

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

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LBG, 11 Portland Street, Manchester

Environmental noise survey report

London, Manchester, Edinburgh, Birmingham, Belfast, Leeds

Sandy Brown Ltd

Registered in England & Wales

No. 13227735

post@sandybrown.com

www.sandybrown.com

Registered Office: 55 Charterhouse Street, London EC1M 6HA

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Version	Date	Comments	Author	Reviewer
A	13 Jun 23		Tom Stephenson	Mark Howarth

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Summary

Sandy Brown has been commissioned by HLN Limited to provide acoustic advice in relation to the proposed development at 11 Portland Street, Manchester.

An environmental noise survey has been carried out to determine the existing sound levels in the area. The noise survey was carried out between 12:30 on 1 June 2023 and 11:45 on 6 June 2023.

Data from the survey will be used to inform the design of the development with respect to atmospheric noise emissions from building services plant.

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1 Introduction

Sandy Brown has been commissioned by HLN Limited to provide acoustic advice in relation to the proposed development at 11 Portland Street, Manchester.

As part of this, an environmental noise survey is required, the purpose of which is to establish the existing sound levels on and around the site.

This report presents the survey method and results.

2 Site description

2.1 The site and its surrounding

The site location in relation to its surroundings is shown in Figure 1. 11 Portland Street is highlighted in red. It is bordered by Portland Street to the north-west, Aytoun Street to the north-east, Major Street to the south-east and Minshull Street to the south-west.



Figure 1 Aerial view of site (courtesy of Google Earth Pro)

2.2 Adjacent premises

Commercial premises are shown in green in Figure 1. 4 Minshull Street is located to the south and 1 Piccadilly is located to the north.

The premises highlighted in blue are a mixed use commercial and residential premises.

3 Noise survey method

The survey included unattended and attended noise measurements.

3.1 Unattended measurements

Unattended noise monitoring was undertaken at the site over 5 days.

Details of the equipment used and the noise indices measured are provided in Appendix A.

The unattended measurements were taken over 15 minute periods between 12:30 on 1 June 2023 and 11:45 on 6 June 2023.

The measurement position used during the survey is indicated in Figure 4, denoted by the letter 'L'. Photographs showing the measurement location are provided in Figure 2 and Figure 3. This location was chosen to be reasonably representative of noise levels at the site and outside the nearest noise sensitive premises. The measurement position had direct line of sight to Portland Street and Aytoun Street.

The microphone was located at least 2 m from the rooftop, approximately 30 m above the road and at least 3 m from any other reflective surface.

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Figure 2 Rooftop measurement position



Figure 3 Rooftop measurement position, the junction of Portland Street and Aytoun Street is visible

