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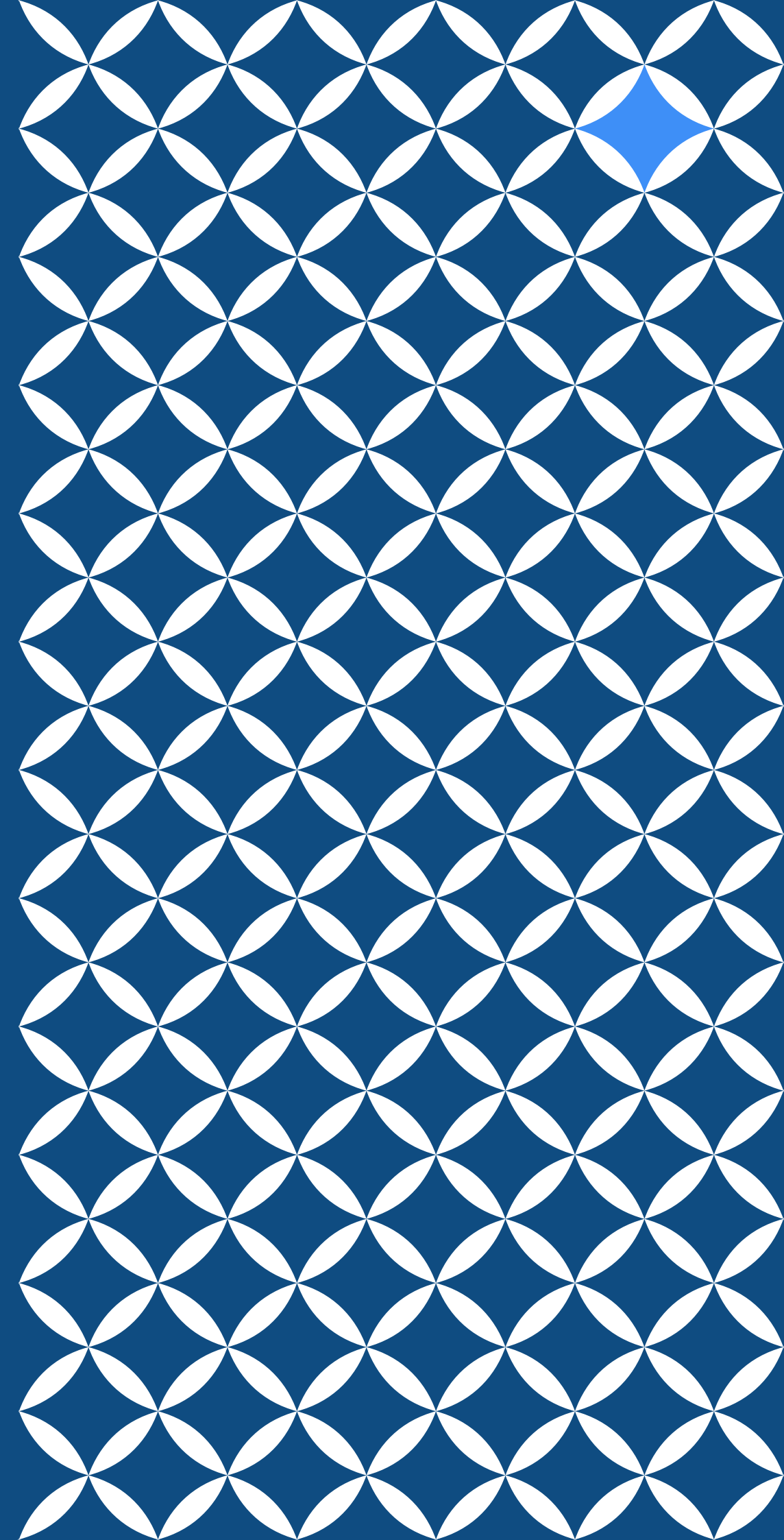
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Community Hub, Pease Pottage

Acoustic Impact Assessment

P2729-SOL-XX-XX_RPT-0001

20 August 2025



PROJECT	Community Hub, Pease Pottage Acoustic Impact Assessment
CLIENT	Thakeham Pease Pottage LLP Hardriding Farm Brighton Road Pease Pottage Crawley West Sussex RH119AA
DOCUMENT REFERENCE	P2729-SOL-XX-XX_RPT-0001
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Name of Organisation Sol Acoustics Limited
Company Registration Number 4218702

Summary

Sol Acoustics Ltd ("Sol") has been commissioned by Thakeham Pease Pottage LLP ("Thakeham") to undertake an Acoustic Impact Assessment of the proposed change of use sales pavilion at the Pease Pottage development, West Sussex RH11 9AA.

