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Noise Impact Validation Report

Project Details	
Client	Manchester EPC Ltd
Client Address	526a Liverpool Road Eccles Manchester M30 7JA
Site Address	24A Sedgley Road Crumpsall Manchester M8 5AG
Reference	22476E

Quality Assurance	
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1 Introduction

Manchester EPC Ltd has instructed Spratt and Hamer Limited to undertake a post-completion noise impact validation assessment at a newly constructed three-storey residential dwelling located at 24A Sedgley Road, Crumpsall, Manchester.

The purpose of this assessment is to determine whether internal and external noise levels within the completed development are suitable for residential use. The assessment supports the discharge of a planning condition attached to the approved planning application, which requires verification of noise insulation performance following completion.

An initial noise assessment was previously undertaken by Peak Acoustics in support of the planning application. This report presents the measured validation of noise levels now that construction is complete.

This report is prepared solely for Manchester EPC Ltd. Spratt and Hamer Limited accepts no responsibility for its use by any third party.

This document has been compiled using the information and documents listed in the appendices, including architectural drawings, on-site data, and relevant third-party technical sources. We have not independently verified the accuracy of the information provided. Should new information become available, we reserve the right to revise our opinions and conclusions accordingly.

1.1 Noise Impact Assessment

Spratt and Hamer Limited has undertaken a noise impact validation assessment at the above site, with noise levels measured internally and externally over a 24-hour period, consisting of a 16-hour daytime (07:00–23:00) and an 8-hour night-time (23:00–07:00). The measurements were carried out midweek, from Thursday to Friday.

In addition to continuous monitoring at representative internal locations, shorter sample measurements were also taken in other internal rooms and externally in the garden area.

This report presents the measured noise levels and refers to guidance relevant to the nature of this survey, while taking into account the requirements of the Local Planning Authority.

1.2 Assumptions, Limitations & Uncertainty

a. It is assumed that all drawings and technical information provided by Mr Reece Jones and his appointed architects are accurate and up to date.
b. It is assumed that the environmental sound levels measured during the survey are representative of typical site conditions.

2 Criteria

2.1 Local Planning Authority Criteria

Application reference: 136012/FO/2023

Manchester City Council has granted conditional approval for this application, the decision notice states the following condition in relation to noise:

"*5) a) Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from Sedgley Road shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises.*

The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria shall be required to be achieved:

Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

Gardens and terraces (daytime) 55 dB LAeq

b) Prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria."

2.2 BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

The British Standard BS 8233:2014, Guidance on Sound Insulation and noise reduction for buildings, provides appropriate internal levels of noise within dwellings, flats and rooms in residential use when unoccupied.

Section 7.2.2 'Internal ambient noise levels in dwellings' of BS 8233: 2014 states that 'In general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values in Table 4'.

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 $L_{Aeq,8hour}$

Table 1: Table 4 of BS 8233:2014 Indoor Ambient Levels for Dwellings

Note 7 of section 7.7.2 states 'Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed up to 5 dB and reasonable internal conditions still achieved'.

In addition, Note 4 of section 7.7.2 states, '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 $L_{Amax,F}$ (SIC), depending on the character and number of events per night. Sporadic noise events could require separate values".

In the absence of a specific performance criterion within BS 8233 for short-term noise maxima, reference can be made to guidance published by the WHO. In particular, the WHO publication 'Guidelines for Community Noise' (1999), from which the guidance given in BS 8233: 2014 is itself derived, states that 'for a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than ten to fifteen times per night'.

The WHO publication 'Guidelines for Community Noise' (1999) has since been updated in 2018; however, it is widely accepted by Local Authorities that L_{AFmax} 45 dB is the target level for short-term noise maxima between 23:00-07:00.

2.3 WHO Guidelines for Community Noise

In 1999, the WHO (World Health Organisation) published Guidelines for Community Noise, stating the following internal noise levels are applicable within dwellings.

Specific Requirement	Critical Health Effect (s)	$L_{Aeq,T}$ (dB)	Time base,T (hours)	L_{AFmax} (dB)
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime evening	50	16	-
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, nighttime	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

Table 2: A Summary of the WHO Guidance Noise Levels

2.4 Criteria Summary

In order to meet the requirements of Manchester City Council, the assessment and recommendations will be made in accordance with *BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings* and WHO *Guidelines for Community Noise*.

