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Noise Impact Report

Project Details	
Client	Mr Sheraz Khan
Client Address	33 York Street Heywood OL10 4NN
Site Address	33 York Street Heywood OL10 4NN
Reference	21969

Quality Assurance	
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Contents

1	Summary.....	5
2	Introduction.....	6
2.1	Noise Impact Assessment.....	6
3	Assumptions, Limitations & Uncertainty.....	7
4	Planning Policies, Guidance and Criteria.....	8
4.1	National Planning Policy.....	8
4.2	Criteria.....	10
4.2.1	Local Planning Authority Criteria.....	10
4.2.2	BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings.....	10
4.2.3	WHO Guidelines for Community Noise.....	11
4.3	Criteria Summary.....	11
5	Site Description.....	12
5.1	Subjective Observations.....	12
5.2	Weather.....	12
6	Noise Measurement Procedure.....	13
6.1	Survey Date(s).....	13
6.2	Personnel Present.....	13
6.3	Survey Equipment Used.....	13
6.4	Calibration.....	13
6.5	External Ambient Sound Measurements.....	13
6.5.1	Monitoring Position 1.....	13
6.5.2	Monitoring Position 2.....	14
6.6	Location Plan of Measurement Positions.....	15
7	Results and Analysis.....	16
7.1	External Ambient Sound Measurement Analysis in Accordance with BS 8233:2014.....	16
7.2	Night Time L_{AFmax} Analysis.....	16
7.2.1	Night Time L_{AFmax} at Monitoring Position 1.....	16
7.2.2	Night Time L_{AFmax} at Monitoring Position 2.....	17
8	Recommendations.....	18
8.1	Glazing & Ventilation Specification.....	18
8.2	Habitable Room Ceilings Below Loft Space.....	18



8.3 Notes on Ventilation..... 18

8.4 Specification Guide..... 19

9 Calculation Methodology..... 20

9.1 Building Elements 20

10 Example of Estimated Performance21

11 Noise Breakthrough Analysis22

11.1 Criteria..... 22

11.2 Floor Construction & Performance..... 22

12 Conclusion.....23

13 References 24

13.1 Drawing References 24

Appendix.....25

Figure 1: Photograph Showing Monitoring Position 1.....25

Figure 2: Photograph Showing Monitoring Position 2..... 26

Proposed Site Plans.....27

Measurement Results.....28

Sound Insulation Test Certificate.....31



1 Summary

A noise assessment has been conducted for a proposed residential development comprising a single-dwelling apartment at 33 York Street, Heywood OL10 4NN.

The assessment is to be submitted as part of a planning application for the development site to Rochdale Borough Council in response to a pre-application advice.

The assessment considers the impact of traffic noise on the proposed residential development in comparison with BS 8233: 2014 and World Health Organisation guideline criteria.

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.

The floor dividing the proposed flats from the ground floor commercial unit should be capable of fully protecting the amenity of the future residents from commercial noise breaking through the partition once the proposed upgrades have been implemented.



2 Introduction

Mr Sheraz Khan has instructed Spratt and Hamer Limited to undertake an environmental noise survey in order to assess the impact from surrounding road network, 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 comprising of a ground floor florist shop and first floor office. It is proposed to convert the existing first-floor office into a single dwelling-flat.

This report is prepared solely for Mr Sheraz Khan. 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 above site with noise levels measured externally over a 48-hour period, 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 Saturday 07/09/2024 to Monday 09/09/2024.

This report will state the measured noise levels and will refer to guidance relevant to the nature of this survey whilst considering Local Planning Authority 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, however it is considered that noise levels were elevated due to the increase in traffic flow along York Street due to the closure of the M62 motorway, thus providing a more robust scenario for mitigation measures.
- 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 Mr Sheraz Khan and appointed architects are up to date and correct.
- e. It should also 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.
- f. Existing double glazing is assumed to be comprised of a min. 4mm glass / 16mm air / 4mm glass.



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 2023 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.

174. 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.'

185. 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.



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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. However, some pre-app commentary has been provided by the planning officer:

'Please note however that a noise impact assessment should be submitted before any works are carried out. The purpose of a NIA is to inform any works required to ensure that it would be suitable as living accommodation. As such, whilst the applicant is taking measures to soundproof the flat, the NIA might find that the noise levels are unacceptable, and that further soundproofing is necessary.'

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.



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, night time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

Table 3: A Summary of the Guidance Noise Levels

4.3 Criteria Summary

In order to meet the requirements of Rochdale 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, Approved Document E of the Building Regulations will be referenced in order to assess the partition floor between the shop and the apartment.



5 Site Description

The proposed development is an existing two-storey building situated in the town centre of Heywood, a town in the Metropolitan Borough of Rochdale, Greater Manchester, 3 km east of Bury and 12 km north of the centre of Manchester. The area is of mixed residential and commercial environment. Various independent shops (Heywood Florist) and restaurants (Lucky Star, Venus Lounge), as well as a local market (Heywood Market), run their activity in the vicinity. Heywood Market operates on Fridays, Saturdays and Tuesday from 09:00 to 17:00.

The front façade of the building faces south onto York Street A58 road, which typically would provide moderate to high levels of vehicular traffic flow and it is where most of the commercial establishments are located. The east façade faces onto Queen's Park Road, a quieter road with lower levels of traffic flow but still with moderate levels. Heywood Police Station is located along Queen's Park Road 35m away from the proposed development. The rear façade overlooks onto a neighbouring residential property.

It is important to mention that during the survey period the M62 motorway, which is located 1.9km to the south of the site, had undergone closure during the weekend. Alternative routes included the A58 York Street running directly past the proposed development. Therefore, the levels of vehicular traffic can be expected to be higher than the typical traffic flow at some points throughout the survey, as well as more HGV passings.

