

SPRATT+HAMER



Noise Impact Report

Project Details

Client	Prestwich Estates Limited
Client Address	The Stables 2A Catherine Road Manchester M8 4HA
Site Address	511 Bury New Road Manchester M25 3AJ
Reference	22534

Quality Assurance

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Issue date	03/11/2025

Revision History

Version	Date	Editor	Notes
V1	03/11/2025	Phil Lodge	First issue



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1 Executive Summary

A noise assessment has been conducted for a proposed residential development comprising 3 no. residential apartments and 2 no. studio apartments at 511 Bury New Road, Prestwich, M25 3AJ.

The assessment has been undertaken to support a planning application for the development site to Bury Metropolitan Borough Council.

The assessment considers the impact of entertainment noise and other general ambient noise including traffic and plant noise on the proposed residential development in accordance with BS 8233: 2014 and World Health Organisation guideline criteria, as well as Approved Document E of the Building Regulations.

All results and recommendations are within the BS 8233:2014 and WHO guidelines for noise within a residential dwelling and external areas provided the proposed mitigation is implemented, including glazing and ventilation.

Following the implementation of the proposed upgrades, in conjunction with a limiter device, the floor separating the proposed flats from the ground floor entertainment venue should sufficiently protect the acoustic amenity of future residents from entertainment noise.

It is important to highlight that, while this report seeks to minimise the impact from the venue on future residents of the proposed development in line with relevant guidance and standards, certain inherent limitations must be acknowledge when evaluating the feasibility of the scheme, particularly given the nature of entertainment noise.



2 Introduction

Prestwich Estates Limited has instructed Spratt and Hamer Limited to undertake an environmental noise survey in order to assess the impact from entertainment noise, as well as other general noise within the local environment, which may have an impact on future residents of the proposed development.

The proposed development site is an existing two-storey building that was formerly used as a snooker hall. The ground floor is occupied by an operational entertainment venue and restaurant, trading as *Icons*. The venue operates from Tuesday to Sunday, operating until 23:00 on weekdays and Sundays, and 01:00 on Fridays and Saturdays. The first floor is currently vacant.

It is proposed to convert the entire first floor to form three residential apartments and two studio apartments. The ground floor is not associated with the development and will be retained.

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

This document has been prepared using the various documents listed within the appendices of this report, together with drawings, technical information and additional verbal representations made by third parties. We have not audited nor independently verified the content or accuracy of any of the documents and information provided to us in the preparation of this report.

If additional information comes to light subsequent to the production of this report, we reserve the right to revise our opinions and the conclusions reached within this report.

2.1 Noise Impact Assessment

Spratt and Hamer Limited has undertaken an environmental noise impact assessment at the proposed development with noise levels measured externally over 24-hour periods, consisting of 16-hour days (07:00 – 23:00) and eight-hour nights (23:00 – 07:00). The measurements were carried out during weekdays and over a weekend from Friday to Tuesday.

This report will state the measured noise levels and will refer to guidance relevant to the nature of this survey whilst considering Bury Metropolitan Borough Council guidance and conditions.



3 Assumptions, Limitations & Uncertainty

- a. All suggested specifications require a good level of workmanship and for materials to be installed as the manufacture intends. Any poor workmanship may lead to weaknesses in the sound attenuation provided by the building elements.
- b. It is assumed that the sound pressure levels measured on site during the environmental noise survey are typical of the site.
- c. It is assumed that the technical data provided by glazing and ventilation manufacturers is up to date and correct.
- d. It is assumed that drawings and information supplied by Prestwich Estates Limited and Debtal Architecture Limited are up to date and correct.
- e. It should be noted that building elements modelled in INSUL are only an approximation of the proposed specifications due to the limitation of materials available within the software. These models are shown in the appendix.
- f. Some of the existing construction could not be ascertained upon inspection due to the current stage of works. Consequently, some assumptions have been made.
- g. Separating element upgrades may involve complex modifications. Structural constraints, practical limitations, or high costs associated with their implementation may need to be considered.
- h. The assessment has been undertaken in order to minimise impact on the future residents, in line with relevant guidance and standards. This does not imply that all L_{AFmax} or low frequency sound events will be completely inaudible.
- i. It has been advised that access to carry out modifications to the separating floor from the ceiling side is not feasible; therefore, any required alterations will be undertaken from the floor side.



4 Planning Policies, Guidance and Criteria

The planning policies and criteria listed below are taken from associated relevant guidance documents, all of which should be considered for the internal and external noise levels.

4.1 National Planning Policy

The National Planning Policy Framework (NPPF) December 2024 set out the Government's planning policies for England and how they are expected to be applied. It provides a framework within which the Local Authorities are to prepare local plans and use their planning powers to minimise the adverse impact of noise. It should contain the following in relation to noise impacts.

187. 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 soil, air, water or noise pollution or land instability.'

198. 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 impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'

NPPF previously characterised noise by grading and recommending actions and different effect levels as reproduced in Table 1.

200. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.



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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 and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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 Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 1: Noise exposure hierarchy based on likely average response



4.2 Criteria

4.2.1 Local Planning Authority Criteria

At the time of writing the report, the consultant is unaware of any conditions or specific criteria provided by the Local Planning Authority; therefore, the following noise impact assessment will be undertaken in order to meet the criteria of BS 8233:2014.

4.2.2 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 2: 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.

Noise rating (NR) is a graphical method for assigning a single-number rating to a noise spectrum. It can be used to specify the maximum acceptable level in each octave band of a frequency spectrum, or to assess the acceptability of a noise spectrum for a particular application. The method was originally proposed for use in assessing environmental noise, but it is now used in the UK mainly for describing noise from mechanical ventilation systems in buildings (but not limited to). To obtain a rating, the noise spectrum is superposed on a family of NR contours. The NR of the spectrum corresponds to the value of the first NR contour that is entirely above the spectrum. The values at intervals of NR 5 (from NR0 to NR 75) are shown in Table B.1 within BS8233: 2014 for the frequency range 31.5 Hz to 8 kHz.



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The table below outlines NR curves from NR15 to NR30, based on Table B.1 of BS8233: 2014.

Noise Rating	Octave Band Centre Frequency Hz (dB)					
	125	250	500	1K	2K	4k
NR 35	52.5	44.6	38.5	35.0	32.0	29.8
NR 30	48.1	39.9	33.6	30.0	27.0	24.7
NR 25	43.8	35.2	29.2	25.0	21.9	19.5
NR 20	39.4	30.6	23.8	20.0	16.8	14.4
NR 15	35.1	26.0	18.9	15.0	11.7	9.3

Table 3: NR Curve Criteria

4.2.3 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 4: A Summary of the Guidance Noise Levels

4.3 Approved Document Part E The Resistance to the Passage of Sound

The acoustic requirements of residential buildings are normally given in national building regulations and associated guidance documents. For England, acoustic performance requirements are given in the Building Regulations Approved Document E 2003 (ADE).

ADE provides guidance on how the Regulations may be satisfied and sets acoustic performance standards. The required level of insulation for airborne sound is summarised in the following table.

Dwelling-houses and flats formed by material change of use			
Separating floors	Airborne	$D_{nT,w} + C_{tr}$	≥ 43 dB

Table 5: Approved Document Part E Performance Standards

In addition, paragraph 0.8 of ADE highlights that:

“The performance standards set out in Tables 1a and 1b are appropriate for walls, floors and stairs that separate spaces used for normal domestic purposes. A higher standard of sound insulation may be



required between spaces used for normal domestic purposes and communal or non-domestic purposes. In these situations, the appropriate level of sound insulation will depend on the noise generated in the communal or non-domestic space. Specialist advice may be needed to establish if a higher standard of sound insulation is required and, if so, to determine the appropriate level."

