
KURDISH COMMUNITY CENTRE CIC
NOISE IMPACT ASSESSMENT REPORT
134-136 DRAKE STREET, ROCHDALE

Client: Kurdish Community Centre CIC

Report Ref: P7309-R1-V1

Issue Date: 2nd May 2024

Document Status: Version 1



DATE ISSUED: 2nd MAY 2024

REPORT REFERENCE P7309-R1-V1

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REPORT VERSION CONTROL:

Document Reference	Date	Report Prepared by	Report Checked by	Report Authorised by
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1 INTRODUCTION

1.1 Overview

1.1.1 By instruction from Kurdish Community Centre CIC ('the client'), NoiseAir was commissioned to undertake a noise impact assessment (NIA) in support of a proposed planning application for change of use application from office planning use class E to D1 (place of worship and community centre).

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

1.2 Site Description & Noise Sensitive Receptors (NSRs)

1.2.1 The proposed development site is located on Drake Street, Rochdale, at the site of what is understood to be a former legal consultant office. The site location and context are shown in **Figure 1**, along with the closest receptors for consideration within the assessment.

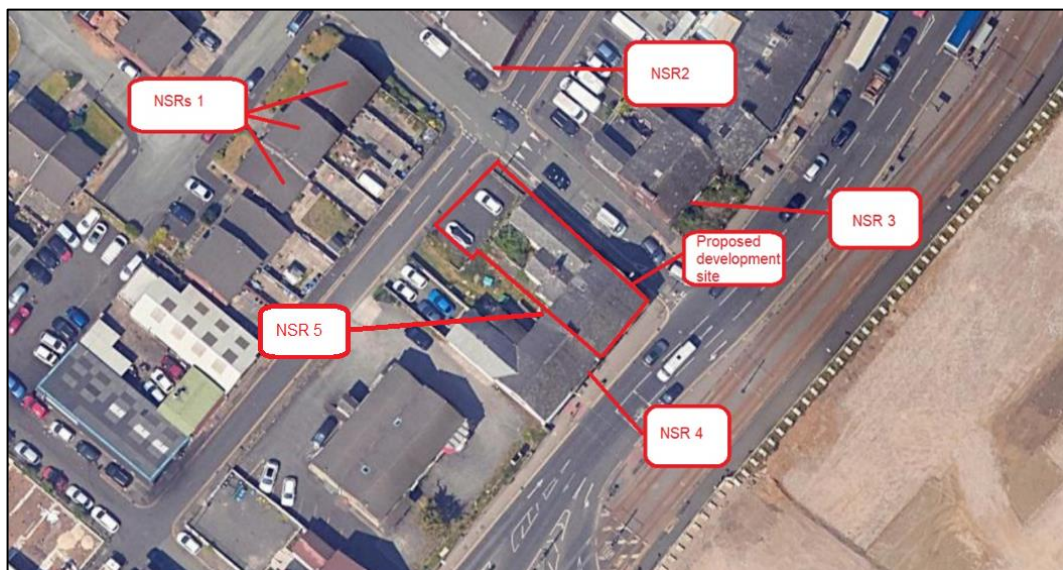


Figure 1: Site Location and Noise Sensitive Receptors

1.2.2 The NSRs identified above are summarised below:

- **NSR1:** Ground, first floor and outdoor amenity residential use at the rear of properties on St Chads Close;
- **NSR2:** Residential dwelling at no. 4 Moore Street, ground and first floor;
- **NSR3:** Residential dwellings on Ocean Close to the south of the proposed development (single storey bungalows);
- **NSR4:** Residential dwellings on Ocean Road (mix of single-storey and two-storey dwellings); and,

- **NSR5:** Residential dwelling at the rear of no. 138 Drake Street, first floor.

1.3 Development Proposals and General Information

1.3.1 As part of the submitted plans there is a proposal for a kitchen at the rear of the ground floor and tuition classrooms at the rear of the first floor. It is understood that the tuition classes may occur at any time during the day.

