
Stand Golf Club Whitefield

Noise Impact Assessment Report
29394.NIA.01.RevA

Westshield Ltd

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	Added site suitability assessment for proposed residential units (Site A). Report structure revised. Assessment of noise breakout from proposed new Club House (Site B) updated based on latest information.	
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SUMMARY

KP Acoustics Ltd has been commissioned to provide acoustic design and assessment support for the proposed works at Stand Golf Club, Whitefield.

A residential development is proposed at Site A in the north of the club grounds and a new Club House is proposed at Site B in the south of the club grounds.

Environmental noise surveys have been undertaken on both sites to establish the current ambient and background noise levels to assist with the assessments.

The residential proposals have been assessed against the internal noise level guidance provided in BS 8233: 2014 and relevant World Health Organisation documents, in accordance with the requirements of the Local Authority. Sound reduction performance calculations have been undertaken to specify the minimum performance required from the glazing and ventilation elements. An assessment of noise through windows which are open to relieve overheating has been undertaken, based on the criteria in Approved Document O: 2021. Further advice can be provided with regards to the overheating strategy to assess the noise implications once thermal modelling calculations have been undertaken. Noise levels within external amenity areas have been assessed and would be expected to meet the recommended levels provided within BS8233:2014.

The noise breakout from private events in the Function Room has been assessed for impact on the closest residential property based on industry best practice. Acoustic specifications have been provided for the building fabric of the new Club House Function Room to control noise breakout such that suitable noise breakout criteria are achieved.

Plant noise emission criteria have been provided for use where MCS 020 cannot be applied.

1.0 INTRODUCTION

KP Acoustics Ltd has been commissioned by Westshield Ltd to assess the suitability of the site at The Stand Golf Club, Whitefield M45 7NL for the proposed development in accordance with the requirements of the Local Authority.

This report presents the results of the environmental surveys undertaken to measure prevailing ambient and background noise levels at the site and outlines a preliminary assessment of the following:

- Ambient noise ingress to the proposed residential properties.
- Ambient noise levels in proposed residential amenity spaces.
- Entertainment noise emissions from the clubhouse to nearby receptors via the façade.
- Fixed plant noise emissions criteria.

1.1 Site Description

Site A is located at the northeast edge of the golf club, encompassing the existing Club House and part of the course. It is bounded to the east by Ashbourne Grove, West View Grove, and residential properties located on both roads. To the west is the golf course, and to the north is a storage facility which is part of the Polyflor facility.

Site B is located in the southwest corner of the golf club, and is currently part of the course. The site is bounded by Ringley Road to the southwest, residential properties to the southeast, and the golf course to the north and east.

The main source of noise at both sites is considered to be traffic on the surrounding roads, with some noise at the northwest corner of Site A from the Polyflor facility.

1.2 Proposed Development

It is proposed to provide 105 new dwellings at Site A, comprising a mix of apartments and semi-detached housing. The proposed site layout can be seen in Figure 1.1 .

The existing Club House will be demolished as part of the works at Site A. It is proposed to provide a new Club House at Site B. The proposed site layout is shown in Figure 1.2.



Figure 1.1 Proposed site Layout, Site A (Image source: Paddock Johnson)



Figure 1.2 Proposed site Layout, Site B (Image source: Paddock Johnson)

2.0 NOISE ASSESSMENT GUIDANCE

2.1 Local Authority Requirements

The proposed development falls within the jurisdiction of Bury Council (BC).

New Residential Properties

For the new residential properties on Site A, it is understood that BC require an assessment to be undertaken against the guidance provided in BS 8233: 2014 *Guidance on sound insulation and noise reduction for buildings*. This is based on the BC comments in Item 22 of the Paddock Johnson LPA RFI Tracker 23036-PJA-XX-XX-SH-A-5002 (First Issue).

Noise from Proposed Entertainment Venues

There is no published guidance from Bury Council on specific criteria for the assessment of operational/entertainment noise, therefore it is proposed to adopt the guidance provided in Manchester City Council's 'Planning and Noise' Technical Guidance Document (October 2022). The relevant extracts of this guidance are presented below.

"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".

Plant Noise Emission Criteria

Item 22 of the Paddock Johnson LPA RFI Tracker 23036-PJA-XX-XX-SH-A-5002 (First Issue) refers to the Microgeneration Certification Scheme (MCS) 020, which eliminates the need for setting plant noise emission criteria or assessment plant noise emissions. However, as MCS 020 is only applicable with certain conditions, we will present plant noise emission criteria for any situation where MCS 020 cannot be applied.

There is no published guidance from Bury Council on specific criteria for the assessment of noise emissions from new developments, however it is common for Local Authorities to refer to BS 4142:2014: 2014 for plant noise emissions and thus this is the methodology we recommend be applied here. More information regarding BS 4142: 2014 is provided below.

2.2 BS 8233:2014

BS 8233:2014 '*Sound insulation and noise reduction for buildings*' describes recommended internal noise levels for residential spaces. These levels are shown in Table 2.1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB(A)	-
Dining	Dining Rooms	40 dB(A)	-
Sleeping (daytime resting)	Bedrooms	35 dB(A)	30 dB(A)

Table 2.1 BS8233 recommended internal background noise levels

It should be noted that the recommended internal noise levels outlined above are not applicable under “purge ventilation” conditions as defined by Approved Document F of the Building Regulations, as this should only occur occasionally (e.g. to remove odour from painting or burnt food). However, the levels above should be achieved whilst providing sufficient background ventilation, either via passive or mechanical methods.

The external building fabric would need to be carefully designed to achieve these recommended internal levels.

In addition to guidance on internal levels, BS8233:2014 also states the following with regards to noise within external amenity spaces:

“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$, which would be acceptable in noisier environments.”

2.3 WHO Guidelines for Community Noise (1999) & Night Noise Guidelines for Europe (2009)

WHO Guidelines for Community Noise (1999) recommend that internal noise levels for individual events should not exceed 45dB L_{Amax} more than 10-15 times per night.

WHO Night Noise Guidelines for Europe (2009) presents guidelines for noise levels outside dwellings and discusses the relationship between these and the criteria for internal noise presented in Guidelines for Community Noise. The document states that the two should be considered complimentary and that the 1999 guidelines should be considered valid to achieve the 2009 guidelines.

2.4 Approved Document O (ed. 2021)

Approved Document O (ADO) supports Part O of Schedule 1 to the Building Regulations 2010. ADO introduces requirements for residential premises in order to prevent overheating from occurring. There are two specific requirements from ADO:

Requirement O1 (1):

To limit unwanted solar gains in summer and to provide adequate means to remove heat from the indoor environment.

Requirement O1 (2):

- (a) Account must be taken of the safety of the occupant, and their reasonable enjoyment of the residence.
- (b) Mechanical cooling may only be used where sufficient heat cannot be removed from the indoor environment without it.

