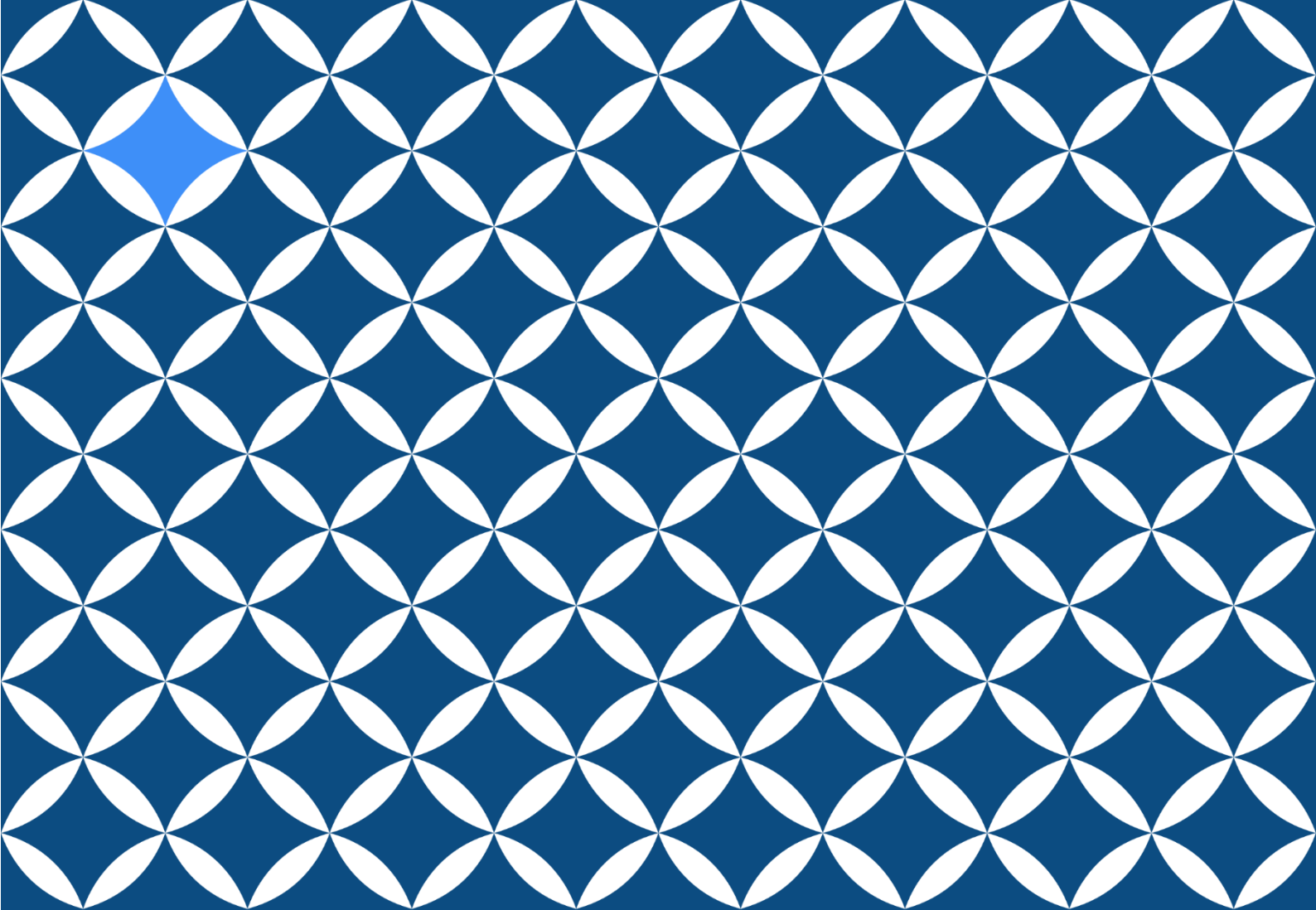




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NHSBT Manchester Blood Donation Centre