1.3.2 The proposed ground and first floor plans are shown in **Figure 2** and **Figure 3**.

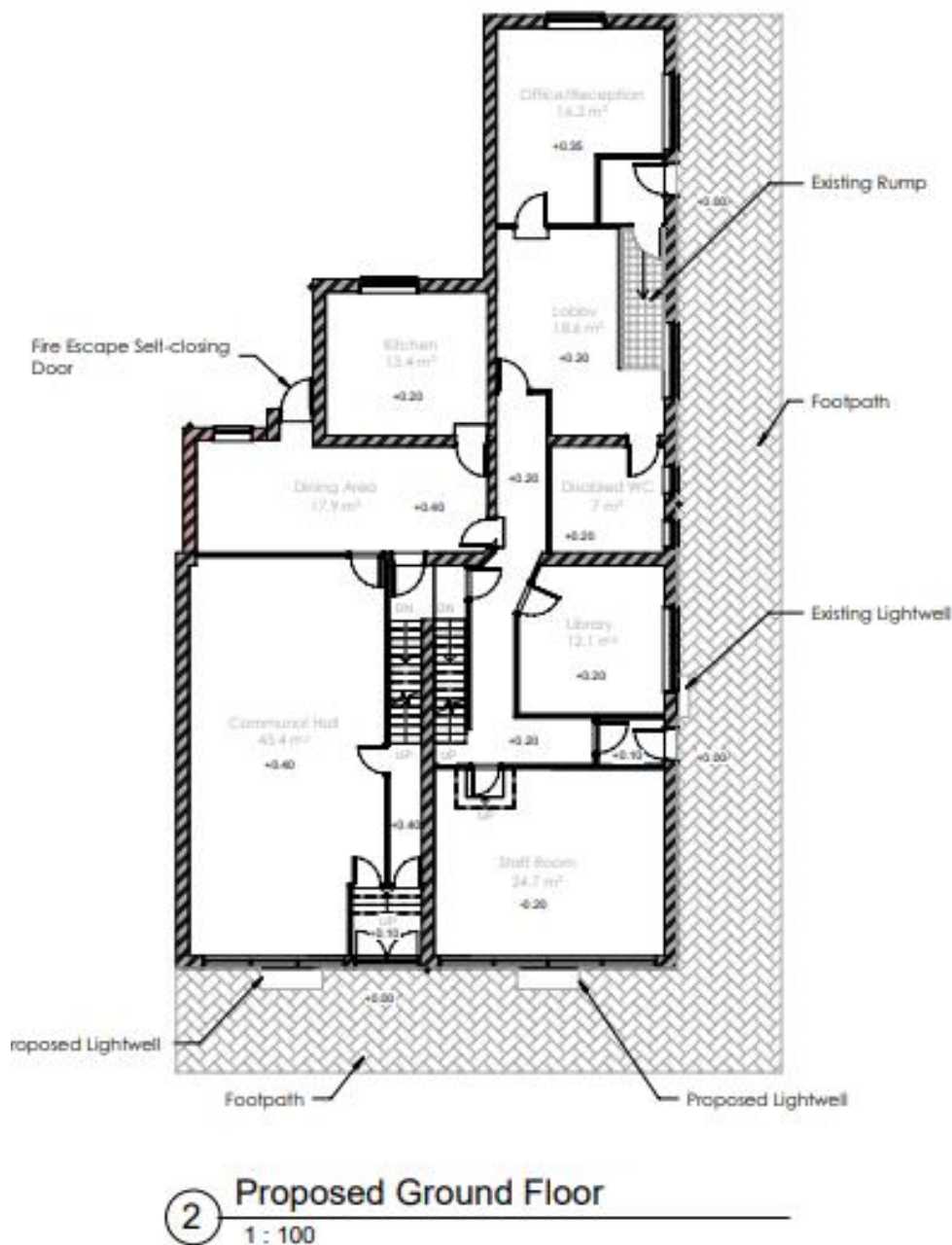


Figure 2: Proposed Ground Floor Plan

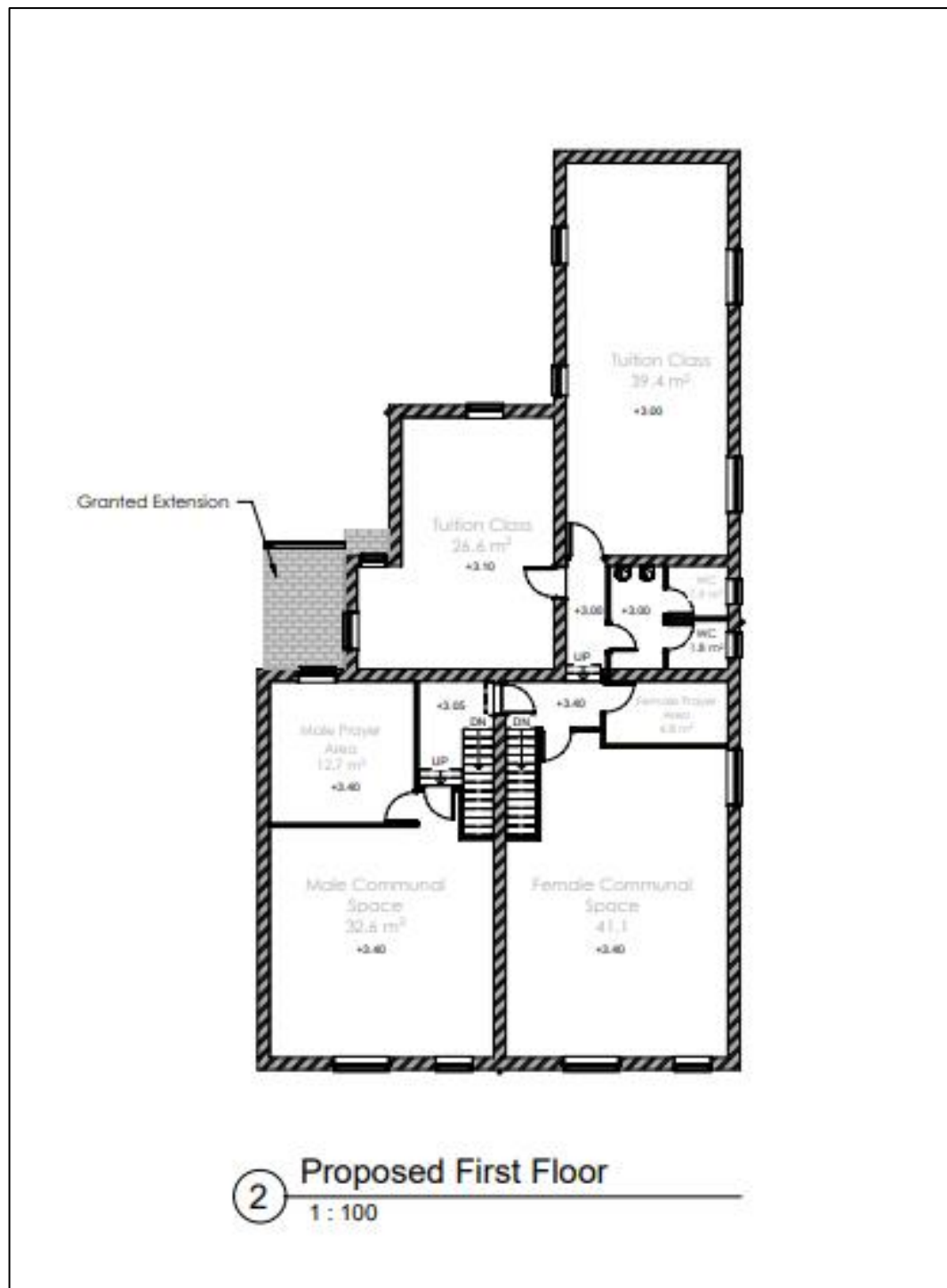


Figure 3: Proposed First Floor Plan

2 NATIONAL PLANNING POLICY FRAMEWORK [NPPF 2023]

- 2.1.1 The NPPF is a document that sets out the government's planning policies for England and how they are expected to be applied. It aims to achieve sustainable development.
- 2.1.2 The NPPF states that planning policies and decisions should prevent unacceptable levels of noise pollution from new and existing development.
- 2.1.3 The NPPF affirms that National Policy Statements form part of the national planning policy framework and should be considered in planning decisions. The Noise Policy Statement for England (NPSE) is one of them.
- 2.1.4 The NPSE sets out the government's overall policy on noise within the context of sustainable development. It introduces three concepts for noise management: avoid significant adverse effects; mitigate and minimise adverse effects; and where possible, contribute to improvements in health and quality of life.
- 2.1.5 It also establishes a hierarchy of noise management actions: avoid; reduce; remedy; mitigate; compensate.

2.2 Noise Policy Statement for England (NPSE)

- 2.2.1 The Noise Policy Statement for England (NPSE), published in March 2010, states the long-term vision of Government noise policy is to "promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".
- 2.2.2 The NPSE also introduces the below categories with respect to 'adverse impacts'.

'NOEL – No Observed Effect Level'

- This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

- This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

- This is the level above which significant adverse effects on health and quality of life occur'.

- 2.2.3 The NPSE states that significant adverse effects on health and quality of life should be avoided. Where the impact lies somewhere between LOAEL and SOAEL, it requires that all reasonable steps are taken to mitigate and minimise the adverse effects of noise. In this regard, a certain degree of impact between LOAEL and SOAEL would be acceptable in terms of planning policy, provided that the impact has been mitigated and minimised by design.

Planning Practice Guidance - Noise [PPG 2023]

- 2.2.4 PPG 2019 provides guidance on how noise should be considered in planning decisions. It was published in 2014 and updated in 2023. The document advises on how to avoid, mitigate or minimise adverse effects of noise through good acoustic design and appropriate conditions or obligations.

- 2.2.5 **Table 1** summarises the noise exposure hierarchy outlined within the PPG.