The statutory guidance to support Requirement O1(2)(a) contains requirements relating to noise at night.

2.4.1 Application

The guidance within ADO applies to new residential buildings only and are defined within the following table:

Title	Purpose for which the building is intended to be used.
Residential (dwellings)	Dwellings, which includes both dwellinghouses and flats.
Residential (institutions)	Home, school or other similar establishment, where people sleep on the premises. The building may be living accommodation for the care or maintenance of any of the following. A. Older and disabled people, due to illness or other physical or mental condition. B. People under the age of 5 years.
Residential (other)	Residential college, hall of residence and other student accommodation, and living accommodation for children ages 5 years or older.

Table 2.2 Residential buildings within the scope of ADO (ref. Table 0.1 of Approved Document O)

Paragraphs 3.2 and 3.3 of ADO specifically refer to noise within bedrooms at night. Whilst any habitable room could be used as a bedroom, it is proposed that the scope is confined to those rooms specifically designated as bedrooms.

2.4.2 Internal Noise Level Targets

ADO sets internal noise level targets within Paragraph 3.3 of the document:

“Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

- a. 40dB $L_{Aeq,T}$ averaged over 8 hours (between 11pm and 7am)*
- b. 55dB L_{AFmax} more than 10 times a night (between 11pm and 7am).”*

Where an openable window for the removal of excess heat is predicted to result in the above internal noise levels to be exceeded, then the overheating mitigation strategy must adopt one of the alternative means listed within Paragraph 2.10 of ADO (presented within Section 4.7.3 of this report). This constraint applies regardless of which method is used to demonstrate compliance with Requirement O1 (1).

2.4.3 Methods to Remove Excess Heat

Paragraph 2.10 of ADO lists the means for removing excess heat from dwellings according to the following:

- Openable windows
- Ventilation louvres in external walls
- A mechanical ventilation system
- A mechanical cooling system

Where mitigation of impacts related to overheating is required, this must be led by an overheating specialist.

2.5 BS4142: 2014 ‘Methods for rating and assessing industrial and commercial sound’

British Standard BS4142:2014 ‘Methods for rating and assessing industrial and commercial sound’ describes a method for rating and assessing sound of an industrial and/or commercial nature, which includes:

- Sound from industrial and manufacturing processes
- Sound from fixed installations which comprise mechanical and electrical plant and equipment
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

This Standard compares the Rating Level due to the noise source/s under assessment for a one-hour period during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during

the night-time (23:00 – 07:00 hours) with the existing background noise level in terms of an L_{A90} when the noise source is not operating.

It should be noted that the Rating Level is the Specific Sound Level in question ($L_{Aeq, Tr}$), including any relevant acoustic feature corrections, as follows:

- **Tonality** – *‘For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible, and 6dB where it is highly perceptible’*
- **Impulsivity** – *‘A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible’*
- **Intermittency** – *‘If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied’*
- **Other sound characteristics** – *‘Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied’*

Once the Rating Level has been obtained, the representative background sound level is subtracted from the Rating Level to obtain an initial estimate of the impact, as follows:

- 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 could 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 there will be an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context

NOTE: Adverse impacts may include but not be limited to annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

The initial estimate of the impact may then be modified by taking consideration of the context in which the sound occurs.

3.0 SITE SURVEYS

3.1 Environmental Noise Survey Procedure

Noise surveys were undertaken on the proposed site as shown in Figure 3.3. The locations were chosen in order to collect data representative of the typical worst-case levels expected on the site due to all nearby sources.

Continuous automated monitoring was undertaken for the duration of the surveys between 14:00 on 14/11/2024 and 16:00 on 18/11/2024 at Position 1, and between approximately 12:00 on 07/04/2026 and approximately 12:00 on 10/04/2026 at Positions 2 and 3.

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise. The measurement procedure complied with ISO 1996-2:2017 Acoustics '*Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels*'.

3.2 Measurement Positions

Measurement positions are as described within Table 3.1 and shown within Figure 3.1.

Icon	Descriptor	Location Description
①	Noise Measurement Position (NMP) 1	The microphone was installed in open ground in the south of Site B, at a height of 1.5m above local ground level, as shown in Figure 2.1. The position was selected to be representative of typical noise levels at the residential receptor closest to the proposed Club House site. The microphone was positioned within free-field conditions at least 3.5 metres from the nearest surface.
②	Noise Measurement Position (NMP) 2	The microphone was installed in open ground in the north of Site A, at a height of 1.5m above local ground level, as shown in Figure 2.2. The measurement position had clear line of sight to the commercial unit adjacent. The position was chosen to determine typical noise levels at the site of the proposed residential dwellings. The microphone was positioned within free-field conditions at least 3.5 metres from the nearest surface.
③	Noise Measurement Position (NMP) 3	The microphone was fixed to a signpost in the south of Site A, by the entrance to the existing Club House, at a height of 1.5m above local ground level, as shown in Figure 2.2. The position was chosen to determine typical noise levels at the site of the proposed residential dwellings. The microphone was positioned within free-field conditions at least 3.5 metres from the nearest surface.

Table 3.1 Measurement positions and descriptions



Figure 3.3 Site measurement position, Site B (Image Source: Google Maps)

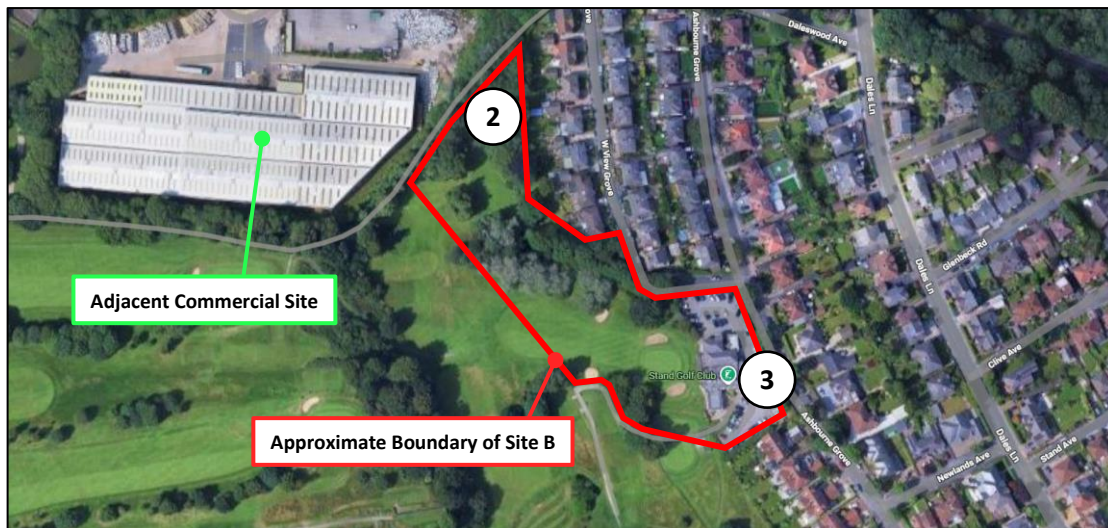


Figure 3.4 Site measurement positions, Site A (Image Source: Google Maps)

3.3 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 2.2.