3 Site Description

The development is a newly constructed three-storey residential dwelling located between 24 and 26 Sedgley Road, Crumpsall, approximately 5 km north of Manchester city centre. The area is predominantly residential in character, with local shops and amenities nearby.

Sedgley Road is a 20 mph two-way road that runs along the front façade of the property, carrying light levels of road traffic. Approximately 200 m west of the site, a Metrolink tram line runs in a north–south direction, with Crumpsall Station to the north and Abraham Moss to the south.

To the northeast lies Crumpsall Park, and the A665 is located around 600 m west of the site. The wider area includes residential dwellings, local retail units, and a mix of small-scale commercial premises.

Internally, all habitable rooms were unfurnished at the time of the assessment. Bedrooms were finished with carpet and living rooms with laminate flooring. All windows were double-glazed and fitted with trickle vents in accordance with the Peak Acoustics planning report. Windows were kept closed during the measurements, with trickle vents open.

The local noise environment is primarily influenced by road traffic. Secondary noise sources included pedestrian activity, and distant road traffic.

3.1 Subjective Observations

During the survey, the local noise environment was subjectively very quiet, consistent with a residential street where vehicle pass-bys were infrequent, typically once every few minutes, and overall ambient noise levels were low.

Heavy rainfall during the survey was audible on Velux windows, slightly elevating levels in the top-floor Master Bedroom. Care was taken to ensure this did not affect measurement validity.

3.2 Weather

05-06/06/2025	Thursday	Friday
Temperature (^{0}C)	10.0 – 16.1	9.3 – 14.5
Wind Speed (m/s)	0.0 – 3.9	0.0 – 4.4
Wind Direction	WSW	W
Precipitation (mm/h)	0.0 – 3.0	0.0 – 4.4
Damp road/ wet ground	Wet	Dry
Fog/snow/ice	None	None

Table 3: Measuring Weather Conditions

All weather data taken from wow.metoffice.gov.uk from the Chadderton weather station, located at approximately 6.6 km northeast of the development.

4 Noise Measurement Procedure

4.1 Survey Date(s)

Thursday 05/06/2025 – Friday 06/06/2025

4.2 Personnel Present

Jonny Spratt BSc (Hons)

4.3 Survey Equipment Used

Manufacturer	Model	Serial No.	Description
Rion	NL-52	01054205	Integrating Sound Level Meter and Real Time Analyser
Rion	NL-52	00976149	Integrating Sound Level Meter and Real Time Analyser
Pulsar	Model 105	93357	Acoustic Calibrator
Pulsar	Model 105	59964	Acoustic Calibrator

Table 4: Survey Equipment Used

4.4 Calibration

The sound level meters were calibrated with the field calibrator to a level of 94.0 dB @ 1 kHz prior to and on completion of the survey. No significant drift in calibration was observed. The meters used during the survey are precision grade Class 1.

Calibration certificates are available on request.

4.5 Internal & External Ambient Sound Measurements

The measurement locations selected during the survey were deemed appropriate for the determination of internal noise levels within habitable rooms and external levels in the rear garden amenity area.

For all internal measurements, windows were closed securely and trickle vents remained open,

Unattended continuous 24-hour measurements were carried out at representative internal locations and recorded at 5-minute intervals, logging broadband and 1:1 octave band L_{Aeq}, L_{A90}, L_{A10} and L_{AFmax} values.

In addition, a series of short-term sample measurements lasting between 30 to 60 minutes were taken at 1-minute intervals.

All monitoring positions were situated on a tripod, centrally located within each room or garden space, at a height of approximately 1.5 m above floor level.

All sound level meters were also configured to automatically capture WAV file recordings of any noise events exceeding 45 dB L_{AFmax}, enabling later review of exceedances.

4.6 Monitoring Positions

Two 24-hour monitoring positions were set up: one at the front, and one at the rear of the property. Additional short-term sample measurements were conducted at various internal and external locations.

Monitoring Position	Location	Period (24-hour/Sample)
MP1	First Floor, Bedroom 2	24-hour
MP2	First Floor, Bedroom 3	24-hour
MP3	Second Floor, Master Bedroom	Sample
MP4	Ground Floor, Living/Dining Room	Sample
MP5	Outdoor, Rear Garden	Sample

Table 5: Monitoring Positions & Durations

4.7 Location of Measurement Positions on Plans

The following figures show the development plans and locations of the monitoring equipment.