The noise profile of the area is mostly dominated by traffic noise, mixed with other noise sources secondary in nature.

5.1 Subjective Observations

During site attendance, subjectively the main source of noise was road traffic, which was more prominent than the typical traffic flow due to the M62 motorway closure. Activity coming from Heywood Market was light.

5.2 Weather

07-09/09/2024	Saturday	Sunday	Monday
Temperature (°C)	15.8 – 19.2	14.7 – 17.1	11.1 – 14.4
Wind Speed (m/s)	0.0 – 5.2 (mean 1.5)	0.0 – 2.2	0.5 – 6.7 (mean 2.2)
Wind Direction	ENE	SSE	WNW
Precipitation (mm/h)	0.0	0.0 – 3.6	0.0 – 0.4
Damp road/ wet ground	No	Yes	Yes
Fog/snow/ice	None	None	None

Table 4: Measuring Weather Conditions

All weather data taken from www.metoffice.gov.uk from the Chadderton weather station, located at approximately 6.8km southeast of the proposed development.



6 Noise Measurement Procedure

6.1 Survey Date(s)

07/09/2024 – 09/09/2024

6.2 Personnel Present

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	00392481	Integrating Sound Level Meter and Real Time Analyser
Brüel & Kjær	Type 4231	2422520	Acoustic Calibrator
Brüel & Kjær	Type 4231	2564329	Acoustic Calibrator

Table 5: 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 A-weighted 1:1 octave centre frequency bands L_{Aeq} , L_{A90} , L_{A10} and L_{AFmax} in 5-minute periods.

6.5.1 Monitoring Position 1

A microphone was placed protruding through the window at first-floor level 1m from the front façade overlooking York Street. The sound level meter was set to record WAV file audio recordings for all maximum sound level events above 80 dBA. The meter was set to measure the complete survey period.



6.5.2 Monitoring Position 2

A microphone was placed protruding through the window at first-floor level 1m from the rear façade to overlooking the neighbouring property and Queen's Park Road. 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



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 all monitoring positions.

The measurement results at positions 1 & 2 have had a façade correction of 3dB 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)	L_{AFmax} (dB)	L_{A90} (dB)	L_{A10} (dB)
1	Saturday	Daytime	14hr	68.9	-	57.1	70.2
		Night-time	8hr	64.2	71.7 - 90.7	39.0	66.7
	Sunday	Daytime	16hr	70.2	-	53.1	71.1
		Night-time	8hr	65.5	74.0 - 102.7	38.7	68.1
	Monday	Daytime	10hr	68.6	-	57.7	69.6
Monitoring position	Day	Time Period	Time Base T	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	L_{A90} (dB)	L_{A10} (dB)
2	Saturday	Daytime	14hr	63.5	-	53.1	64.0
		Night-time	8hr	56.3	62.3 - 78.5	43.8	58.9
	Sunday	Daytime	16hr	63.2	-	50.1	64.0
		Night-time	8hr	57.9	62.3 - 84.2	44.5	61.2
	Monday	Daytime	10hr	63.2	-	55.1	64.2

Table 6: Measurement Results

Data charts can be found in the appendix.

7.2 Night Time L_{AFmax} Analysis

The L_{AFmax} measured during the night time (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 Night Time L_{AFmax} at Monitoring Position 1

The WAV file recordings and frequency spectrum data indicate that the highest L_{AFmax} of 102.7dB and 90.7dB for both nights were caused by emergency sirens. Subsequent events were from vehicle passings.

Further analysis shows that the L_{AFmax} of 88.6dB event has not been exceeded by more than once on Night 1 (Saturday) and no more than 4 exceedances on Night 2 (Sunday). As such, it will be used for the assessment at this monitoring position as this is considered representative of other L_{AFmax} events during the night time period as well as provide a robust approach.



7.2.2 Night Time L_{AFmax} at Monitoring Position 2

The WAV file recordings at Measuring Position 1 and frequency spectrum data suggest that the highest L_{AFmax} event of 84.2dB on Night 2 (Saturday) was also caused by an emergency siren. Subsequent events are likely to be caused by vehicle passings.

Further analysis has shown that the L_{AFmax} of 80.8dB event has not been exceeded by more than twice on Night 2 (Sunday) and none on Night 1 (Saturday). As such, it will be used for the assessment at this monitoring position as this is considered representative of other L_{AFmax} events during the night time period as well as provide a robust approach.



8 Recommendations

The estimated internal noise levels attributed by the external noise sources have been assessed over an average of $L_{Aeq,T}$ from the daytime and night time survey periods and L_{AFmax} values from the night time. It is considered that this represents a worst-case scenario due to the more elevated vehicular traffic flow along York Street due to the closure of the M62 motorway.

This, along with the building element evaluation provide the basis for the following recommendations.

8.1 Glazing & Ventilation Specification

Two options are set out in the following tables.

Option 1

The glazing and ventilation specification in the studio apartment should consist of double glazed units in well-sealed frames and a quality mechanical MEV system with passive acoustic ventilators as shown in the table below.

Specification	Location	Glazing	Ventilation
1	Front & Side Façades	6mm glass / 16mm argon / 8.8mm Pilkington Optiphon	Greenwood Vent 2500EA + 2 Acoustic Set with Active MEV
2	Rear Façade	10mm glass / 16mm air / 6mm glass	

Table 7: Glazing & Ventilation Specification Option 1

Option 2

A second option should consist of secondary windows and existing double glazed units with passive acoustic wall ventilators as shown in the table below.