Thakeham propose to convert the existing sales pavilion to a community hub.

This report provides limiting noise levels for activities within the proposed community hub in line with requirements of the Local Planning Authority ("LPA") and recommended noise limits to be achieved external to residential windows, all as based on the existing sales pavilion constructional specification and floor/wall build ups etc.

- ◆ **Internal Noise Level Requirements:** Set out suitable internal ambient noise levels for the internal spaces due to environmental noise in line with guidance provided in BS 8233: 2014 and LPA design requirements.
- ◆ **Set Receptor Noise Limits:** Advise the maximum recommended noise level at existing and proposed residences due to activity noise egress from the proposed commercial units. within the building.
- ◆ **Set Maximum Internal Noise Levels:** Based on the existing pavilion glazing specification and glazing area, calculate the maximum allowable internal noise levels within the individual units such that the recommended external noise levels are not exceeded.
- ◆ **Provide Clauses for Noise Levels:** The reduction of reverberation and noise build-up to acceptable amounts within each space, to provide suitable acoustic environments compatible with the proposed uses.



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1 Introduction

- 1.1.1 Sol Acoustics Ltd ("Sol") has been commissioned by Thakeham Pease Pottage LLP ("Thakeham") to undertake an Acoustic Impact Assessment of the proposed change of use sales pavilion at the Pease Pottage development, West Sussex RH11 9AA.
- 1.1.2 It is understood that Thakeham propose to convert the existing sales pavilion at the Pease Pottage development to a community hub for residents.
- 1.1.3 The Pease Pottage development is situated in the jurisdiction of Mid Sussex District Council.
- 1.1.4 This report provides limiting noise levels for activities within the proposed community hub in line with requirements of the Local Planning Authority ("LPA") and recommended noise limits to be achieved external to residential windows, all as based on the existing sales pavilion constructional specification and floor/wall build ups etc.
- 1.1.5 This report has been produced by suitably qualified and competent professionals with relevant experience as detailed in [Table 1](#):

Name	Position	Qualifications	Membership of professional bodies	Experience
Daniel Reeves	Senior Acoustic Consultant	MSc Applied Acoustics. BSc(Hons) Live Sound Technology	Associate Member of the Institute of Acoustics, Association of Noise Consultants registered pre-completion tester	3 years relevant acoustic consultancy experience.
Mike Hartley	Senior Acoustic Consultant	MEng Acoustical and Audio Engineering	Member of the Institute of Acoustics, Association of Noise Consultants registered pre-completion tester	7 years relevant consultancy experience

Table 1

1.1 Basis of Design

- 1.1.1 To provide a building that is suitable for the proposed use of the community hub, the acoustic strategy and assessment presented in this report has been undertaken based on the technical guidance presented in the following documents:
- ◆ BS 8233:2014, *Guidance on sound insulation and noise reduction for buildings*
 - ◆ BS 4142:2014+A1:2019, *Methods for rating and assessing industrial and commercial sound*

Employers Requirements

- 1.1.6 It is understood that there are no specific employers' requirements for the acoustic design of the proposed community hub.

Proposed Community Hub

- 1.1.7 It is understood that the design intent for the existing sales pavilion at the Pease Pottage development is to convert the unit into a community facility to serve as a dedicated community space with a focus on adult-oriented activities.
- 1.1.8 The exact use of the proposed space is yet to be determined however, it is understood that provision will be made for a space intended for a variety of purposes, including but not limited to:
- ◆ Council meetings, workshops, and small group gatherings.
 - ◆ Hot desk or office space and used for educational programs.
 - ◆ Cultural activities such as talks, exhibitions by community and local groups, and promotional events.
 - ◆ Wellness sessions such as yoga and mindfulness classes.
- 1.1.9 It is understood that the community hub will operate during daytime hours only (i.e. 07:00 – 23:00 hours).

2 Baseline Site Noise Survey

2.1 Pre-existing Environmental Noise Climate

- 2.1.1 An environmental survey was conducted by Sol between Thursday 24th July 2025 and Friday 25th July 2025. The survey was undertaken in line with the requirements of BS 7445 'Description and measurement of environmental noise' Parts 1-3.
- 2.1.2 The survey consisted of a single long-term unattended measurement position, as described in the table below and shown in [Figure 1](#).

Measurement position	Description
Measurement Position 1 ("MP1")	Microphone secured to a lamp post outside the existing sales pavilion, positioned 1.5m above ground level. The location was representative of "free field" conditions. Position was representative of the closest noise sensitive receptors to the sales pavilion.

