

**PROPOSED ADMIRAL ADULT GAMING CENTRE
60 PORTLAND STREET, MANCHESTER**

NOISE ASSESSMENT

On behalf of:
Luxury Leisure

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NOISE ASSESSMENT

Report number	Prepared by	Prepared for
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1. INTRODUCTION

- 1.1 Hepworth Acoustics was commissioned by Luxury Leisure to carry out a noise impact assessment in connection with a proposed Admiral Adult Gaming Centre (AGC) at the site of the former NatWest Bank at 60 Portland Street in Manchester City centre. The assessment was requested in connection with a planning application for the development, which it is proposed will be open throughout 24 hours.
- 1.2 The site location is shown in **Figure 1**. The premises, which are currently vacant, are in a predominantly commercial area of the city centre with various shops, restaurants, licensed premises and other commercial premises to either side. There are numerous premises in the vicinity that operate throughout 24 hours or until very late at night/early in the morning, including Napoleon's Casino diagonally opposite, Orchid Karaoke bar at 54 Portland Street and Subway sandwich bar at 96 Portland Street.
- 1.3 The gaming area is to be located on the ground floor, with the upper floors used for ancillary spaces, or storage. The upper floors of the adjacent/nearby premises all appear to be commercial in use.
- 1.4 The nearest dwellings are situated to the rear of the premises in the form of residential apartments on Reyner Street and the Clayton Hotel is located opposite the front of the premises on Portland Street.
- 1.5 Our assessment is based on the layout as shown in **Figure 2**. Figure 2 indicates windows to the rear elevation, but these have been blocked up with solid steel infills to the outside and lined internally with plasterboard and hence the rear elevation is of substantial construction with a very good sound insulation.
- 1.6 As part of the proposals, the numerous existing wall-mounted plant/equipment items on the rear elevation are to be removed and two replacement air conditioning condensers will be installed at ground floor level to the rear as indicated in **Figure 3**.
- 1.7 The noise assessment has therefore included:
 - An inspection of the site and environs;
 - Adopting appropriate noise criteria;
 - A survey of the prevailing external environmental noise levels at the site over a representative midweek night-time period;
 - Assessment of gaming area noise break-out, by reference to source noise measurements recently carried out at another similar Admiral AGC;
 - Assessment of noise from customers outside the venue.
 - Commenting on potential noise impact of the proposed air conditioning condensers.

- 1.8 All recommendations in this report are given for acoustics reasons only. Compliance with other requirements (e.g. fire, structural, thermal, etc.) must be checked by others.
- 1.9 The various acoustics indices referred to in this report are described in Appendix A. All noise levels in the text have been rounded to the nearest decibel as fractions of a decibel are imperceptible.

2. ACOUSTIC CRITERIA

2.1 Manchester City Council have well-established noise design criteria for 'entertainment venues', the noise from which is similar in nature to that from adult gaming centres.

2.2 Manchester City Council document Planning & Noise Technical Guidance dated October 2022 states:

'a planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be 'audible' in nearby residential properties, assuming that the residential properties in question have their windows open. The criterion here is:

'Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5dB below the typical background noise level (L_{A90}) in each octave band at the nearest noise sensitive location'.

2.3 It is also noted that where a new residential development is structurally connected (and structurally separate) from entertainment premises:

'a criterion that would achieve a condition of 'inaudible' / 'virtually inaudible' which is applicable for new residential developments that are structurally connected to entertainment venues (or vice versa) would be:

'Entertainment noise (in dB $L_{eq,5min}$) to be controlled to at least 5 dB below the typical background noise level (in dB $L_{90,5min}$) in each octave band at the nearest noise-sensitive location, subject to lower limits of 57 dB and 51 dB in the 63 Hz and 125 Hz octave bands respectively'.

2.4 In respect of plant/equipment noise, Manchester City Council guidance states that:

'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location'.