Table 1: National Planning Practice Guidance noise exposure hierarchy		
Perception	Increasing Effect Level	Action
Not noticeable	No Observed Effect	No specific measures required
Noticeable and not intrusive	No Observed Adverse Effect	No specific measures required
Lowest Observed Effect Level		
Noticeable and intrusive	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Effect Level		
Noticeable and disruptive	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Unacceptable Adverse Effect	Prevent

3 ASSESSMENT METHODOLOGY AND SCOPE OF WORKS

3.1 Scope of Works

- 3.1.1 This report presents the results of a background noise survey at the site, conducted on the quieter rear façade of the existing building.
- 3.1.2 Breakout noise from worship services is assessed within this report. However, this type of noise does not fit clearly within the scope of published standards and guidance. The noise levels are therefore assessed against the existing noise climate with reference to known standards that may be relevant, such as BS 4142:2014+A1:2019 and BS 8233:2014.
- 3.1.3 Since information regarding any kitchen extraction is not currently available, BS 4142 Rating Level limits have been recommended to inform future design.

3.2 British Standard 4142:2014+A1:2019 (BS 4142:2014)

- 3.2.1 British Standard 4142:2014 - Methods for rating and assessing industrial and commercial sound, sets the methodology for rating and assessing sound of an industrial and commercial nature, which includes sound from fixed installations such as mechanical and electrical plant and equipment.
- 3.2.2 In BS 4142:2014, a noise rating is determined and compared with the existing local background sound level based on several more cumulative acoustic feature corrections to apply where appropriate. For example, if the noise includes a distinguishable tone, impulse, intermittency or other readily distinguishable sound characteristic, then additional cumulative penalties individually ranging from 0 to 9 dB may be applied depending on the type of noise.
- 3.2.3 BS 4142:2014 seeks to determine a “representative” background sound level, stating that “...the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods”.
- 3.2.4 The assessment of the impact depends upon the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs when making an assessment. BS 4142:2014 states that an initial estimate of the impact of the specific sound is made by subtracting the measured background sound level from the rating level, while considering the following points:
- Typically, the greater this difference, the greater the magnitude of the impact;

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and,
- 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.

