INFINITY ACOUSTICS

NOISE IMPACT ASSESSMENT

130 Withington Road,

Manchester,

M16 8FB

Project Description:

Residential Noise Assessment – Validation Internal Noise Survey

Project Reference Number:

A476SA

Amendment Register

Version Number	Date of Version	Amendment
001	29/07/2026	Original Version

Report Authored By:

Principal Acoustic Consultant - Jamie Barratt-Gibson, *MSc, MIOA, MIET*

Quality Control:

Reviewed and Checked

Signature:



Company Details:

Infinity Acoustics Ltd

Tel: 01904 900 124

E: info@infinityacoustics.co.uk

W: www.infinityacoustics.co.uk

Table of Contents

1. **Introduction** 3
2. **Site & Surroundings** 5
3. **Survey** 7
4. **BS8233 Assessment Results and Requirements** 9
5. **Noise Breakthrough Analysis** 10
6. **Conclusion** 11

APPENDIX A – List of Terms and Glossary 12
APPENDIX B – Site Plans 13
APPENDIX C – Site Images 14

1. Introduction

1.1 Infinity Acoustics Ltd has been appointed to undertake a validation noise survey of the development located at 130 Withington Road, Manchester, M16 8FB.

1.2 As part of the development process, the client has submitted a planning application to the Local Planning Authority (LPA), Manchester Council. The application reference and title are as follows:

> *139297/FO/2024 - Erection of single-storey rear extension following demolition of existing outbuilding, installation of dormers to rear elevation including conversion of upper floors into self-contained flat.*

1.3 The application was subsequently approved by the LPA. The planning conditions relating to noise are outlined below:

> *6) a) Prior to above ground works commencing, a scheme for acoustically insulating the proposed residential accommodation against noise from Withington 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 such as the ground floor commercial 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 nighttime to determine the appropriate sound insulation measures necessary. The following noise criteria shall be required to be achieved when providing adequate ventilation as defined by Approved Document F of the Building Regulations (whole dwelling ventilation):*

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

Higher internal noise levels than those specified above may be allowed when higher rates of ventilation are required in relation to the overheating condition.

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.

1.4 An initial noise survey assessment and sound insulation design report was submitted to the LPA in order to discharge condition 6a, report reference A136SA. This document was subsequently approved by the Local Planning Authority.

1.5 The aim of the noise survey and assessment below is to provide the relevant information to assist the client and the local planning authority in discharging the noise condition 6b and validating the implemented mitigation. The noise levels at the site will be measured and assessed in accordance with the relevant standards and local planning policy. A sound insulation scheme will be provided where necessary to ensure the amenity of any future residents can be protected from surrounding commercial and transport noise and that relevant criteria can be achieved.

1.6 The following noise assessment report will be undertaken in line with the National Planning Policy Framework 2024 and Noise Policy Statement for England 2010, as well as the following legislation, policy and guidance

1.7 *BS8233:2014* - Guidance on Sound Insulation and Noise Reduction In Buildings

The general noise criteria used in the assessment will be obtained from BS8233: 2014 'Guidance on sound insulation and noise reduction for buildings'. The criteria in BS8233 are largely based on the World Health Organisation Guidelines on Community Noise. The BS8233 criteria are outlined below:

- Living Room/Bedroom - 35 dB $L_{Aeq,16hour}$ (Day)
- Dining Room – 40 dB $L_{Aeq,16hour}$ (Day)
- Bedroom – 30 dB $L_{Aeq,8hour}$ (Night)

1.8 L_{Afmax} levels will also be assessed based on the criteria defined by the World Health Organisation. The WHO state within the 'Guidelines on Community Noise' that in order to avoid sleep disturbance within bedrooms during the night, the internal sound pressure level should not exceed 45 dB $L_{Afmax.}$ The frequency of L_{Afmax} events should also be considered; it is understood that for an L_{Afmax} noise event to adversely impact sleep, the criteria would need to be exceeded more than ten times during a nighttime period.