Measurement Instrumentation		Serial No.	Date of Last Calibration at Time of Survey	Cert No.
NMP 1 (N34)	NTI Audio XL2 Class 1 Sound Level Meter	A2A-21069-E0	04/08/2022	UK-22-077
	Free-field microphone NTI Acoustics MC230A	A23544		
	Preamp NTI Acoustics MA220	11020		
	NTI Audio External Weatherproof Shroud	-	-	-
Larson Davis CAL200 Class 1 Calibrator (NMP 1)		17148	21/03/2023	UCRT23/1363
NMP 2 (MA SLM 2)	Svantek Type 971A Class 1 Sound Level Meter	173141	19 Jan 2026	1516680-2
	Svantek SV18A Preamplifier	163626		
	Free-field Microphone ACO 7152	96756		
	External Weatherproof Shroud	-	-	-
NMP 3 (MA SLM 1)	Svantek Type 971A Class 1 Sound Level Meter	173136	19 Jan 2026	1516680-1
	Svantek SV18A Preamplifier	163637		
	Free-field Microphone ACO 7152	96767		
	External Weatherproof Shroud	-		
MA CAL 1 NMP 2 & 3)	Svantek SV33B Class 1 Acoustic Calibrator	182123	30 Jan 2026	C182123-1

Table 3.2 Measurement instrumentation

4.0 RESULTS

The $L_{Aeq,5min}$, $L_{Amax,5min}$ and $L_{A90,5min}$ acoustic parameters were measured throughout the duration of the survey. Measured levels are shown as time histories in Figure 29394.TH1 - 3.

The typical daytime and night-time L_{A90} levels measured at Sites A and B are presented below. These levels will be used to set plant noise emission criteria in line with BS 4142 :2014 for use where MCS 020 cannot be applied.

Measurement Parameter	NMP 1	NMP 2	NMP 3
Daytime L_{A90}	47 dBA	46 dBA	40 dBA
Night-time L_{A90}	35 dBA	40 dBA	35 dBA

Table 4.1 Typical background noise levels

The typical octave band background sound levels for the period 19:00 – 00:00 hours at Site B are presented in the table below. These will be used in the assessment of noise breakout from the new Club House.

Position	Typical Background Sound Level ($L_{90,5min}$, dB) at Octave Band Centre Frequency (Hz)							Overall dBA
	63	125	250	500	1k	2k	4k	
NMP 1	49	41	36	41	44	35	20	46

Table 4.2 Typical background noise levels at Site B, 19:00 – 23:00 hours

The typical daytime and night-time L_{Aeq} levels and the typical nighttime L_{Amax} levels measured at Site A are presented below. These levels will be used in the site suitability assessment for the proposed residential properties.

Measurement Parameter	NMP 2	NMP 3
Daytime $L_{Aeq,16hour}$	53	48
Night-time $L_{Aeq,8hour}$	50	46
Typical Night Time L_{Amax}	70	66

Table 4.3 Typical ambient noise levels at Site A

The measurement data for NMP 2 show a clear fluctuation in the measured $L_{A90,5min}$ and $L_{Aeq,5min}$ levels over long periods (as can be seen on 29394.TH2) and a strong contribution at 8 kHz, including overnight, indicating that an intermittent and possibly tonal noise source was

present nearby. No such noise was noticeable during the site visits, so it is not possible to identify the source with certainty, however it is considered likely that this could be reversing alarms from vehicles on the adjacent Polyflor site.

Because a tonal noise has the potential to be more noticeable than non-tonal noise such as road traffic, it is considered appropriate to reduce the internal noise criteria by 5 dB for dwellings at facades which are likely to be impacted by noise from the Polyflor site. This has been accounted for in the assessments.

5.0 EXTERNAL BUILDING FABRIC SPECIFICATION (SITE A)

Based on the average and maximum noise levels measured during the environmental noise survey, sound reduction performance calculations have been undertaken in order to specify the minimum performance required from glazed and non-glazed elements to achieve the recommended average internal noise levels in BS 8233: 2014 (shown in Table 4.1) and the typical maximum levels recommended by the WHO (discussed in Section 2.3).

The calculations are based on typical room sizes as follows:

Living Rooms: 5m wide x 4m deep x 2.8m tall

Bedrooms: 4m wide x 3m deep x 2.8m tall

Glazing has been assumed to comprise up to 50% of the external facades of these rooms. When assessing potential ventilation options, allowance has been made for up to 2No. passive vents in Living Room facades and 1No. passive vent in Bedroom facades.

If the final glazed and non-glazed elements deviate from this, our calculations would need to be confirmed before final specifications are set.

5.1 Non-Glazed Elements

At this project stage, the exact construction of the non-glazed external building fabric is unknown, however, it is understood that it would be based upon the construction proposed in Table 5.1 and would be expected to provide the minimum figures shown in the following table when tested in accordance with the BS EN ISO 10140 series of standards.

Element	Sound Reduction Index , dB, at Octave Band Centre Frequency, Hz					
	125	250	500	1k	2k	4k
Metsec with either Brickslip/Blockwork Outer Wall or Rainscreen Cladding System	27	38	45	49	50	50

Table 5.1 Assumed sound reduction performance for non-glazed elements

5.2 Glazed Elements

Minimum octave band sound reduction index (SRI) values required for all glazed elements to be installed are shown in Table 5.2. The performance is specified for the whole window unit, including the frame, seals, etc. as appropriate. Sole glass performance data would not demonstrate compliance with this specification. The proposed Zone coverage is shown in 29394.SP1 enclosed.

Area	Sound Reduction Index , dB, at Octave Band Centre Frequency, Hz						$R_w(C;C_{tr})$, dB
	125	250	500	1k	2k	4k	
Zone A	26	27	34	40	38	46	37 (-1;-4)
Zone B	24	20	25	35	38	35	31 (-1;-4)

Table 5.2 Required glazing performance

The nominated glazing supplier should verify that their proposed window system meets the attenuation figures shown at each centre frequency band as shown in Table 5.2.

Example glazing types that would be expected achieve the above spectral values are shown in Table 5.3.

Elevation	Example Glazing Type
Zone A	10/12/6
Zone B	4/12/4

Table 5.3 Example glazing types

All major building elements should be tested in accordance with the BS EN ISO 10140 series of standards. Independent testing at a UKAS accredited laboratory will be required in order to confirm the performance of the chosen system for an 'actual' configuration.