3.2.5 With regards to context, the standard advises to take all pertinent factors into consideration, including:

- The absolute level of the sound, which might be as, or more relevant than the margin by which the Rating Level exceeds the background (the standard advises that this is especially true at night);
- The character and level of the residual sound compared to the character and level of the specific sound. Noise that is likely to be more distinguishable when compared to the ambient acoustic environment may be more likely to result in an adverse impact, and;
- The sensitivity of the receptor and design measures incorporated that secure good internal and / or outdoor acoustic conditions such as façade insulation treatment, ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation, and acoustic screening.

3.2.6 The outcome of the assessment is then determined by consideration of both the excess of Rating Level over the Background Sound Level, and consideration of all pertinent contextual factors.

4 ACOUSTIC SURVEYS

4.1 Background Sound Level Survey

4.1.1 An unattended survey of background sound levels was conducted between the 9th of April 2024 and the 12th of April 2024 the at a location representative of the 'quiet' façade of the existing building (screened from drake Street). This is deemed representative of NSR5 where background levels are likely to be lowest and therefore worst-case.

4.1.2 The monitoring locations ML1 and ML2 are shown on **Figure 4**.



Figure 4: Noise Monitoring Location

4.1.3 At ML1, the dominant noise source upon installation and collection was observed to be road traffic and Metrolink light rail noise on Drake Street.

4.1.4 At ML2, the dominant noise source upon installation and collection was observed to be distant road and Metrolink light rail noise on Drake Street.

4.1.5 The monitoring equipment consisted of 2 no. NOR140 Class 1 sound level meters (SLMs) with enhanced windshield and calibrated to traceable standards.

4.1.6 The measurements were conducted in accordance with BS 7445: Part 1: 2003 'Description and measurement of environmental noise – Guide to quantities and procedures' and BS 7445: Part 2: 1991 'Description and measurement of environmental noise – Guide to the acquisition of data pertinent to land use'.

4.1.7 Details of the SLMs and associated field calibrations can be found in **Table 2**.

Table 2: 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
NOR140 (1405015)	NOR1209 (14517)	NOR1225 (42327)	SVANTEK (10818)	-26.6	-26.6	0.0
NOR140 (1402868)	NOR1209 (12172)	NOR1225 (579786)		-26.1	-26.1	0.0

4.1.8 The monitoring results are presented graphically in **Figure 5** and **Figure 6**. The full dataset is available upon request.