Specification	Location	Glazing	Ventilation
1	Front & Side Façades	Existing double glazing (4/16/4) / 100mm air / / 6mm glass	Greenwood MA3051 Acoustic Wall vent or Active MV
2	Rear Façade		

Table 8: Glazing & Ventilation Specification Option 2

8.2 Habitable Room Ceilings Below Loft Space

It is understood that the loft space will be void and will not be used as habitable space. This construction should be capable of meeting the minimum required sound reduction.

8.3 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 Mr Sheraz Khan to ensure that the ventilation strategy is sufficient to meet the requirements of Building Regulations Parts F and O where applicable.

The proposed dwelling is to be mechanically ventilated. Ensure the system is to be designed by a suitably qualified engineer or M&E consultant. The system shall be designed so the sound levels from any external plant or inlet/outlets do not exceed the background noise level at any noise receptor, i.e., outside a neighbouring window. This may require further assessment once the type and location of system has been specified.

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

8.4 Specification Guide

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

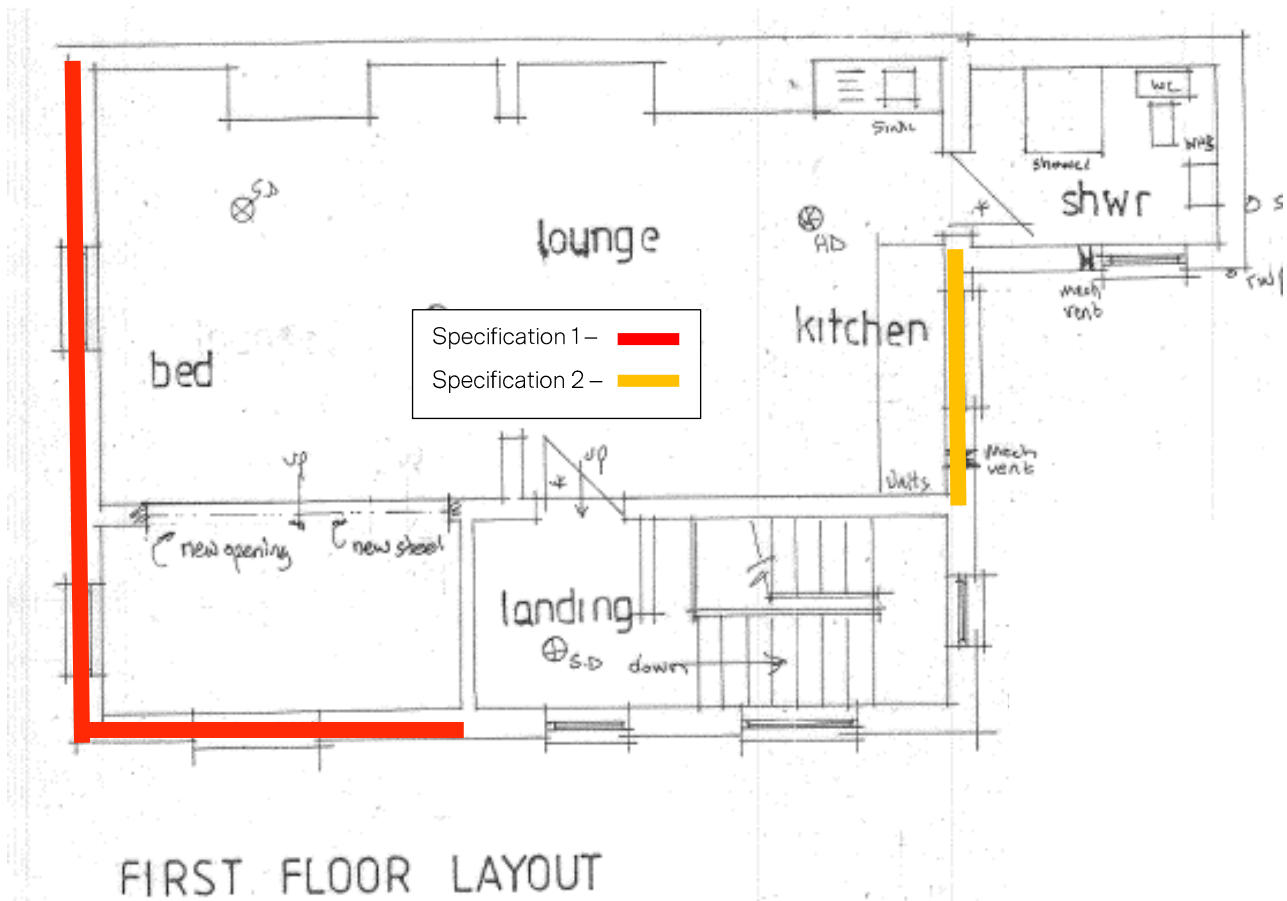


Figure 2: Specification Guide



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 assume the external walls to be 220mm solid brickwork. All building elements modelled in INSUL Acoustic Prediction Software have had a 3 dB correction applied to account for a margin of error within the software.

The calculations aim to meet the requirement of Approved Document F (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 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 argon) 8.8mm Optiphon	41 (-2;-6)	25	27	38	48	47	55
	10mm (16) 6mm	35 (-1;-3)	24	24	32	37	37	44
	4mm (16) 4mm (100) 6mm	45 (-2;-7)	25	35	43	48	48	54
Ventilation	Greenwood Vent 2500EA + 2 Acoustic Set	43 (-3)	42	40	37	45	53	55
	Greenwood MA3051 Acoustic Wall vent	55 (-3)	47	46	49	56	66	69

Table 9: 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 Example of Estimated Performance

The following table compares the estimated performance values with the measured values.