4.4 Criteria Summary

In order to meet the anticipated requirements of Bury Metropolitan Borough 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*. In addition, the sound insulation requirement for the separating element will also be based on *Approved Document E: Resistance to the Passage of Sound*.



5 Site Description

The proposed development is an existing two storey building situated in Prestwich, a town in the Metropolitan Borough of Bury situated approximately 6.3km north of Manchester city centre. The area is of a mixed commercial and residential environment.

To the east of the site runs the A56 (Bury New Road), a 30mph two-way road which provides moderate to high levels of traffic flow. The front façade is situated at approximately 18m from the road. A small loading area associated with Icons, lies between the road and the building. Along the A56 road is where most of the commercial activity takes place, including a few retail shops (Farmfoods and Marks & Spencers Foodhall), licensed premises (Prestwich Liberal Club), Pet shop (Pets at Home) and others. Several bars and restaurants also operate in the vicinity of the proposed development.

To the west, the rear façade of the building overlooks a bowling green. The north façade overlooks no. 513 Bury New Road (Neil E Mann solicitors), while the south façade directly adjoins Prestwich Liberal Club. It is important to note that various plant associated with Icons were in operation, including a rooftop kitchen extraction system, and condensers, mounted on the side façade.

The noise profile of the area is dominated by traffic and other noise sources secondary in nature, such as plant and entertainment noise.

5.1 Subjective Observations

During site attendance, the primary source of noise at the front façade was road traffic from the A56, mixed with entertainment noise emanating from Icons, more noticeable during quiet periods. At the side façade, road traffic remained dominant, with entertainment and plant noise being audible when traffic noise was not prominent.

5.2 Weather

19-23/09/2025	Friday	Saturday	Sunday	Monday	Tuesday
Temperature (°C)	15.8 – 19.2	8.0 – 16.0	4.0 – 15.4	0.9 – 15.3	2.4 – 18.6
Wind Speed (m/s)	0.0 – 2.0	0.0 – 4.0	0.0 – 1.3	0.0 – 1.9	0.0 – 1.1
Wind Direction	WSW	S	SE	ESE	ESE
Precipitation (mm/h)	0.0 – 1.8	0.0 – 13.8	0.0 – 1.8	0.0	0.0
Damp road/ wet ground	Damp	Wet	Damp	Dry	Dry
Fog/snow/ice	No	No	No	No	No

Table 6: Measuring Weather Conditions

All weather data taken from www.metoffice.gov.uk from EcoWitt weather station, located at approximately 8.2km northeast of the proposed development.



6 Noise Measurement Procedure

6.1 Survey Date(s)

Friday 19/09/2025 – Tuesday 23/09/2025

6.2 Personnel Present

Phil Lodge BSc (Hons) PGDip AMIOA

Luke Owen BSc AMIOA

Jonny Spratt BSc (Hons)

6.3 Survey Equipment Used

Manufacturer	Model	Serial No.	Description
Rion	NL-52	01054205	Integrating Sound Level Meter and Real Time Analyser
Rion	NA-28	00211583	Integrating Sound Level Meter and Real Time Analyser
Pulsar	Model 105	86702	Acoustic Calibrator
Pulsar	Model 105	59964	Acoustic Calibrator
Rion	NL-52	00976149	Integrating Sound Level Meter and Real Time Analyser

Table 7: Survey Equipment Used

6.4 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.

6.5 External Ambient Sound Measurements

The measurement locations chosen during the survey were deemed suitable for the determination of the noise levels able to impact upon the façades of the proposed development.

The sound level meters were set to measure broadband and 1:1 octave centre frequency bands L_{Aeq} , L_{A90} , L_{A10} and L_{AFmax} in 5-minute intervals.

6.5.1 Monitoring Position 1

A microphone was positioned to protrude through the first-floor window, 1m from the front (east) façade, overlooking Bury New Road. The sound level meter was set to record WAV file audio recordings for all maximum sound level events above 75 dBA. The meter was set to measure the complete survey period.



6.5.2 Monitoring Position 2

A microphone was positioned to protrude through the first-floor window 1m from the side (north) façade overlooking the carpark and neighbouring building. The sound level meter was set to record WAV file audio recordings for all maximum sound level events above 70 dBA. The meter was set to measure the complete survey period.

6.6 Location Plan of Measurement Positions

The location plan below shows the proposed development and positions of the monitoring equipment.



Figure 1: Indicative Location Map. Image taken from www.google.com/maps

6.7 Internal Ambient Sound Measurements

The measurement locations chosen during the survey were deemed suitable for the determination of the internal noise levels during a typical live music event within the entertainment venue.

The sound level meter was set to measure broadband and 1:1 octave centre frequency bands L_{Aeq} , L_{A90} , L_{A10} and L_{AFmax} in 10-second intervals.



Microphones were mounted on tripods at a height of 1.5 metres above floor level at three monitoring positions around the room, each operating for varying durations, as outlined in the following table

Monitoring Position	Location	Timbe Base
A	Seating area	11 min
B	In front of stage	17 min
C	Seating area	4 min

Table 8: Internal Monitoring Positions

The following figure indicates the internal monitoring locations.

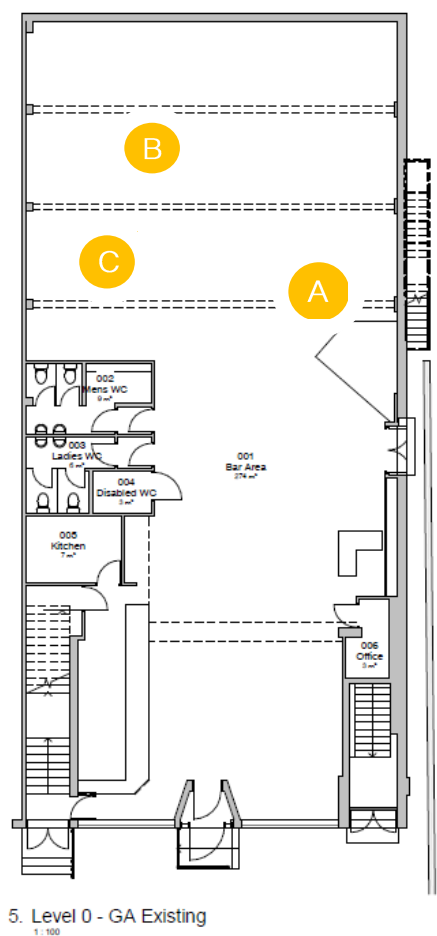


Figure 2: Event Internal Monitoring Positions



7 Results and Analysis

7.1 External Ambient Sound Measurement Analysis in Accordance with BS 8233:2014

The following table presents the measured results from both external monitoring positions.

The noise profile of the area includes sources of commercial and entertainment noise. As such, in order to achieve the anticipated Local Authority criteria, ambient sound levels in 1-hour intervals will be used in the assessment for daytime and nighttime.

Adverse weather conditions were observed during the monitoring period predominantly between 05:45 on Saturday to 01:00 on Sunday. As such, for the purposes of the assessment, data during this period has been excluded.

The measurement results have had a façade correction of 3 dB applied in order to adjust the result so that it is comparable to a free-field sound pressure level.