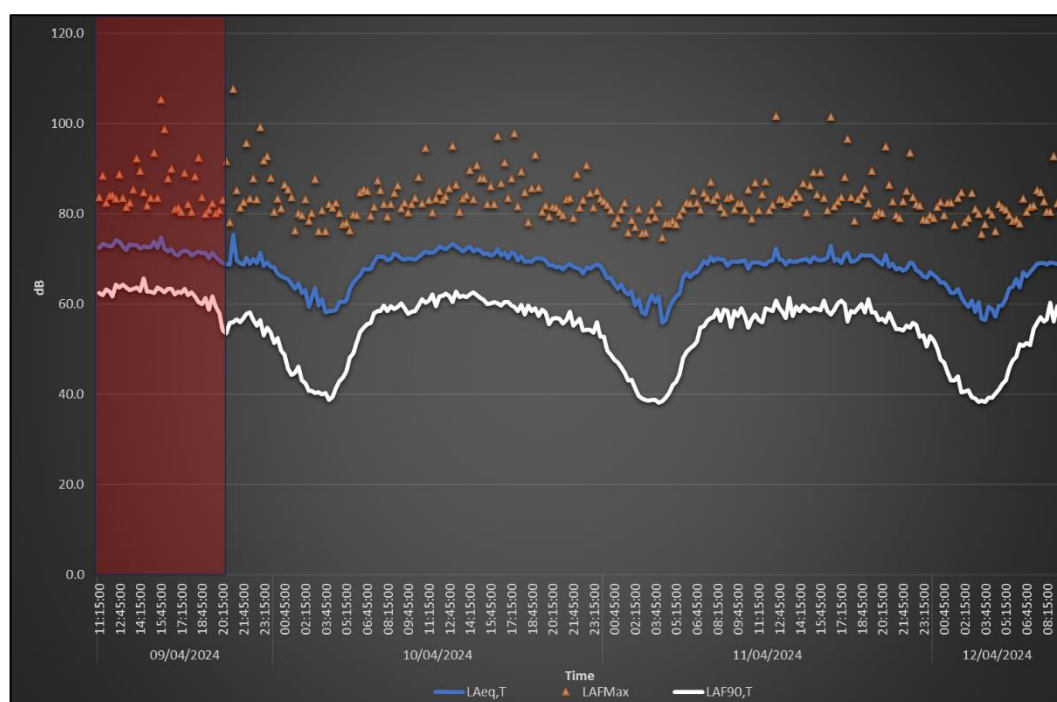


Figure 5: Noise Monitoring Results at ML1

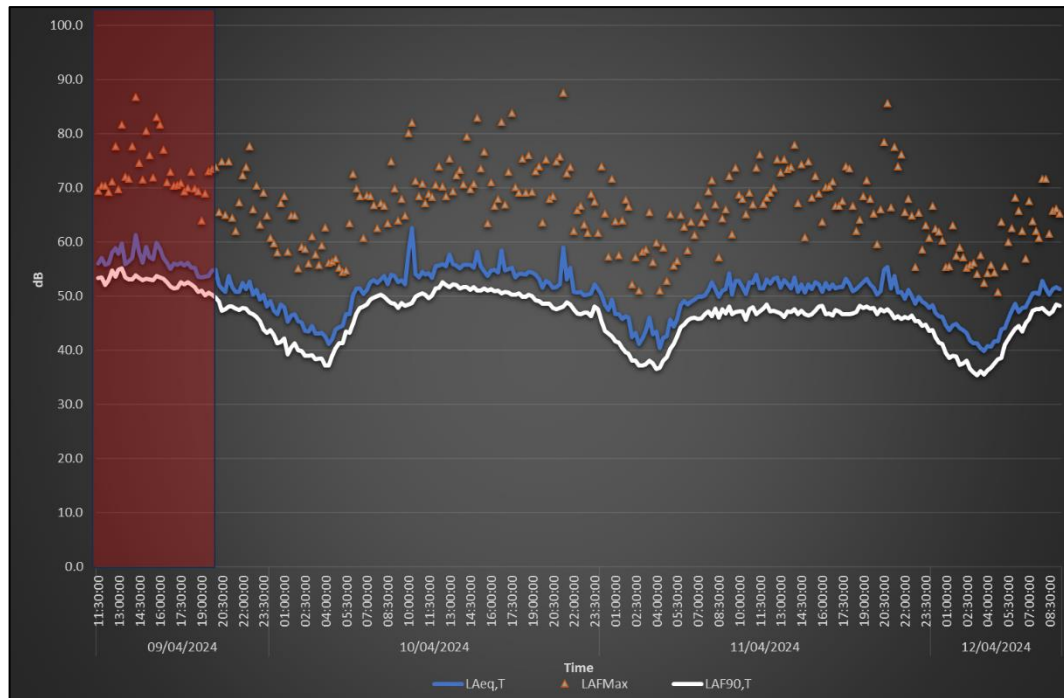


Figure 6: Noise Monitoring Results at ML2

- 4.1.9 Meteorological conditions were monitored throughout the measurement period and conditions considered influential on the measurements in accordance with guidance in BS 4142:2014 were noted. The conditions considered to have likely influenced the measurement are highlighted red in **Figure 5** and **Figure 6**.
- 4.1.10 Given the location of ML1 and ML2 and their proximity to the façade, in accordance with BS 4142:2014 a façade correction of -3 dB is applied.
- 4.1.11 The highlighted data considered likely to have influenced the measurements has been excluded from the dataset.

4.2 Determination of Typical Background Sound Levels

- 4.2.1 The worst-case daytime and night-time periods will be analysed for the purposes of informing BS 4142 Rating Level limits.