Table 2: Summary of measurement positions

- 2.1.3 MP1 were secure unattended measurement positions intended to quantify the pre-existing baseline noise levels at the proposed site.
- 2.1.4 Type 1 Precision Grade sound measuring instrumentation was exclusively used and microphone windshields were fitted at all times. Full details of all the instrumentation used and corresponding traceable calibration records are retained on file by Sol and is available for inspection if required.
- 2.1.5 The prevailing weather conditions were suitable for the purposes of environmental noise measurements throughout the noise survey.
- 2.1.6 Notwithstanding the weather conditions, the microphone systems were entirely weatherproofed and fitted with all-weather environmental windshields, each with a bird spike.



Figure 1: Satellite image showing the location of MP1 (Google Earth, 2025)

2.2 Environmental Noise Survey Results

2.2.1 Table 3 provides a basic summary of the long-term environmental noise levels measured during the survey:

Measurement Location	Typical Measured Noise Level (dB, L_{Aeq} , Range L_{Amax} and L_{A90})				
	Daytime		Night time		
	$L_{Aeq,16h}$	$L_{A90,15min}$	$L_{Aeq,8h}$	$L_{Amax, 15min}$	$L_{A90,15min}$
MP1	57	37 - 51	49	85	36 - 46

Table 3: Summary of typical, measured environmental noise levels, broadband terms

2.2 Table 4 summarises the corresponding unweighted, time-averaged ($L_{Aeq,T}$) daytime and night time period ambient noise levels used for the assessment, in linear (unweighted) octave ba

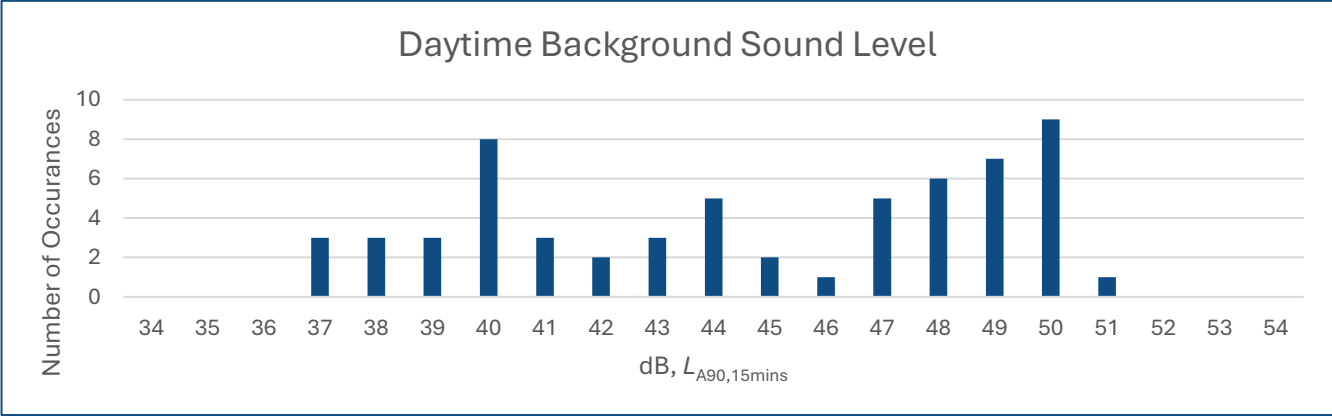
2.3 nd frequency terms as based on the representative survey data:

Measurement Period	A-weighted Broadband Noise Level (dB $L_{Aeq,T}$)	Unweighted Sound Pressure Level (dB $L_{eq,T}$) @ Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
MP1								
Daytime	57	61	55	52	52	54	50	43
Night time	49	53	47	43	44	46	41	33

Table 4: Summary of time-averaged environmental noise levels, in octave band terms

2.1.1 Appendix B provides further information and a full summary of the measurement data.

2.1.2 Graph 1 presents the distribution of $L_{A90,15mins}$ 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:



Graph 1: Graph summarising the background sound level at MP1 in dB, $L_{A90,15mins}$ terms

2.1.3 As shown in Graph 1, the typical (modal) representative background sound level measured during the daytime period at MP1 was 40dB $L_{A90,15mins}$.

3 Acoustic Design Criteria

3.1 Intrusive Noise

3.1.1 It is understood that there are no Planning Conditions or Employers Requirements relating to the control of intrusive noise within the community hub. However, relevant standards provide guidance on suitable internal noise levels within commercial spaces depending on the use.

BS 8233:2014 Design ranges for non-residential areas

3.1.2 Table 6 of BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’ provides typical suitable indoor ambient noise levels which should not normally be exceeded in non-domestic buildings, as reproduced in the following table.

