
GS CONSTRUCTION (NW) LTD

NOISE IMPACT ASSESSMENT REPORT

**29 BERRY BROW, NEWTON HEATH, MANCHESTER M40
1GR**

Client: GS Construction (NW) Ltd

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REPORT VERSION CONTROL:

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1 INTRODUCTION

1.1 Overview

1.1.1 By instruction from GS Construction (NW) Ltd ('the client'), NoiseAir was commissioned to undertake a noise impact assessment (NIA) in support of a discharge of conditions application for a residential dwelling, herein referred to as 'the assessment site'.

1.1.2 General limitations with respect to this NIA are outlined in **Appendix A**.

1.2 Site Description

1.2.1 The assessment site is located at 29 Berry Brow, Newton Heath, Manchester M40 1GR. The site location and context are shown in figures below.



Figure 1: Site Location and Noise Sensitive Receptors

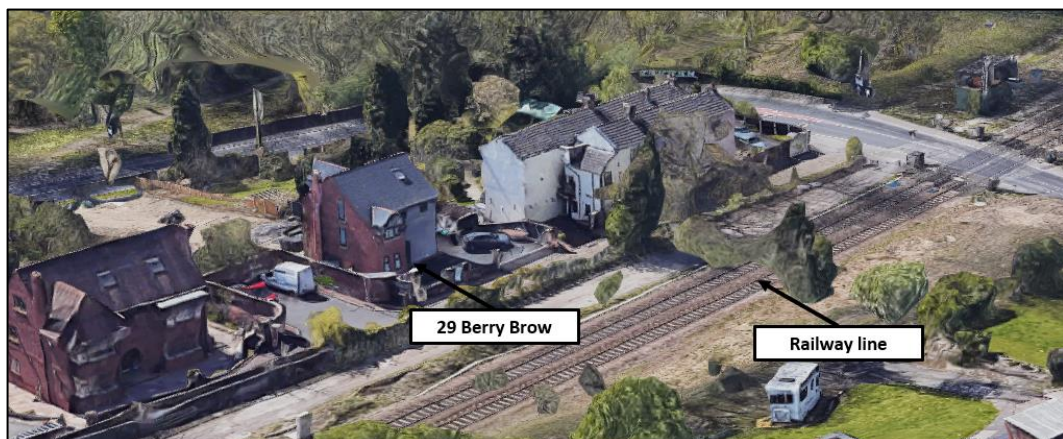


Figure 2: 3D View of Site Context

1.2.2 The site is a completed new-build residential dwelling with an outstanding planning condition relating to internal noise levels. The applicant seeks to discharge the condition.

1.2.3 The site previously had a noise assessment undertaken by AB Acoustics. We understand the report specified a minimum performance for the glazing and trickle ventilators.

1.2.4 Our understanding is that the windows have now been replaced in accordance with the report. This document presents the results of a verification survey to demonstrate that the required internal noise levels have been achieved.

1.3 Condition 12 – Noise Requirements

1.3.1 The site lies within the administrative boundary of Manchester City Council and was granted approval subject to conditions in September 2014 (planning ref. 106570/FO/2014/N1).

1.3.2 Condition 12 relates to internal noise levels and states:

“Condition 12: Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from the nearby railway line shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises. The approved noise insulation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data must include measurements taken during early morning rush-hour periods and night-time to determine the appropriate sound insulation measures necessary. The internal noise criterion are as follows:

- Bedrooms (night-time 23:00-07:00) 30 dB L_{Aeq}
- Individual noise events should not normally exceed 45 dB L_{Amax} (BS 8233:1999)
- Living Rooms (daytime 07:00-23:00) 40 dB L_{Aeq}
- Gardens and terraces (daytime) 55 dB L_{Aeq}

1.3.3 We note that the condition refers specifically to BS 8233:1999, which was superseded by BS 8233:2014 six months prior to planning approval being granted.