Plant Noise Impact Assessment

P2864-SOL-XX-XX-RG-AC-0001

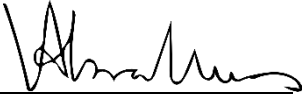
16 January 2026

PROJECT NHSBT Manchester Blood Donation Centre
Plant Noise Impact Assessment

CLIENT Perfect Circle c/o Pick Everard
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**DOCUMENT
REFERENCE** P2864-SOL-XX-XX-RG-AC-0001

SIGNED


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CHECKED


Joe Sinker MIOA

DATE 16 / 01 / 2026

Disclaimer

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Name of Organisation Sol Acoustics Limited

Company Registration Number 4218702

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1 Introduction

1.1 Sol Acoustics Ltd (Sol) has been commissioned by Pick Everard to undertake a Plant Noise Impact Assessment of a new NHS Blood and Transplant Services at Manchester Donation Centre.

1.2 The purpose of this acoustic assessment is as follows:

- ◆ To identify the nearest pre-existing noise sensitive receptors (NSRs) which are most likely to be affected by environmental noise arising from the fixed plant.
- ◆ To determine the prevailing Background Sound Levels at the nearest NSR through direct, environmental noise measurement.
- ◆ To set out environmental plant noise limits based on the results of the environmental noise measurements and the requirements of the Local Planning Authority.

1.3 This report has been produced by suitably qualified and competent professionals with relevant experience as detailed in the [Table 1](#) below.

Name	Position	Qualifications	Members of professional bodies	Experience
Victoria Abrahams	Acoustic Consultant	MPhys Physics with Astronomy	-	1 year relevant acoustic consultancy experience.
Joe Sinker	Executive Consultant	MSc(Research) Acoustics and Audio Engineering, BSc(Hons) Audio Technology	Member of the Institute of Acoustics, Association of Noise Consultants registered pre-completion tester	10 years relevant acoustic consultancy experience.

Table 1

2 Location & Description of Development

- 2.1 An NHS blood donation centre (Manchester Donation Centre) has been proposed at One St James Square, Manchester. The location for the development is an existing office space on the ground floor. The new design will include a new layout for the blood donation area on the ground floor, including staff facilities.
- 2.2 The operational hours for the Facility will be limited to the daytime period (07:00 – 23:00) for donors. It is understood that the two MVHR units are proposed to be installed at ground level and may operate during both the daytime (07:00 – 23:00) and nighttime hours (23:00 – 07:00).
- 2.3 **Figure 1** shows the site, the surrounding noise sensitive receptors, and the measurement position used during the noise survey:



Figure 1: Site location and nearest noise sensitive receptors

3 Site Survey

3.1 Pre-existing Environmental Noise Climate

- 3.1.1 A baseline noise survey was conducted by Sol between Friday 19th December and 23rd Tuesday December 2025. The survey was undertaken in line with the requirements of BS 7445 'Description and measurement of environmental noise' Part 1-3.
- 3.1.2 The baseline noise survey consisted of a single long-term unattended measurement position as shown in [Figure 1](#) and described in [Table 2](#):

Measurement position	Description
MP1	Sound level meter microphone mounted on a mast, out of a window, approx. 7m AGL and considered to be representative of the closest noise sensitive receptors. The microphone was positioned c.1 metre from the façade.

Table 2: Measurement position location

- 3.1.3 MP1 was a secure unattended measurement positions intended to quantify the prevailing background sound level at an approximate proposed location of the ground floor plant and equipment to serve the Facility.
- 3.1.4 The noise survey was carried out using Type 1 Precision Grade noise monitoring equipment, and the complete measuring system was field calibrated immediately prior to and following the noise survey period. Full details of the noise monitoring systems are retained on file by Sol, including traceable calibration records; these are available for review if needed.
- 3.1.5 Local weather data was monitored throughout the duration of the survey. Weather conditions were deemed favourable for the noise survey, with average wind speeds remaining under 5m/s and dry ground conditions for the majority of the noise survey.
- 3.1.6 Notwithstanding, the microphone system was entirely weatherproofed and fitted with all-weather environmental windshields, and with a bird spike.

