



BRAIDEN ACOUSTICS LTD

Innovation Forum // 51 Frederick Road // Salford // Manchester // M6 6FP

INTERNAL NOISE VERIFICATION REPORT

Prepared for : The Casey Group Ltd

Date : 9 Nov 2023

Site : Glendene, Greenbrow Road, Wythenshawe

Report No. : 11202revA

1 INTRODUCTION

Braidens Acoustics has been commissioned by The Casey Group Ltd to undertake a verification noise survey at the site of Glendene, Greenbrow Road, Wythenshawe in order to discharge a planning condition for internal noise levels.

1.1 PLANNING PERMISSION

Planning application 129195/FO/2021 proposed “Erection of 56 single and two storey houses (27 x two bed, 22 x 3 bed and 7 x 4 bed) including associated hardscaping and landscaping works.”. The application was approved with conditions on the 25 June 2021.

Condition 18 states:

*18) The approved noise insulation scheme (Acoustic Report prepared by Braidens Acoustics received 13 April 2022) shall be completed before any of the dwelling units are occupied. Upon completion of the development and before first occupation of the residential units, **a verification report will 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 has 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.***

Reason - To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance, pursuant to Policy DM1 in the Manchester Core Strategy.

This report deals only with the ‘verification assessment’ as outlined in bold in the above condition.

****NB This is an updated report to include two further plots within the site, as agreed with the EHO Sue Jones¹.**

1.2 AIM

This report details internal noise levels at completed properties on site to assess conformity to relevant standards and guidance for internal noise levels.

2 DESCRIPTION OF SITE

2.1 PROPOSED USE

The indicative layout is shown in Figure 1.

¹ Email from Sue Jones to John Braidens dated 26th October 2023.



Figure 1
Proposed site layout

Unit 12, 26 and 01 were chosen for the internal noise measurements (see Monitoring Locations in Figure 1) as these units were near to potential noise sources:

- Plot 01 near nursery
- Plot 26 near Wastdale / Greenbrow Road
- Plot 12 near Greenbrow Road.

2.2 GLAZING

The original noise assessment recommended 6 / (6-20) / 4mm glazing.

The glazing that has been installed is Saint Gobain 4 / 18 / 6.8mm with a performance of 31 dB $R_w + C_{tr}$. This is in excess of the 28 dB, as suggested with the 6 / (6-20) / 4mm glazing.

3 ACOUSTIC CRITERIA AND METHODOLOGY

This is a residential development that may be susceptible to environmental noise. Potential mitigation measures are determined by recommended indoor noise levels from BS 8233 “Sound insulation and noise reduction for buildings” [1] which, in turn, takes guidance from the research-based World Health Organisation “Guidelines for Community Noise”.

Noise level thresholds are usually given for the night-time – 2300-0700 hrs and day time – 0700-2300 hrs.



3.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework is the current document for planning guidance. Paragraph 123 of the NPPF says that planning decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum, other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 BS 8233: 2014

The British Standard BS 8233:2014 “Guidance on sound insulation and noise reduction for buildings” gives guidance on recommended indoor ambient noise levels for residential dwellings.

Room	Criterion	$L_{Aeq,T}$	
		night	day
Bedroom	Sleeping	30	35
Dining Room/Area	Dining	--	40
Living Room	Resting	--	35

Table 1

Recommending indoor ambient noise level thresholds from anonymous noise (taken from Table 4, BS 8233:2014)

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

Internal noise levels in habitable rooms are calculated using either the simple or rigorous method as described in Annex G in BS 8233:2104.

3.2.1 Noise levels in external living areas

For external living areas such as gardens and balconies, BS 8233:2014 § 7.7.3.2 recommends an upper limit of 55dB $L_{Aeq,day}$ although there is a caveat:

However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

3.2.2 Maximum noise levels

In the 2014 edition of the Standard, the criterion of 45dB L_{AFMax} inside bedrooms has been removed although there is Note 4:



NOTE 4 regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or LA_{max,P} depending on the character and number of events per night. Sporadic noise events could require separate values.

The use of the phrases ‘may be set’ and ‘could require’ imply that this is a discretionary criterion.

3.3 COUNCIL CRITERIA

It is usual that Councils adhere to noise levels given in BS 8233.

L_{Aeq} 35 dB 16 hours – indoors, daytime (07.00-23.00)

L_{Aeq} 30 dB 8 hours – indoors, night-time (23.00-07.00)

L_{Aeq} 55 dB 16 hours – indoors, daytime (07.00-23.00)

4 MONITORING DETAILS

4.1 MONITORING DETAILS

Personnel: John Braiden, BSc & MSc Acoustics, MIOA.

Equipment: NTi XL2 integrated real time analyser & B&K 4231 calibrator.

The sound level meter was calibrated before after the measurements with no significant drift reported.

4.2 VISIT 1 – 28/07/2023

Noise measurements focussed on noise from within a habitable room facing Greenbrow Lane – the noisier elevation.