Monitoring position	Day	Time Period	Time Base T	$L_{Aeq,T}(dB)$	Highest $L_{Aeq,1hour}(dB)$	$L_{AFmax}(dB)$
1	Friday	Daytime	5hr	67.0	70.0	-
		Nighttime	7hr	62.1	64.5	68.4 - 92.3
	Saturday	Daytime	-	-	-	-
		Night-time	6hr	63.0	65.9	69.8 - 95.8
	Sunday	Daytime	16hr	65.8	67.1	-
		Night-time	8hr	64.1	68.4	68.2 - 97.9
	Monday	Daytime	16hr	67.5	70.9	-
		Night-time	5hr	60.3	63.0	65.7 - 91.1
2	Friday	Daytime	6hr	59.3	61.2	-
		Nighttime	7hr	55.3	58.1	62.7 - 83.1
	Saturday	Daytime	-	-	-	-
		Night-time	6hr	56.5	58.7	64.7 - 81.3
	Sunday	Daytime	16hr	59.1	60.3	-
		Night-time	8hr	57.2	61.6	61.5 - 91.0
	Monday	Daytime	11hr	60.3	62.6	-
		Night-time	5hr	60.3	63.0	65.7 - 91.1

Table 9: Measurement Results

Data charts can be found in the appendix.



7.2 Nighttime L_{AFmax} Analysis

The L_{AFmax} measured during the nighttime (23:00–07:00) has been analysed. WHO Community Noise Guidelines states “For a good night sleep it is believed that indoor sound pressure should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night (Vallet & Vernet 1991).

7.2.1 Nighttime L_{AFmax} at Monitoring Position 1

The frequency spectrum data indicates that the highest L_{AFmax} 97.9 dB and subsequent events were originated from sirens of emergency vehicles.

The event of 86.6 dB L_{AFmax} , occurring at 00:11 on night 4 (Monday) was also caused by an emergency vehicle. This value was exceeded eight times on night 3 (Sunday) but fewer than 4 times on the other nights. In addition, analysis has established that this event has higher energy content on the lower frequency than the average. As such, the 86.6 dB L_{AFmax} event will be used for the assessment at this monitoring position as this is considered representative of other L_{AFmax} events during the nighttime period as well as provide a robust approach

7.2.2 Nighttime L_{AFmax} at Monitoring Position 2

The frequency spectrum analysis indicates that the highest L_{AFmax} levels, measured at 91.0 dB on night 3 (Sunday) and 81.3 dB on night 2 (Saturday), were attributable to emergency vehicle sirens, while the highest measured event on night 1 (83.1 dB) was associated with a passing road vehicle. Subsequent events were a combination of emergency sirens and vehicle passings.

Further analysis established that the third highest event of L_{AFmax} of 85.7 dB on night 3 (Sunday) was caused by an emergency vehicle and experienced higher energy content in the low frequency than the average occurrence. No exceedances above 85.7 dB(A) were observed in the other nights. As such, 85.1 dB L_{AFmax} will be adopted as it is considered representative of other L_{AFmax} events during the nighttime period as well as provide a robust approach.



8 Recommendations

In order to provide a robust approach, the estimated internal noise levels attributed by the external noise sources for both day and nighttime periods have been assessed using:

- The highest measured 1-hour interval $L_{Aeq,T}$ octave band ambient sound levels for daytime and nighttime.
- The L_{AFmax} maximum value analysis from the nighttime.

The above, along with the building element evaluation will provide the basis for the following recommendations.

8.1 Glazing & Ventilation Specification

The glazing and ventilation specification in habitable rooms should consist of double-glazed unit in well-sealed frames and a quality mechanical system as shown in the table below.

Spec.	Façade	Room	Glazing	Ventilation
1	Front	Bedrooms & Studios	6mm glass / 16mm air / 8.8mm Optiphon	Mechanical MVHR
		Living rooms		
2	Side	Bedrooms & Studios		Greenwood Vent 5000EA + 1 Acoustic Set -or- Mechanical MVHR
		Living rooms		

Table 10: Glazing & Ventilation Specification

8.2 Notes on Ventilation

NOTE 5 in section 7.7.2 of BS 8233:2014 states “if relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level.”

It should be noted that it's the responsibility of Prestwich Estates Limited to ensure that the ventilation strategy is sufficient to meet the requirements of Building Regulations Approved Documents F (ADF) and Approved Document O (ADO).

Where mechanical ventilation is utilised, the system is to be designed by a suitably qualified engineer or M&E consultant. The system should be designed so the cumulative internal ambient sound levels are not exceeded. Typically, a good quality MVHR system, when operated at mean capacity should not pose a significant contribution. Furthermore, ADF states in Section 1.7:

“Account should be taken of outside noise when considering whether openable windows are appropriate for purge ventilation.

NOTE: Although there is no requirement to undertake noise testing, achieving the levels in the following guidance would ensure good acoustic conditions. The average A-weighted sound pressure level for a ventilator operating under normal conditions and not at boost rates should not exceed both of the following.

30dB $L_{Aeq,T}$ for noise-sensitive rooms (e.g., bedrooms and living rooms) when a continuous mechanical ventilation system is running on its minimum low rate.



45dB $L_{Aeq,T}$ in less noise-sensitive rooms (e.g., kitchens and bathrooms) when a continuous operation system is running at the minimum high rate or an intermittent operation system is running.”

Externally, a well-designed mechanical ventilation system is likely be inaudible at the nearest receptor, with supply and exhaust vents typically not surpassing 35 dB(A) at 1 meter.

The glazing and ventilation suggestions have been calculated assuming the windows are tightly closed. However, it must be noted that windows may be openable to provide rapid or purge ventilation or means of escape.

8.3 Specification Guide

Below is a visual aid to identify the location of the glazing specifications as described above.



Figure 3: Specification Guide



9 Calculation Methodology

Calculations for the BS 8233:2014 assessment have been based on the rigorous calculation method of BS 8233:2014 and BS EN 12354-3.

The calculations aim to meet the requirement of ADF (ventilation). However, Part F expert advice must be sought. If more ventilation is required, further calculations may need to be carried out.

All room dimensions used in calculations are based on drawings provided by the architect. See appendix – Site plans.

The calculations assume the external walls to be solid 200mm solid masonry (brick).

The calculations assume each room has a reverberation time of 0.5 seconds in living rooms and 0.4 seconds in bedrooms.

The predictions also have been calculated assuming all windows are tightly closed.

9.1 Building Elements

The following table shows the expected performance of the glazing and ventilation.

Element	Description	$R_w/D_{n,e,w}$ (C, C_{tr}) (dB)	Octave Centre Frequencies (Hz) SRI / $D_{n,e}$ (dB)					
			125	250	500	1k	2k	4k
Glazing	6mm (16) 6.8mm Optiphon	40 (-2;-6)	21.0	28.0	37.0	48.0	48.0	54.0
Ventilation	Greenwood Vent 5000EA + 1 Acoustic Set	42 (-2;-4)	40.8	41.9	37.4	44	45.9	40.9
	MVHR	n/a						

Table 11: Glazing & Ventilation SRI

The selected units or products described have been used as a guide to form part of the specification. Other similar units or products can be used provided they can achieve the given minimum acoustic performance.



10 Estimated Performance

The following table compares the estimated performance values with the measured values at the most exposed façades.