3. NOISE SURVEY

Existing Environmental Noise

- 3.1 Environmental noise measurements have been carried out to determine the prevailing ambient noise levels of the area. Access inside the building was not available at the time of this assessment and hence it was not possible to install automated logging equipment over the entire night-time period. On this basis, noise measurements were carried out on an attended basis using noise monitoring equipment between 02:00 and 04:00 on the morning of Monday 16 June 2025 to be representative of the worst-case in terms of potential noise impact (i.e. when existing background noise levels would be at their lowest). Measurements were taken in sequential five-minute samples.
- 3.2 Noise was measured at Location A at the rear of the premises on Reyner Street, and at Location B outside the Clayton Hotel on Portland Street directly opposite the front of the premises. The locations are indicated on **Figure 1**.
- 3.3 At both locations, the sound analyser was mounted on a tripod with a microphone height 1.4m above ground level, in ‘free-field’ conditions.
- 3.4 Weather conditions were calm and dry and hence suitable for the noise survey. As the site is to operate throughout 24-hours, the night-time period is the most sensitive and therefore is the focus of the assessment in section 4.0.
- 3.5 The noise climate at Location A was dominated by plant noise from adjacent buildings unrelated to the site (i.e. no former NatWest equipment was operating), whilst at Location B it was dominated by road traffic noise. There was also intermittent noise from vehicles and voices associated with deliveries and street-cleaning. As the noise climate at Location A was dominated by continuous steady plant noise, more time was dedicated to measuring the noise climate at Location B as it was more variable.
- 3.6 On the basis of the above, noise levels are summarised in **Table 2** with full details in Appendix B (which shows the time trace for the full two-hour period of the noise survey split between the two locations. The L_{Aeq} and L_{A90} values in **Table 2** are the lowest measured value over a representative sample period at each location during the survey.

Table 2: Environmental noise levels summary (dB)

Location	Range (and average) of measured noise levels		
	L_{AFmax}	L_{Aeq}	L_{A90}
A – Rear of site premises	71 – 75	64	63
B – In front of Clayton Hotel	77 – 81	61	52

- 3.7 **Table 3** shows the lowest background noise level for each measurement location in octave bands:

Table 3: Lowest Measured Background Noise Levels (dB)

Location	Octave band centre frequency (Hz)						
	63	125	250	500	1k	2k	4k
A – Rear of site premises	61	66	65	61	55	52	45
B – Infront of Clayton Hotel	55	54	53	50	45	42	36

Reference AGC Noise Levels

- 3.8** Noise measurements were taken inside the Norwich St Stephens Street Admiral AGC venue from 19.00 to 20.00 on Friday 8 March 2024. This time was selected following consultation with staff to be representative of a typical busy period. The results are summarised in **Table 4**.

Table 4: Typical Admiral internal trading noise levels (dB)

Description	Octave band centre frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
L_{eq}	62	64	66	62	61	59	57	67
Typical L_{Fmax}	86	85	82	80	79	74	73	84

- 3.9** Therefore, the trading noise is characterised by fairly modest average noise levels interspersed with occasional periods of more elevated peaks of noise. This is commensurate with noise measurements we have made in other similar-sized AGCs.

External Condenser Noise Levels

- 3.10** Source noise measurements of the proposed Mitsubishi Electric model PUZ-ZM71VHA condensers (which are routinely installed at Admiral AGCs) have also been taken at the existing Admiral at St Stephens Street in Norwich. Measurements were taken of the existing condensers at 22:00 on Tuesday 5 March 2024. This time was chosen for the low background noise levels, to avoid extraneous external noise sources interfering with the plant noise measurements. Noise was measured with the condensers running at full speed, and then with the condensers switched off to measure background noise levels.
- 3.11** The adopted sound pressure levels, derived from the noise measurements are summarised in **Table 4**. For steady mechanical noise, which includes this equipment, L_{90} is typically equivalent to the L_{eq} values for that source but is more appropriate for measurement purposes as L_{90} is less influenced by extraneous sources of noise than L_{eq} .

Table 4: Measured equipment sound pressure level in dB $L_{90,1min}$

Description	Octave band centre frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
2 no. PUZ-ZM71VHA condensers @ 1 m	57	56	52	49	46	44	39	52

Sound Level Meter Details

- 3.12 Noise measurements at Location 1 were carried out using a NTi Audio XL2-TA 'Class 1' sound analyser (serial no. A2A-20228-E0).
- 3.13 The reference AGC trading noise levels and condenser noise levels were measured with a Brüel & Kjær Type 2250 sound level meter (serial no. 3011626).
- 3.14 Both meters were fitted with windshields. Both have current independent laboratory calibration certification from within the preceding 24-months.
- 3.15 The calibration levels of the meters were checked before and after the measurements with no significant calibration deviation observed.

4. NOISE ASSESSMENT

Trading Noise Break-out

- 4.1 Based upon the proposed layout as shown in Figure 2, the entrance will feature two separate sets of doors forming an effective lobby. We also understand that the shopfront glazing will be replaced. These proposals mean we would expect the shopfront to provide an overall sound reduction in excess of 25 dB R_w .
- 4.2 Based on the reference trading noise levels shown in **Table 3**, and by taking typical values for the sound reduction indices (SRIs) equating to 25 dB R_w for a robust assessment, as well as the area of the façade, the noise break-out levels to the Clayton Hotel directly opposite have been calculated taking into account attenuation of sound over distance (approx. 22m), as shown in **Table 5** using the effective sound power level method.