2. Site & Surroundings

2.1 The development site is situated within Whalley Range, South Manchester, approximately 2.5km from Deansgate railway station. The area comprises a mixture of residential and commercial units and can be described as urban.

2.2 To the east of the site is Withington Road, which forms part of the surrounding road network connecting to the A5103. This road facilitates moderate levels of traffic flow; road noise was noted as the primary noise source of the area during visits to the site.

2.3 There are a number of other commercial units in the area, including Co-op Food, which operates between 07:00 – 22:00, Mediterranean Cafe, which operates between 07:00 – 16:00, Minhaj-ul-Quran International, which operates between 06:00 – 21:00, and Tenzie's Off Licence, which is assumed to operate no later than 23:00. In general, commercial noise was not audible above the traffic noise.

2.4 During the site visit, the elements of sound insulation that had been installed were established. The client indicated the glazing that had been installed throughout the site on all façades consisted of standard double glazing assumed to be 4mm Glass / 20mm Cavity / 4mm Glass, providing a sound reduction of 30 dB R_w / 28 dB $R_{w+ctr.}$ Trickle vents were also installed in each window. The make and model of the trickle vent provided by the client has been Greenwood S Vent - Through Frame Slotvent 33 dB $D_{n,e,w}$ Open. The ventilation system noted on site was System 1 outlined in ADF and the AVO guide and consisted of trickle ventilation and intermittent mechanical extracts in the kitchen and bathroom. These details differ from what was initially specified in the original noise impact assessment and sound insulation design report.

2.5 The as-installed floor buildup between the commercial unit and residential dwelling above was provided by the builder and was noted as follows:

- 22mm T&g Flooring Boards
- 200mm Timber joists with 200mm Rockwool Rw45 Insulation
- No.1 Layer of 12.5mm Sound Bloc Plasterboard
- No.1 Layer of 15mm Sound Bloc Plasterboard

This construction detail differs from what was specified in the original noise survey and assessment of the site.

2.6 To the rear of the site, a small commercial extension has been constructed. It was noted that the original kitchen extraction system associated with the ground floor commercial unit had been removed and there was no other notable mechanical plant in the area.

2.7 In order to assess whether the as-installed sound insulation is sufficient to achieve the required internal noise levels, an internal noise survey was undertaken at the development site. The noise measurements were undertaken in a room along the front façade of the building, and a further position was selected in the kitchen/living room to the rear of the site. The locations of the internal measurements can be found in the figure below. It should be noted that the layout of the development differs from the approved plans below. The rear measurement location was a large kitchen/living room area, and the front two rooms were noted as bedrooms. The approximate existing layout has been highlighted below.