Double Glazing	Time period	Measured Level		Estimated Internal	
		$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)
Front Facade	Daytime (07:00 – 23:00)	70.2	–	28.0	–
	Night time (23:00 – 07:00)	65.5	88.6	23.7	43.3
Rear Facade	Daytime (07:00 – 23:00)	63.5	–	22.5	–
	Night time (23:00 – 07:00)	57.9	80.8	16.1	44.5
Secondary Window	Time period	Measured Level		Estimated Internal	
		$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)
Front Facade	Daytime (07:00 – 23:00)	70.2	–	28.2	–
	Night time (23:00 – 07:00)	65.5	88.6	23.1	39.8
Rear Facade	Daytime (07:00 – 23:00)	63.5	–	19.2	–
	Night time (23:00 – 07:00)	57.9	80.8	11.1	38.9

Table 10: Estimated performance



11 Noise Breakthrough Analysis

The proposed first floor flat will be located directly above a commercial unit, currently containing a florist. A sound insulation test was carried out in order to ascertain the separating element performance.

11.1 Criteria

It is assumed that the noise emissions within the shop are typically low and the activity takes place during normal business hours e.g. as early as 8am and as late as 8pm. Consequently, it is considered that an additional 5dB above Part E of the Building Regulations requirement for airborne sound should provide sufficient levels of insulation in order to fully protect the amenity of the future residents. The table below sets out the minimum required performance of the partition.

Commercial to Residential Requirement			
Separating floor	Airborne	$D_{nT,w} (+Ctr)$	48 dB or higher

Table 11: Airborne Sound Target

11.2 Floor Construction & Performance

The floor dividing the proposed residential apartment and the florist is comprised of traditional timber joists and an existing lath and plaster ceiling. This was upgraded forming a 200mm secondary independent timber joist ceiling closed with one layer of 12.5mm standard plasterboard and one layer of 15mm sound rated plasterboard. The cavity was partially filled with mineral wool insulation.

Sound testing was carried out in accordance with ISO-140 and Approved Document E in order to ascertain the partition floor current performance. The results can be found in the following table. Test certificates can be found in the appendix.

Description	$D_{nT,w} (+Ctr)$ (dB)
ABF Test Results	51

Table 12: Airborne Floor Sound Insulation Test

As can be seen, the resulting performance exceeds the recommended minimum requirement and should fully protect the amenity of the residents as long as the noise emissions from activity within the shop remain low and the opening times are within normal business hours.



12 Conclusion

When installing the glazing and ventilation detail as discussed in the recommendations section, the internal noise levels described in BS 8233:2014 can be achieved, therefore discharging the anticipated Local Authority conditions.

The floor dividing the proposed flats from the ground floor commercial unit should be capable of fully protect the amenity of the future residents from commercial noise breaking through the partition once the proposed upgrades have been implemented.



13 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

BS EN 12758:2011 Glass in building – Glazing and airborne sound insulation

Approved Document E: Resistance to the Passage of Sound

www.google.co.uk/maps

13.1 Drawing References

CL03245882/3 – Proposed Location Plan

CL03245882/1 – Existing Layouts and Elevations

CL03245882/2 – Proposed Layouts and Elevations



Appendix

Figure 1: Photograph Showing Monitoring Position 1



Figure 2: Photograph Showing Monitoring Position 2



Architectural drawings for a proposed change of use from a nail bar into a self-contained flat. The drawings include:

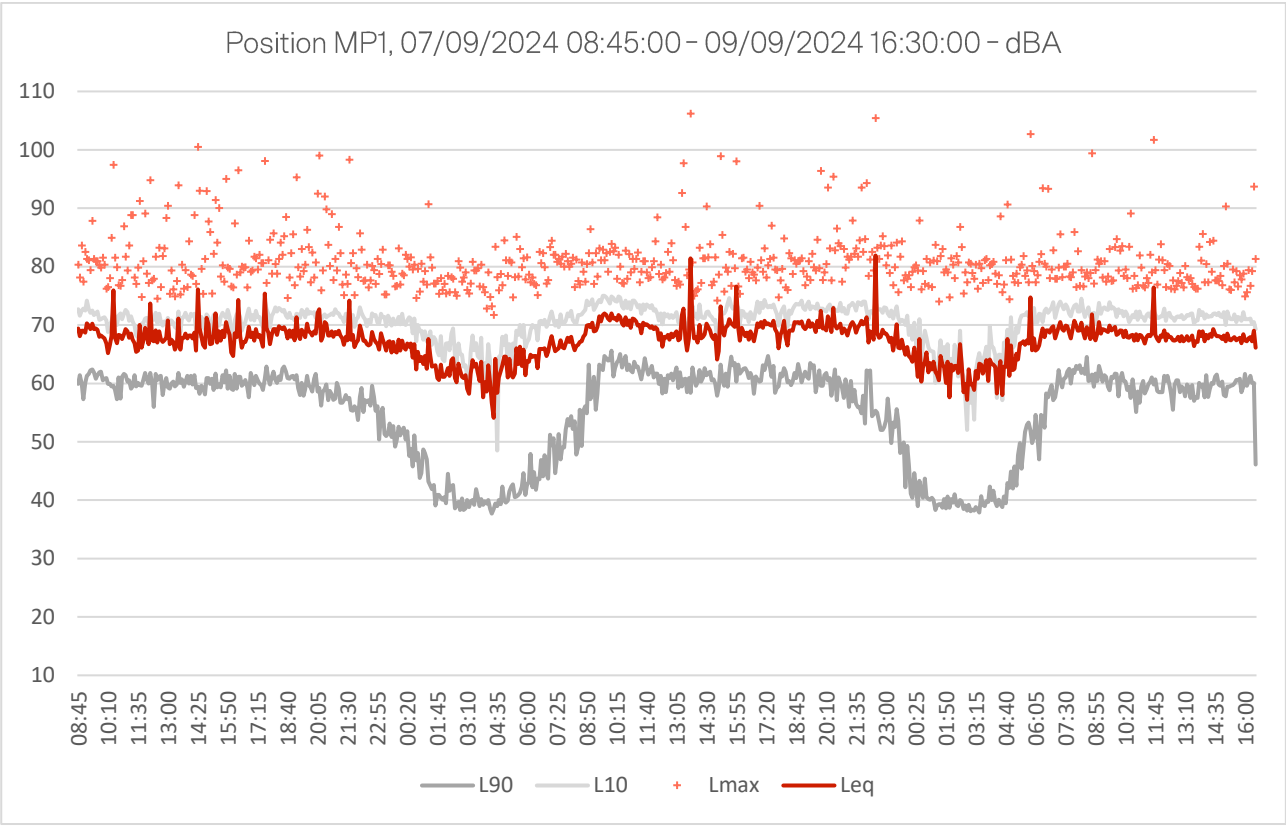
- FRONT ELEVATION:** Shows the main entrance with a sign reading "Heywood Florist Tel: 01706 612120 Flowers For All Occasions".
- REAR ELEVATION:** Shows the back of the building with a sign reading "Heywood Florist Tel: 01706 612120".
- SIDE ELEVATION:** Shows the side of the building with a sign reading "Heywood Florist Tel: 01706 612120".
- FIRST FLOOR LAYOUT:** Shows the internal layout of the first floor, including a lounge, kitchen, landing, and bedroom. Dimensions are provided for various areas.
- GROUND FLOOR LAYOUT:** Shows the internal layout of the ground floor, including a shop, kitchen, WC, and yard. Dimensions are provided for various areas.