Activity	Location	Design range dB $L_{Aeq,T}$
Speech or telephone communications	Department store, cafeteria, canteen, kitchen	50 – 55
	Concourse, corridor, circulation space	40 – 55
Study and work requiring concentration	Library, gallery, museum	40 – 50
	Staff/meeting room, training room	35 – 45
	Executive office	35 – 40
Listening	Place of worship, counselling, medication, relaxation	30 - 35

Table 5: Indoor ambient noise levels in spaces when they are unoccupied from BS 8233:2014

3.1.3 It is understood that the desire for the community hub is to have a space which is suitable for any of the above uses and therefore the most stringent upper ambient noise level limit of 35dB $L_{Aeq,1hr}$ is adopted as the assessment criteria

3.2 Internal Noise Transfer

3.2.1 It is understood that there are no Planning Conditions or Employers Requirements relating to the control of internal noise transfer within the community hub. It is further understood that the design intent for the community hub is to have an open-plan space with no vertical or horizontal partitions separating noise sensitive areas.

3.2.2 Based on the above, the assessment of internal noise transfer within the development has been excluded from this report.

3.3 Noise Breakout

Local Planning Authority

3.3.1 Whilst it is understood that there are no Planning Conditions relating to the control of noise break-out from commercial units to residential facades, the Mid Sussex District Council provide guidance relating to the impact of new noise sources on existing residential dwellings.

3.3.2 Section 2.6 of the Mid Sussex District Council's 'Planning Noise Advice Document: Sussex – November 2023' states the following with regards to noise break-out from commercial units:

2.6: Minimum Considerations for New Noise Sources

2.6.1: For a new noise source being introduced near existing noise sensitive premises then an ambient and background noise survey (L_{A90}) should cover the times when the proposed development will be in operation. The expected levels and duration of all the potential noise sources likely to be in operation from the proposed development, whether measured or predicted, should be provided with details of tonality, character, impulsivity and/or intermittency of each noise (e.g. BS 4142). Reference shall also be made if a noise source is anticipated to be readily distinctive against the residual acoustic environment. This could also apply to extensions/alterations to existing development.

2.6.2: To facilitate analysis of acoustic reports it is expected that the raw and processed data is presented in an appropriate electronic format that allows the LPA to perform further calculations without need to re-enter the data. As a minimum it is expected that the results of real time monitoring are presented graphically. In addition, and with BS 4142 in mind, where the LPA considers it appropriate, a graph shall be presented displaying the background and residual sound level as measured for each reference time interval (T_r) (One hour periods between 07:00 to 23:00 and 15 minute periods between 23:00 and 07:00) ; the rating level, L_{Ar,T_r} shall be determined for the reference time intervals (the specific sound level plus any adjustment for the characteristic features of the sound) over which the noise source is operational and the representative background sound level as determined by the report author

Summary of Noise Limits

3.3.3 Based on the above, LPA guidance and the results from the environmental noise survey, [Table 6](#) below provides a summary of the maximum permissible total noise limits for noise breakout from the community hub and any associated fixed plant and equipment, 1 metre from the closest noise sensitive receptor.

Location	Maximum Permissible 'Internal Activity' Noise Level from Non-Residential Units, at Residential Property Façades dB $L_{Aeq,1hr}$
Daytime (07:00 – 23:00 hrs)	
All residential windows	40

Table 6: Maximum permissible noise level limits at residential windows for internal activity from the community hub

4 Acoustic Design Assessment

4.1 External Wall Construction

4.1.1 It is understood that the building fabric of the existing sales pavilion is as follows:

- 1- 2no. layers of bonded 9mm plywood
- 2- Timber frame system full filled with mineral wool 140mm insulation
- 3- 2no. layers of bonded 9mm plywood
- 4- 1no. layer of 12.5mm fireboard bonded to 1no. layer of 25mm insulated plasterboard