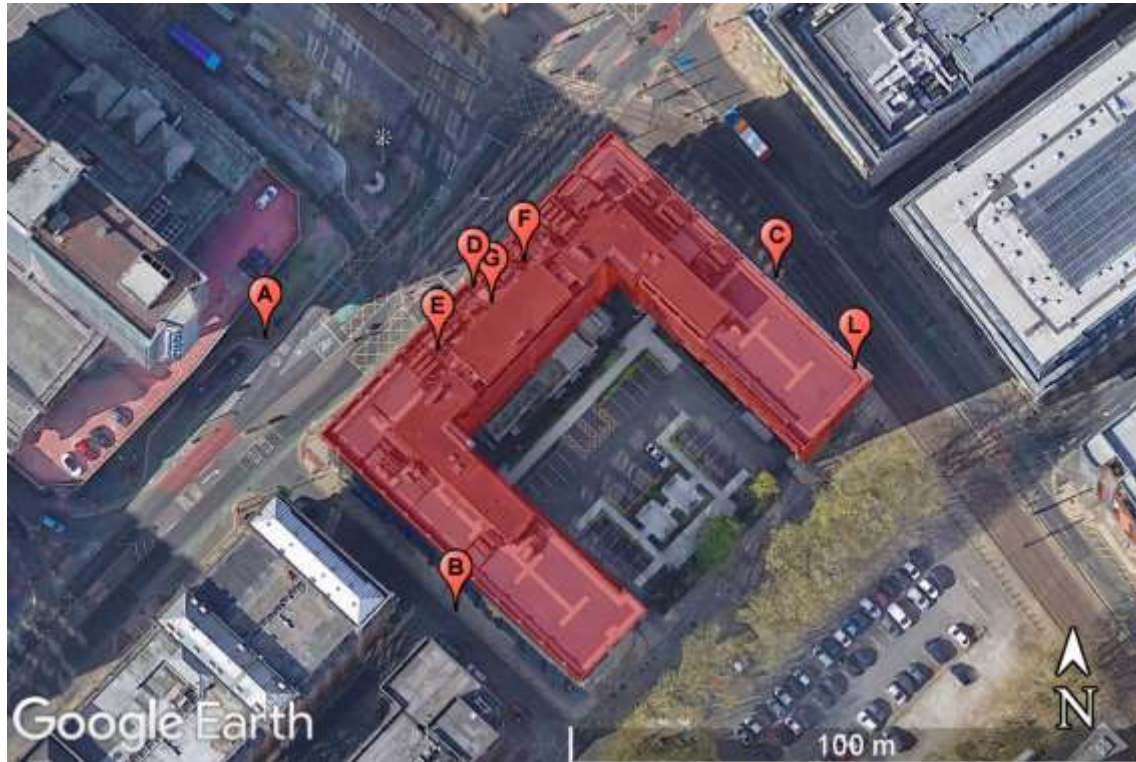


Figure 4 Measurement locations (courtesy of Google Earth Pro)

3.2 Attended measurements

Attended sample measurements were taken at 3 locations at street level around the site. These are indicated in Figure 4 as positions A to C. The measurements were carried out on 6 June 2023, over 15 minute periods, synchronised with the unattended measurements.

At each position the microphone was mounted on a tripod approximately 1.2 m above the ground level and at least 3 m from any other reflective surface. Details of the equipment used and the noise indices measured are provided in Appendix A.

Dominant noise sources occurring during the measurements were noted.

Additional attended measurements of noise from existing rooftop plant items were taken at 4 locations around the plant deck of 11 Portland Street. These are indicated as positions D-G in Figure 4. The measurements were carried out on 6 June 2023, over 1 minute periods.

3.3 Weather conditions

Weather conditions during the survey are described in Appendix A.

4 Noise survey results

4.1 Observations

The dominant noise sources observed at the site during the survey were from road traffic on Aytoun Street and Portland Street.

Less significant noise sources included road traffic elsewhere and the existing rooftop plant items, which is located approximately 30 m away from the unattended measurement position.

4.2 Noise measurement results

4.2.1 Unattended measurement results

A graph showing the results of the unattended measurements is provided in Appendix B.

Ambient noise levels measured during the unattended survey are presented in Table 1.

Table 1 Ambient noise levels measured during the unattended survey

Date	Day (07:00 – 23:00)	Night (23:00 – 07:00)
	$L_{Aeq,16h}$ (dB)	$L_{Aeq,8h}$ (dB)
Thu 1 June 2023	61 ^[1]	57
Fri 2 June 2023	60	57
Sat 3 June 2023	59	56
Sun 4 June 2023	59	55
Mon 5 June 2023	60	55
Tue 6 June 2023	62 ^[1]	-
Average	60	56

^[1] Measurement not made over full period due to monitoring start and end time (the measurement on 1 June 23 was over 10 hours, and on 6 June 23 over 4 hours); not included in the average.

4.2.2 Attended measurement results

Noise levels and key sources recorded during the attended measurements are summarised in Table 2. All measurements were free-field measurements, except for measurement G, which was a source measurement 1 m from a louvre at the facade and at least 3 m from any other reflective surface.