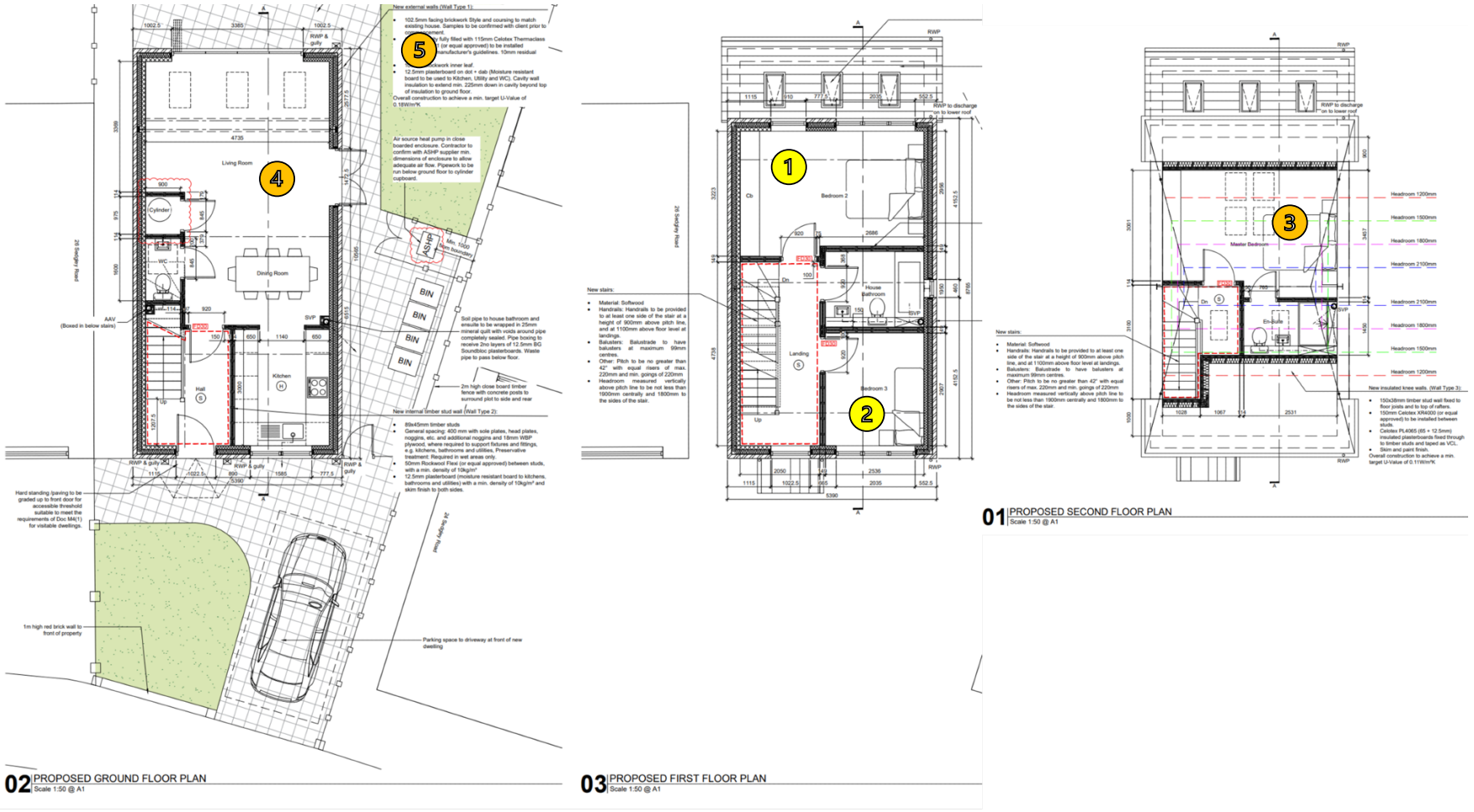


Figure 1: Monitoring Positions

5 Results and Analysis

5.1 Internal Ambient Sound Measurement Analysis in Accordance with BS 8233:2014

Internal ambient noise levels were measured within the proposed dwelling under typical conditions with windows closed and ventilators opened. The noise levels have been compared with the ambient noise level criteria in BS 8233:2014.

5.2 IANL and L_{AFMax} Results & Analysis

The table below summarises the average internal noise levels for day ($L_{Aeq,16h}$) and night ($L_{Aeq,8h}$), along with the number of maximum night-time events ($L_{Amax,F}$) exceeding the 45 dB criterion. Where applicable, estimated values are based on sample comparisons (see note and table below).

