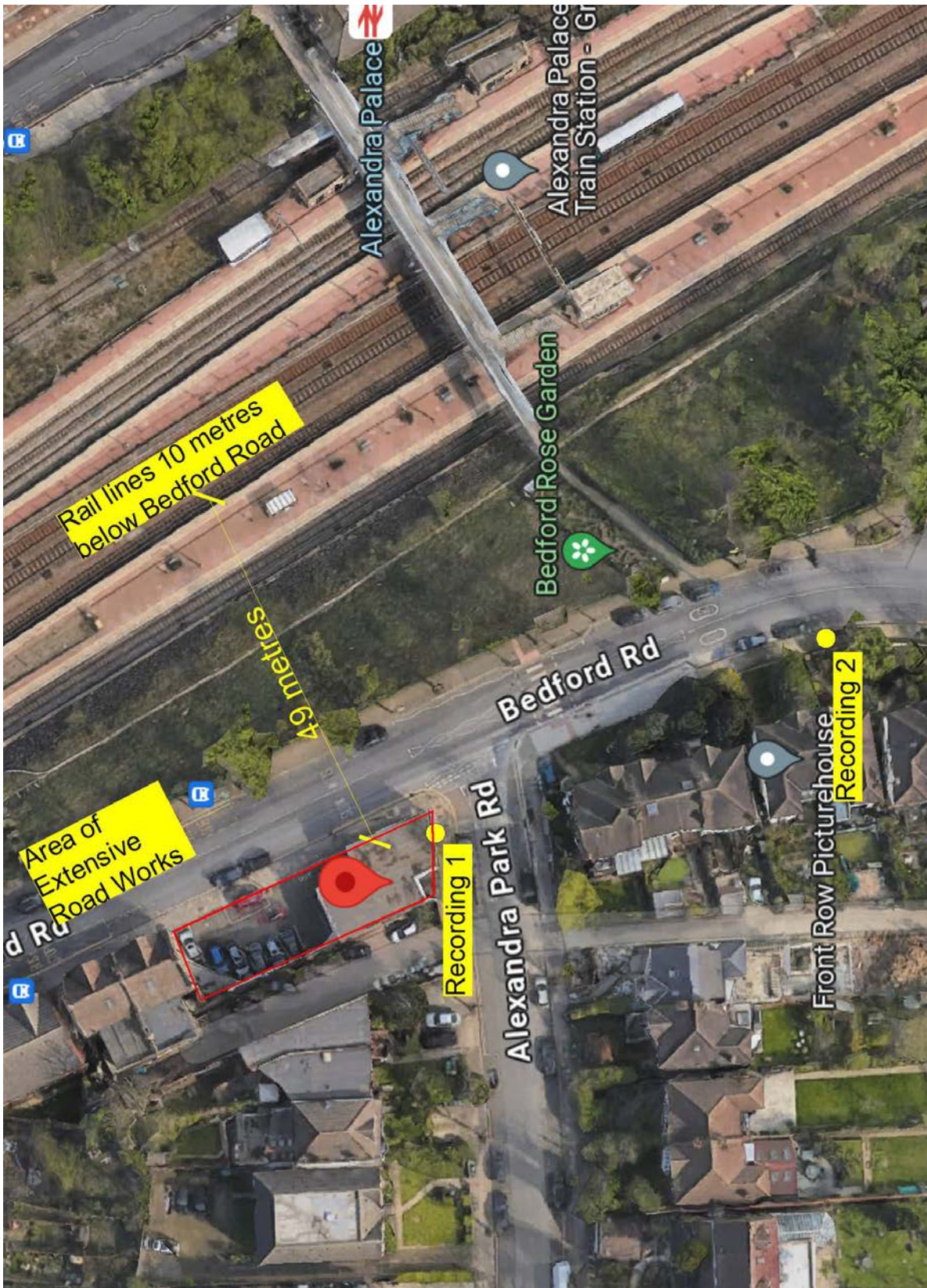


Figure 2 Recordings at Location 1: Dominated by Road Works;