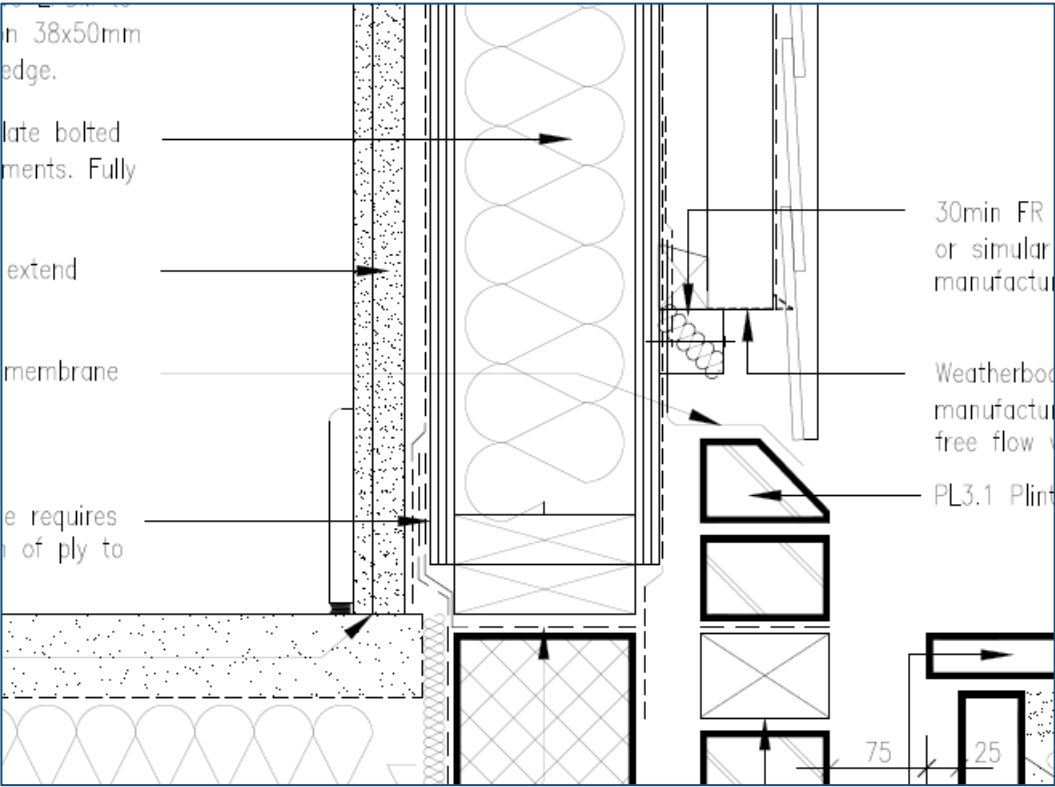


Figure 3: Existing external wall construction

4.1.2 The sound reduction performance of the above party wall construction has been predicted using the proprietary Acoustic Software “Insul 9.0” by Marshall Day Acoustics. The software predicts that the wall construction will have the following sound reduction performance:

Weighted Sound Reduction Index (R_w)	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)							($R'_w + C_{tr}$), dB
	63	125	250	500	1k	2k	4k	
60dB	16	23	41	49	54	53	55	38

Table 7: Predicted sound reduction performance of party wall type

4.1.3 *Note – Insul states that the “margin of error is generally within ± 3 dB”*

4.2 Glazing

4.2.1 At the time of writing this report, the existing sales pavilion façade glazing specification and acoustic performance is currently unknown. Therefore, Sol has adopted the worst-case typical minimum glazing performance of $26 R'_w + C_{tr}$ for the acoustic assessment.

5 Acoustic Assessment Results

5.1 Intrusive Noise Assessment Results

- 5.1.1 Based on the above glazing and building envelope specifications and the RGP Design Limited plans and elevation drawings, calculations of the expected internal ambient noise levels from measured and predicted external façade levels have been undertaken for the community hub, in accordance with BS 8233:2014.
- 5.1.2 The calculations show that the existing sales pavilion construction complies with the adopted upper ambient noise level limit criteria of 35dB $L_{Aeq,1hr}$.
- 5.1.3 Therefore, the existing structure is considered suitable for providing suitable internal ambient noise levels for the community hub.

Limitations

- 5.1.4 The assessment has only considered noise break-in from external sources. Whilst the internal ambient noise levels from external sources provides significant design space for building services, all building services will need to be designed such that the cumulative internal ambient noise levels do not exceed the identified criterion.

5.2 Noise Breakout Assessment Results

Predicted Development Environmental Noise Levels

- 5.2.1 In order to predict the likely resultant noise impact of the community hub across the façades of the closest noise sensitive receptors, a 3D computer based environmental noise model has been created using the proprietary DataKustik "CadnaA" Noise Mapping software. The following assumptions have been made in the generation of the noise model:
- ◆ The noise model was set up to apply the noise prediction methodology set out in ISO 9613-2: 'Acoustics – Attenuation of Sound propagation outdoors – Part 2: General Method of Calculation'
 - ◆ The model was set to include up to second order reflected noise from solid structures.
 - ◆ Ground absorption was set to G=0 (hard ground), with the exception of significant area of grass/foilage set to G=1 (soft ground).
 - ◆ Acoustic screening and reflections afforded by nearby buildings and solid structures.
- 5.2.2 A 3-dimensional example of the noise map is shown in the figure below, further noise maps are shown in Appendix B.