1.3.4 BS 8233:1999 contained an L_{AFmax} criteria that was omitted from the 2014 edition of the standard. The standard stated that 45 dB L_{AFmax} should not regularly be exceeded in bedrooms during the night-time. No more than 15 L_{AFmax} events in exceedance of 45 dB was considered ‘typical’ by the standard.

1.3.5 The criteria was reintroduced in 2017 by ProPG:2017, with a more stringent requirement that no more than 10 L_{AFmax} events exceeding 45 dB was required rather than 15.

1.3.6 Condition 12 refers specifically to BS 8233:1999 and this is the criteria by which a discharge of the condition should be granted. However, this report does also refer to ProPG:2017 for informational purposes.

1.4 Scope of Works

1.4.1 In this case, the residential dwelling is constructed and occupied. We have therefore undertaken a verification survey within the property over a 24-hour weekday period.

1.4.2 The survey was undertaken within a worst-case bedroom overlooking the railway line. The results of the survey are presented and assessed against the criteria within Condition 12 in the following section of this report.

2 ACOUSTIC SURVEY

2.1 Verification Measurements

- 2.1.1 A 24-hour noise survey was undertaken within a first-floor bedroom overlooking the railway line. The survey was undertaken during a weekday period covering Thursday-Friday. No events were noted that would affect road or railway traffic.
- 2.1.2 Local schools were still operational before the Easter holidays at the time of the survey, meaning that the survey was representative of typical traffic flows.



Figure 3: Survey Location

- 2.1.3 The survey was undertaken with the bedroom window closed, and the trickle ventilator in the window open for background ventilation. The survey was therefore undertaken in accordance with the conditions assumed in, BS 8233:1999, BS 8233:2014 and ProPG:2017.
- 2.1.4 The monitoring equipment consisted of a NOR150 Class 1 sound level meter (SLM) with enhanced windshield and calibrated to traceable standards (certificates are available upon request).
- 2.1.5 Details of the SLM and associated field calibrations can be found in **Table 1** below:

Table 1: Summary of SLM used for survey and associated field calibration

SLM (Serial Number)	Preamp (Serial Number)	Microphone (Serial Number)	Calibrator (Serial Number)	Start Calibration	End Calibration	Drift
NOR150 (15030105)	NOR1209 (15801)	NOR1225 (72900)	BK4231 (2699086)	-26.0	-26.0	0.0 dB

2.1.6 The survey results are presented in **Table 2** below and are shown graphically in **Chart 1**.

Table 2: Average Measured Daytime and Night-time Noise Levels

Monitoring Location	Time	Measured Noise Level		
		$L_{Aeq,T}$ (dB)	Mode $L_{AF90,15min}$ (dB)	$L_{AFmax,1min}$ Range (dB)
ML1	Thu 30/03/2023 13:00 – Thu 30/30/2023 23:00	30	18	19-72
	Thu 30/03/2023 23:00 – Fri 30/03/2023 07:00	19	17	17-53
	Fri 30/03/2023 07:00 – Fri 30/03/2023 13:00	34	18	20-70
	Thu 30/03/2023 13:00 – Fri 31/03/2023 13:00 16-hour Daytime Average	32	18	19-72

2.1.7 Due to the SLM being located internally and the house being occupied by the residents, a certain degree of L_{AFmax} events measured will be internally generated noise events (e.g. doors closing, dog barking, toilet flushing, etc.) rather than external sources. This appears to be the case with the highest L_{AFmax} events measured.