Monitoring was unmanned.

4.2.1 Location

The microphone was approximately 1.2 m from local ground and placed in the middle of a first-floor habitable room, directly facing Greenbrow Lane, with the door closed, in Plot 12.

NB It should be noted that the room was unfurnished and without carpets so reverberation noise contributed to the measured noise levels. When the room is fully furnished then the reverberation noise will decrease and therefore the overall noise level in the room will also decrease.**

4.2.2 Results

Noise monitoring took place during a busy weekday (Friday), when traffic noise would be the greatest, and over a 24-hour period.

The internal noise levels within the habitable room of Plot 12 are shown in Figure 2.



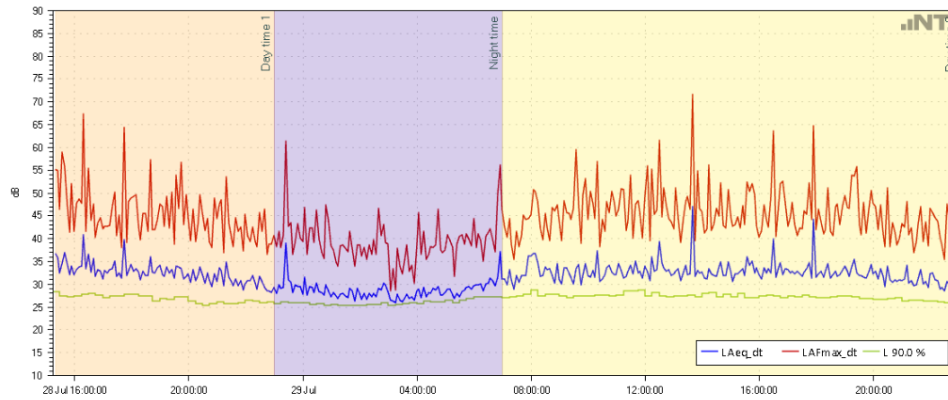


Figure 2
Internal time history – Plot 12

Date	Time		Duration	Time Period	L_{A90} dB	L_{Aeq} dB	L_{Amax} dB
	Start	Finish					
Fri 28/07/2023	15:15:34	23:00:00	07:44:26	day	26.4	33	67.2
	23:00:00	07:00:00	08:00:00	night	25.6	29.3	61.3
	07:00:00	23:00:00	16:00:00	day	27	33.5	71.6

Table 2
Summary of internal noise monitoring results

A summary of the night and day noise levels is:

Night 30 dB(A)
Day 34 dB(A)

4.3 VISIT 2 – 27TH OCTOBER 2023

4.3.1 Plot 26

4.3.1.1 Location

The microphone was approximately 1.2 m from local ground and placed in the middle of a first-floor habitable room, directly facing Greenbrow Road, with the door closed.

NB It should be noted that the room was unfurnished and without carpets so reverberation noise contributed to the measured noise levels. When the room is fully furnished then the reverberation noise will decrease and therefore the overall noise level in the room will also decrease.**

4.3.1.2 Results

Noise monitoring took place during a busy weekday (Friday), when traffic noise would be the greatest, and over a minimum 24-hour period.

The internal noise levels within the habitable room of Plot 26 are shown in Figure 2.



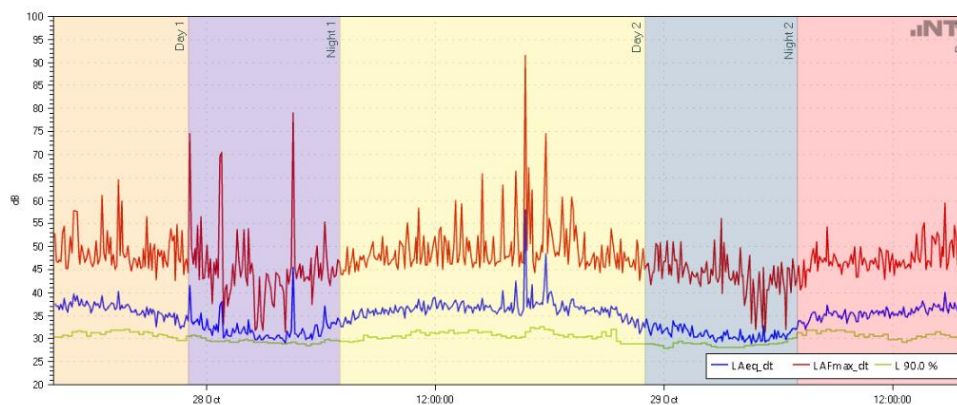


Figure 3
Internal time history – Plot 26

Date	Time		Duration	Time Period	L_{A90} dB	L_{Aeq} dB	L_{Amax} dB
	Start	Finish					
Fri 27/10/2023	16:00:00	23:00:00	07:00:00	day	30.6	36.5	64.4
	23:00:00	07:00:00	08:00:00	night	29.0	33.2	78.9
Sat	07:00:00	23:00:00	16:00:00	day	30.1	39.0	91.5
	23:00:00	07:00:00	08:00:00	night	28.3	31.1	56.0
Sun	07:00:00	16:00:00	09:00:00	day	30.5	35.6	59.3

Table 3
Summary of internal noise monitoring results

A summary of the night and day noise levels is:

Night 32 dB(A)
Day 37 dB(A)

4.3.2 Plot 1

4.3.2.1 Location

The microphone was approximately 1.2 m from local ground and placed in the middle of a ground-floor habitable room, directly facing the nursery, with the doors and windows closed.