Table 5: Predicted noise break-out to buildings opposite

Description	Octave band centre frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
Source AGC noise levels								
L_{eq}	62	64	66	62	61	59	57	67
L_{Fmax}	86	85	82	80	79	74	73	84
Shopfront SRIs (25 dB R_w)	-12	-15	-20	-25	-25	-23	-20	
Shopfront area correction (35m ²)	+15	+15	+15	+15	+15	+15	+15	
Distance correction (22m)	-41	-41	-41	-41	-41	-41	-41	
Calculated AGC noise at 22m								
L_{eq}	25	24	21	12	11	11	12	19
L_{Fmax}	49	45	37	30	29	26	28	36
Lowest Measured Background Noise Level								
Location: B	55	54	53	50	45	42	36	
Level Difference								
L_{eq}	-30	-30	-32	-38	-34	-31	-24	
L_{Fmax}	-6	-9	-16	-20	-16	-16	-8	

- 4.3 The predicted worst-case noise break-out levels (in terms of both L_{eq} and L_{Fmax}) are considerably lower than the lowest measured background noise levels, even when comparing maximum noise level breakout. The calculated L_{eq} values in the 63 Hz and 125 Hz octave bands outside the hotel opposite are even below the Manchester City Council internal noise criteria.

- 4.4 On this basis, it is highly unlikely that there would be any adverse impacts due to break out of noise through the premises shopfront and the Manchester City Council criterion for entertainment noise is satisfied.
- 4.5 The rear of the building currently comprises a predominantly brick façade, with windows blocked up, and a heavy steel security door. We understand this will not be altered. We would expect this to provide sound reduction of at least 40-45 dB R_w . On this basis, trading noise break-out to the rear will be no higher than set in **Table 5**.
- 4.6 We therefore do not anticipate any issues of noise impact associated with break out of trading noise through the building envelope.

External Plant Noise

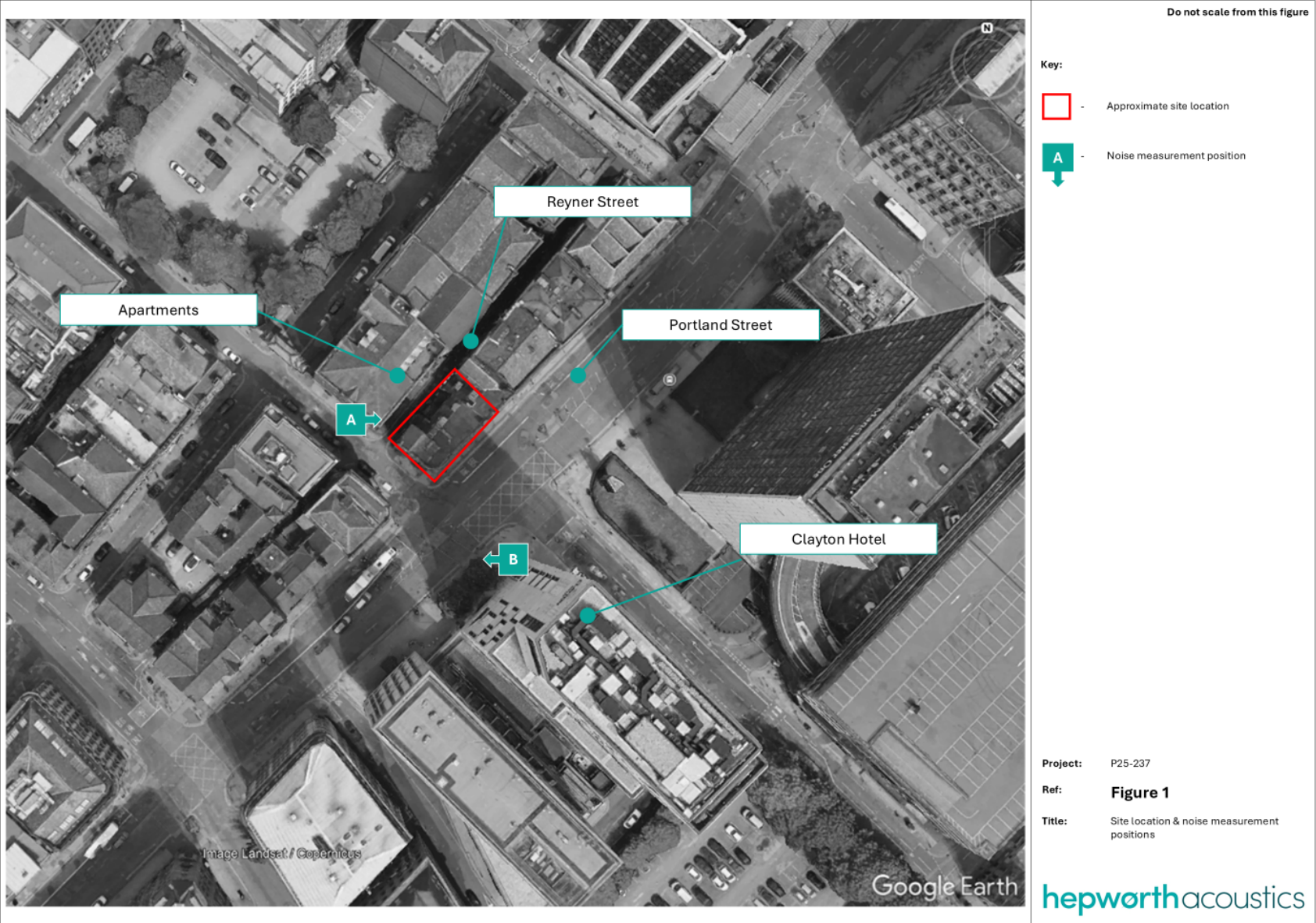
- 4.7 Based upon Admiral's standard specification, we understand that two Mitsubishi Electric model PUZ-ZM71VHA condensers are to be installed. These have been shown to produce a noise level of around 52 dBA at 1m for two units operating simultaneously. The dwellings to the rear are in relatively close proximity, however the noise level produced by the proposed plant at 1m is still 11dB below the lowest measured background noise level. As such, the proposed new plant will meet Manchester City Council's usual noise control criterion without the need for any noise control measures,