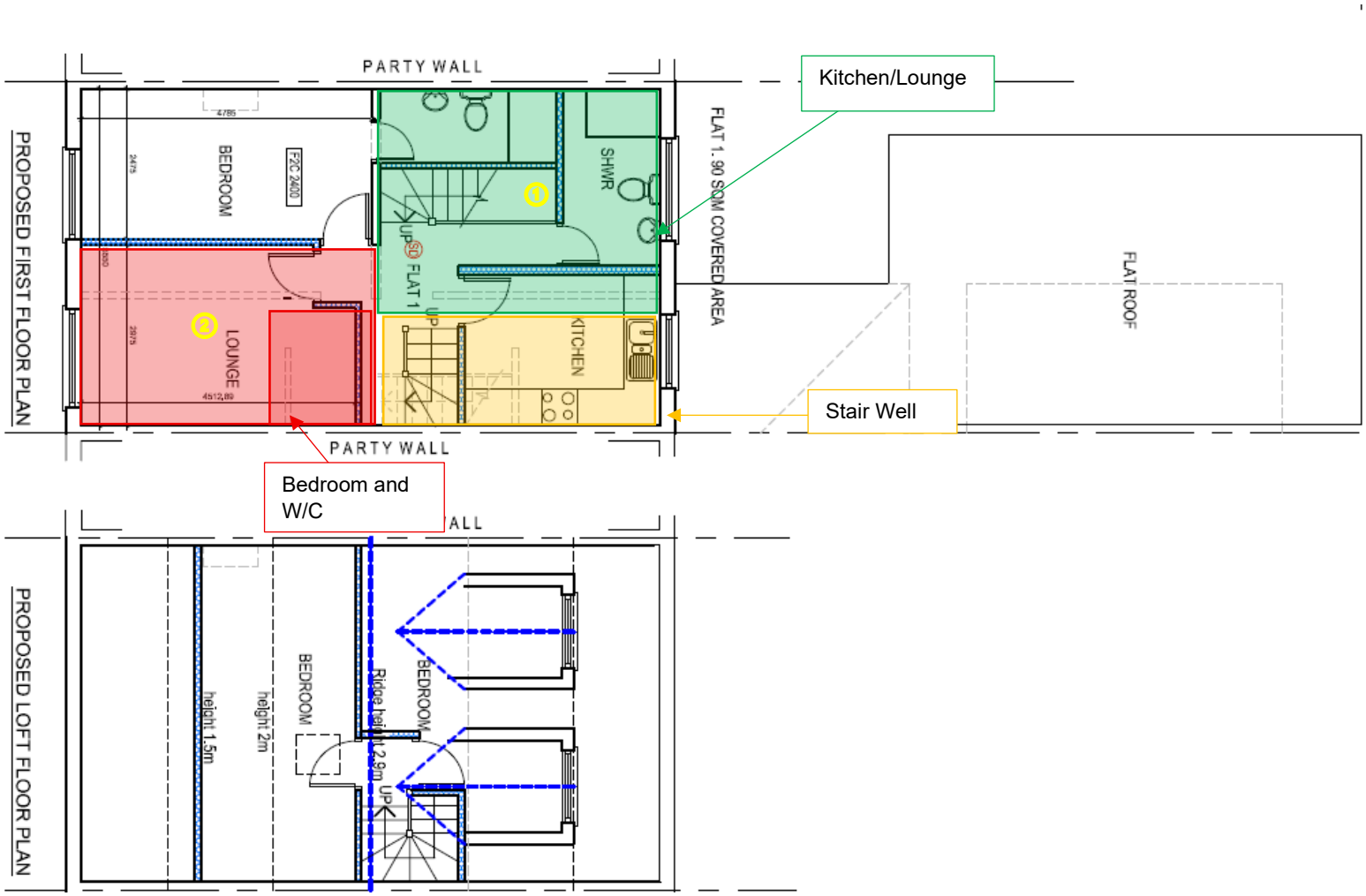


Figure 1.0 – Site Layout & Measurement Locations

3. Survey

3.1 A noise survey of the site was undertaken between Tuesday, the 21st of July and Thursday, the 23rd of July 2026.

3.2 The following equipment was used to undertake the noise survey. All equipment used was field calibrated at 1kHz with a tolerance of less than 0.2 dB drift before and after the measurement. Calibration certificates for the equipment can be provided upon request.

- SVAN 971A Class 1 Sound Level Meter – SN – 139441
- Castle SONIK-E Class 1 Sound Level Meter – SN – 075734
- SVAN SV33B Class 1 Calibrator – SN – 122241

3.3 The long-term noise meter and associated microphone at Measurement Location 1 (ML1) were located on the 1st floor of the development within the kitchen/living room along the rear facade.

The long-term noise meter and associated microphone at Measurement Location 2 (ML2) were located on the first floor of the development within the bedroom at the front façade.

The internal noise survey was undertaken with all trickle vents open and operating to provide ventilation and a worst-case scenario.

3.4 The results of the ambient noise survey are presented in the tables below and will be used in the subsequent Noise Assessment.