Location	Room	Time period	Measured External		Estimated Internal / External		Criteria		Exceed. <i>L</i> _{Aeq,T} (dB)	Exceed. <i>L</i> _{AFmax} (dB)
			<i>L</i> _{Aeq,T} (dB)	<i>L</i> _{AFmax} (dB)	<i>L</i> _{Aeq,T} (dB)	<i>L</i> _{AFmax} (dB)	<i>L</i> _{Aeq,T} (dB)	<i>L</i> _{AFmax} (dB)		
Front Façade	Bedroom	Daytime	70.9	-	28.4	-	35	-	-6.6	
		Nighttime	68.4	86.6	29.5	40.2	30	45	-0.5	-4.8
	Living room	Daytime	70.9	-	31.2	-	35	-	-3.8	-
Side Facade	Bedroom	Daytime	62.5	-	23.8	-	35	-	-11.2	-
		Nighttime	59.2	85.7	25.9	39.9	30	45	-4.1	-5.1
	Living room	Daytime	62.5	-	24.2	-	35	-	-10.8	-

Table 12: Estimated performance



11 Noise Breakthrough Results and Assessment

The proposed development will contain residential apartments on the first floor and an existing entertainment venue on the ground floor. In order to protect the amenity of future residents, this section will assess the impact of the noise breaking through the partition element.

11.1 Existing Floor Construction

The existing separating floor is of a timber base construction. However, the exact detail of the current separating element could not be ascertained upon inspection.

Sound testing was carried out in accordance with BS EN ISO 16283-1 in order to establish the separating floor current performance. Results are presented in the following table.

Description	Octave Band Centre Frequency Hz (dB)							$D_{nT,w} + C_{tr}$ (dB)
	63	125	250	500	1K	2K	4K	
Separating Floor Performance R'	26	33	39	51	59	64	59	45

Table 13: Airborne Sound Insulation Test

11.2 Entertainment Venue Noise Emissions

Monitoring of activity associated with the entertainment venue was undertaken at the time of the survey. This included amplified recorded music with live vocals (Teddy Swims tribute) played through a medium size PA system. It was observed that patron numbers were low with limited contribution to the noise emissions.

Internal monitoring was undertaken at three representative positions within the rear room where the event was held. The meter was mounted on a tripod at a height of 1.5m. The measured results are presented in the following table.

Monitoring Position	Unweighted Octave Band Centre Frequency Hz (dB)							$L_{Aeq,T}$ (dB)
	63	125	250	500	1K	2K	4K	
A	99	95	92	89	83	79	82	91
B	104	100	94	91	87	81	83	93
C	96	99	94	90	83	79	82	92

Table 14: Entertainment Noise Results

As shown in the table above, Monitoring Position 4 experienced the highest $L_{Aeq,T}$ broadband value and $L_{eq,T}$ across all octave band centre frequencies. Accordingly, this measurement will be adopted to ensure a robust assessment.

11.3 NR Curve Target

NR Curve analysis is used to gain a greater understanding of the frequency content of a sound. It has been advised that the entertainment venue operates until 01:00. For robustness, a more stringent nighttime criteria NR15 curve (rather than NR25) will be adopted to minimise audibility, in accordance with relevant guidance and certain local authority policies. It should be noted, however, that achieving this target does not imply that all L_{AFmax} or low frequency sound events will be completely inaudible.



11.4 Assessment of Existing Separating Floor

The table below will establish the expected internal noise emissions due to activity occurring within the entertainment venue, considering the performance of the separating element compared against the NR15 curve target and nighttime BS8233 criteria of 30 dB $L_{Aeq,T}$.

Description	Un-weighted Octave Band Centre Frequency Hz (dB)*							dBA
	63	125	250	500	1K	2K	4k	
Entertainment Sound Level $L_{eq,T}$	104	100	94	91	87	81	83	93
Existing Floor Performance R'	26	33	39	51	59	64	59	45 $D_{nT,w} + C_{tr}$
Sound Level in Receptor $L_{eq,T}$	78	67	55	40	28	17	23	48
NR15 criteria	47	35	26	19	15	12	9	30
Exceedance over NR15	+31	+32	+29	+21	+13	+5	+14	+18

Table 15: Sound Insulation Assessment

*Rounded to nearest integer

As demonstrated in the table above, the noise ingress within the proposed apartments would exceed NR15 at all frequency bands and nighttime broadband value. As such, upgrades will be required.

The following chart outlines the results against the relevant NR curves, illustrating exceedances when relative to the NR15, NR20 and NR25 criteria.

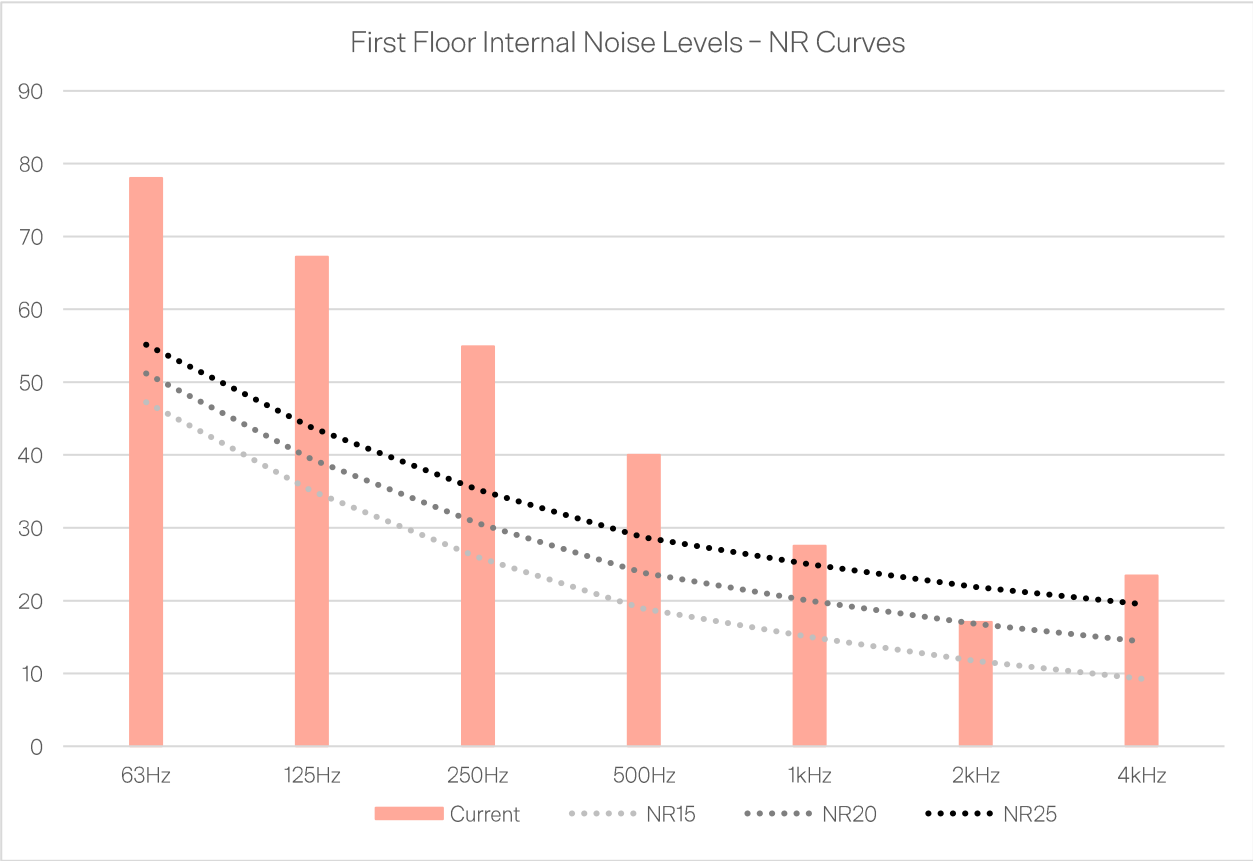


Figure 4: NR Curve Assessment Chart



12 Recommendations

Spratt and Hamer have been informed that modifications to the ceiling side of the separating floor are not feasible therefore, all necessary alterations will be undertaken at first floor level. It has been advised that the existing planning use of the ground floor commercial unit will be retained as an entertainment venue. Accordingly, upgrades will be applied to the separating floor, with additional measures implemented as necessary, including the use of a PA system limiter device.