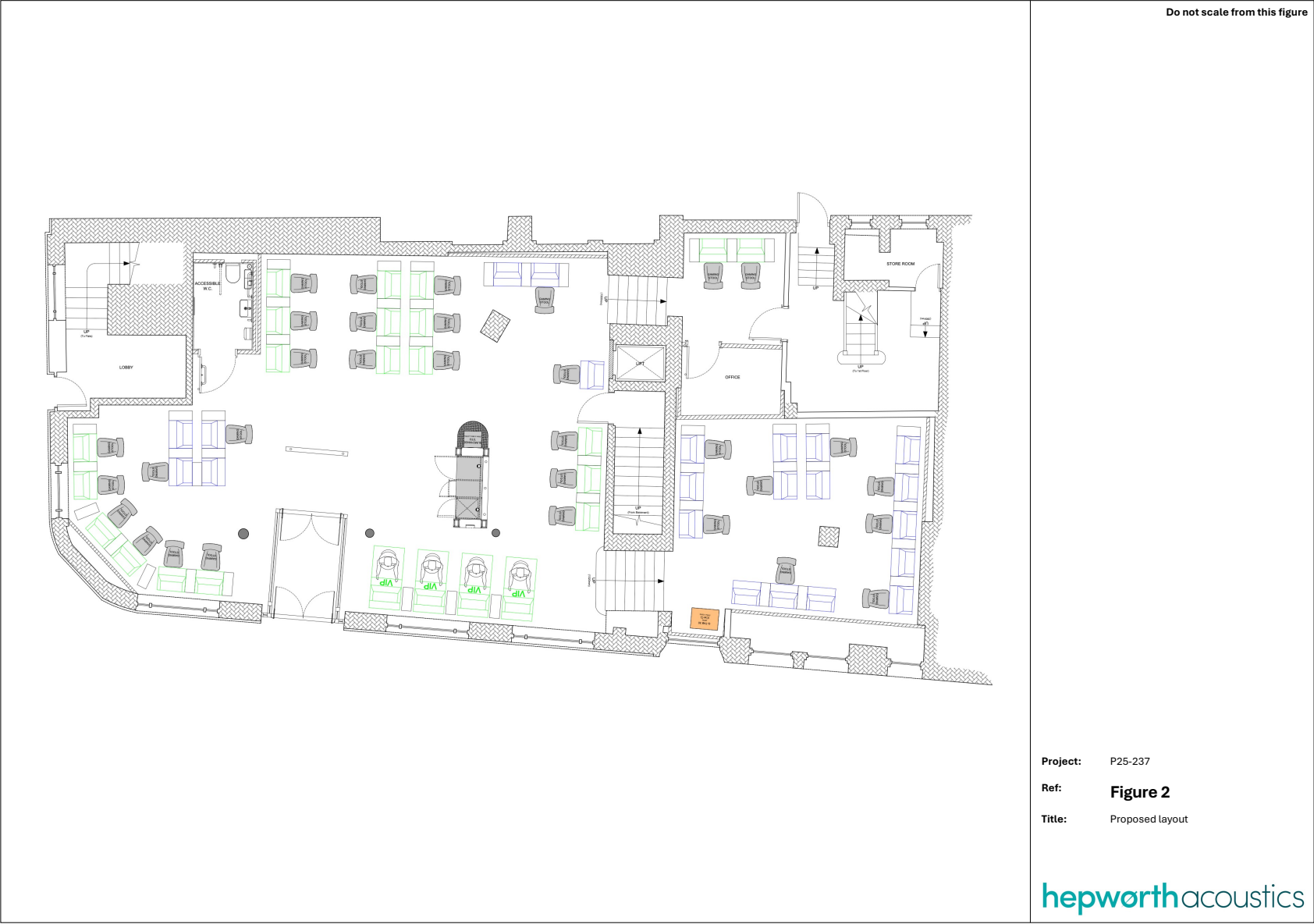
Outdoor Customer Noise

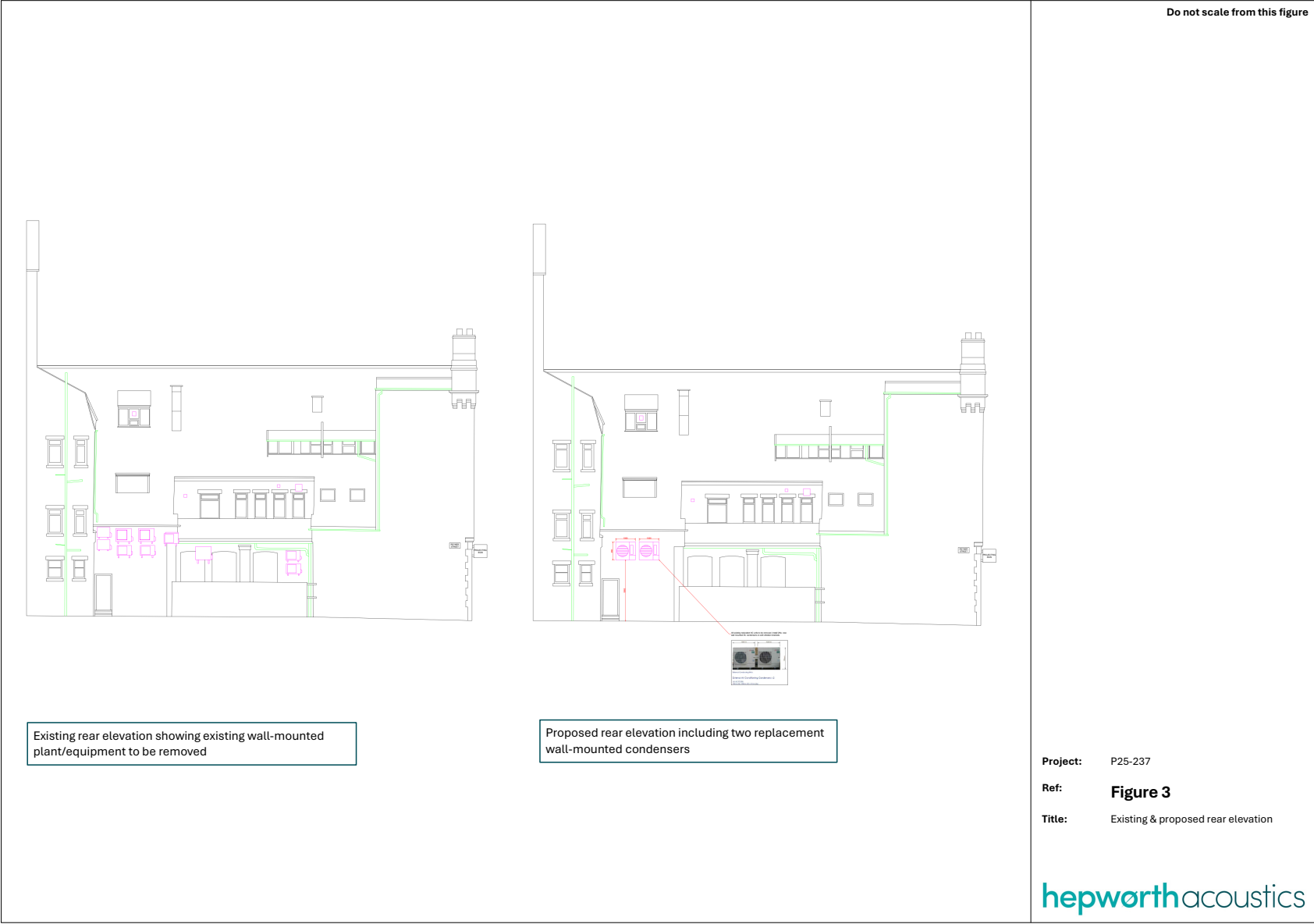
- 4.8 Based on our experience of monitoring existing Admiral premises, customers mostly arrive and leave alone or in pairs, and do not make significant noise. Based on expected occupancy levels at the venue, around two to three customers are likely to arrive or leave in a 15-minute period at peak times – the occupancy numbers for other similar-sized Admiral premises from 20:00 to 02:00 from Thursday to Saturday are shown in Appendix C for reference.
- 4.9 If customers have a conversation when leaving, typical speech noise levels are around 65 dB(A) at 1 metre. Taking into consideration the distance to the hotel opposite the shopfront, this will reduce to 38 dB(A). This is 14 dB below even the very lowest measured night-time background noise level outside the hotel opposite. It would also not be distinguishable from other conversing passers-by (including the voices of delivery/street-cleaning personnel that was recorded during the night-time period of the noise survey). Based on this, noise impact from customers arriving at or leaving from the premises is predicted to be very low.