16 & 8 Hour Results ML1				
Period and Date	**Time Period**	**$L_{Aeq\ (dB)}$**	**$L_{Afmax\ (dB)}$**	**$L_{A90\ (dB)}$**
Day – 21/07/2026	10:30 – 23:00	24.0	53.0	22.0
Night – 21/07/2026	23:00 – 07:00	**23.0**	45.0	22.0
Day – 22/07/2026	07:00 – 23:00	**24.0**	49.0	22.0
Night – 22/07/2026	23:00 – 07:00	23.0	40.0	22.0
Day – 23/07/2026	07:00 – 10:30	24.0	42.0	22.0

ML1 L_{Afmax} Analysis	
Time Period	**10th Highest $L_{Afmax,1min}$**
Night	**40.0**

Table 1.0 – Noise Survey Global Data ML1

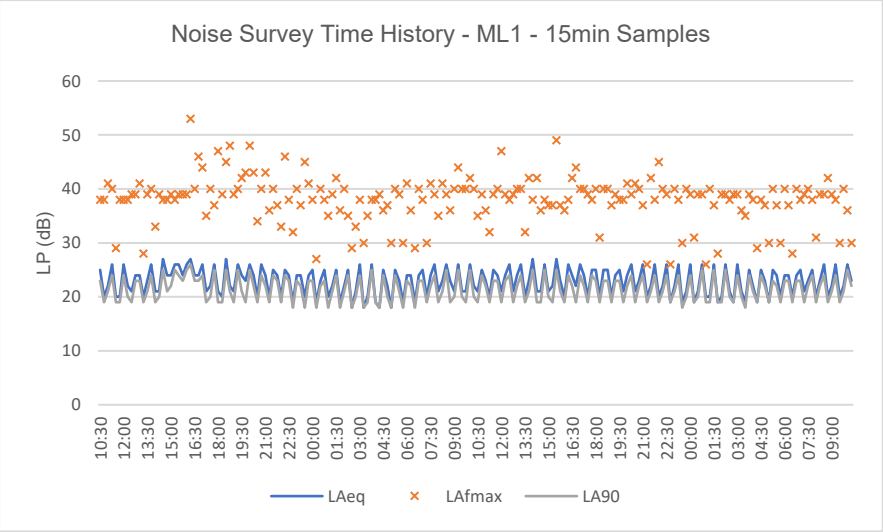


Figure 2.0 – ML1 – Noise Survey Time History

3.5 A review of the internal noise levels at the rear façade of the property measured within the kitchen/living room shows the noise levels fall below the criteria outlined in Condition 6a and below the criteria outlined in BS8233. A review of the time history indicates there are intermittent increases in noise level throughout the survey; this is attributed to the fridge unit in the kitchen area turning on and off to maintain internal temperature, as the flat was partially furnished. Even with the appliance noise, the criteria can be readily achieved along the rear façade, assuming the as-installed sound insulation.

16 & 8 Hour Results ML2				
Period and Date	**Time Period**	**$L_{Aeq\ (dB)}$**	**$L_{Afmax\ (dB)}$**	**$L_{A90\ (dB)}$**
Day – 21/07/2026	10:30 – 23:00	32.0	64.0	22.0
Night – 21/07/2026	23:00 – 07:00	26.0	47.0	15.0
Day – 22/07/2026	07:00 – 23:00	**32.0**	59.0	22.0
Night – 22/07/2026	23:00 – 07:00	**26.0**	53.0	16.0
Day – 23/07/2026	07:00 – 10:30	32.0	57.0	21.0

ML2 L_{Afmax} Analysis	
Time Period	**10^{th} Highest $L_{Afmax,1min}$**
Night	**44.0**