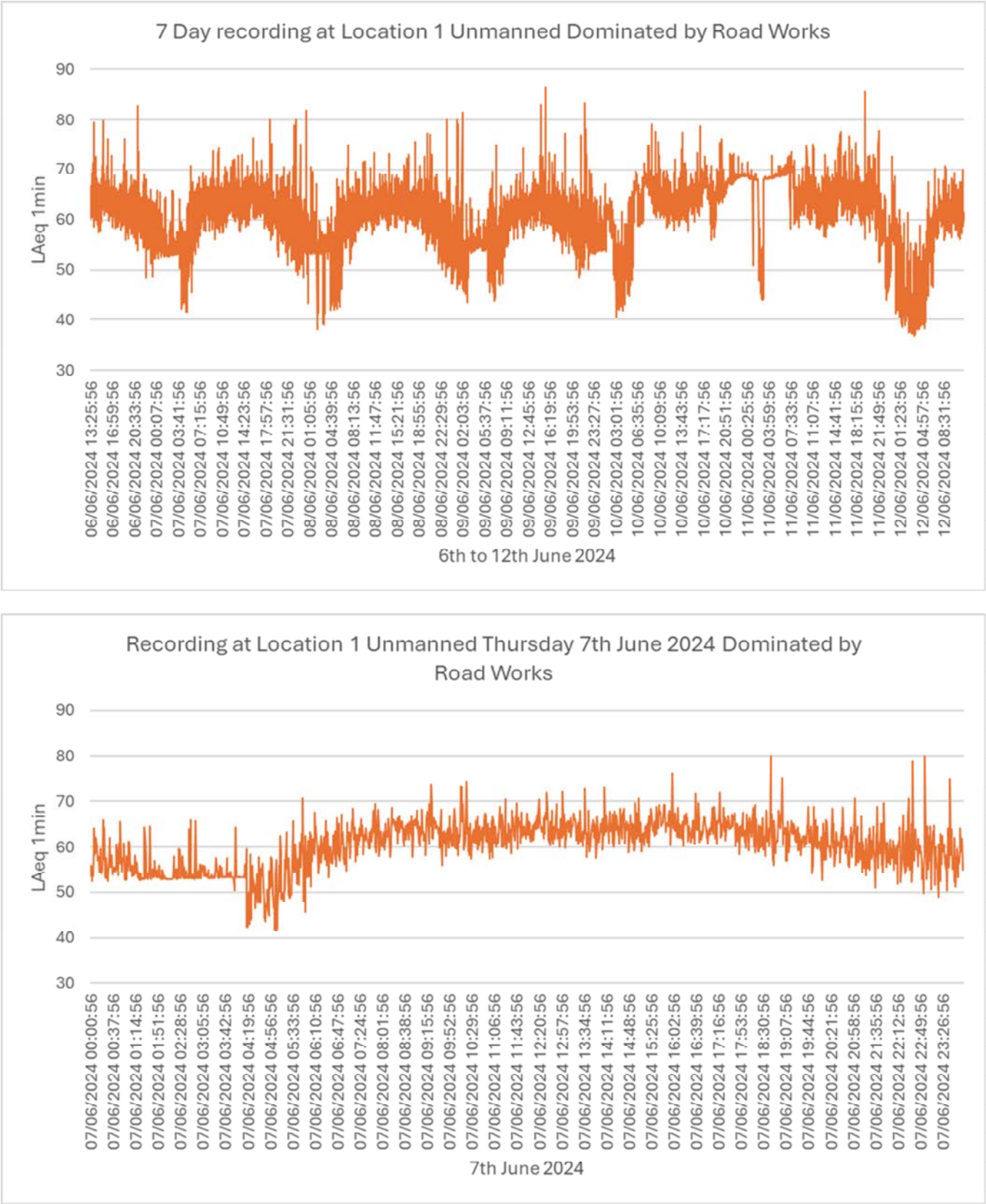