5. SUMMARY

- 5.1 Hepworth Acoustics was commissioned by Luxury Leisure to carry out a noise impact assessment in connection with proposals for an Admiral adult gaming centre (AGC) to be located at 60 Portland Street in Manchester city centre. The noise assessment has considered the potential noise impact associated with the proposed use. It is proposed that the AGC will operate throughout 24-hours.
- 5.2 Baseline noise measurements have been carried out to determine the existing background noise climate at the site, including a representative worst-case mid-week night-time period.
- 5.3 Noise measurements taken inside a suitable similar Admiral AGC premises have been used to provide reference internal noise levels for the gaming activities at the development.
- 5.4 Using the reference internal noise levels, the level of trading noise break-out to the nearest residences/hotel bedrooms has been predicted to be very low and well below the existing noise climate and Manchester City Council's usual noise criterion.
- 5.5 New external mechanical plant will be installed at the rear of the development which is calculated to be well below the existing background noise of the vicinity and well within Manchester City Council's usual plant/equipment noise criterion. As such, no noise impact is anticipated, including during the night-time.
- 5.6 We have also considered the likely noise impact of customers arriving and leaving the premises during the extended trading hours, including by reference to observations of customer numbers at four similarly-sized existing Admiral premises. Given the existing noise climate, including the presence of noise from voices associated with delivery and street-cleaning personnel, we have concluded that no impact is likely.
- 5.7 We therefore conclude that the noise impact of the proposed Admiral AGC including 24-hour trading will not result in any loss of amenity to the nearby residents. No sound insulation enhancements or noise control measures are required.







APPENDIX A: ACOUSTICS UNITS & INDICES

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. There are also a number of ways to describe sound insulation performance.