Table 2.0 – Noise Survey Global Data ML2

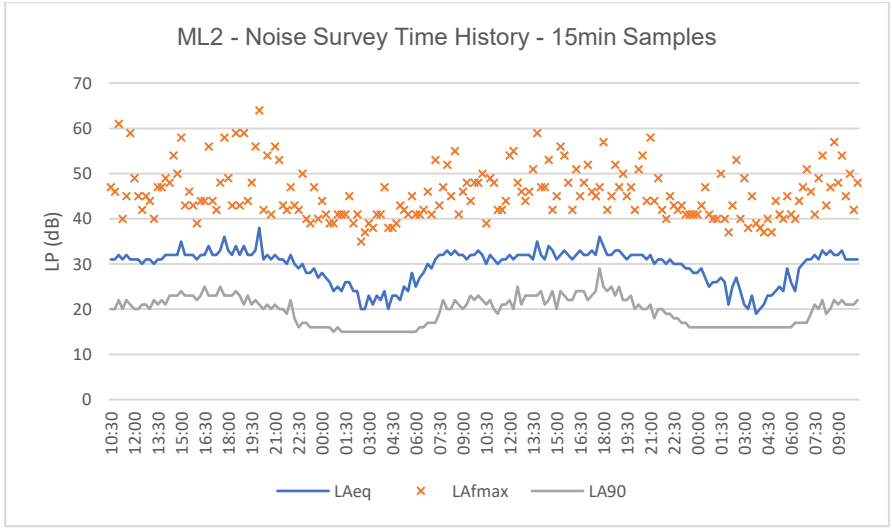


Figure 3.0 – ML2 – Noise Survey Time History

3.6 A review of the internal noise levels at the front façade of the property measured within the bedroom shows the internal noise levels fall below the criteria outlined in Condition 6a and BS8233 with the trickle vents open and operating. A review of the time history indicates the noise levels within the room are generally steady, following typical diurnal patterns, a key feature of road traffic noise break-in being the dominant noise source breaking into the room from the external environment.

4. BS8233 Assessment Results and Requirements

4.1 The tables below assess the measured internal noise levels against the defined noise criteria to assess compliance.

Location/Time Period	Internal Noise Level $L_{Aeq,t}$ (dBA)	BS8233 Criteria (dBA)	Exceedance (dBA)
Bedroom / Living Room Day	24.0	35 dB $L_{Aeq,16hour}$	-11.0
Bedroom Night	23.0	30 dB $L_{Aeq,8hour}$	-7.0
Bedroom Night	40.0	45 dB $L_{Afmax,8hour}$	-5.0

Table 3.0 – Internal Noise Levels ML1 – BS8233 Criteria

Location/Time Period	Internal Noise Level $L_{Aeq,t}$ (dBA)	BS8233 Criteria (dBA)	Exceedance (dBA)
Bedroom / Living Room Day	32.0	35 dB $L_{Aeq,16hour}$	-3.0
Bedroom Night	26.0	30 dB $L_{Aeq,8hour}$	-4.0
Bedroom Night	44.0	45 dB $L_{Afmax,8hour}$	-1.0

Table 4.0 – Internal Noise Levels ML2 – BS8233 Criteria

4.2 As can be seen in the assessment above, all relevant internal noise criteria can be achieved within the rooms of the dwelling considering the façade sound insulation installed at site.

5. Floor Sound Insulation Analysis

5.1 The current floor design between the commercial and residential elements of the building does not align with that prescribed floor/ceiling in the initial noise assessment. As per the initial report, the floor is required to provide a minimum sound reduction of 50 dB $D_{nt,w+ctr}$.

5.2 SITMA Accredited sound insulation testing of the floor has been undertaken by a 3rd party for Building Regulations purposes, whilst it is noted that the sound insulation test results pass the minimum building regulations requirement set out in ADE, they fail to achieve the criteria of 50dB $D_{nt,w+Ctr}$ outlined within the initially approved design specification and noise impact assessment. The sound insulation assessment below compares the measured sound insulation performance of the as-installed floor construction against the performance required by the previously approved acoustic design.

Sound Insulation Analysis			
Separating Element	**Expected Performance (dB, Dnt,w+ctr)**	**Criteria (dB, Dnt,w+ctr)**	**Criteria Achieved**
Floor	45.0	50.0	No
Floor	44.0	50.0	No

Table 5.0 – Noise Breakthrough – ML1

5.3 The floor separating the ground floor commercial unit and the proposed self-contained dwelling above requires further upgrading to ensure sound transmission from the commercial unit below is adequately controlled. The current floor design provided by the builder consists of the following details.