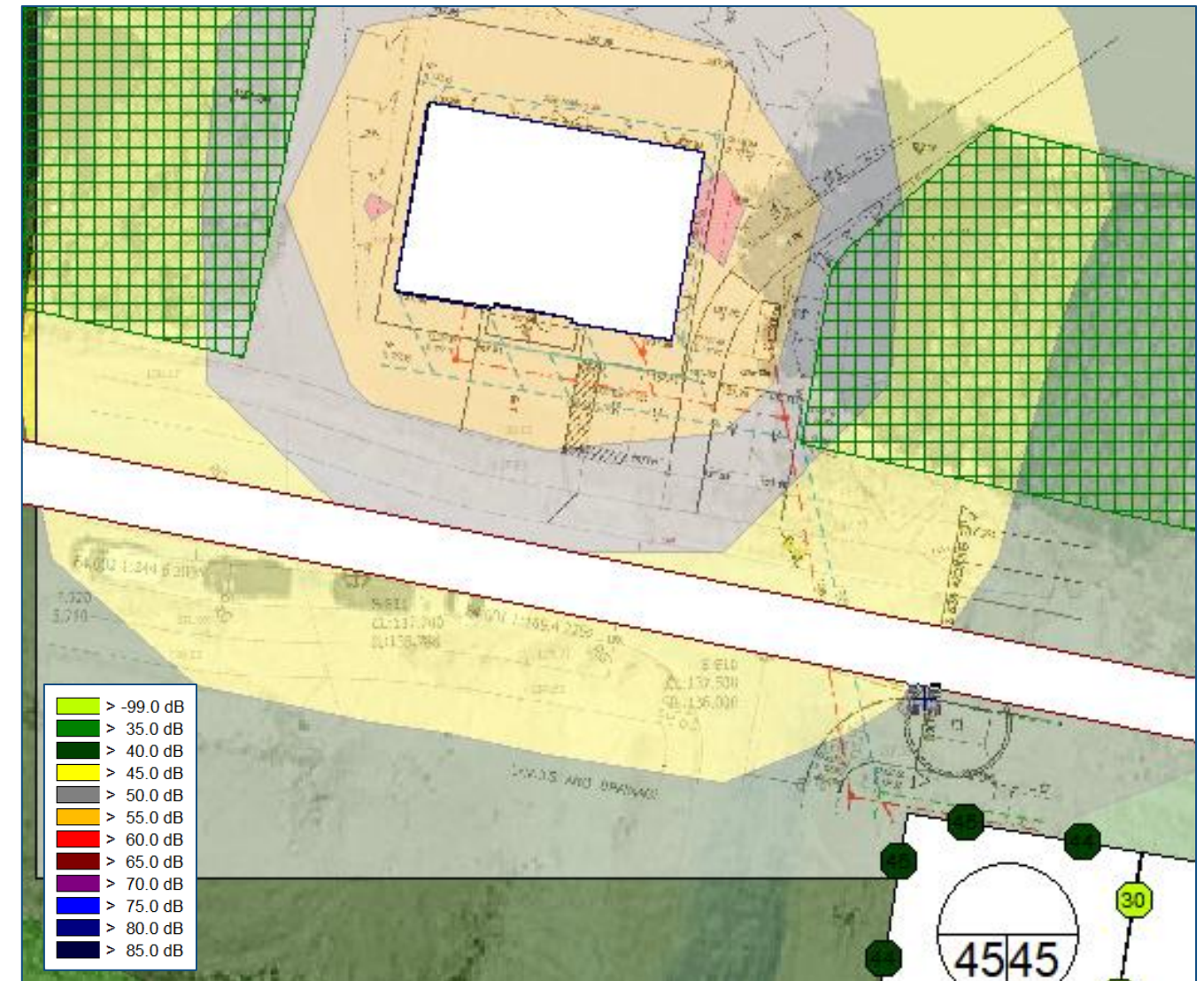


Figure 2: Noise model showing the predicted noise impact of the community hub on the closest NSR

5.2.4 At this stage, the exact nature of noise egress from the community hub is unknown, as such [Table 8](#) below sets out approximate internal reverberant noise limits, that based on the existing marketing hub façade construction, should not exceed the limits set out in [Table 5](#).

Unit	Time of Day	Approximate reverberant sound pressure noise limits, dB, $L_{eq,15mins}$
Community Hub	Daytime (07:00 – 23:00)	90

Table 8: **Approximate internal noise limits**

5.2.5 The above limit for the community hub is likely to permit any kind of proposed usage in line with the activities stated in Section 1.17 during the daytime (07:00-23:00).

5.2.6 However, activities that include the use of amplified music through PA systems may lead to exceedance of the approximate reverberant sound pressure noise limit stated in [Table 8](#) and therefore the operations of the space should be suitable managed and operators made aware of the above limits.