6.0 VENTILATION AND OVERHEATING RELIEF (SITE A)

6.1 Ventilation Strategy

Approved Document F 2021 describes the following system types for background and extract ventilation:

Ventilation System Type	Whole Dwelling Ventilation	Extract Ventilation
Natural Ventilation	Trickle ventilators	Intermittent extract fans
Continuous Mechanical Extract Ventilation (MEV)	Continuous mechanical extract (low rate) and trickle vents for supply	Continuous mechanical extract (high rate) with trickle vents providing inlet air
Mechanical Ventilation with Heat Recovery (MVHR)	Continuous mechanical supply and extract (low rate)	Continuous mechanical supply and extract (high rate)

Table 6.1 Ventilation system types as described in ADF 2021

Based on the results of the noise survey, the suitability of each system type and the required trickle ventilator performance (where appropriate) is shown in Table 6.2 below.

Elevation	ADF Ventilation System Type Suitable?			Minimum Trickle Ventilator Performance (dB D _{n,e,w})
	Natural Vent	MEV	MVHR	
Zone A	Yes	Yes	Yes	38
Zone B	Yes	Yes	Yes	23

Table 6.2 Suitability and required performance of ventilation systems

For our assessment of trickle ventilator performance, we have assumed two (2no.) vents per Living Room façade and one (1No.) vent per Bedroom façade. As trickle vents introduce a weak point in the building façade, increasing the number of trickle vents will reduce the composite performance of the facade. If trickle vents are proposed, the total number of trickle vents for each sensitive space should be confirmed so that calculations can be accurately revised if necessary.

Where mechanical ventilation is proposed, systems should be designed so that the combined internal noise levels from external sources and from the mechanical ventilation meet the BS 8233: 2014 criteria shown in Table 2.1.

In all cases, purge ventilation would be provided by openable windows. As outlined in Section 2, the internal noise level requirement would not be applicable during purge conditions as this would only occur occasionally.

6.2 Openable Windows for Overheating Relief

Approved Document O (ADO) only applies to Bedrooms during night. The advice within this section would therefore only apply to Bedrooms during night-time hours (23:00-07:00) to ensure that the internal noise level targets of 40dB(A) $L_{eq,T}$ and 55dB(A) L_{max} are not exceeded.

Table 6.4 presents the open area of the window as a % of the floor area which would need to be achieved to ensure that sufficient attenuation is provided from outside to inside.

Area	Sound Reduction Required to Achieve Target Internal L_{Aeq} Noise Levels	Sound Reduction Required to Achieve Target Internal L_{Amax} Noise Levels	Maximum Open Area of the Window as a Percentage of the Floor Area to Achieve ADO Target Internal Noise Levels
Zone A	15 dB	20 dB	0 %
Zone B	6 dB	11 dB	4 %

Table 6.4 Window open areas

Note: Acoustic open area is the measurable, cross-sectional, geometric area of an opening. For a partially open window, this is considered to be the lesser of either the size of the hole in the window frame that is left by the opening light, or the combined cross-sectional area around the opening light through which air must pass to move from outside to inside. The area around a hinged opening light includes the triangular areas on the sides adjacent to the hinge, and the rectangular area on the side opposite the hinge. This should not be used for comparing the air-flow performance of elements because this will also be dependent on factors such as depth (length of air-path), surface roughness and tortuosity.

The overheating model should inform the design team whether the % open areas above would be sufficient to remove excess heat. In the event they are insufficient, other options to limit solar gains into the building should be investigated (such as those outlined in Section 2.7 of Approved Document O), or other means of removing excess heat should be explored (as outlined in Section 2.10 of the Approved Document).

Where the assessment has resulted in a maximum allowable free area of 0%, it should be noted that this does not mean that natural ventilation for overheating relief is not possible.

The ADO assessment methodology assumes a maximum noise reduction through an open

window, which could be improved upon using specific window designs or other passive methods of cooling such as louvred wall vents.

Where mitigation of impacts related to overheating is required, this must be led by an overheating specialist. We would be happy to review the acoustic implications of any proposed mitigation strategies, though this would require a more detailed assessment.

7.0 RESIDENTIAL EXTERNAL AMENITY AREA ASSESSMENT (SITE A)

External amenity areas are proposed in the form of balconies for the flats and gardens for the houses.

External noise levels in most external amenity areas are predicted to achieve the lower guideline level from BS 8233:2014, with some balconies in Zone A exceeding the lower guideline but achieving the upper guideline level; therefore, the proposed locations for external areas are considered suitable.

8.0 ENTERTAINMENT NOISE BREAKOUT ASSESSMENT (SITE B)

8.1 Overview / Parameters

Noise output from the clubhouse is likely to be insignificant unless there are private functions underway. It is understood that birthday parties are not usually permitted, and functions would typically comprise either wedding parties, or club member events, at a frequency of around 1 or 2 per month.

It is understood that such events would typically end by 11pm, with rare special licenced events running until 12am, and that the external terraces would not be accessible during any such functions.

Typical noise levels for a wedding event have been established based on historical measurements undertaken by KP Acoustics on similar developments and are set out below.

Description	Typical Noise Level ($L_{eq,5min}$, dB) at Octave Band Centre Frequency (Hz)							dBA
	63	125	250	500	1k	2k	4k	
Wedding Party	88	93	85	81	83	78	75	83

Table 8.1 Typical noise levels

Internal layout drawings have been received from Paddock Johnson which show that the Function Room is approximately 14 m long by 11 wide, and 3 m tall, with 26 m² of glazing on the southeast façade.

This assessment has considered the use of standard double glazing to the Club House, with the following minimum sound reduction performance. The assumed performance is extremely pessimistic and should be readily achieved with most standard double-glazed units. The non-glazed façade has been assumed to comprise brick/block cavity wall.

Description	Sound Reduction Index (R dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Glazing	15	21	20	26	38	37	39
Brick/Block Cavity Wall	19	24	34	40	45	49	54
Composite Performance	16	22	22	28	40	39	41

Table 8.2 Estimated sound reduction performance of external façade

The assessment has assumed that windows and doors would not be relied upon as a means of ventilation for any noisy internal areas and would not be opened at all during noisy events. The same has been assumed for external doors, which should not be left open to any internal space which is subject to elevated noise levels.

8.2 Criteria

In the absence of specific criteria from Bury Council, Guidance has been drawn from Manchester City Council guidance which recommends that the average noise (L_{eq}) breaking out through the facade of an entertainment venue should not exceed 5 dB below the typical background noise level (L_{90}) at all octave band frequencies when measured at the nearest residential windows.

The following limits would therefore apply at the nearest residential receptor for new entertainment noise sources within the proposed development.