12.1 Separating Element Upgrades

The table below sets out the upgrade recommendations in order to ensure the separating element achieves the minimum performance standards.

The floor performance has been predicted using INSUL 9.0 prediction software. Note that the resulting sound insulation levels have not taken into consideration factors such as flanking paths, geometry, size or reverberation of the rooms involved, therefore uncertainty can be expected. Uncertainty corrections have been applied to the predicted sound reduction.

Element	Recommendations
Floor	1. Overlay the sub-floor with 1 no. layer of 15mm fire rated plasterboard. 2. Form an independent floor on timber joists creating a min. 150mm cavity. The new joists must be completely independent from the sub-floor, without any connections, while seeking advice from the structural engineer. 3. Partially fill the cavity with 100mm mineral wool insulation of 45kg/m³ e.g. Rockwool RWA45, tightly fitted and without gaps. 4. Overlay the joists 20mm screed board and 18mm floor-grade chipboard.

Table 16: Floor Partition Recommendations

The following table outlines the frequency band expected floor performance and compares the predicted receptor noise level with the relevant NR15 Curve target and nighttime BS8233 criteria.

Description	Un-weighted Octave Band Centre Frequency Hz (dB)							dBA
	63	125	250	500	1K	2K	4k	
Entertainment Sound Level $L_{eq,T}$	104	100	94	91	87	81	83	93
Predicted Upgraded Floor R'	49	59	70	88	100	114	123	65 $D_{nT,w} + C_{tr}$
Sound Level in Receptor $L_{eq,T}$	55	41	24	3	0	0	0	28
NR15 Curve Criteria	47	35	26	19	15	12	9	30
Exceedance	+8	+6	-2	-16	-28	-45	-50	-2

Table 17: Proposed Upgrade Results

As demonstrated in the table above, the resulting performance exceeds the NR criteria at 63 Hz and 125 Hz. As such, additional mitigation will be required, as established in the following section



All suggested specifications require a good level of workmanship and for materials to be installed as the manufacture intends. Any poor workmanship may lead to weaknesses in the sound insulation provided by the building elements.

It is important to note that the resulting sound insulation levels do not account for factors such as unforeseen flanking paths, geometry, size or reverberation of all the rooms involved.

The chart below shows the predicted internal noise levels within the first-floor apartments before and after the proposed floor upgrades are implemented. These have been compared with the relevant NR rating curve criteria.

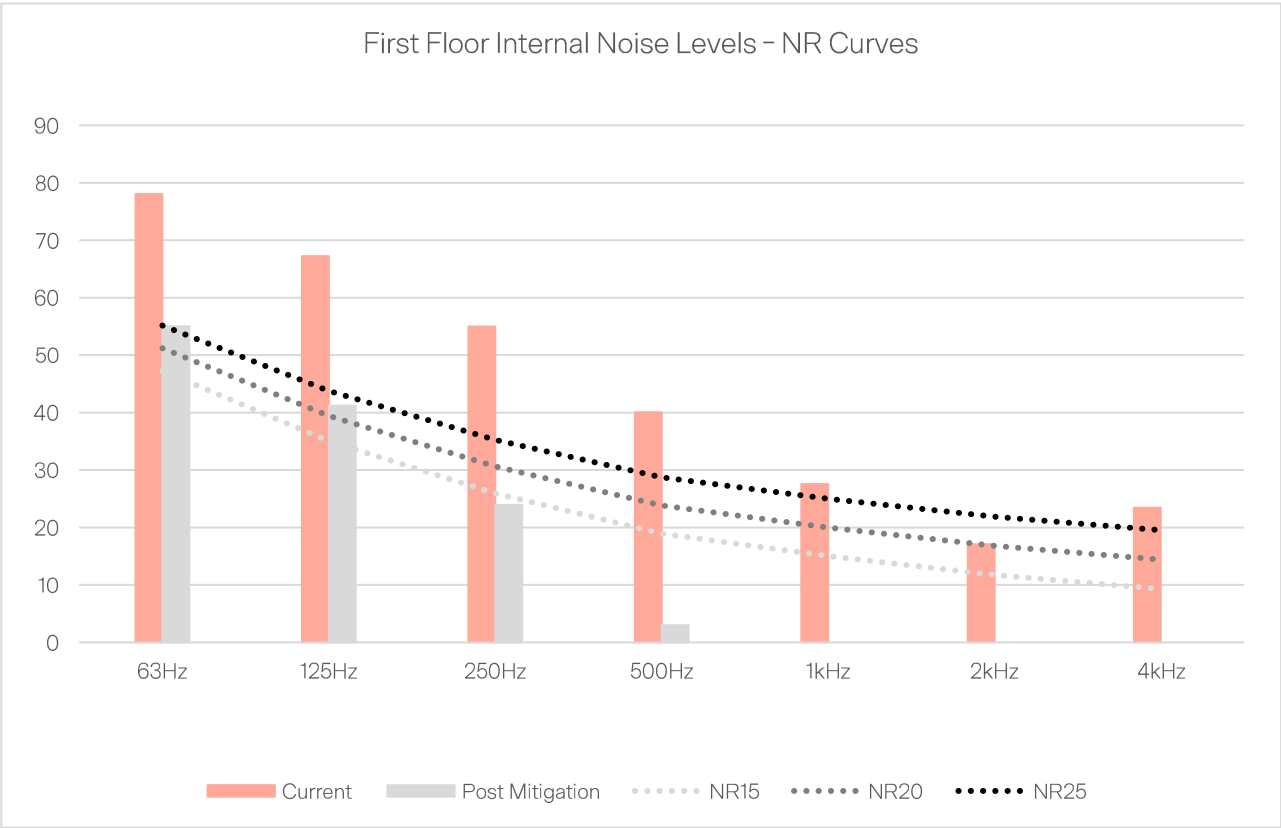


Figure 5: NR Curve Assessment with Floor Mitigation Chart

In addition, in order to control potential flanking sound via the external wall structure, the following section will provide treatment recommendations for the external wall.



12.1.1 External Wall Upgrade

In addition, To address flanking transmission, it is recommended that all external walls in habitable rooms are upgraded incorporating an independent wall lining, as detailed in the following table.

Area	Upgrade	Recommendations
Habitable Rooms	Independent Wall Lining	- Form an independent wall lining using 75x50mm timber studs creating a gap of min. 10mm. The stud must be completely independent of the masonry wall without any connections or bracings. - Partially fill the cavity between joists with 75mm mineral wool insulation of 45kg/m³ e.g. Rockwool RWA45, tightly fitted and without gaps. - Board with 2 layers of 15mm sound rated plasterboard.

Table 18: External Wall Upgrade Specification

Furthermore, structural vibration within the building may be cause of disturbance to occupants due to ground-borne transmission. Accordingly, it is advised that a vibration assessment in accordance with BS 6472-1:2008 – *Guide to the Evaluation of Human Exposure to Vibration in Buildings* may be applicable.