6 Conclusion

6.1 Based on the environmental noise survey carried out at the existing marketing suite in July 2025, together with an assessment of the suite’s current construction and the predicted noise levels at the nearest residential facades from the proposed community hub, it is concluded that the hub will have no adverse impact on the closest noise-sensitive residential properties and the hospice provided the recommendations outlined in this report are implemented.

6.2 The existing construction of the marketing suite is also considered sufficient to provide the required level of sound insulation, ensuring appropriate internal ambient noise levels for the proposed uses of the space during operation.

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, Tr .
Rating Level	$L_{Ar,Tr}$	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 and Summary Results

LOCATION

Pease Pottage, London

DATES AND TIMES

13:30 hours on Thursday 24th July 2025 to 13:30 hours on Friday 25th July 2025

WEATHER CONDITIONS

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

PERSONNEL

Daniel Reeves AMIOA – Sol Acoustics Ltd

INSTRUMENTATION

01dB Cube Sound Level Meter (serial no. 11114)

01dB Pre22 Microphone Preamplifier (serial no. 1610399)

Gras 40CD Microphone Capsule (serial no. 260807)

Cirrus CR:515 Sound Calibrator (serial no. 101383)

METHODOLOGY

Before and after the measurements the noise monitoring equipment was calibrated to an accuracy of $\pm 0.4\text{dB}$ 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 and B2 summarises the broadband A-weighted results obtained during the survey

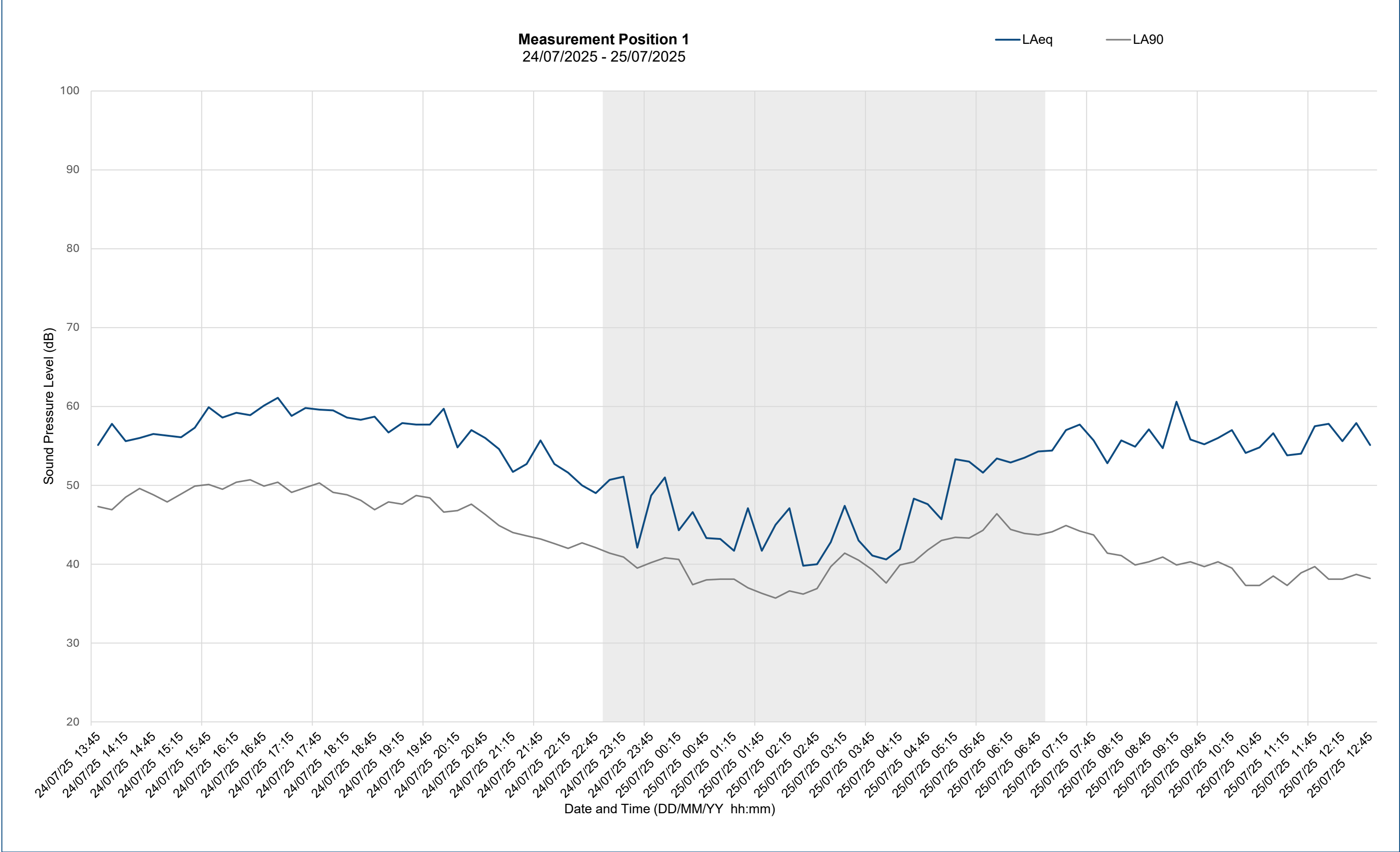


Figure B1: Graph showing measured environmental noise levels at Measurement Position MP1 in 15 minute intervals