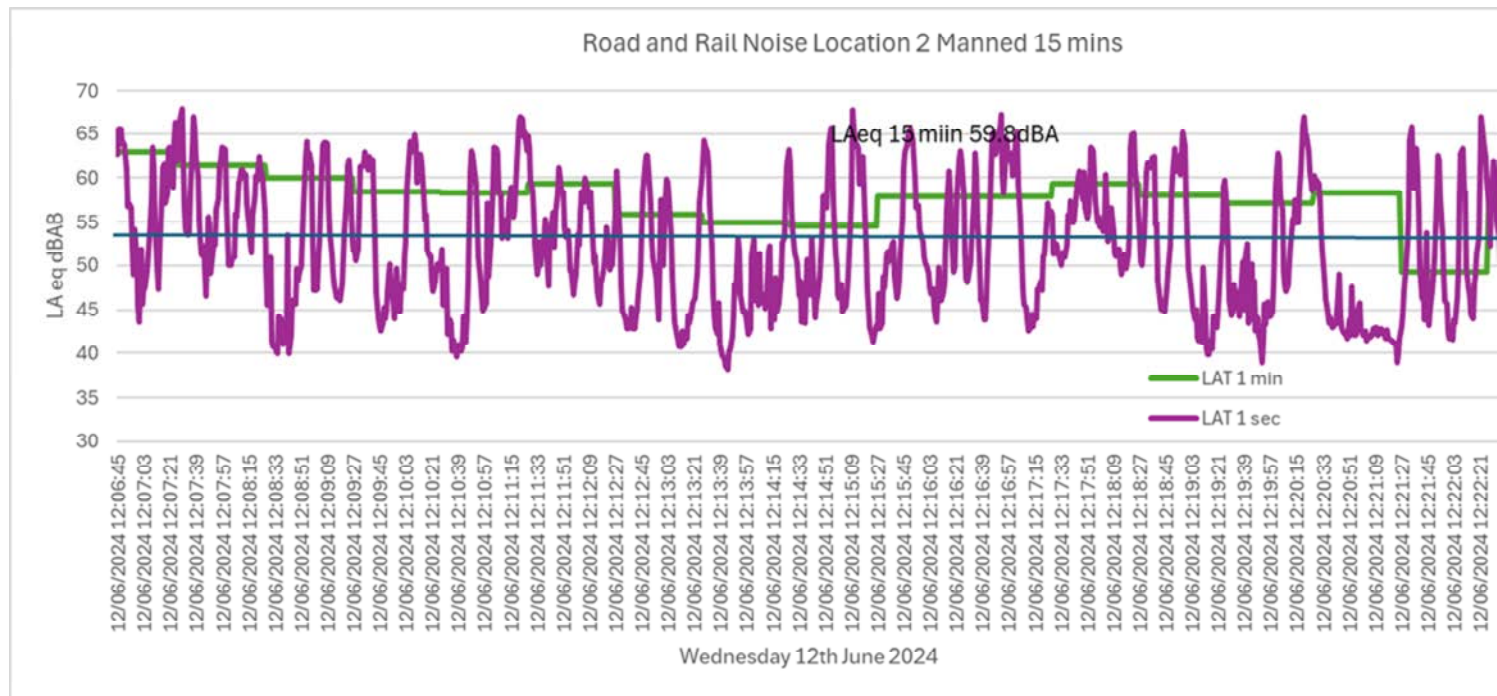