Additional information includes:

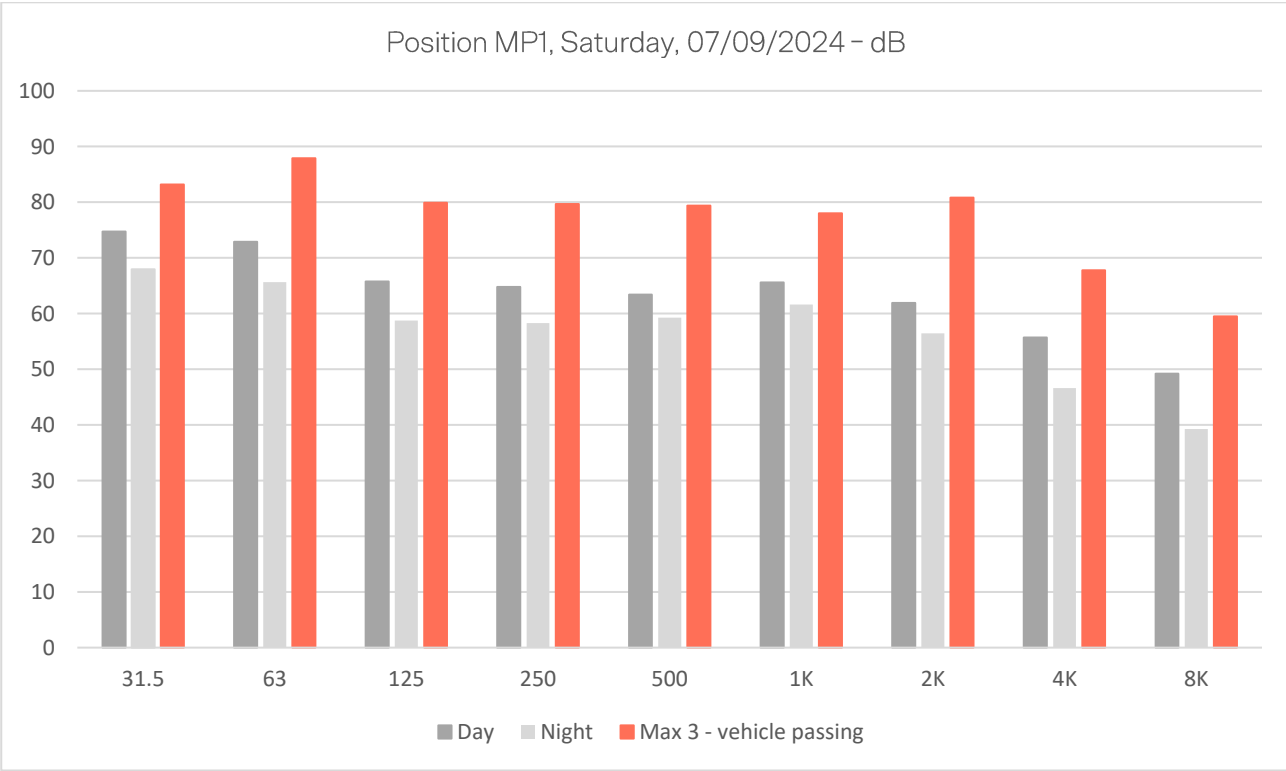
- PROPOSED CHANGE OF USE:** FROM NAIL BAR INTO SELF-CONTAINED FLAT.
- SCHEMATIC DRAWINGS:** ARCHITECTURAL DRAWINGS AND ELEVATIONS.
- MR. SHERAZ KHAN:** 33, YORK STREET, HEYWOOD, OL10 4NN.
- SCALE:** 1:500.
- DATE:** MAR 2024.
- CL 03245882/2.**