MP	Room	Time Period	Criteria (dB)	Measured Sound Level (dB)	Exceedance (dB)
1	Bedroom 2	Daytime	35 $L_{Aeq,16h}$	24	-11
		Nighttime	30 $L_{Aeq,8h}$	18	-12
			45 L_{AFMax}	53	3 times
2	Bedroom 3	Daytime	35 $L_{Aeq,16h}$	25	-10
		Nighttime	30 $L_{Aeq,8h}$	20	-10
			45 L_{AFMax}	55	4 times
3	Master Bedroom	Daytime	35 $L_{Aeq,16h}$	27	-8
		Nighttime	30 $L_{Aeq,8h}$	21 *	-9
			45 L_{AFMax}	56 *	4 times
4	Living / Dining Room	Daytime	35 $L_{Aeq,16h}$	26	-9
5	Garden	Daytime	55 $L_{Aeq,16h}$	44	- 11

Table 6: IANL Results & Analysis

** Calculated applying a 3 dB correction based on the difference between measured $L_{Aeq,T}$ at MP1 and MP3*

As shown, internal ambient levels meet BS 8233:2014 criteria in all habitable spaces. $L_{Amax,F}$ events exceeded 45 dB no more than four times in any bedroom, thereby satisfying the requirement for individual noise events to exceed 45 dB(A) by no more than 15 times. Data charts and further measurement results can be found in the appendix.

6 Conclusion

A post-completion noise impact validation assessment has been undertaken for the residential development at 24A Sedgley Road, Crumpsall, Manchester.

Measured internal ambient noise levels within all habitable rooms are compliant with the recommended limits outlined in BS 8233:2014 and the noise criteria adopted by Manchester City Council, including both daytime and night-time periods.

Maximum sound levels $L_{Amax,F}$ exceeded the 45 dB guideline only a maximum of 4 times during the night-time period, thus remaining well below 15 times.

Note that rooms were unfurnished at the time of the survey with anticipated higher reverberation times than would be expected under normal occupied conditions. As such, the internal sound levels are expected to further reduce when rooms are fully furnished.

External noise levels in the rear garden were also found to comply with the daytime criterion of 55 dB L_{Aeq}, demonstrating the suitability of the outdoor living/amenity area for residential use.

On this basis, the noise environment within the completed development is considered suitable for residential occupation, thereby discharging the relevant planning condition.

7 References

National Planning Policy Framework (NPPF)

BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

World Health Organisation Guidelines for Community Noise

BS 7445-1:2003 Description and measurement of environmental noise – Part 1: Guide to quantities and procedures