Table 2 Noise levels and key noise sources from attended measurements

Position	Start time	Sound pressure levels (dB)			Noise sources
		L_{Aeq}	L_{AFmax}	L_{A90}	
A – Portland Street	10:00	$L_{Aeq,15min}$ 70	$L_{AFmax,15min}$ 83	$L_{A90,15min}$ 64	Road traffic on Portland St, including buses idling near to measurement position. Trams going between Piccadilly Gardens and Aytoun St. Some pedestrian noise. One ambulance siren during the second measurement
	10:15	$L_{Aeq,15min}$ 70	$L_{AFmax,15min}$ 93	$L_{A90,15min}$ 62	
B – Minshull Street	10:30	$L_{Aeq,15min}$ 66	$L_{AFmax,15min}$ 79	$L_{A90,15min}$ 59	Road traffic on Minshull St and Portland St. Some pedestrian noise. One ambulance siren pass on Portland St during each measurement.
	11:00	$L_{Aeq,15min}$ 68	$L_{AFmax,15min}$ 91	$L_{A90,15min}$ 59	
C – Aytoun Street	11:15	$L_{Aeq,15min}$ 68	$L_{AFmax,15min}$ 84	$L_{A90,15min}$ 56	Road traffic and trams on Aytoun St and Portland St. Trams travelling away from Piccadilly Gardens pass over part of the track which causes a loud, low frequency rumble.
	11:30	$L_{Aeq,15min}$ 68	$L_{AFmax,15min}$ 85	$L_{A90,15min}$ 58	
D	12:17	$L_{Aeq,1min}$ 64	$L_{AFmax,1min}$ 65	$L_{A90,1min}$ 64	Measurement amongst existing rooftop plant items. Dominated by the louvre at facade (see position G). Other plant items were operating at a perceived low duty. Road traffic noise from Portland St was well screened and barely audible.
	12:18	$L_{Aeq,1min}$ 65	$L_{AFmax,1min}$ 66	$L_{A90,1min}$ 64	

Position	Start time	Sound pressure levels (dB)			Noise sources
		L_{Aeq}	L_{AFmax}	L_{A90}	
E	12:20	$L_{Aeq,1min}$ 69	$L_{AFmax,1min}$ 70	$L_{A90,1min}$ 68	Measurement amongst existing rooftop plant items. One plant item was operating at a far higher duty than the others and dominated the noise level.
	12:21	$L_{Aeq,1min}$ 68	$L_{AFmax,1min}$ 70	$L_{A90,1min}$ 68	
F	12:25	$L_{Aeq,1min}$ 58	$L_{AFmax,1min}$ 63	$L_{A90,1min}$ 57	Measurement amongst existing rooftop plant items. All items operating at a perceived low duty.
	12:26	$L_{Aeq,1min}$ 58	$L_{AFmax,1min}$ 67	$L_{A90,1min}$ 58	
G	12:28	$L_{Aeq,1min}$ 70	$L_{AFmax,1min}$ 71	$L_{A90,1min}$ 70	Measurement 1 m from the louvre at the facade.
	12:29	$L_{Aeq,1min}$ 70	$L_{AFmax,1min}$ 71	$L_{A90,1min}$ 70	

5 Conclusion

A noise survey has been carried out at the site. Key noise sources at the site were noted as traffic on Portland Street and Aytoun Street.

Measured ambient noise levels were in the range $L_{Aeq,15min}$ 59 dB to 60 dB during the day, and $L_{Aeq,15min}$ 55 dB to 57 dB during the night.

The data collected will be used to determine appropriate plant noise egress limits.

Appendix A

Survey details

Equipment

The unattended and attended noise measurements were taken using a Rion NL-52 sound level meter.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	NL-52/00932326	Rion	21 Mar 25	TCRT23/1250
Microphone	UC-59/05549	Rion	21 Mar 25	TCRT23/1250
Pre-amp	NH-25/32354	Rion	21 Mar 25	TCRT23/1250
Calibrator	NC-74/34125432	Rion	21 Mar 25	TCRT23/1248
Sound level meter	NL-52/01143564	Rion	15 Dec 24	TCRT22/1766
Microphone	UC-59/10153	Rion	15 Dec 24	TCRT22/1766
Pre-amp	NH-25/43581	Rion	15 Dec 24	TCRT22/1766
Calibrator	NC-74/34257023	Rion	15 Dec 24	TCRT22/1765

Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meters used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*.

Weather conditions

During the attended noise measurements, the weather was generally clear and dry and no rain occurred. Wind speeds did not exceed 5 m/s.

During the unattended noise measurements, weather reports for the area indicated that temperatures varied between 6°C at night and 21°C during the day, and the wind speed was less than 5 m/s.

These weather conditions are considered suitable for obtaining representative measurements.

Appendix B

Results of unattended measurements at Location L

LBG, 11 Portland Street, Manchester
Results of noise logging survey
1 June 2023 to 6 June 2023