Location	Entertainment Noise Level Limit ($L_{Aeq,5min}$, dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
All nearby receptors	44	36	31	36	39	30	15

Table 8.3 Entertainment noise limits

8.3 Preliminary Assessment of Noise Breakout

Noise breakout has been assessed to the nearest receptor, at a distance of 100 m from the façade of the Function Room, based on standard calculation procedures for reverberant noise breakout and the source noise levels and sound reduction performances stated. The resultant external noise level has been calculated using the following equation:

$$SPL_{out} = SPL_{in} - SRI + 10\log_{10}\left(\frac{S}{r^2}\right) - 14$$

Where:

SRI estimated sound reduction performance of façade element

r distance from radiating element to receptors

S approximate area of radiating element

Calculation Parameter	Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Internal reverberant sound level (dB Leq)	88	93	85	81	83	78	75
Distance & radiating area propagation correction (dB)	-24	-24	-24	-24	-24	-24	-24
Internal diffuse field to external free-field hemispherical radiation correction (dB)	-14	-14	-14	-14	-14	-14	-14
Façade composite sound reduction (dB R)	-16	-22	-22	-28	-40	-39	-41
External noise level (dB Leq)	34	33	25	15	5	1	-4
Maximum Criterion (dB Leq)	44	36	31	36	39	30	15
Compliant with Criterion ?	✓	✓	✓	✓	✓	✓	✓

Table 5.3 Noise breakout from clubhouse to nearest receptor

As demonstrated above, assessment of entertainment noise breakout indicates that noise should be readily controllable through appropriate management of each space and standard double glazing.

The above would be subject to review once developed design details have been finalised.

9.0 FIXED PLANT NOISE EMISSIONS

As noted above, the following plant noise emission criteria are only relevant where MCS 020 cannot be applied.

With consideration for the recommendations contained within BS 4142:2014 and based upon the typical background sound levels measured at the site, the following plant noise emission limits would apply at the nearest noise sensitive receptors.

Period	Plant Noise Rating Limit at the Nearest Receptor		
	NMP1	NMP2	NMP3
Daytime (07:00 - 23:00)	47 dB L _{Ar,1h}	46 dB L _{Ar,1h}	40 dB L _{Ar,1h}
Night-time (23:00 - 07:00)	35 dB L _{Ar,15min}	30 dB L _{Ar,15min}	35 dB L _{Ar,15min}

Table 6.1 Fixed plant noise emission limits

The Rating Noise Level shall be assessed in accordance with BS 4142:2014 with corrections applied for any relevant acoustic features e.g. emitting noise of a tonal or irregular quality.

The above limits shall be subject to the final approval of Bury Council.

10.0 CONCLUSION

This report summarises the methodology and results of the noise impact assessment which has been carried out to determine the suitability of the proposed development at Stand Golf Club.

An environmental noise survey has been undertaken, allowing the determination of typical ambient and background noise levels at the site.

Acoustic specifications for glazing and ventilation have been prepared, based on providing internal noise levels for all residential environments of the development commensurate to the design range of BS8233:2014 and WHO Guidelines.

The maximum openable area for bedroom windows with the development has been presented based upon the requirements of Approved Document O.

An assessment of the external amenity areas with the development has been undertaken. The noise levels within the external amenity areas are in line with the guidance presented within BS8233:2014.

An assessment of noise breakout from the proposed Function Room in the new Club House has been undertaken and found that the noise levels would comply with the proposed criteria.

Plant noise emission criteria have been specified based on BS 4142, 2014, for use in any situation where MCS 020 is not applicable.

Stand Golf Club, Whitefield - Position 1
Environmental Time History
14/11/2024 to 18/11/2024

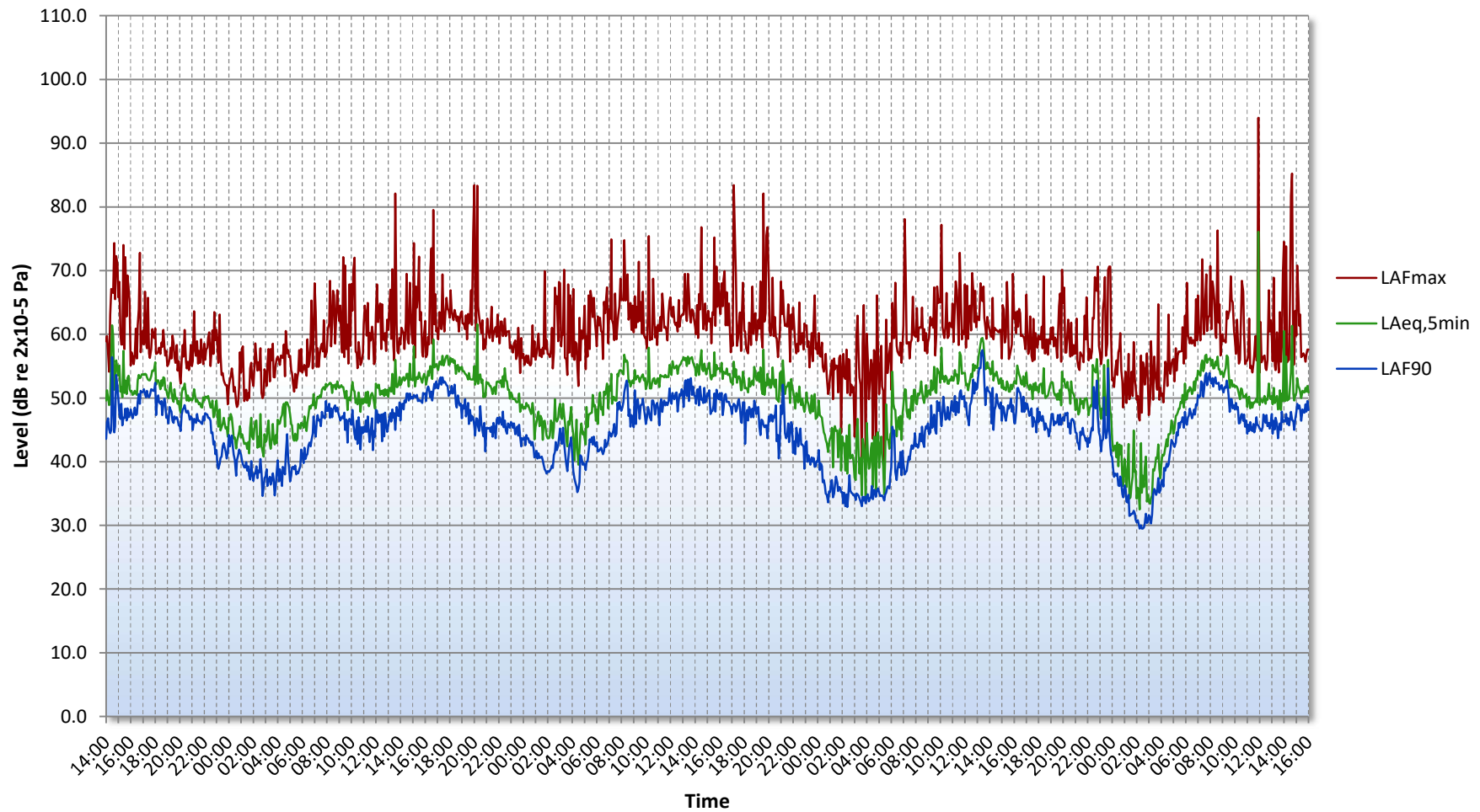


Figure 29394.TH1

Stand Golf Club, Whitefield - Position 1
Representative Daytime Background Noise Level
14/11/2024 to 18/11/2024