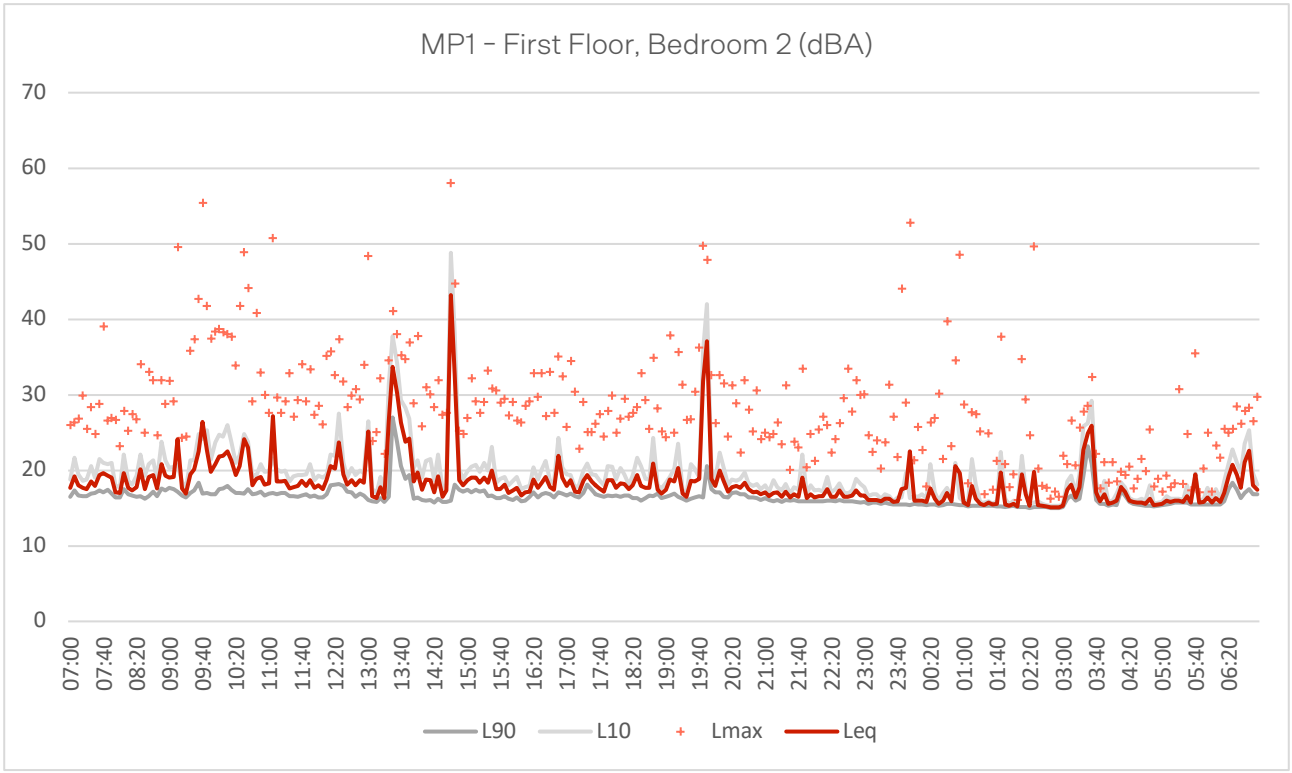
7.1 Drawing References

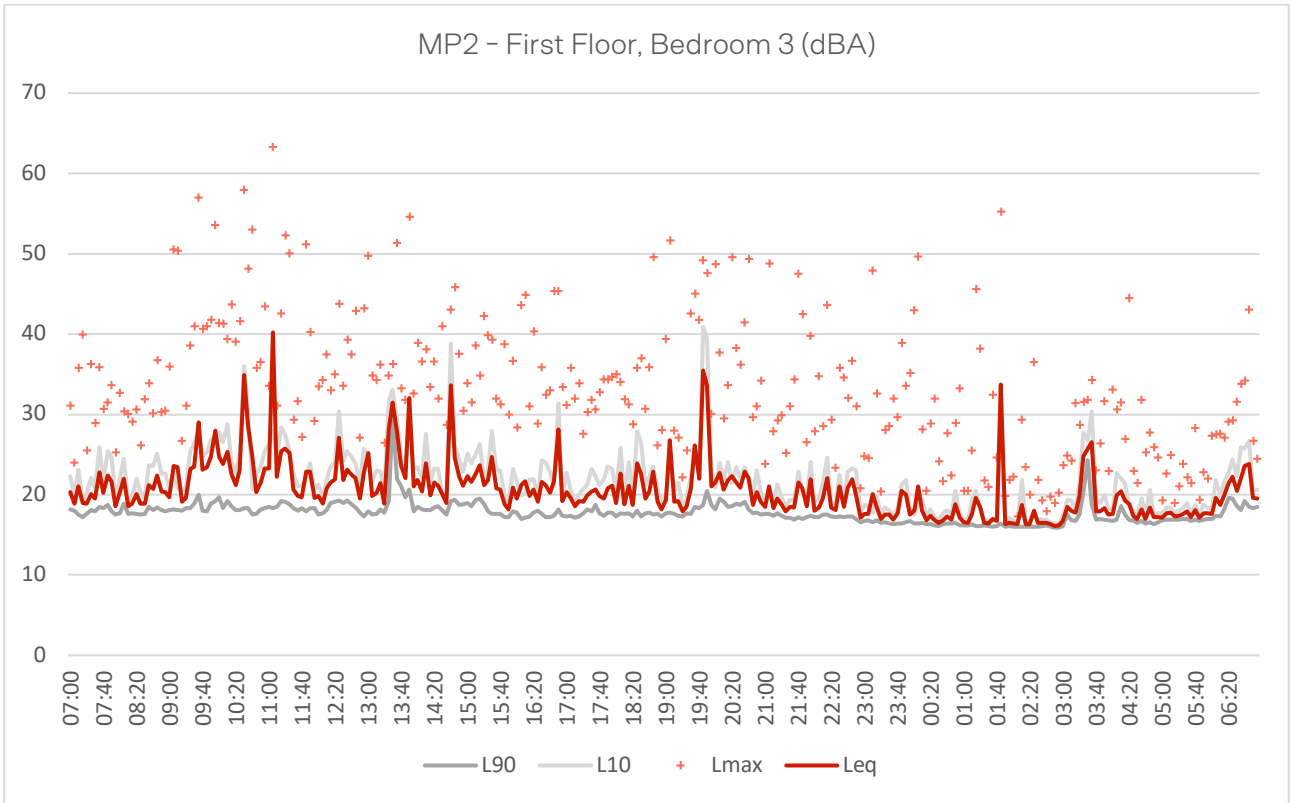
0054-02 (03)003 A – Proposed Second Floor Plan, Roof Plan, Section and Elevations