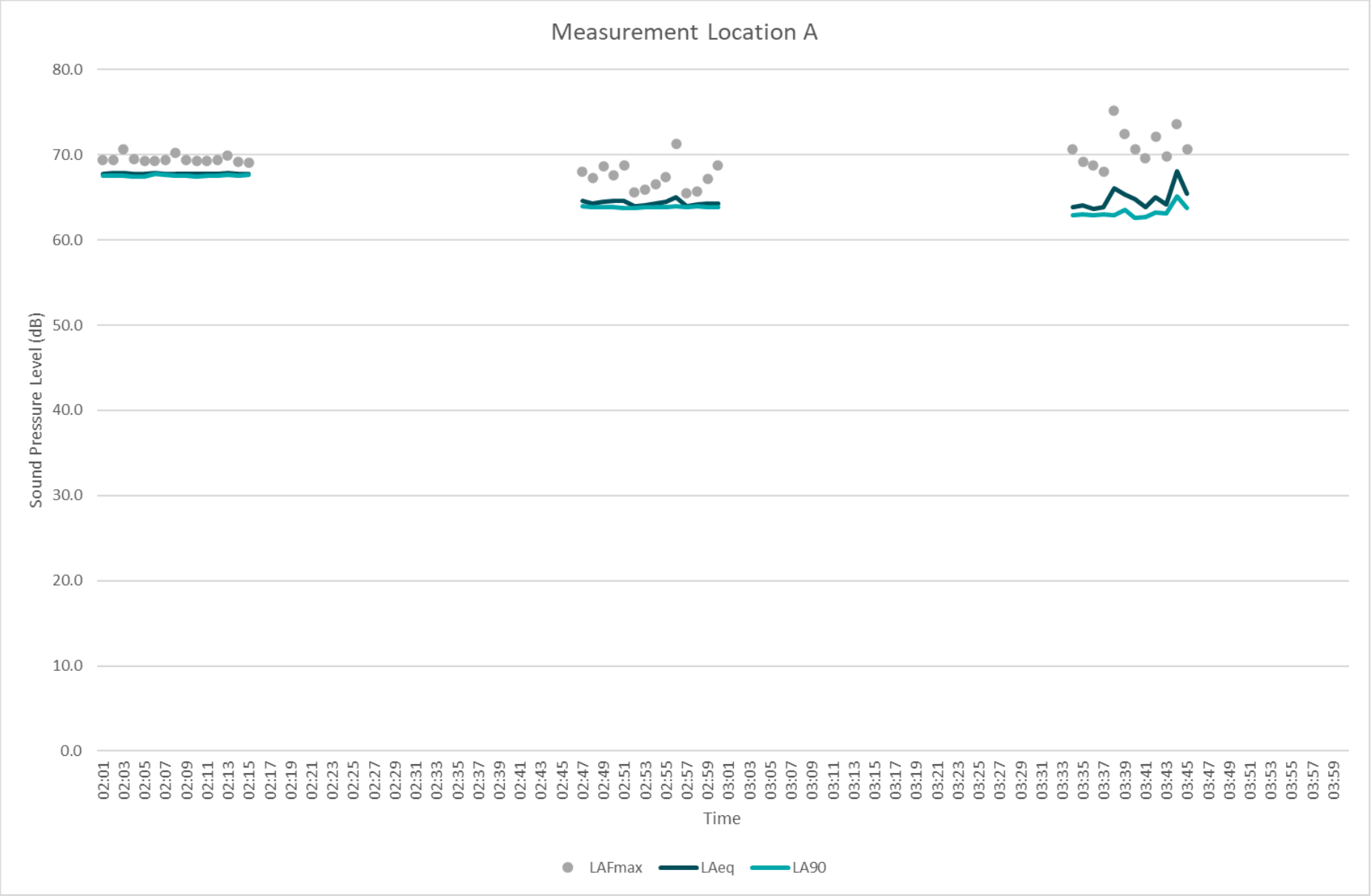
The indices used in this report are described below:

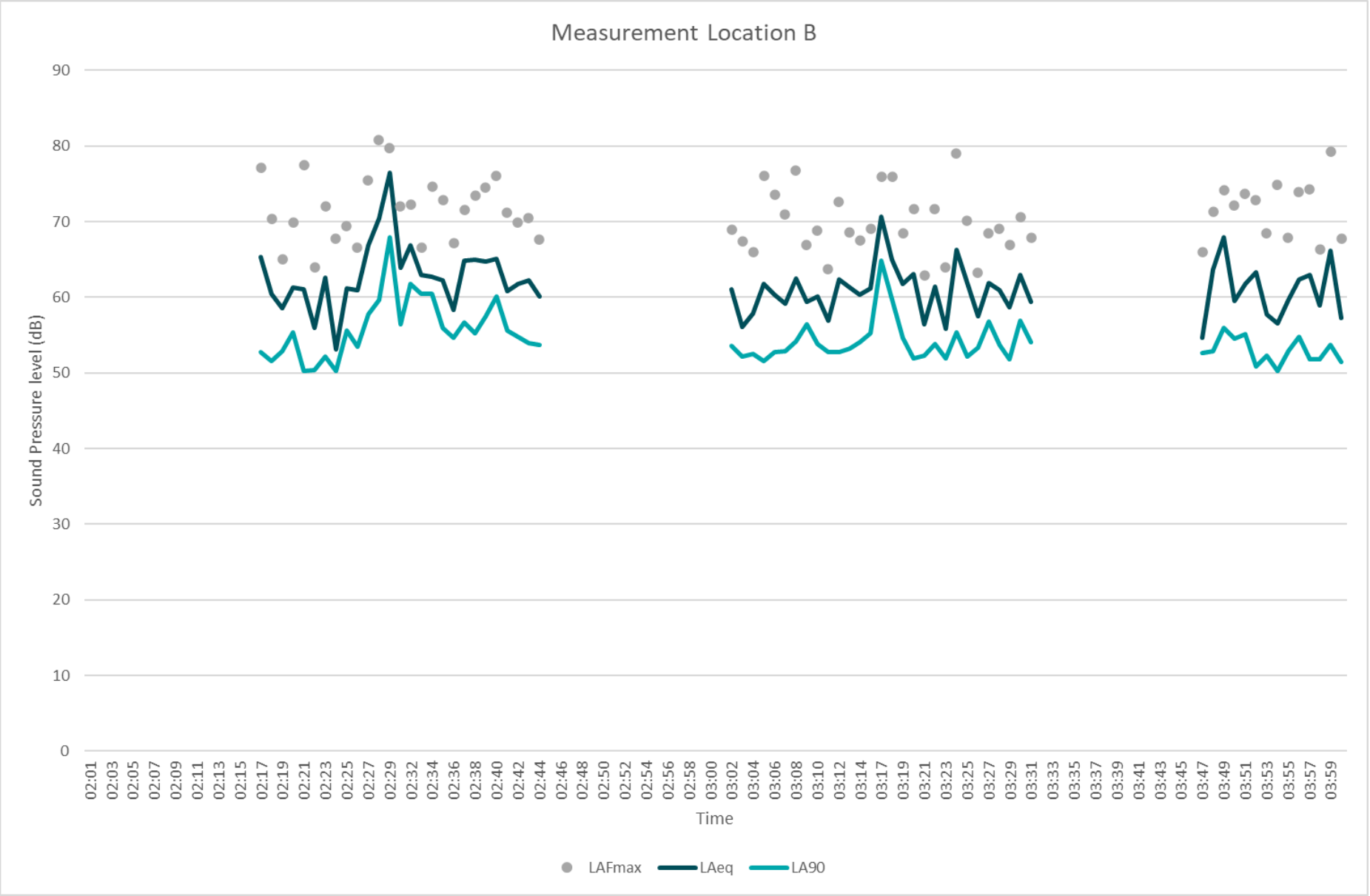
- $L_{Aeq,T}$ A-weighted Equivalent Continuous Sound Level:** An average of the total sound pressure measured over a specified time period (T). In other words, $L_{Aeq,T}$ is the level of a steady sound which has the same total A-weighted sound pressure as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for most forms of environmental noise.
- L_{AFmax} Maximum A-weighted Sound Level with Fast Time-weighting:** The maximum A-weighted sound pressure level during the measurement period, using the Fast time-weighting of 125ms.
- $L_{A90,T}$ A-weighted 90 Percentile Level:** The A-weighted sound level exceeded for 90% of a measurement time period (T). $L_{A90,T}$ is generally used as a measure of Background Sound Level.
- R_w Weighted Sound Reduction Index:** A single figure frequency weighted laboratory sound insulation performance metric of a building element or construction arrangement (e.g. a wall).

APPENDIX B: NOISE SURVEY RESULTS

Date(s)	Tuesday 17 June 2025
Equipment	NTi Audio XL2-TA 'Class 1' sound analyser (s/n: A2A-20228-E0) with associated calibrator(s) and tripod(s)/environmental outdoor monitoring kit(s)
Weather	Night-time: 14 °C, partially cloudy, dry, wind generally below <2 m/s

Chart(s) overleaf





APPENDIX C: CUSTOMER HEADCOUNT DATA FOR OTHER ADMIRAL PREMISES**Thursday evening/night**

Site	Number of customers during hour						
	20:00	21:00	22:00	23:00	00:00	01:00	02:00
Wood Green	2	2	2	2	4	4	3
Hackney	9	8	7	6	4	3	4
Basildon	2	2	3	2	1	2	2
Streatham	4	3	4	4	4	4	4

Friday evening/night

Site	Number of customers during hour						
	20:00	21:00	22:00	23:00	00:00	01:00	02:00
Wood Green	2	5	3	7	5	6	3
Hackney	11	8	9	10	6	7	4
Basildon	4	4	3	3	3	3	3
Streatham	3	2	1	3	3	2	3

Saturday evening/night

Site	Number of customers during hour						
	20:00	21:00	22:00	23:00	00:00	01:00	02:00
Wood Green	8	6	6	3	2	2	6
Hackney	7	5	8	8	4	4	2
Basildon	4	4	3	2	3	2	2
Streatham	6	7	6	6	4	2	2