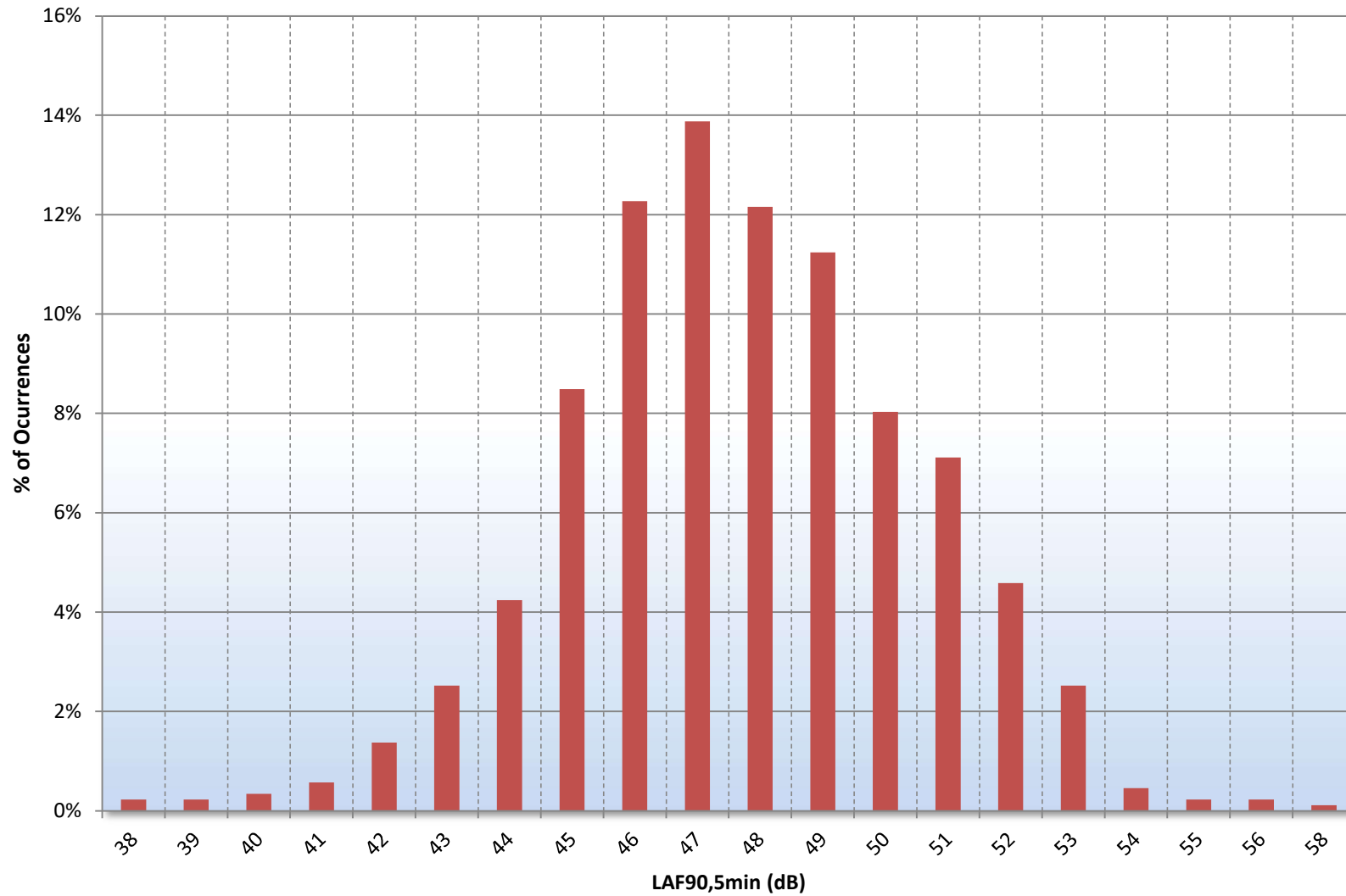


Figure 29394.Daytime L90.TH1

Stand Golf Club, Whitefield - Position 1
Representative Night-time Background Noise Level
14/11/2024 to 18/11/2024