3.2 Noise Survey Results Summary

- 3.2.1 [Appendix B](#) provides detailed time-histories for the environmental noise levels recorded for the duration of the survey.
- 3.2.2 [Table 3](#) provides a basic summary of the typical overall, A-weighted noise levels as measured at MP1:

Monitoring Position	Daytime (07:00 – 23:00)		Nighttime (23:00 – 07:00)	
	dB $L_{Aeq, 16 \text{ Hour}}$	dB $L_{A90, 15 \text{ min}}$	dB $L_{Aeq, 8 \text{ Hour}}$	dB $L_{A90, 15 \text{ min}}$
MP1	62 – 64	47 – 60	60 – 64	46 – 58

Table 3: Typical overall A-weighted noise levels

- 3.2.3 [Figure 2](#) presents the distribution of $L_{A90, 15 \text{ mins}}$ noise levels measured during the Sol Acoustics surveys undertaken at the development site during daytime hours (07:00 – 23:00 hours) and night time hours (23:00 – 07:00) at MP1:

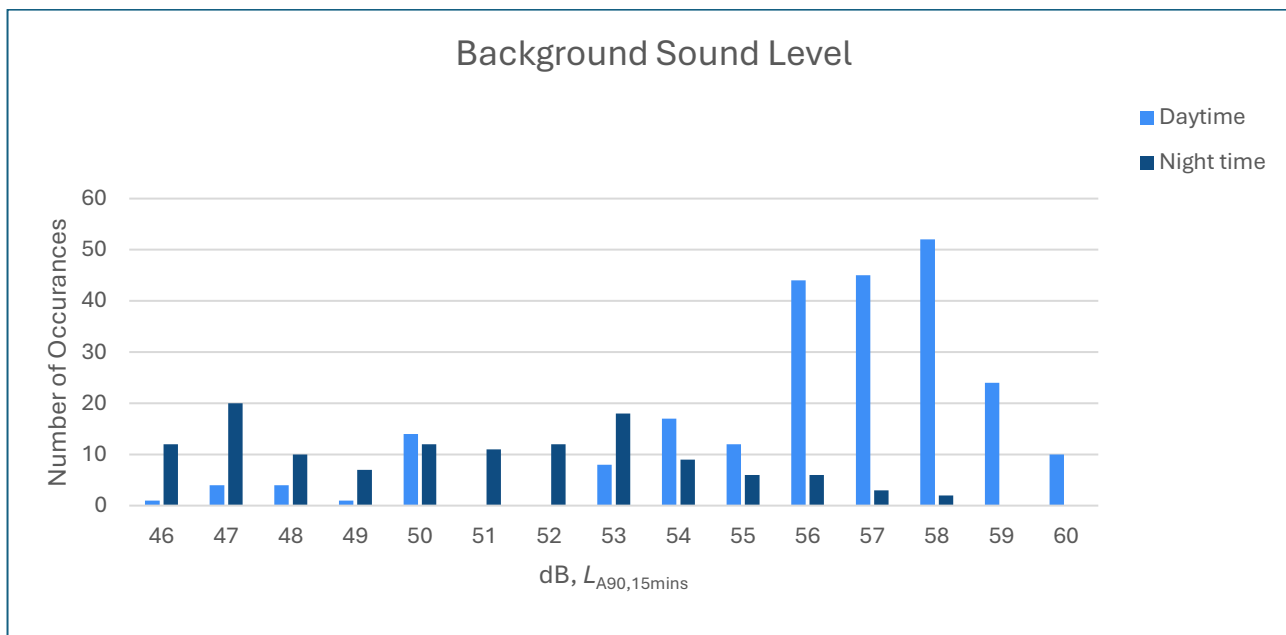


Figure 2: Graph summarising the background sound level at MP1 in dB, $L_{A90,15mins}$. terms

3.2.4 As shown in the table above, the typical minimum background sound level measured at MP1 was **50dB $L_{A90,15mins}$** and **46dB $L_{A90,15mins}$** during the daytime and night time period respectively.