12.2 Additional Mitigation: Amplified Music Limit Level

In order to ensure that noise levels at the receptor achieve the relevant criteria, an amplified music limit level will be established for each frequency band, in order to minimise noise intrusion. For robustness, a -3 dB correction will be applied for uncertainty.

Description	Un-weighted Octave Band Centre Frequency Hz (dB)						
	63	125	250	500	1K	2K	4K
Entertainment Sound Level $L_{eq,T}$	104	100	94	91	87	81	83
Exceedance $L_{eq,T}$	-8	-6	-	-	-	-	-
Uncertainty correction	-3	-3	-3	-3	-3	-3	-3
Music Limit Level $L_{eq,T}$	93	91	91	88	84	78	80

Table 19: Amplified Music Limit Level

As indicated above, amplified music within Icons should not exceed the values outlined in the previous table. Further assessment and/or design by the relevant audio system specialist should be sought. Note that this target does not mean that all L_{AFmax} or low frequency sound events will be inaudible.



13 Conclusion

The noise assessment has sought to minimise potential noise impact on future residents of the proposed development in accordance with relevant guidance and standards. However, it is important to acknowledge the inherent limitations in assessing the feasibility of the scheme, particularly considering the nature of entertainment noise.

Taking into account the above, it can be concluded that:

Internal Ambient Noise Levels

- When installing the glazing and ventilation specification as discussed in the recommendations section, the internal noise levels described in BS 8233:2014 can be achieved in all habitable rooms, therefore discharging the Local Authority anticipated conditions.
- Mechanical ventilation will be required to all habitable rooms at the front façade (studio 1 and apartment 1).

Sound Insulation

- A wall lining system is recommended to the external walls of all habitable rooms to reduce flanking transmission.
- An amplified music limit level has been established. An adequately distributed PA system and installation of a limiter device will need to be incorporated in order to minimise noise emissions. Further assessment and/or design will be required by the relevant audio system specialist.
- It should be noted that floor upgrades may involve complex modifications. As such, structural constraints, practical limitations, or high costs associated with their implementation will need to be considered.
- Following the implementation of the recommended upgrades, the floor separating the proposed flats from the ground floor entertainment venue are expected to sufficiently protect the acoustic amenity of future residents from entertainment noise breaking through the partition.

Further Recommendations

- Structural vibration within the building may be cause of disturbance to occupants due to ground-borne transmission. Accordingly, a vibration assessment in accordance with BS 6472-1:2008 – *Guide to the Evaluation of Human Exposure to Vibration in Buildings* may be considered.
- Where applicable, approval may be made contingent upon a condition requiring post-construction internal noise monitoring, to verify and ensure adherence with the established design criteria.



14 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

Approved Document E: The resistance to the passage of sound

www.google.co.uk/maps

14.1 Drawing References

DA19147 – 511 Bury New Road – 302 – Existing Site Plans

DA19147 – 511 Bury New Road 002.2 – Existing GA Plans and Elevations

DA19147.2 – 511 Bury New Road – 003 – Proposed Plans and Elevations



Appendix

Figure 1: Photograph showing Monitoring Position 1



Figure 2: Photograph showing Monitoring Position 2



Figure : Photograph showing internal monitoring position



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Proposed Site Plans



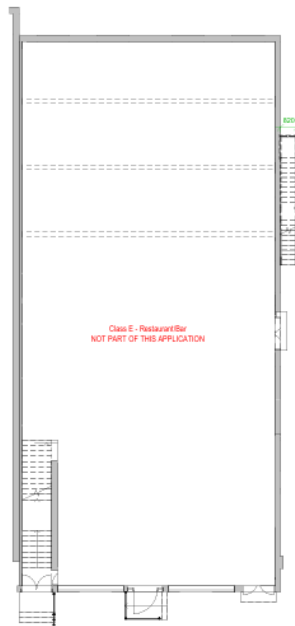
1. Front - East Elevation - Proposed
1:100



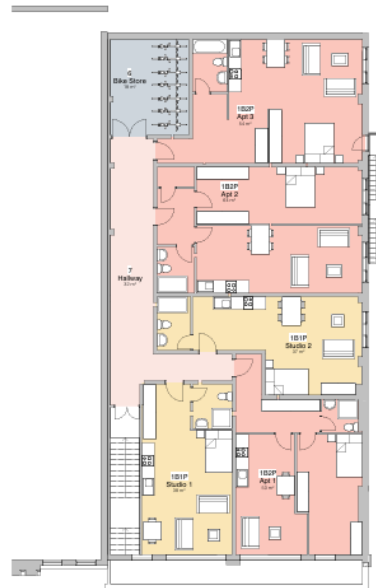
4. Right - North Elevation - Proposed
1:100