Measurement Results

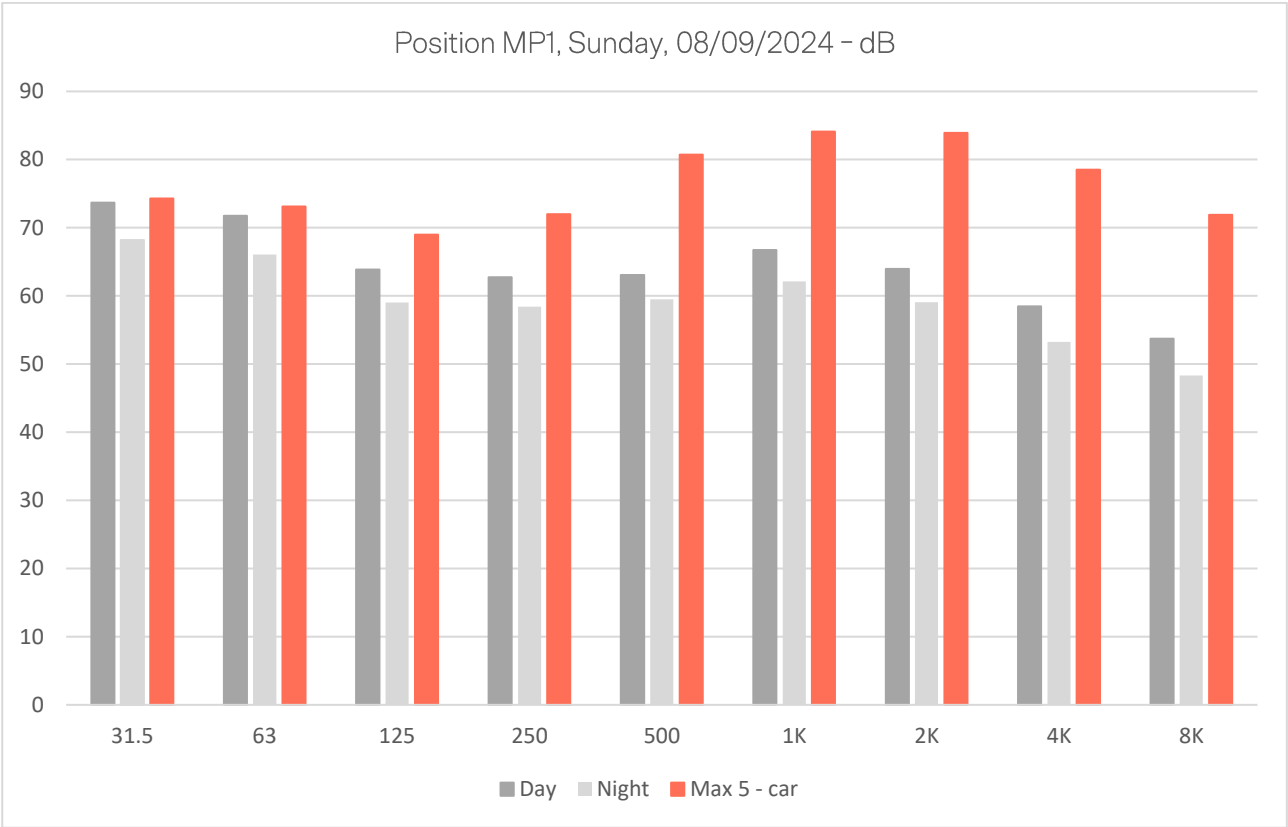
Monitoring Position 1



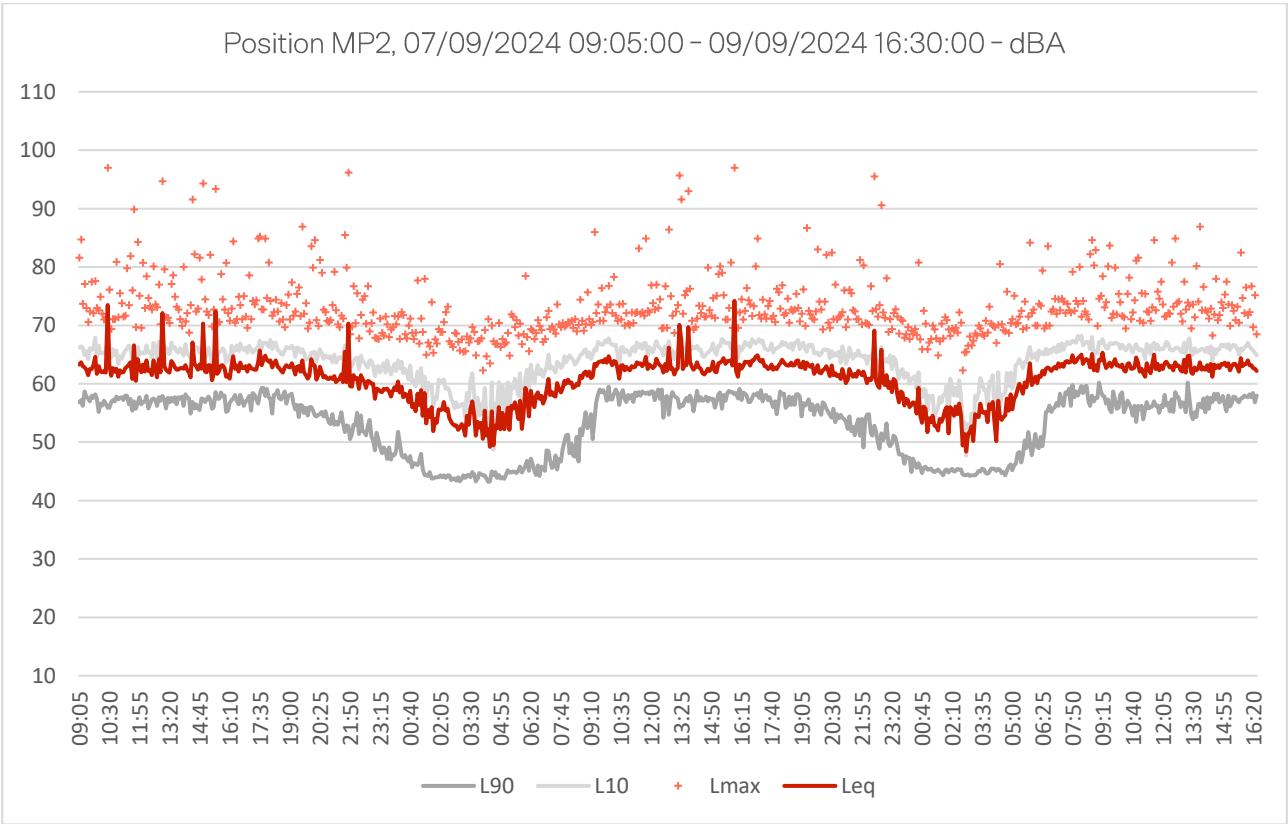
Un-weighted 1:1 Octave Results