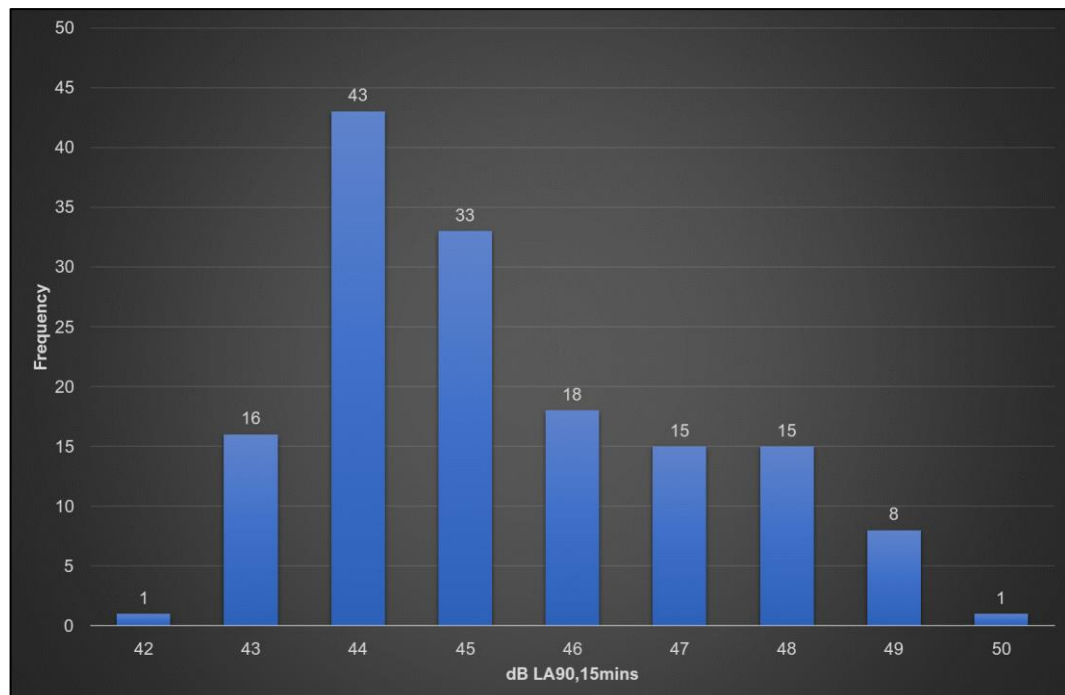


Chart 1: Statistical Analysis of Daytime Background Sound Levels at ML2

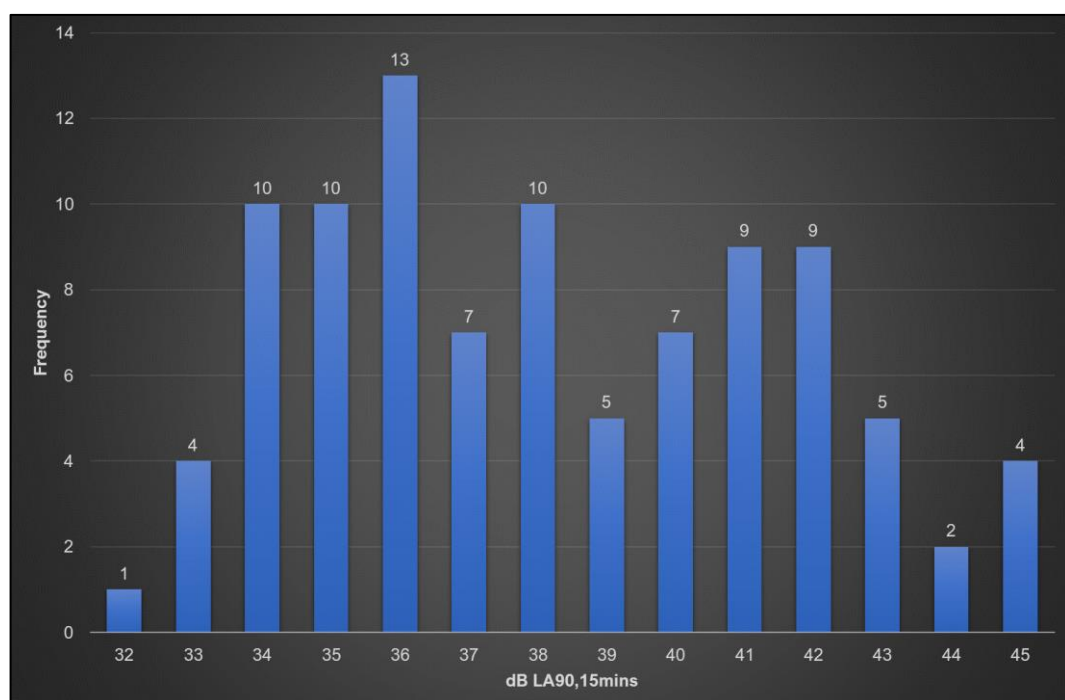


Chart 2: Statistical Analysis of Night-time Background Sound Levels at ML2

- 4.2.2 Based on the dataset above, the typical daytime (07:00-23:00) background is considered to be 44 dB $L_{AF90,15min}$ and the typical night-time (23:00-07:00) is considered to be 34 dB

$L_{AF90,15min}$.

5 NOISE IMPACT ASSESSMENT

5.1 Introduction

- 5.1.1 A 3D noise model has been created in SoundPLAN™ to calculate the predicted noise levels at the proposed residential dwellings. The model uses the calculation method from ISO 9613-2:1996¹ to account for the distance between the source and receiver and any screening or reflections provided by the surrounding buildings.

5.2 3D Noise Model – Noise Breakout from Tuition Class

- 5.2.1 A modelling scenario has been based on internal reverberant measurements conducted by NoiseAir previously during a religious worship service. The model assumes noise breakout from standard double-glazed windows on the building.
- 5.2.2 The measurements were conducted within a religious worship centre in Lewisham and include congregational prayer and singing. The measurement results utilised within the model are presented in **Table 3**.

Table 3: Worship Service Internal Reverberant Level									
Noise Source	Octave band Sound Pressure Level in centre frequency (dB)								Broadband Sound Pressure Level
	63	125	250	500	1000	2000	4000	8000	dB(A)
Worship Service	61.6	55.7	57.4	58.7	50.9	45.3	43	34.6	58.1

- 5.2.3 Reduction from glazing within the model is based on a 4/12/4 double glazed configuration achieving 27 dB R_w+C_{tr} . This would typically represent a minimum specification UPVC double glazed window.
- 5.2.4 The noise grid predictions are given in **Appendix B**. A summary of predicted noise levels is provided in **Table 4**.
- 5.2.5 Predictions are presented at GF and 1F where applicable.

¹ ISO9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation"

Table 4: Noise Modelling Predictions								
Storey	Predicted Sound Level (dB)							
	NSR1	NSR2	NSR3	NSR4 (outdoor)	NSR5 (Outdoor)	NSR6	NSR7	NSR8
GF	-1.6	-0.8	-1.0	1.2	1.7	-3.4	4.0	N/A
1F	-1.6	-0.8	-1.0	N/A	N/A	-3.4	4.2	11.4

5.3 Assessment of Tuition Room Noise

- 5.3.1 The highest noise level predicted within the noise modelling is below 12 dB and considered insignificant against the existing noise climate.
- 5.3.2 If windows were in the partially open position a reduction of up to 13 dB could be expected to the internal reverberant level of 58 dB, meaning that a level of approximately 45 dB would propagate from the partially open windows. This is below all daytime L_{Aeq} levels measured at ML2 and reported within Section 3 of this report before considering reduction due to the distance between the source and receptors and would therefore not be significant. It would also be unlikely to exceed daytime L_{AF90} levels, which would indicate a low impact if BS 4142 methodology were applied.
- 5.3.3 The primary use of the building is therefore likely to be acceptable from a noise perspective.
- 5.3.4 The most significant source of noise associated with the use of the building is likely to be the short-term event of people arriving and leaving the building, which can be mitigated through effective management by the applicant.