3. Rear - West Elevation - Proposed
1:100



5. Level 0 - GA Proposed CoU
1:100



2. Left - South Elevation - Proposed
1:100

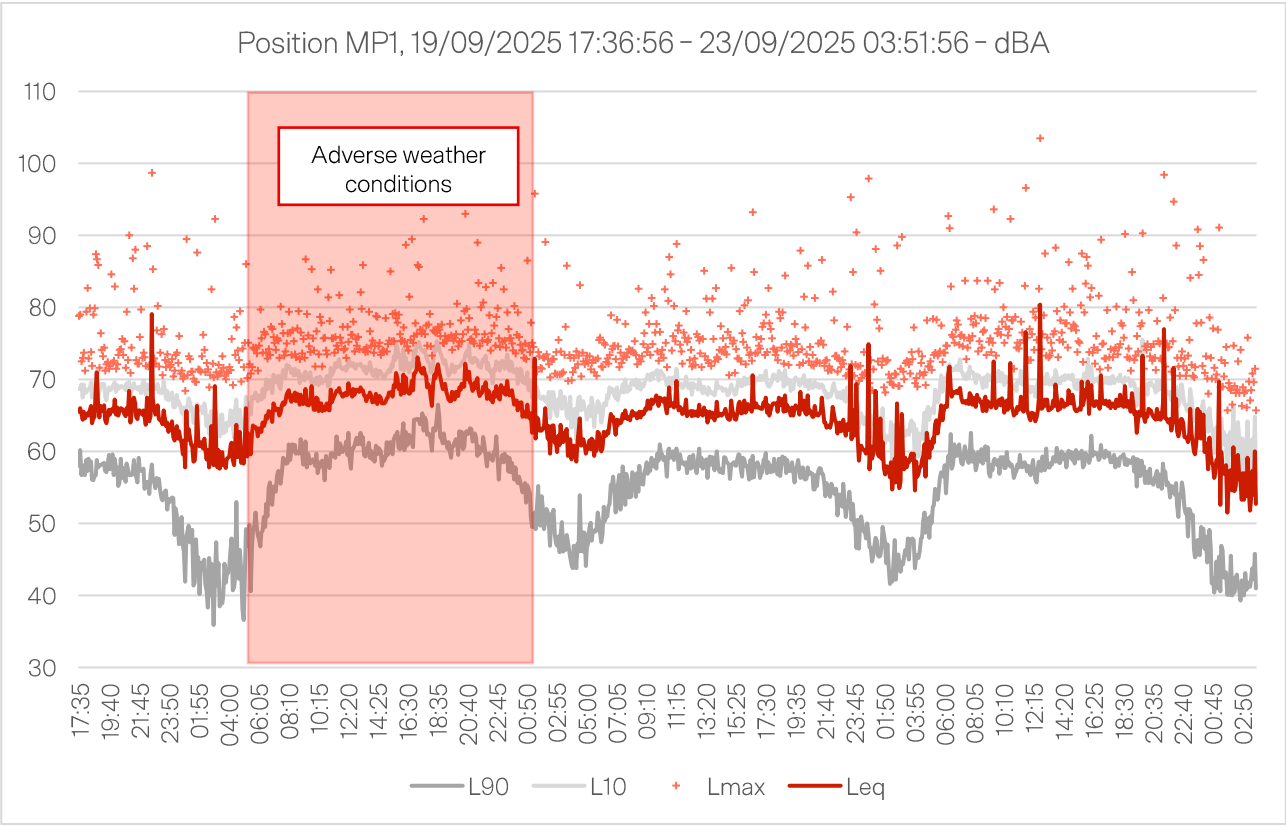
New Block - Elevations - GA

0.5 1 1.5 2 2.5
SCALE 1:100

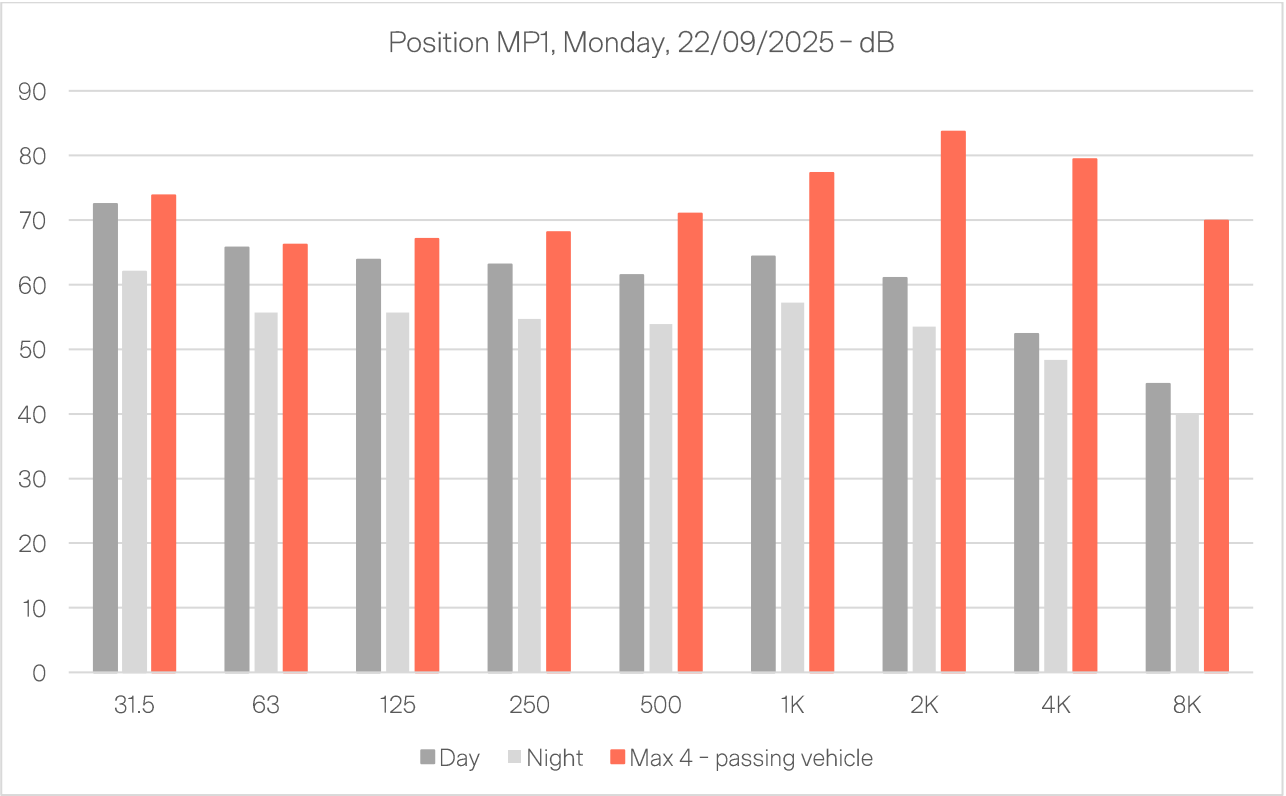
511 Bury New Road	1:100	06 MAR 2025	PY
Prestwich Estates Limited	PLANNING		
Proposed Plans and Elevations	DA19147.2. 003.		