- 22mm T&G Flooring Boards
- 200mm Timber joists with 200mm Rockwool Rw45 Insulation
- No.1 Layer of 12.5mm Sound Bloc Plasterboard
- No.1 Layer of 15mm Sound Bloc Plasterboard

5.4 In order to ensure the minimum 50 dB $D_{nt,w+ctr}$ performance can be achieved, the following upgrades are advised.

- Existing Floor Construction
- Suspended MF ceiling on acoustic hangers minimum drop 300mm
- 100mm Rockwool RWA45 within the new ceiling void
- 2 layers of 15mm Sound bloc Plasterboard (Min mass 12.6kg/m^2)

Expected Performance: 50 dB $D_{nt,w+Ctr}$ / 63 dB R_w

6. Conclusion

6.1 In conclusion, a noise survey has been undertaken at 130 Withington Road, Manchester, M16 8FB. The noise levels obtained during the survey have allowed a noise assessment to be undertaken in order to assess whether the as-installed sound insulation is sufficient to achieve the required internal noise levels outlined in BS8233:2014.

6.2 As a result of the noise assessment, a comparison of the internal noise levels of the development to the BS 8233:2014 criterion shows that the criteria outlined in BS8233 can be achieved and the façade sound insulation complies with the criteria outlined in Condition 6a and the approved sound insulation design and noise impact assessment. The floor between the commercial element of the site and residential dwelling falls slightly below the defined criteria; however, provided the proposed upgrades are installed, it is expected that the defined criteria can be achieved and the amenity of all future residents fully protected.

APPENDIX A – List of Terms and Glossary

The following section of the report outlines a glossary of terms used in the assessment to assist the reader in understanding the assessment above, which is, by necessity, technical in nature.

Decibel dB - The decibel, often denoted as dB, is the logarithmic unit used to describe the magnitude of sound or noise levels. The typical range of sound pressure levels is from 0 dB, defined as the threshold of hearing, to 120 dB, defined as the threshold of pain.

Frequency Hz – As well as the decibel sound and noise, is also measured and defined in frequency. Frequency or Hertz (Hz) is an expression of the number of cycles a sound wave will complete per second. Larger frequencies may be expressed in kilohertz (kHz). The typical range of human hearing is from 20 Hz to 20,000Hz; however, with age, the audible frequency range decreases in most humans.

A - Weighting – The A-weighting is the most commonly used weighting curve taken from IEC 61672:2003 and is applied to sound pressure level measurements. The A-weighting is applied to measured sound levels to account for the loudness perceived by the human ear, as the ear is less sensitive to low audio frequencies.

LAeq - The A-weighted 'equivalent continuous noise level', which is an average of the total sound energy measured over any given time period. L_{Aeq} is the level of a continuous noise that has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. The A-weighting represents a curve that is applied to the measured noise levels to represent the way the human auditory system perceives sound.

LAfmax - The maximum A-weighted noise level that was recorded during the monitoring period using a fast time weighting. This acoustic parameter represents more transient sound levels within the acoustic environment, which may only occur for a few seconds or minutes.

LA10 - This is the A-weighted noise level exceeded for 10% of a given time period. This parameter is typically used to measure and predict road traffic noise.

LA90 - This is the A-weighted noise level exceeded for 90% of any given time period. Generally, this acoustic parameter represents the underlying background sound level in a given area and doesn't generally include transient or short-term noise events that may occur within the surroundings.

Sound Pressure – Sound pressure is the difference between the instantaneous pressure at a point in the presence of a sound wave and the static pressure of the medium. Sound pressure fluctuates due to refractions and compressions of air molecules.

Sound Reduction Index – The sound reduction index, denoted by the parameter 'R', is the laboratory-measured sound reduction of a given material or construction. R is measured in 1/3 octave band frequencies. The R_w sound insulation parameter stands for the weighted standardised sound reduction index and is a single-figure global rating of the sound insulation of a given material or construction.