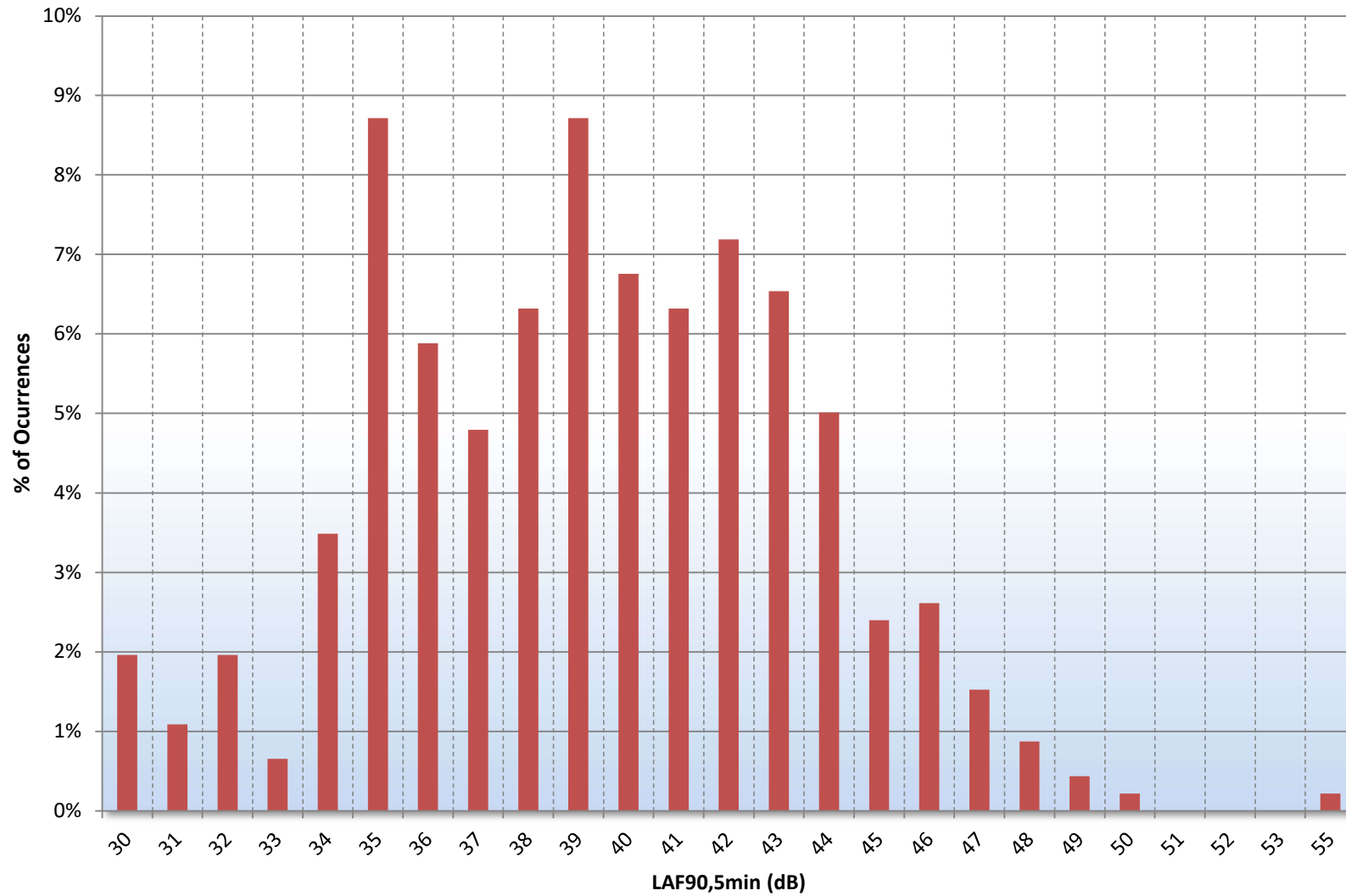


Figure 29394.Night-time L90.TH1

Stand Golf Club, Whitefield - Position 2
Environmental Time History
07/04/2026 to 10/04/2026

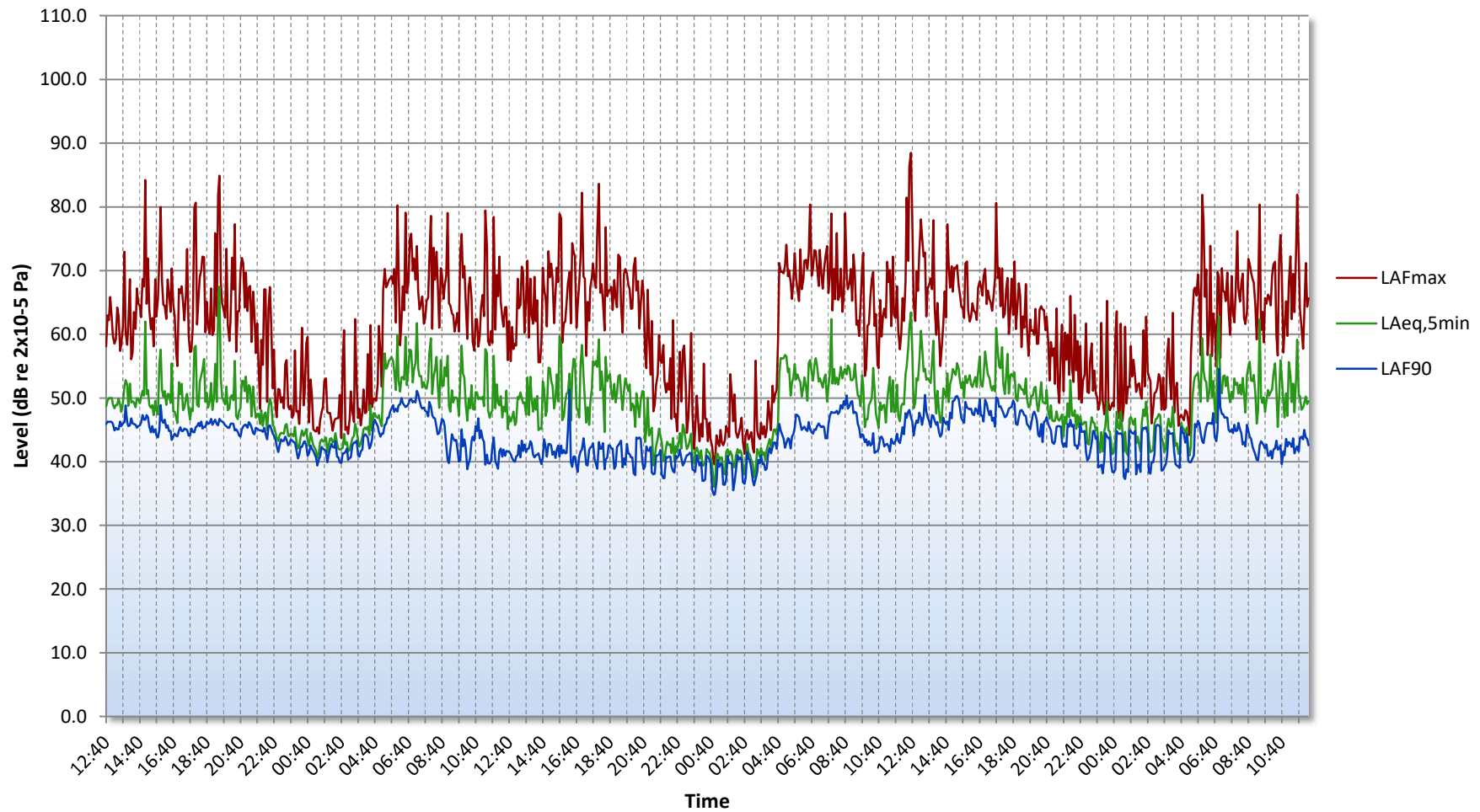


Figure 29394.TH2

Stand Golf Club, Whitefield - Position 2
Representative Daytime Background Noise Level
07/04/2026 to 10/04/2026