4 Acoustic Guidance and Criteria

4.1 Manchester City Council Planning and Noise Technical Guidance

4.1.1 Manchester City Council's 'Planning and Noise Technical Guidance' document published in October 2022 provides guidance on the assessment of noise and vibration impacts associated with various type of development within Manchester.

4.1.2 With regards to assessment criteria it states:

"In the context of government policy, the Council require that developments aim for: 1. A noise level between the No Observed Effect Level (this is the level of noise exposure below which no effect at all on health or quality of life can be detected) and the Lowest Observed Adverse Effect Level (this is the level of noise exposure above which adverse effects on health and quality of life can be detected). Conditions may be attached. If point 1 cannot be achieved, then: 2. If the assessment results in a level between the Lowest Observed Adverse Effect Level and the Significant Observed Adverse Effect Level (this is the level of noise exposure above which significant adverse effects on health and quality of life occur), mitigation will be necessary to reduce the level and thus conditions will be attached. If points 1 & 2 cannot be achieved, then: 3. If the assessment results in a Significant Observed Adverse Effect Level after mitigation, the application will be recommended for refusal"

4.1.3 With regards to noise from commercial/industrial sources it states:

"...The development should be designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location..."

4.2 BS 4142:2014+A1:2019: 'Methods for Rating and Assessing Industrial and Commercial Sound'

4.2.1 BS 4142:2014+A1:2019 'Method for rating and assessing industrial and commercial sound' (BS 4142) is intended to be used to assess noise of an industrial and commercial nature, which includes sound from fixed installations comprising mechanical and electrical plant and equipment.

4.2.2 The procedure contained in BS 4142 for assessing environmental noise impact is to compare the measured or predicted noise level from the source in question, the Specific Sound Level immediately outside the noise sensitive premises, with the corresponding Background Sound Level. Where the noise contains attention attracting characteristics such as tonal, impulsive, and/or intermittent elements, it may be appropriate to apply a correction to the Specific Sound Level to obtain the Rating Level.

- 4.2.3 BS 4142 states that the significance of sound arising from an industrial and/or commercial nature depends upon both the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, and also the context in which the sound occurs:
- ◆ Typically, the greater this difference, the greater the magnitude of the impact.
 - ◆ A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - ◆ A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
 - ◆ The lower the Rating Level is relative to the measured Background Sound Level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.
- 4.2.4 For the daytime, the assessment is carried out over a one-hour period, and over a 15-minute period at night. The daytime and nighttime periods are defined as occurring between 07:00 hours to 23:00 hours, and 23:00 hours to 07:00 hours, respectively.

5 M&E Plant Noise

5.1 Environmental Plant Noise Limits

- 5.1.1 Based upon the results of the background noise survey and the requirements of the Local Planning Authority, Table 4 provides the maximum permissible cumulative Rating Level to be achieved by any M&E plant associated with the development, as assessed 1 metre from the nearest noise sensitive window.

Maximum Permissible façade Rating Level Limit 1m from nearest residential façade dB $L_{Aeq,T}$	
Daytime (07:00 – 23:00 hours)	Nighttime (23:00 – 07:00 hours)
45	41

Table 4: Plant noise rating limit criteria

- 5.1.2 The above maximum permissible noise level limits are specified in terms of the BS 4142:2014+A1:2019 defined Rating Level. The acoustic character of the sound generated from the plant must therefore be considered and where appropriate, an acoustic character correction (penalty) must be applied to the predicted Specific Sound Level when assessing compliance with the above specified receptor noise level limits
- 5.1.3 The above limits are subject to agreement with the Local Planning Authority.

6 Conclusion

- 6.1 Sol Acoustics Ltd (Sol) has been commissioned by Pick Everard to undertake a baseline noise survey to establish the prevailing acoustic conditions at the closest noise sensitive receptors and to undertake an acoustic impact assessment for the proposed Manchester Blood Donation Centre.
- 6.2 Additionally, appropriate M&E plant daytime (07:00 – 23:00 hours) and night-time (23:00 – 07:00 hours) environmental noise limits have been prescribed herein, as based on the environmental noise survey undertaken at site and the Local Planning Authority requirements.