2.1.8 The 11th highest $L_{AFmax,1min}$ event measured between 23:00-07:00 was 40 dB $L_{AFmax,1min}$.

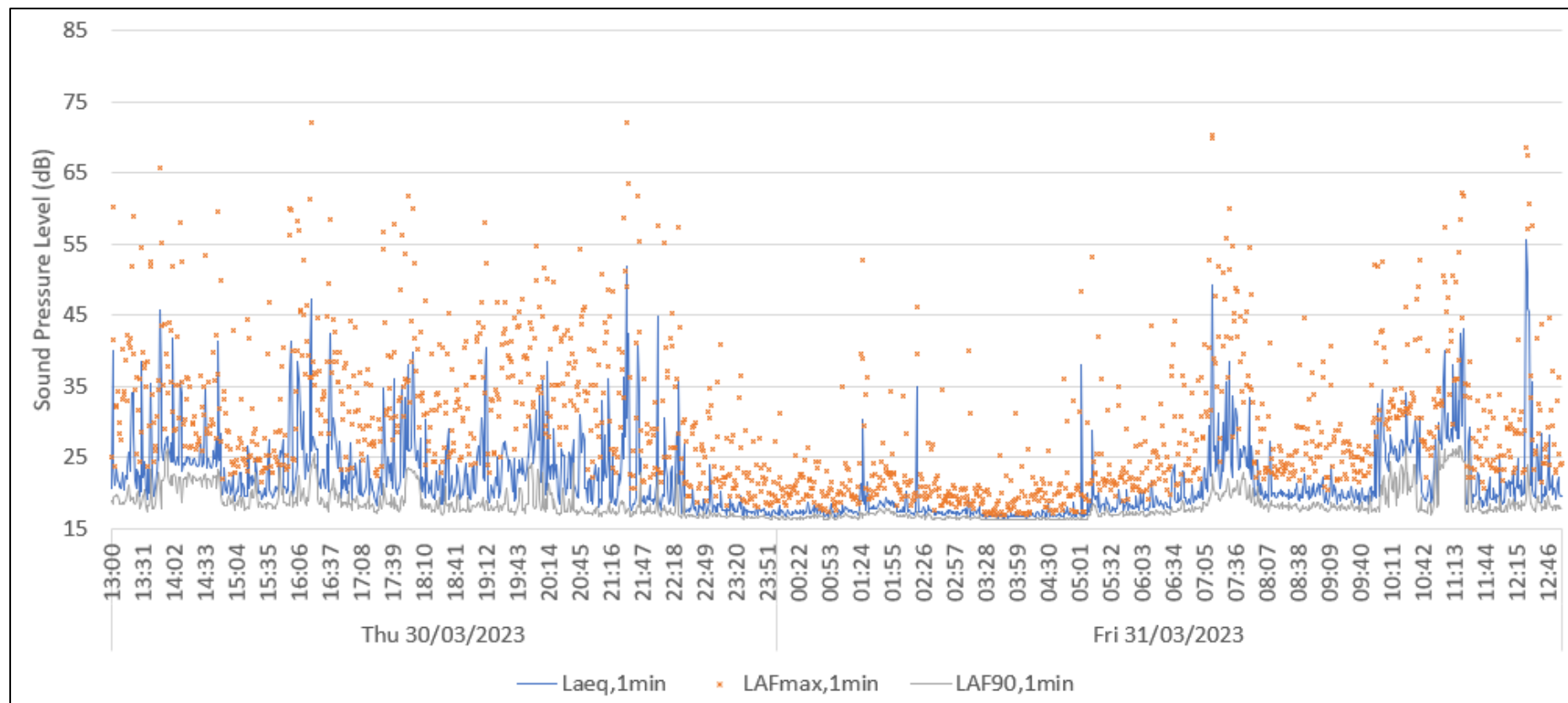


Chart 1: Noise Monitoring Results at ML1

3 DETERMINATION OF COMPLIANCE WITH CONDITION 12

3.1 Assessment of Internal Noise Levels

- 3.1.1 A summary of the measured noise levels against the criteria of the condition is presented in **Table 3** below. $L_{AFmax,1min}$ levels have been assessed against the BS 8233:1999 requirement for L_{AFmax} events to not exceed 45 dB more than 15 times in one night.