0054-02 (03)002 B – Proposed Substructure, Ground and First Floor Plans

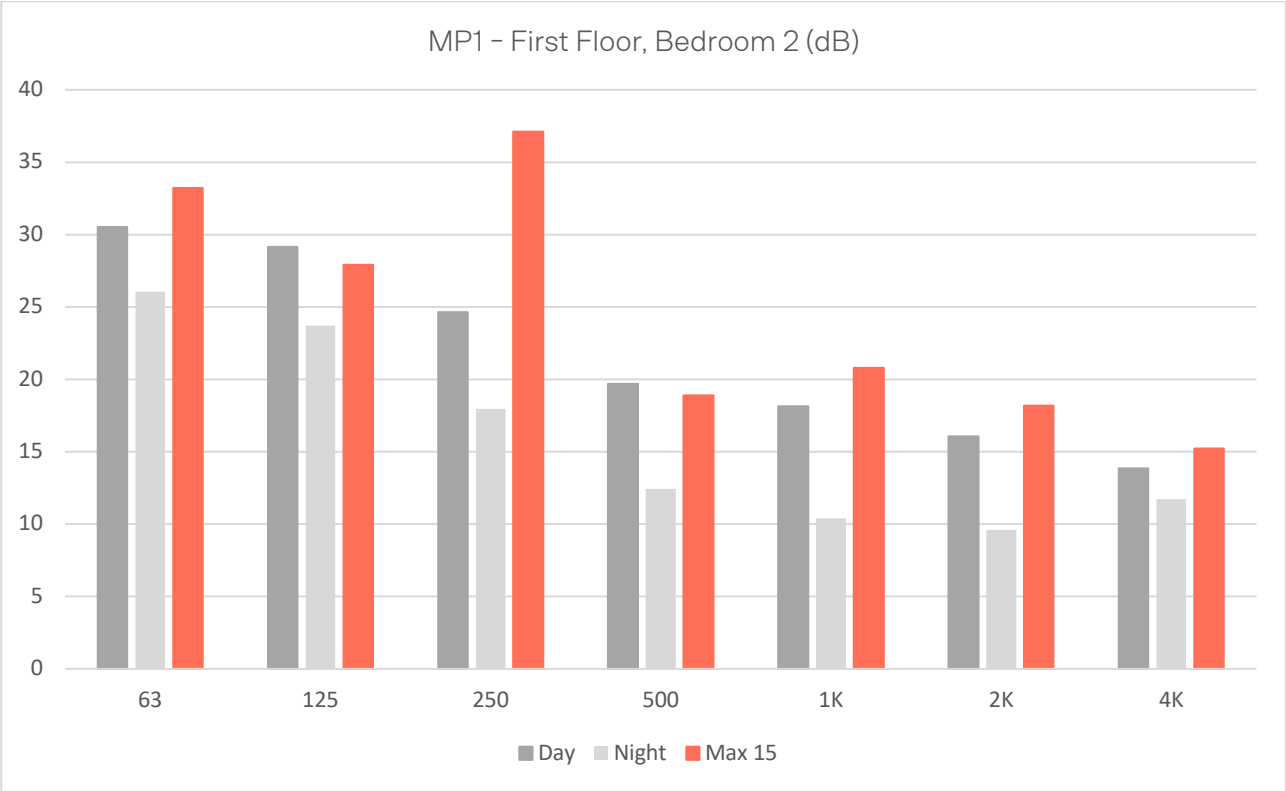
Appendix

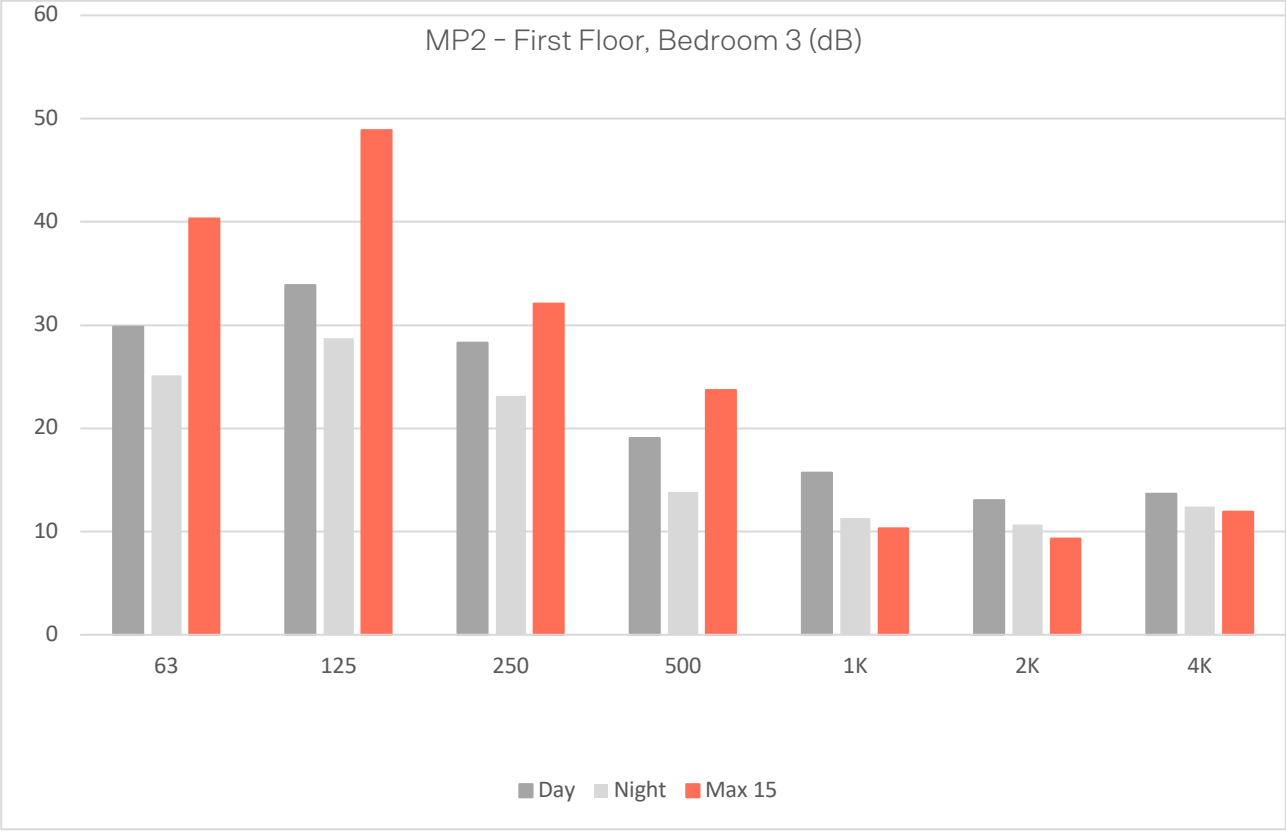
24hr Measurements Results

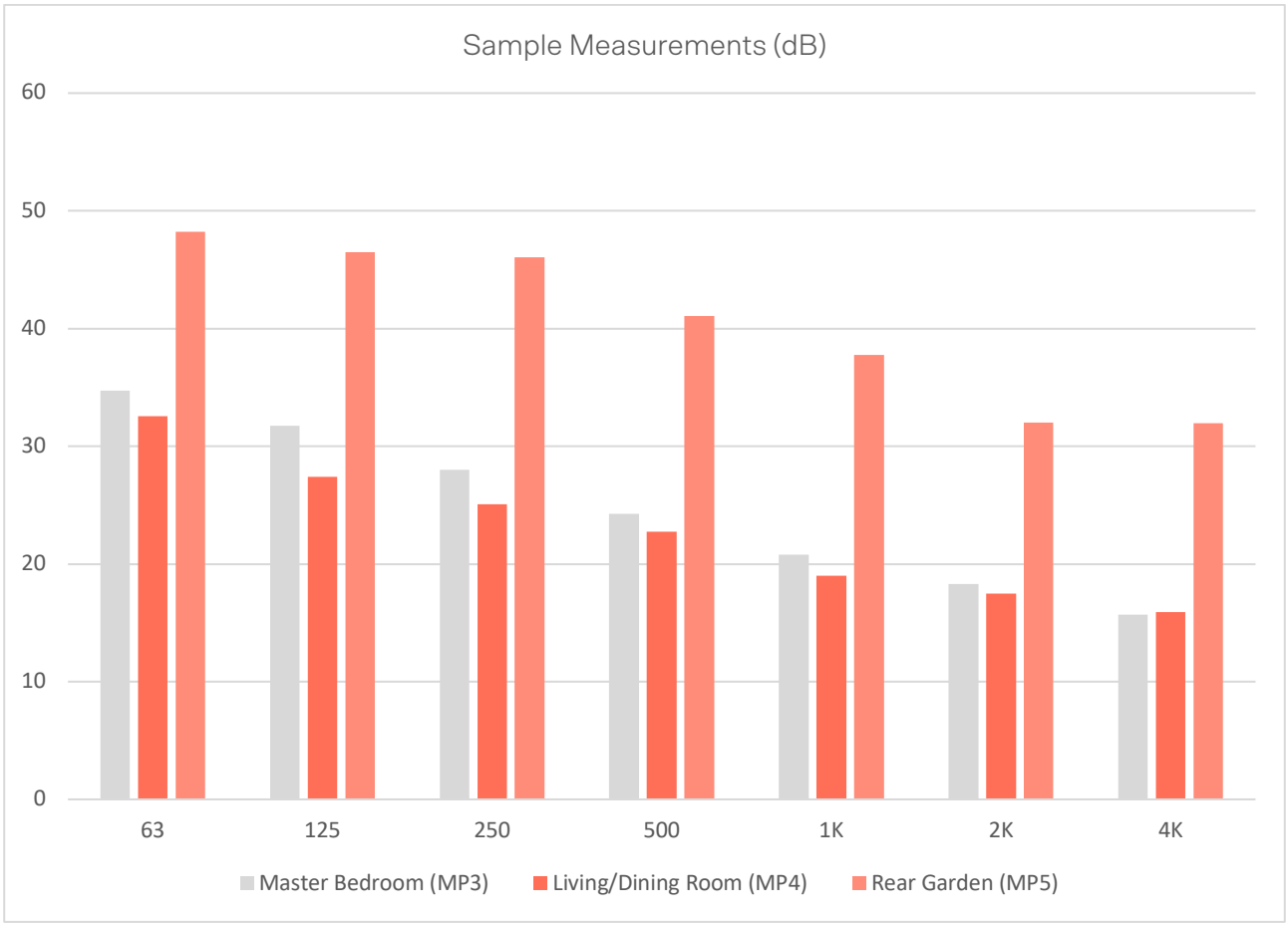




Unweighted Octave Band Results






Sample Measurements (dB)
60
50
40
30
20
10
0
63
125
250
500
1K
2K
4K
Master Bedroom (MP3)
Living/Dining Room (MP4)
Rear Garden (MP5)

Glossary of Acoustical Terms

A-weighting

Noise levels are corrected to represent human response to sound.

L_{Aeq}

This is a continuous equivalent of time varying noise, or effectively the average measured (A weighted) noise level over a defined period of time.

$L_{Aeq,16hour}$

A 16 hour long measurement of the L_{Aeq} over the period between 07:00 and 23:00, also known as a daytime measurement.