APPENDIX A

Glossary of Acoustic Terms

Term	Abbreviation	Description
Decibel	dB	A scale for comparing the ratios of two quantities, including sound pressure and sound power.
A-weighting	dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the change in sensitivity of the human ear at varying frequencies.
Sound Pressure Level	L_{pA}	A measure of the sound pressure at a particular location. Typically expressed in dB(A) referenced to 2×10^{-5} Pascals.
Equivalent Continuous Sound Level	$L_{Aeq,T}$	The steady level of sound over a prescribed period of time which would contain the same total sound energy as the actual fluctuating noise under consideration in the same period of time.
Statistical Sound Levels	L_{A10} and L_{A90}	The level of noise exceeded for a percentage of the time period being sampled, namely 10% or 90% respectively.
Background Sound Level	$L_{A90,T}$	The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of the time period being sampled.
Maximum Sound Level	L_{Amax}	The maximum sound or noise level determined with instrumentation set to either a fast time weighting, L_{AFmax} , or a slow time weighting, L_{ASmax} , as occurring during the time period being sampled.
Sound Power Level	L_{WA}	A measure of the total sound energy radiated from a source. Like sound pressure levels, this is also expressed in dB(A) terms, but it is referenced to 1×10^{-12} W.
Broadband		Sound sampled over a wide range of frequencies.
Narrow band		Sound sampled over a specific, restricted frequency range. Used to ascertain the amplitude and significant of individual, audible tones, and to assist in identifying particular sources of noise within a complex, multi-source soundscape environment.
Ambient Sound	$L_{eq,T}$	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, both near and far.
Specific Sound Level	$L_{eq,T}$	The Equivalent Continuous A-Weighted Sound Level at an assessment position produced by a specific sound over a given reference time interval, T_r
Rating Level	L_{Ar,T_r}	The Specific Sound Level plus any adjustment for the acoustic characteristic features of the noise (e.g. intermittency, tones etc.).
Residual Noise	$L_{Aeq,T}$	The ambient sound remaining at given position in a given situation, when the specific sound source is suppressed to such an extent that it no longer contributes to the ambient sound.
Sound Reduction Index	SRI	The reduction in sound energy when transmitted through a panel or similar planar element, typically used in relation to single octave or one-third octave frequency band values.
Weighted Sound Reduction Index	R_w	The Sound Reduction Index expressed as a single figure, as expressed against a reference curve.
Dynamic Insertion Loss	DIL	Reduction in acoustic energy resulting from the insertion of a noise control element (e.g. an attenuator, acoustic enclosure etc.).
Free Field		Noise measuring location that is free from the presence of sound reflecting objects (except the ground), usually taken to mean being at least 3.5 metres distance from reflective surface(s) or greater.

APPENDIX B

Noise Survey Details

LOCATION

One St James Square, Manchester, M2 6DN

DATES AND TIMES

14:00 hours on Friday 19th December 2025 to 09:00 hours on Tuesday 23rd December 2025

WEATHER CONDITIONS

Weather conditions were understood to be typically dry with light winds and considered to be suitable for environmental noise measurements.

PERSONNEL

Mike Hartley AMIOA – Sol Acoustics Ltd

INSTRUMENTATION

01dB Cube Sound Level Meter (serial no. 11348)

01dB Pre22 Microphone Preamplifier (serial no. 1805362)

Gras 40CD Microphone Capsule (serial no. 260642)

Cirrus CR:515 Sound Calibrator (serial no.105286)

METHODOLOGY

Before and after the measurements the noise monitoring equipment was calibrated to an accuracy of ± 0.4 dB using the Cirrus CR:515 Sound Calibrator. The calibrator produces a sound pressure level of 94 dB re 2×10^{-5} Pa @ 1kHz.