5.4 BS 4142 Rating Level Limits for Fixed Plant

- 5.4.1 Based on the measured noise levels, we would recommend that any external plant or kitchen extracts, etc., do not exceed daytime BS 4142 Rating Levels of 39 dB at the closest NSR. This targets a level of 5 dB below the existing daytime and night-time background level as measured in this report and is predicted to result in a Low Impact when assessed to BS 4142:2014+A1:2019.
- 5.4.2 For the night-time, we would recommend a Rating Level limit of 34 dB $L_{AF90,15min}$. This targets a Rating Level that does not exceed the Background Level. This is because BS 4142 states that as noise levels are lower, the absolute levels become more important.

-
- 5.4.3 With windows partially open, a Rating Level of 34 dB would result in an internal noise level being approximately 10 dB below BS 8233 criteria for internal noise levels within bedrooms during the night-time and is likely to be suitable.

5.5 Noise Management

- 5.5.1 We would recommend that the applicant proposes noise management measures to minimise any potential impact on surrounding residential properties. Example measures are suggested below:

- Attendees reminded to be respectful to neighbours when arriving and exiting the site (signage may be appropriate);
- Windows to remain closed where possible to minimise noise breakout from the site;
- Attendees encouraged to walk rather than drive where possible to reduce any potential vehicle noise;
- Parking to be prioritised at the front of the site where existing noise levels are higher.

6 CONCLUSIONS

- 6.1.1 By instruction from Kurdish Community Centre CIC (the client'), NoiseAir was commissioned to conduct a noise impact assessment to assess the potential noise impact of the proposed conversion of a former public house to a place of worship and community centre.
- 6.1.2 Noise measurements were taken of the existing noise climate of the site. Noise from a congregational service was modelled and assessed based on measurements of a comparable service.
- 6.1.3 The modelled noise levels are predicted to be negligible with respect to existing receptors with tuition room windows closed and are likely to pose a low impact with windows partially open.
- 6.1.4 Information relating to any fixed plant or kitchen extracts is not available at present. If this becomes applicable as the design develops, BS 4142 Rating Level limits have been recommended within this report.
- 6.1.5 Recommendations have been made to manage noise from the site.

APPENDIX A - REPORT LIMITATIONS

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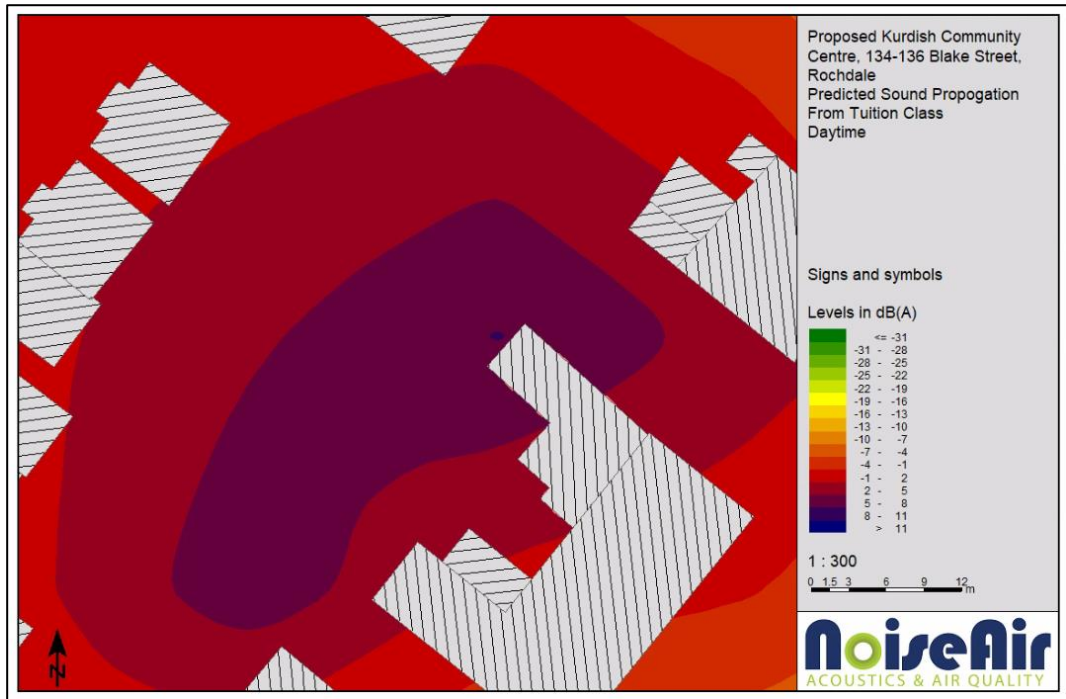
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Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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APPENDIX B – NOISE MODELLING RESULTS