Figure 3 Time History at Location 2- 50 metres Distant from Road Works

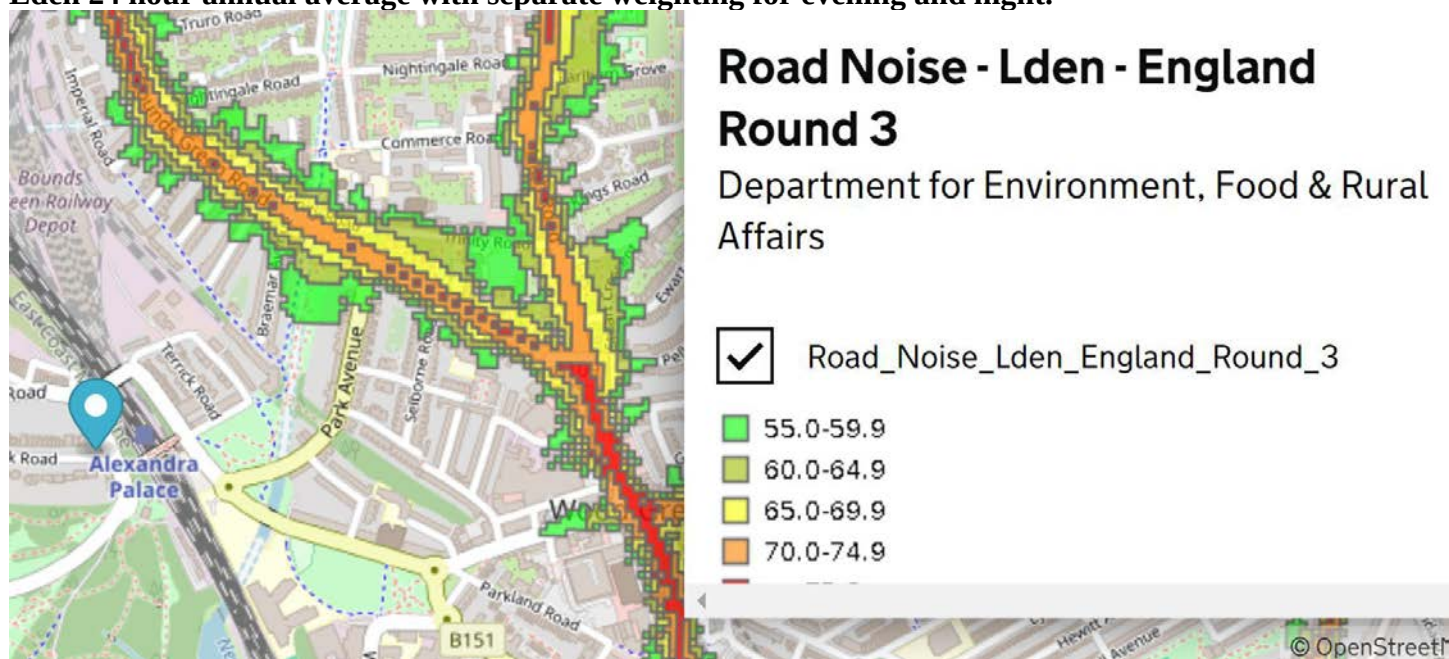


Observations:

12.08.10 Thru train 60.9dB(A)
 12.08.58 Two typical cars passing 62.8dB(A)
 12.09.10 Typical bus 64.0 dB(A)
 12.11.25 Typical bus 65.2
 12.11.51 Typical thru train 58.3dB(A)
 12.12.11 Train track squeal 58.5dB(A)
 12.12.50 Truck passing 62.6dB(A)
 12.14.18 Train passing 63dB(A)
 12.14.37 Plane overhead 65dB(A)

Figure 4 Road Noise Department for Environment and Rural Affairs.

Lden 24 hour annual average with separate weighting for evening and night.