MEASUREMENT RESULTS

Graph B1 summarises the broadband A-weighted results obtained during the survey.

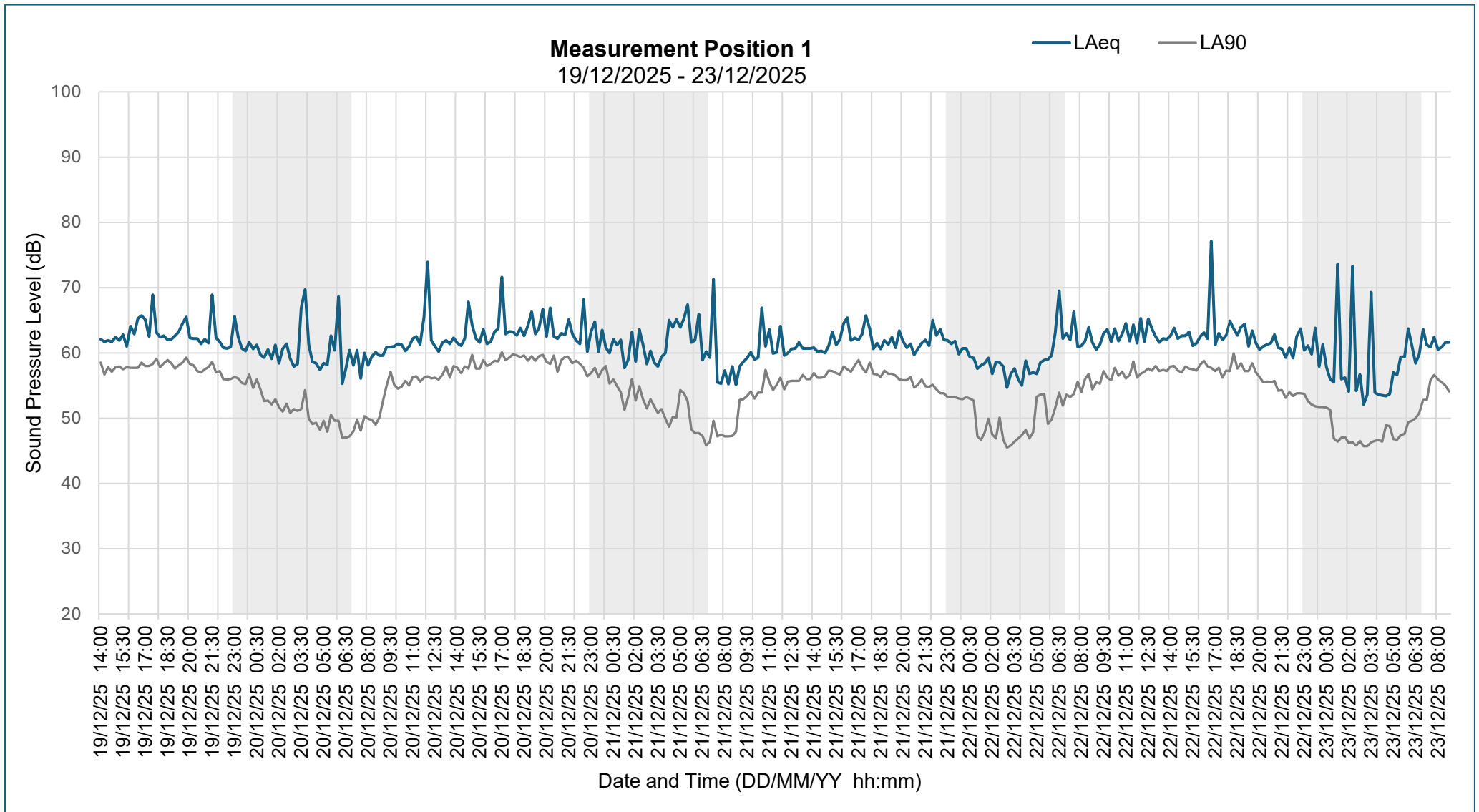


Figure B1: Sound pressure levels at Measurement Position 1 (MP1)