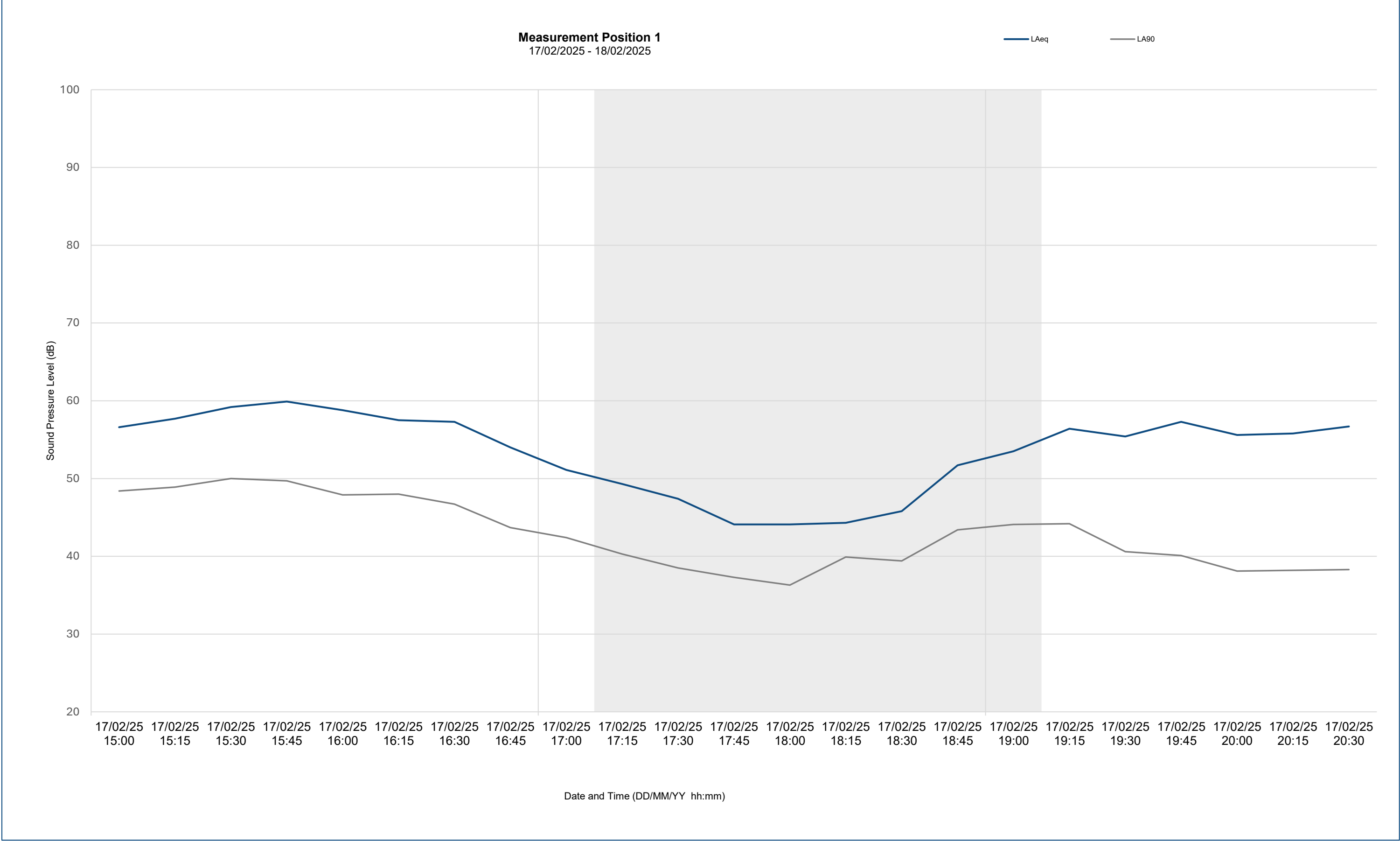


Figure B2: Graph showing measured environmental noise levels at Measurement Position MP1 in 1hr intervals