APPENDIX C - 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].
Ambient sound	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. <i>NOTE: The ambient sound comprises the residual sound and the specific sound when present.</i>
Ambient sound level, $L_a = L_{Aeq,T}$ (BS 4142:2014)	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T <i>NOTE: The ambient sound level is a measure of the residual sound and the specific sound when present.</i>
Background sound	Underlying level of sound over a period, T, which might in part be an indication of relative quietness at a given location.
Background sound level, $L_{A90,T}$ (BS 4142:2014)	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.
Break-in	Noise transmission into a structure from outside.
Break-out	Noise transmission from inside a structure to the outside.
Cross-talk	Noise transmission between one room and another room or space via a duct or other path.
C_{tr}	Correction term applied against the sound insulation single-number values (R_w , D_{w1} and $D_{nT,w}$) to provide a weighting against low frequency performance. <i>NOTE: The reference values used within the C_{tr} calculation are based on urban traffic noise.</i>
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.
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$ (BS 4142:2014)	Value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time.
Equivalent sound absorption area of a room, A	Hypothetical area of a totally absorbing surface without diffraction effects, expressed in square metres (m ²), which, if it were the only absorbing element in the room, would give the same reverberation time as the room under consideration
Facade level	Sound pressure level 1 m in front of the façade. <i>NOTE: Facade level measurements of L_{pA} are typically 1 dB to 2 dB higher than corresponding free-field measurements because of the reflection from the facade.</i>
Free-field level	Sound pressure level away from reflecting surfaces. <i>NOTE: Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source). Estimates of noise from aircraft overhead usually include a correction of 2 dB to allow for reflections from the ground.</i>

Impact sound pressure level, L_i	Average sound pressure level in a specific frequency band in a room below a floor when it is excited by a standard tapping machine or equivalent.
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>
Measurement time interval, T_m (BS 4142:2014)	Total time over which measurements are taken. <i>NOTE: This may consist of the sum of a number of non-contiguous, short-term measurement time intervals.</i>
Noise criteria	Numerical indices used to define design goals in a given space.
Noise rating, NR	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves.
Normalised impact sound pressure level, L_n	Impact sound pressure level normalized for a standard absorption area in the receiving room. <i>NOTE: Normalised impact sound pressure level is usually used to characterize the insulation of a floor in a laboratory against impact sound in a stated frequency band.</i>
Octave band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.
Percentile level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting "F", which is exceeded for $N\%$ of a specified time interval.
Reference time interval, T_r (BS 4142:2014)	Specified interval over which the specific sound level is determined. <i>NOTE: This is 1 h during the day from 07:00 h to 23:00 h and a shorter period of 15 min at night from 23:00 h to 07:00 h.</i>
Residual sound (BS 4142:2014)	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Residual sound level, $L_r = L_{Aeq,T}$ (BS 4142:2014)	Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T .
Rating level, L_{Ar,T_r}	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise. <i>NOTE: This is used in BS 7445 and BS 4142 for rating industrial noise, where the noise is the specific noise from the source under investigation.</i>
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped.
Sound exposure level, L_{AE}	Level of a sound, of 1 s duration, that has the same sound energy as the actual noise event considered.
Sound level difference, D	Difference between the sound pressure level in the source room and the sound pressure level in the receiving room.
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).
Sound reduction index, R	Laboratory measure of the sound insulating properties of a material or building element in a stated frequency band.

Specific sound level, $L_s = L_{Aeq,T_r}$ (BS 4142:2014)	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r .
Specific sound source (BS 4142:2014)	Sound source being assessed.
Standardised impact sound pressure level, L'_{nT}	Impact sound pressure level normalized to a reverberation time in the receiving room of 0.5 s.
Standardised level difference, D_{nT}	Difference in sound level between a pair of rooms, in a stated frequency band, normalized to a reference reverberation time of 0.5 s for dwellings.
Groundborne noise	Audible noise caused by the vibration of elements of a structure, for which the vibration propagation path from the source is partially or wholly through the ground. <i>NOTE Common sources of ground-borne noise include railways and heavy construction work on adjacent construction sites.</i>
Structure-borne noise	Audible noise caused by the vibration of elements of a structure, the source of which is within a building or structure with common elements. <i>NOTE Common sources of structure-borne noise include building services plant, manufacturing machinery and construction or demolition of the structure.</i>
Third octave band	Band of frequencies in which the upper limit of the band is 2% times the frequency of the lower limit.
Weighted level difference, D_w	Single-number quantity that characterizes airborne sound insulation between rooms, but which is not adjusted to reference conditions. <i>NOTE Weighted level difference is used to characterize the insulation between rooms in a building as they are. Values cannot normally be compared with measurements made under other conditions (see BS EN ISO 717-1).</i>
Weighted normalised impact sound pressure level, $L'_{n,w}$	Single-number quantity used to characterize the impact sound insulation of floors over a range of frequencies.
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or
Weighted standardised impact sound pressure level $L'_{nT,w}$	Single-number quantity used to characterize the impact sound insulation of floors over a range of frequencies.
Weighted standardised level difference, $D_{nT,w}$	Single-number quantity that characterizes the airborne sound insulation between rooms.

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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