APPENDIX B – Site Plans

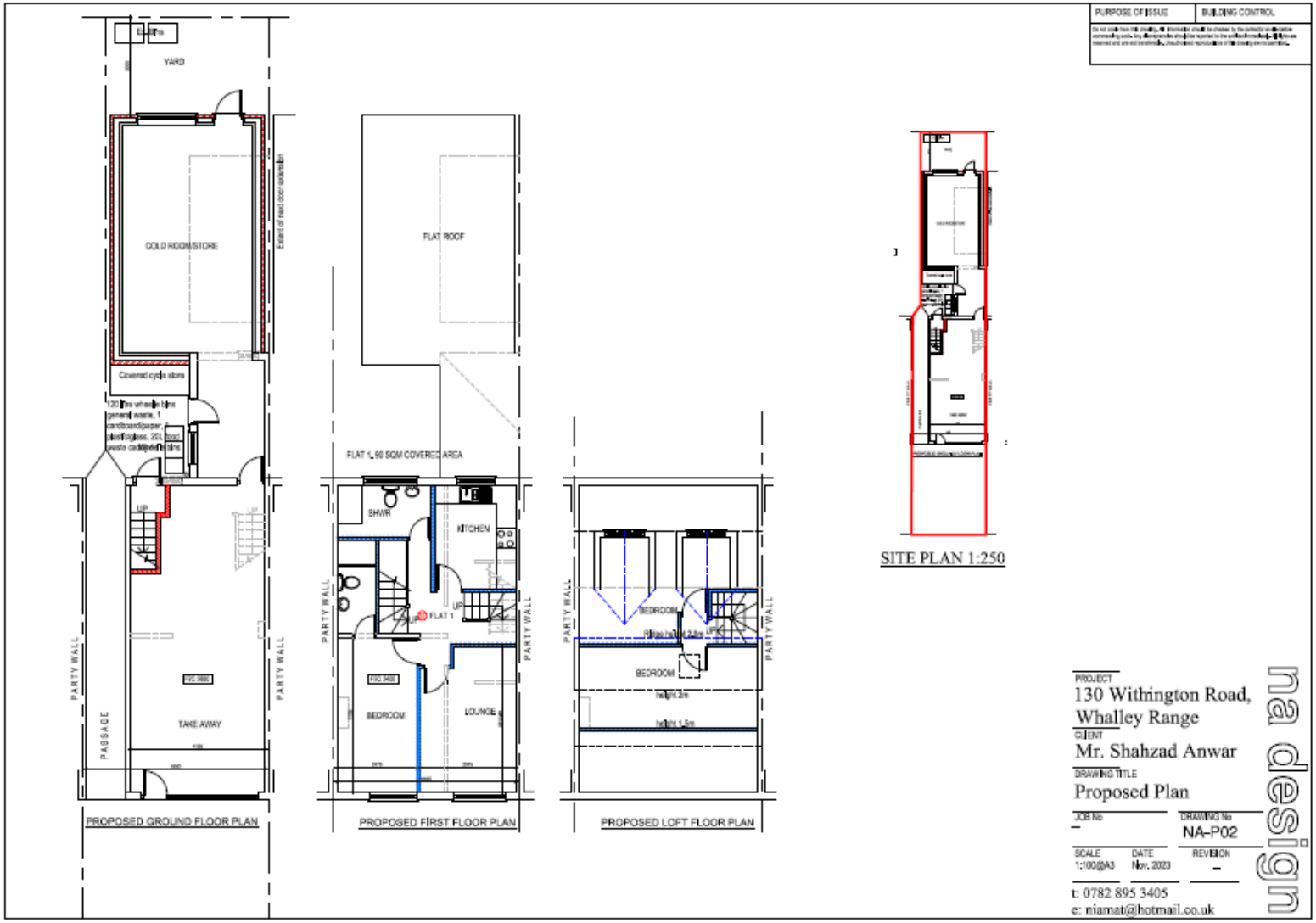


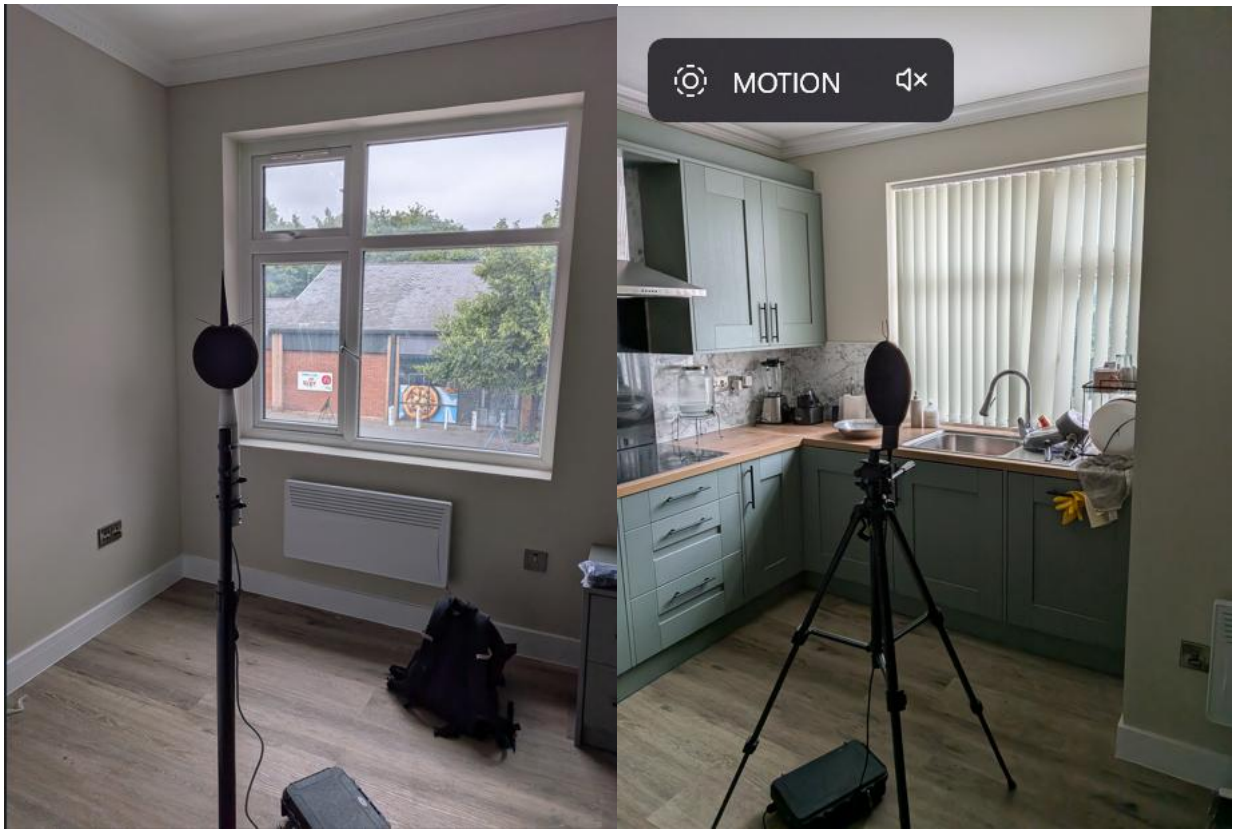
Figure 4.0 – Site Plan

APPENDIX C – Site Images








MOTION

Disclaimer and Copyright

1) Infinity Acoustics Ltd has undertaken the above assessment and provided the above interpretations based on the information available at the time of the assessment and details provided by the client; it has been undertaken given all reasonable skill and care.
2) All works have been undertaken in accordance with Infinity Acoustics Ltd's Terms and Conditions. The assessment has been undertaken on behalf of the client based on the Terms and Conditions agreed between the client and Infinity Acoustics Ltd
3) Infinity Acoustics Ltd cannot be held liable for any loss or damage incurred as a result of the interpretations or conclusions presented within this document or any interpretations or conclusions drawn from the document by a third party due to the inherent uncertainty pertaining to acoustic assessments.
4) The copyright © of the above document belongs to Infinity Acoustics Ltd and has been shared with the client based on Infinity Acoustics Ltd Terms and Conditions.