NB It should be noted that the room was unfurnished and without carpets so reverberation noise contributed to the measured noise levels. When the room is fully furnished then the reverberation noise will decrease and therefore the overall noise level in the room will also decrease.**

4.3.2.2 Results

Noise monitoring took place during a busy weekday (Friday), when traffic noise would be the greatest, and over a minimum 24-hour period.

The internal noise levels within the habitable room of Plot 01 are shown in Figure 2.



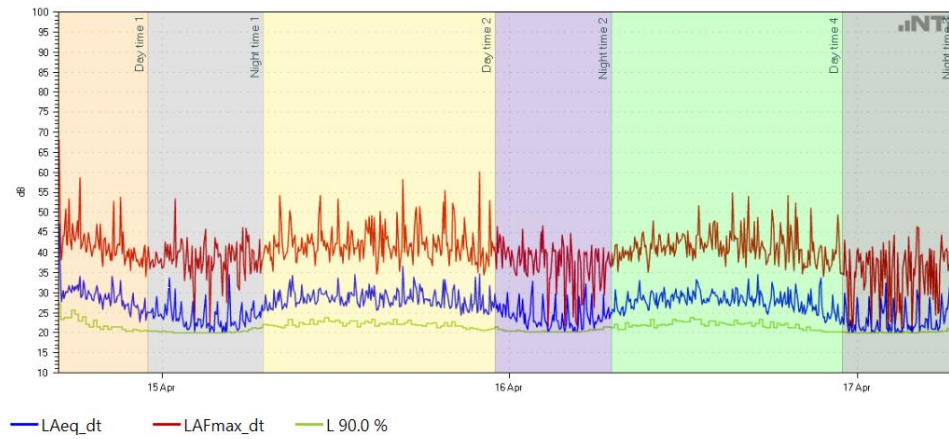


Figure 4
Internal time history – Plot 01

Date	Time		Duration	Time Period	L_{A90} dB	L_{Aeq} dB	L_{Amax} dB
	Start	Finish					
Fri 27/10/2023	16:00:00	23:00:00	07:00:00	day	20.9	29.9	68.2
	23:00:00	07:00:00	08:00:00	night	19.9	25	53.3
Sat	07:00:00	23:00:00	16:00:00	day	21.6	29	59.9
	23:00:00	07:00:00	08:00:00	night	20.1	25.1	46.4
Sun	07:00:00	16:00:00	09:00:00	day	21.0	28.4	54.7

Table 4
Summary of internal noise monitoring results

A summary of the night and day noise levels is:

Night 25 dB(A)
Day 29 dB(A)



5 ACOUSTIC ASSESSMENT

5.1 RESULTS OVERVIEW

Pot	period	room	Internal Levels L_{Aeq} (dB)		Result	
			Limit	Meas	Diff	Discussion
Plot 12	night	bedroom	30	30	0	Noise level on the limit
	day	lounge	35	34	-1	under the limit by 1dB
Plot 26	night	bedroom	30	32	+2	Over limit by 2dB
	day	lounge	35	37	+2	Over limit by 2 dB
Plot 01	night	bedroom	30	25	-5	Under limit
	day	lounge	35	29	-4	Under limit

Table 5
Measured noise level compared with day and night limits.

The day and night time limits were met in plots 01 and 12, even though they were unfurnished.

Plot 26 was 2dB over the limit in both the night and day time periods.

However, due to the lack of any furnishings and fittings, there was excessive reverberation noise. Once the dwelling is inhabited then the reverberation noise will decrease and thus the day and night time noise limits should easily be met once occupied.

6 CONCLUSION

A verification acoustic survey has taken place at Glendene, Greenbrow Road, Wythenshawe to discharge condition 18 of planning application 129195/FO/2021 for the erection of residential dwellings.

The results show that, even with the rooms are unfurnished, the day and night internal noise levels within Plots 01 and 12 are within limits.

Plot 26 was also tested for internal noise but was 2dB over the day and night time periods. However, once the dwelling is occupied, then reverberation noise will decrease and thus be within acceptable noise levels once inhabited.

Hence Condition 18 can be discharged.

7 REFERENCES

- [1] BS8233: 2014
Sound Insulation and noise reduction for buildings – Code of Practice,
British Standards Institute, 2014.



A1 AS-BUILT SITE LAYOUT – GROUND & FIRST FLOOR