$L_{Aeq,8hour}$

An 8 hour long measurement of the L_{Aeq} over the period between 23:00 and 07:00, also known as a night time measurement.

L_{AFmax}

The highest, or maximum A-weighted sound pressure level measured over a specified time period. The 'F' defines a time weighting in Fast.

L_{A90}

The A-weighted noise level or average level which is exceeded for 90 percent of the measured time period. Also known as a background level.

L_{A10}

The A-weighted noise level or average level which is exceeded for 10 percent of the measured time period.

1:1 & 1:3 octave spectrum analysis

A single measurement that is separated into frequency bands to allow for a more detailed analysis of the noise source in question.

R_W

The weighted sound reduction index of a partition or facade. A single number value based on the performance of a partition between two rooms across the frequency range 100Hz to 3150Hz. The level is adjusted for the effects of reverberation and background noise.

$D_{n,e,w}$

The weighted level difference of a partition or façade which takes into account a small element such as a grill or vent.

SEL (sound exposure level)

A measure of A-weighted sound energy used to describe a particular event, such as a train pass. It is the sound energy, which, if occurring over one second would contain the same energy as the event.

Free field sound pressure

Is where the radiation or spread of sound is completely unaffected by the presence of any reflecting surfaces or boundaries.

Low Frequency Noise

A term generally used for sound below a frequency of 100 to 150Hz.

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