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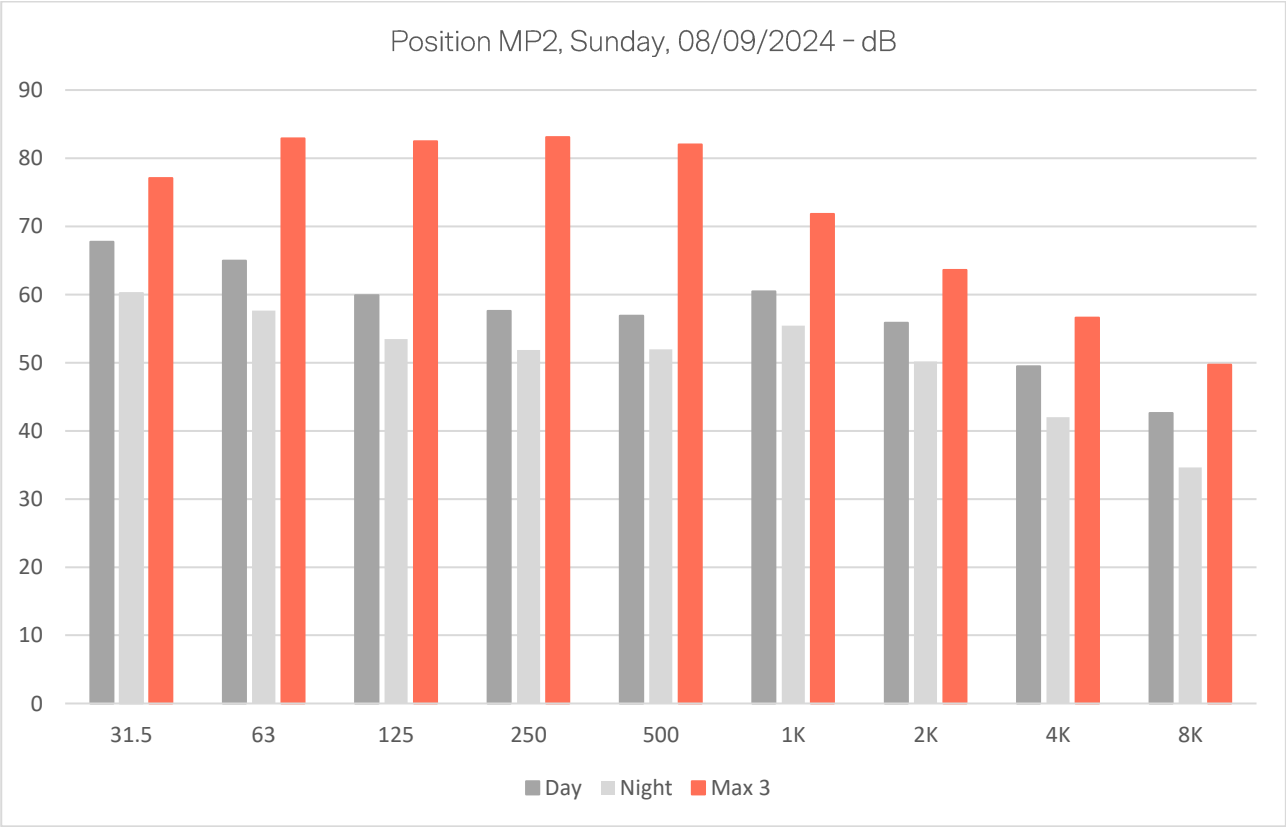
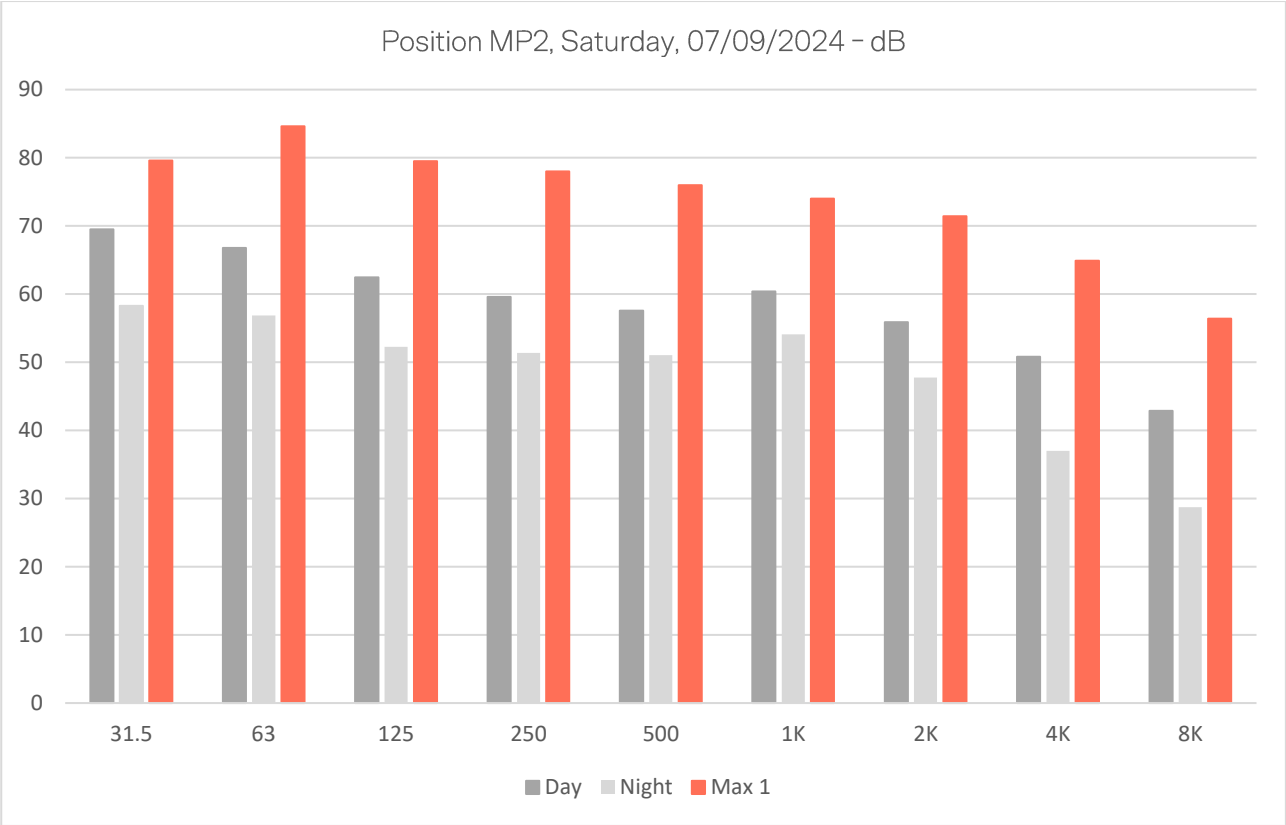