Measurement Results

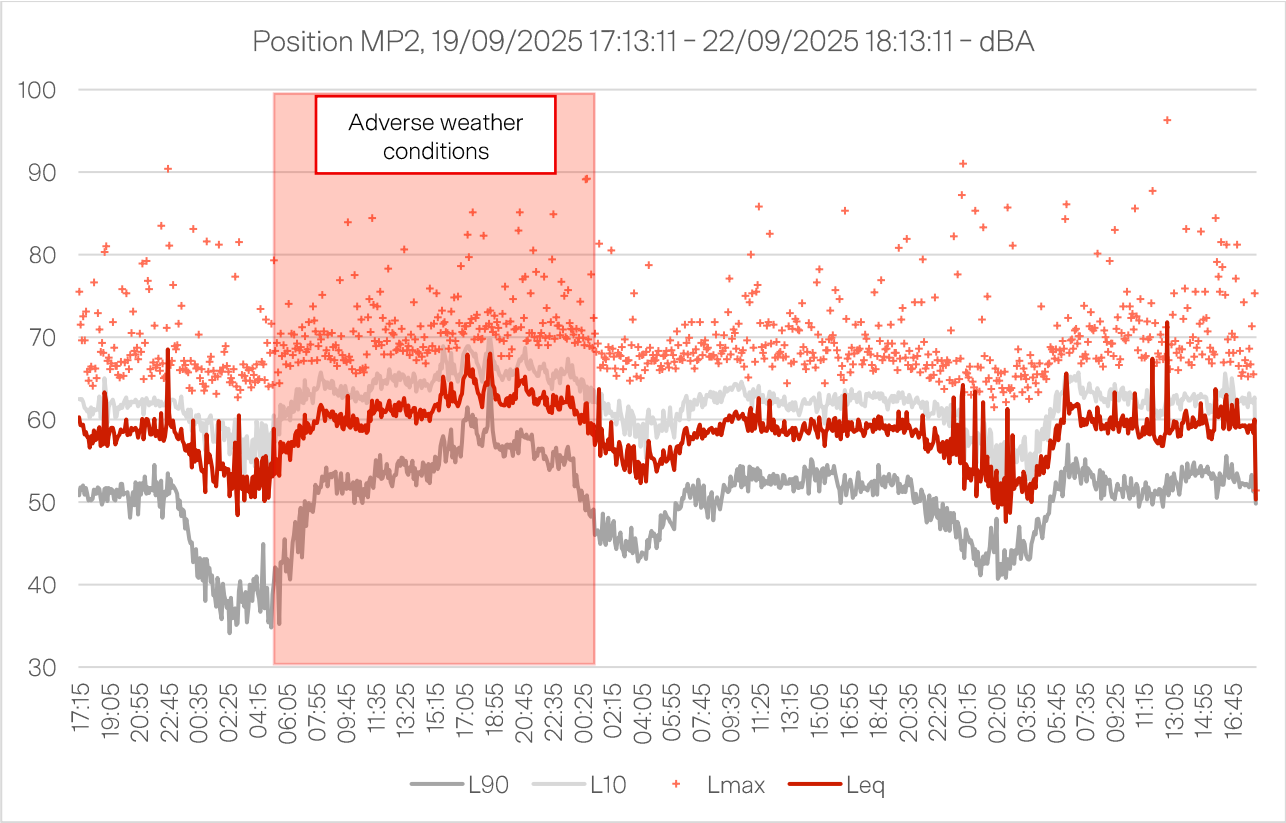
Monitoring Position 1



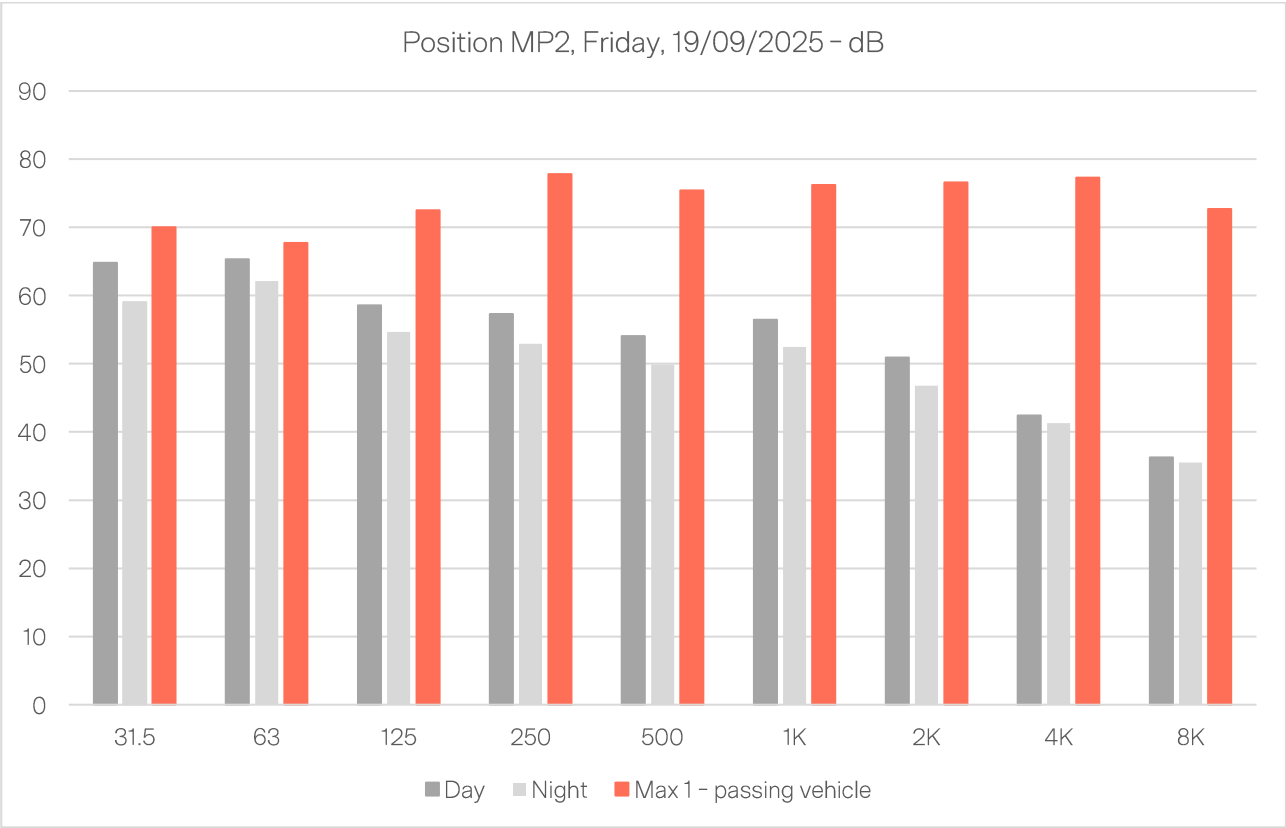
Un-weighted 1:1 Octave Results



Monitoring Position 2



Un-weighted 1:1 Octave Results



Sound Insulation Test Result

Airborne Sound Insulation Floor Test

Field measurements of airborne sound insulation between rooms

Client Name	
Site Address	511 Bury New Road, Prestwich, Manchester M25 3AJ
Date of Test	23/09/2025
Name of Technician	
Source Room	first floor residential
Source Room Volume	1,103.5m³
Receiver Room	ground floor event space
Receiver Room Volume	395.0m³
Area of Test Element	133.6m²
Construction Type	Timber
Construction Detail	Exact detail unknown

Rating according to ISO 717-1

(Higher $D_{nT,w} + C_{tr}$ figures denote better sound insulation performance)

$$D_{nT,w} = 52 \text{ dB}$$

$$C_{tr} = -7 \text{ dB}$$

$$45 \text{ dB } D_{nT,w} + C_{tr}$$

Standardised Level Difference according to BS EN ISO 140-4:1998 and Approved Document E 2003

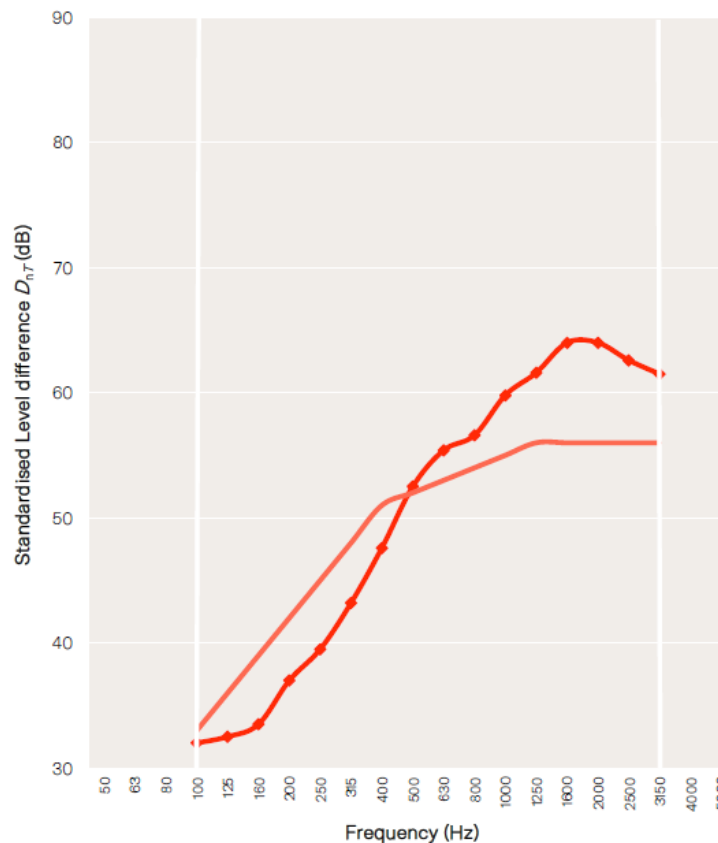
Frequency (Hz)	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
DnT (dB)	N/A	N/A	N/A	32.0	32.5	33.5	37.0	39.5	43.2	47.6	52.5	55.4	56.6	59.8	≥61.6	≥64.0	≥64.0	≥62.6	≥61.5	N/A	N/A

' ≥ ' shows the limit of measurement due to background noise

Test Reference: S-1

V1

Evaluation based on field measurement results obtained by an engineering method
Frequency range according to the curve of reference values (ISO 717-1)



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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