LAeq 16h Annual Average noise levels for 16 hour period between 0700 and 2300

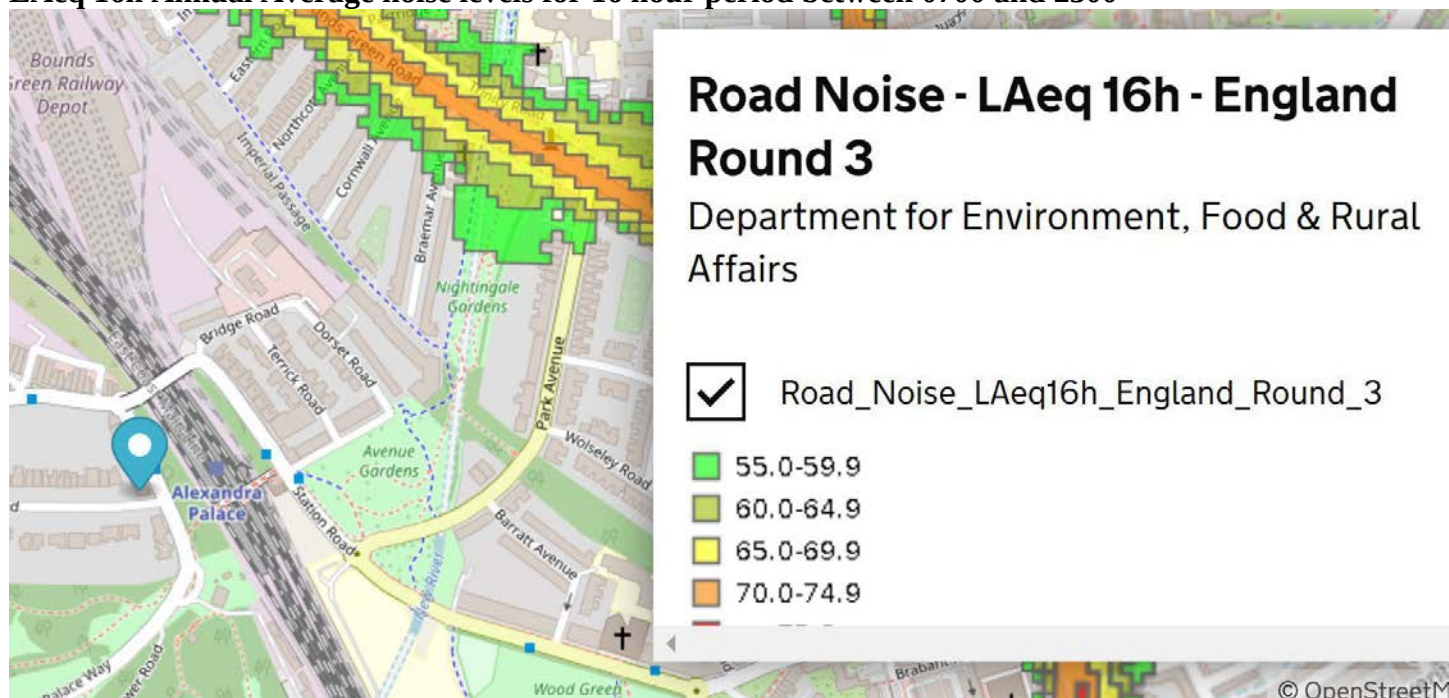
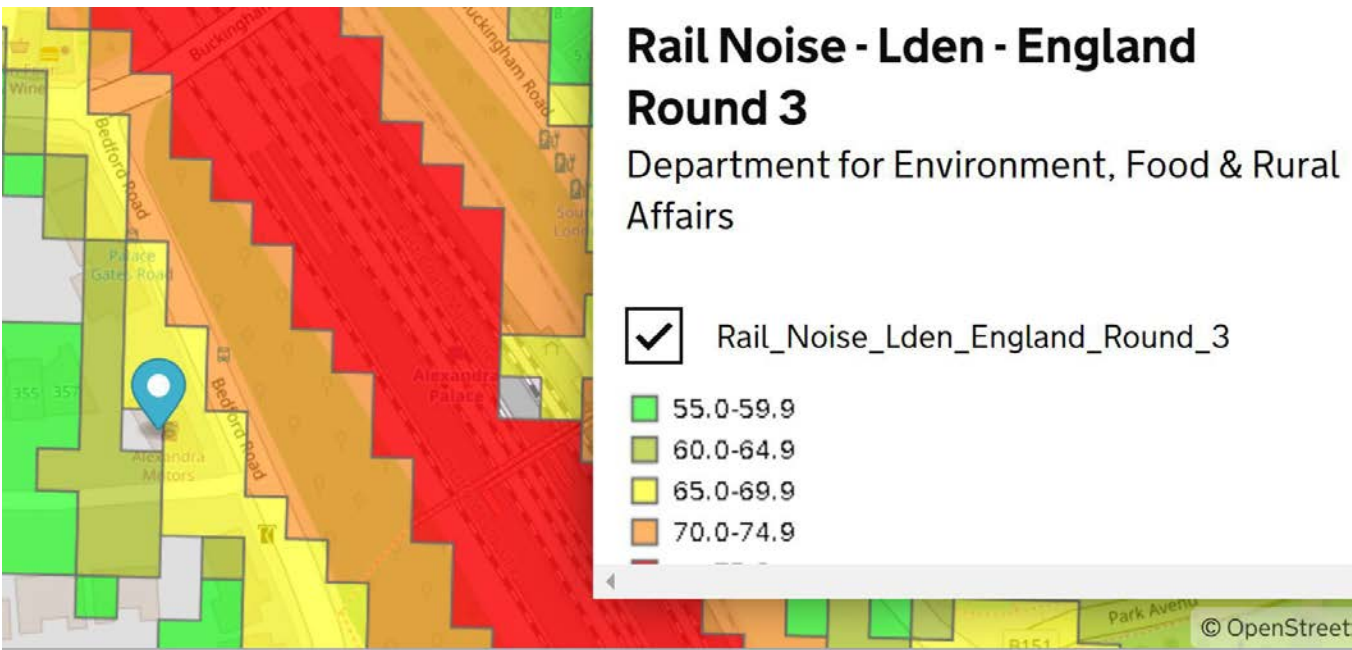
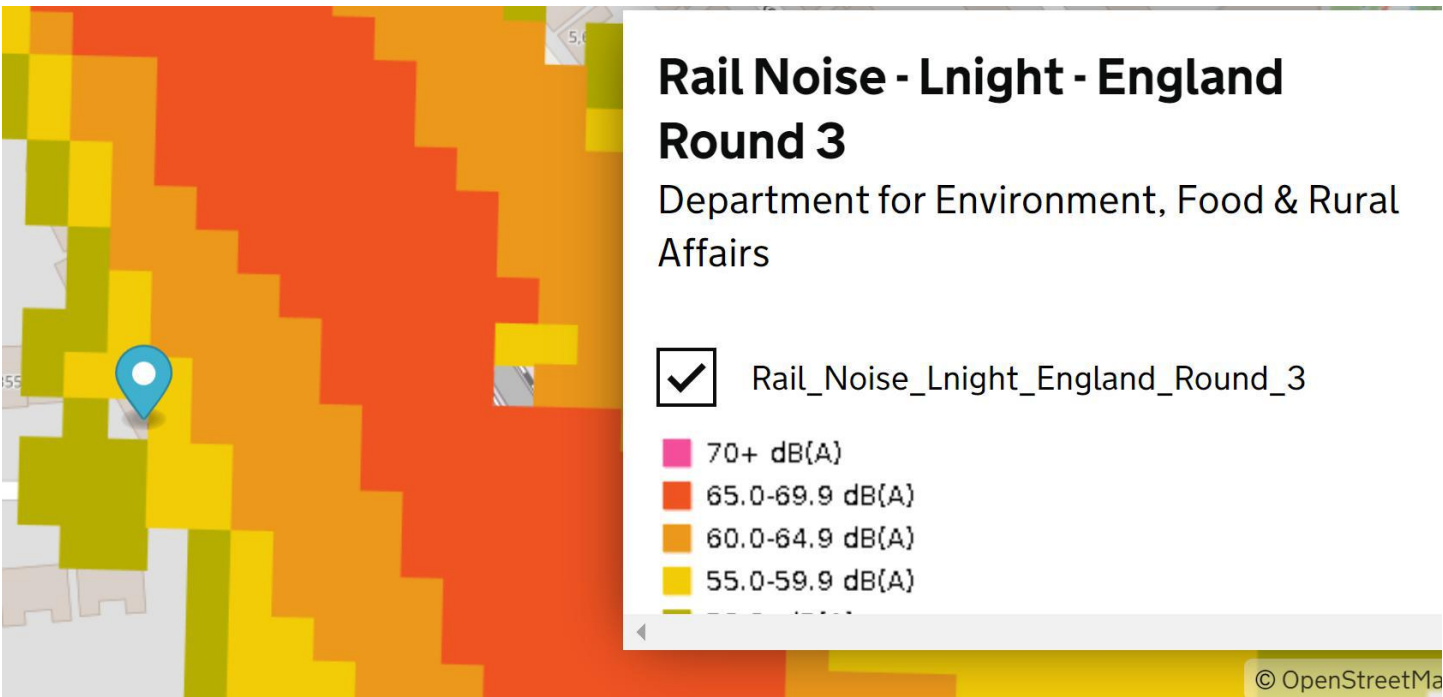


Figure 5 Rail Noise Department for Environment and Rural Affairs.

Lden 24 hour annual average with separate weighting for evening and night.65 to 69.9dBA



Lnight Nighttime annual average noise level 2300 - 0700: 55 to 55.9 dBA .



Appendix Glossary of Terms used in this report

Decibel (dB): a unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

Hertz (Hz): unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

$L_{A10,T}$: the A weighted level of noise exceeded for 10% of the specified measurement period (T). It gives an indication of the upper limit of fluctuating noise such as that from road traffic.

$L_{A10,16h}$ is the arithmetic average of the 18 hourly $L_{A10,1h}$ values from 07.00 to 23.00.

$L_{A90,T}$: the A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 1990 it is used to define background noise level.

$L_{Aeq,T}$: the equivalent continuous sound level -the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} : the highest A weighted noise level recorded during a noise event. The time weighting used (F or S) should be stated.

R_w : single number rating used to describe the sound insulation of building elements (also see Annex 6). It is defined in BS 5821: 1984.