Monitoring Position 2



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Un-weighted 1:1 Octave Results



Sound Insulation Test Certificate

Airborne Sound Insulation Floor Test

Field measurements of airborne sound insulation between rooms

Client Name	Mr Sheraz Khan
Site Address	33 York Street, Heywood, OL10 4NN
Date of Test	04/09/2024
Name of Technician	Ben Bielicki BSc (Hons) PGDip MIOA
Source Room	Ground Floor, Commercial Unit
Source Room Volume	59.3m³
Receiver Room	First Floor, Studio Flat
Receiver Room Volume	75.0m³
Area of Test Element	24.0m²
Construction Type	Timber Floor with Timber Frame Ceiling
Construction Detail	Laminate Flooring, Floorboards, Timber Joist, Lath and Plaster Ceiling, 200mm Void with Insulation, Timber Frame Ceiling, 12.5mm Plasterboard, 15mm SoundBloc

Rating according to ISO 717-1
(Higher $D_{nT,w}$ + C_{tr} figures denote better sound insulation performance)

$D_{nT,w} = 56 \text{ dB}$

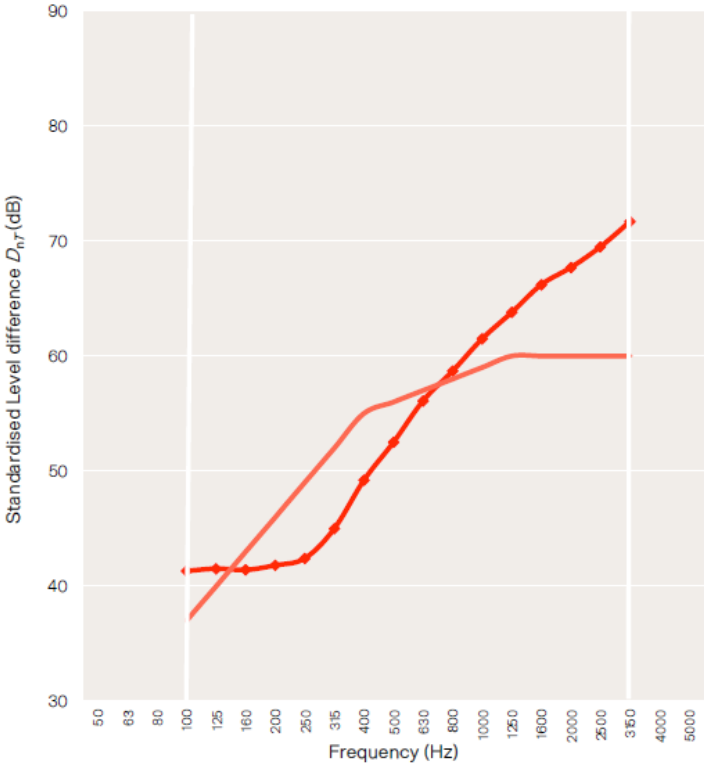
$C_{tr} = -5 \text{ dB}$

$51 \text{ dB } D_{nT,w} + C_{tr}$

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	41.3	41.5	41.4	41.8	42.4	45.0	49.2	52.5	56.1	≥58.7	≥61.5	≥63.8	66.2	≥67.7	≥69.5	≥71.7	N/A	N/A

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



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

Test Reference: 21969S-2 V2



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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