Table 3: Noise Ingress Calculation Results Summary								
Assessment Period	Measured Internal Noise Level (dB)		BS 8233:1999 Criteria (dB)		Difference (dB)		Criteria Achieved?	
	$L_{Aeq,T}$	$L_{AFmax,T}$	$L_{Aeq,T}$	$L_{AFmax,T}$	$L_{Aeq,T}$	$L_{AFmax,T}$	$L_{Aeq,T}$	$L_{AFmax,T}$
Daytime $L_{Aeq,16hour}$ Average	32	N/A	40	N/A	-8	N/A	Yes	N/A
Night-time $L_{Aeq,8hour}$ Average	19	37	30	45	-11	-8	Yes	Yes

- 3.1.2 It can be seen from the table above that the requirements of the condition have been met.
- 3.1.3 We also note that the 11th highest $L_{AFmax,1min}$ night-time level is 40 dB, meaning that the measured noise levels also meet the requirements of ProPG:2017. The $L_{Aeq,16hour}$ level also meets BS 8233:2014 and ProPG:2017 criteria.

4 CONCLUSIONS

- 4.1.1 By instruction from GS Construction (NW) Ltd (the client'), NoiseAir was commissioned to undertake a noise impact assessment in support of a discharge of conditions application.
- 4.1.2 The condition set requirements for internal noise levels in accordance with BS 8233:1999. A previous noise assessment undertaken by AB Acoustics recommended that the glazing and ventilation was upgraded to meet the requirements of the condition.
- 4.1.3 The applicant has subsequently implemented the recommended mitigation and NoiseAir Ltd undertook a verification survey within a worst-case bedroom at the site.
- 4.1.4 The results of the noise survey with the windows closed and trickle ventilator open as per the requirements of BS 8233:1999, BS 8233:2014 and ProPG:2017 were assessed against the requirements of the condition. It was determined that the requirements of the condition were achieved.
- 4.1.5 We therefore recommend that the condition is discharged.

APPENDIX A - REPORT LIMITATIONS

This Report is presented to GS Construction (NW) Ltd and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this report.

Notwithstanding anything to the contrary contained in the report, NoiseAir Limited is obliged to exercise reasonable skill, care and diligence in the performance of the services required by GS Construction (NW) Ltd and NoiseAir shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this report shall be read and construed accordingly.

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Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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APPENDIX B - GLOSSARY

A-weighted sound pressure, p_A	Value of overall sound pressure, measured in pascals (Pa), after the electrical signal derived from a microphone has been passed through an A-weighting network. <i>NOTE: The A-weighting network modifies the electrical response of a sound level meter with frequency in approximately the same way as the sensitivity of the human hearing system.</i>
A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure in decibels (dBA).
Acoustic environment	Sound from all sound sources as modified by the environment [BS ISO 12913-1:2013].
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T, has the same mean-squared sound pressure as the sound under consideration that varies with time.
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants. <i>NOTE: The location(s) within the room at which the ambient indoor noise is to be measured or calculated ought to be considered.</i>
Sound pressure, p	Root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound.
Sound pressure level, L_p	Quantity of sound pressure, in decibels (dB).

Symbols

D_w	Weighted level difference (dB)
D_{nT}	Standardized level difference (dB)
$D_{nT,w}$	Weighted standardized level difference (dB)
L_{Amax}	Maximum noise level (dB)
$L_{Ar,Tr}$	Rating level (dB)
L_n	Normalised impact sound pressure level (dB)
L'_{nT}	Standardised impact sound pressure level (dB)
$L'_{nT,w}$	Weighted standardised impact sound pressure level (dB)
$L'_{n,w}$	Weighted normalised impact sound pressure level (dB)
L_p	Sound pressure level (dB)
L_{pA}	A-weighted sound pressure level (dB)
$L_{AN,T}$	Percentile level (dB)
L_{AE}	Sound exposure level (dB)
$L_{Aeq,T}$	Equivalent continuous A-weighted sound pressure level (dB)
p	Sound pressure (Pa)
p_A	A-weighted sound pressure (dB)
$p_{A(t)}$	Instantaneous A-weighted sound pressure (Pa)

R	Sound reduction index (dB)
R_w	Weighted sound reduction index (dB)
T	Time interval (also used for reverberation time) (s)
t_0	Reference time interval (s)

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