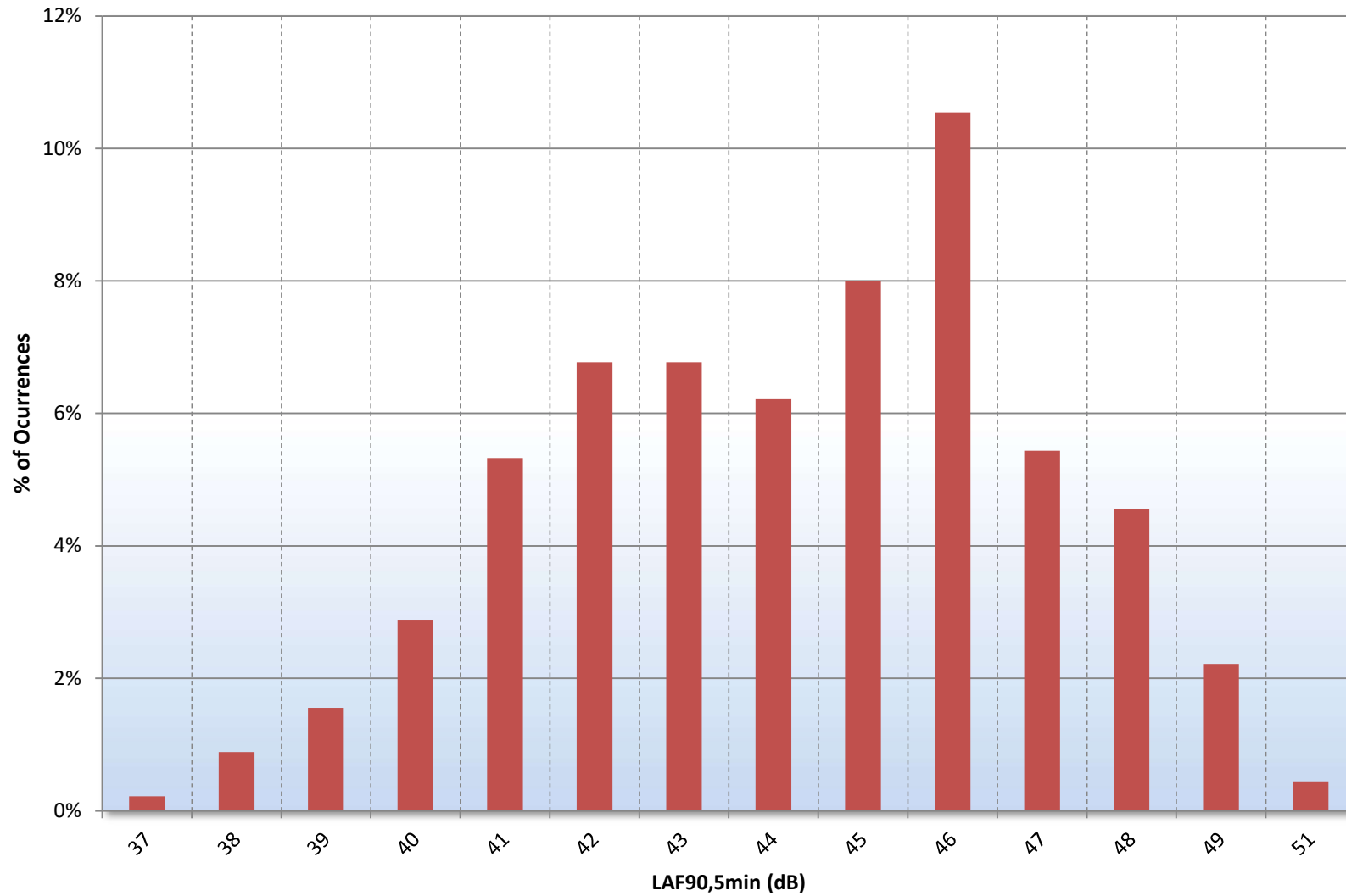


Figure 29394.Daytime L90.TH2

Stand Golf Club, Whitefield - Position 2
Representative Night-time Background Noise Level
07/04/2026 to 10/04/2026

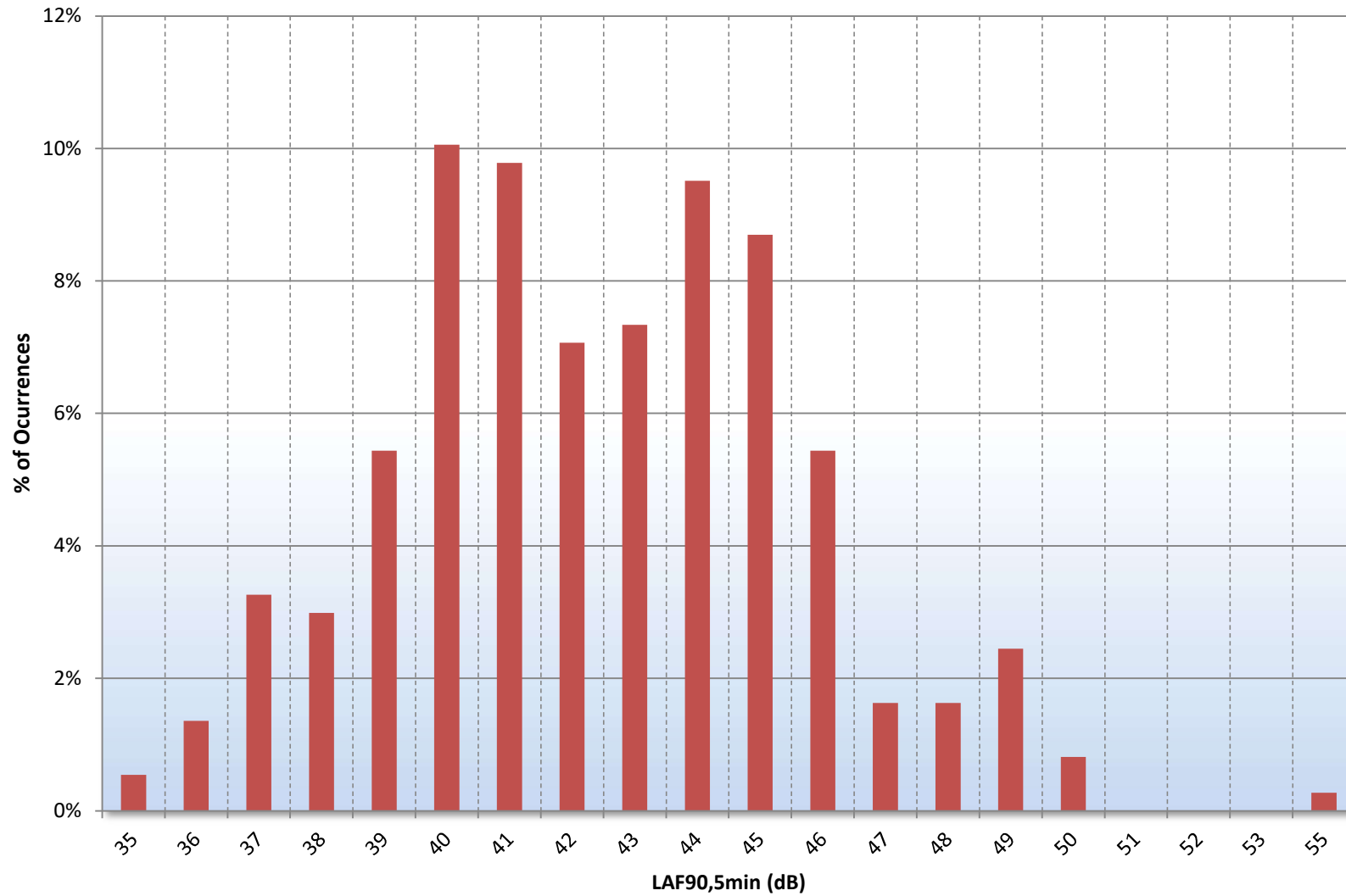


Figure 29394.Night-time L90.TH2

Stand Golf Club, Whitefield - Position 3
Environmental Time History
07/04/2026 to 10/04/2026

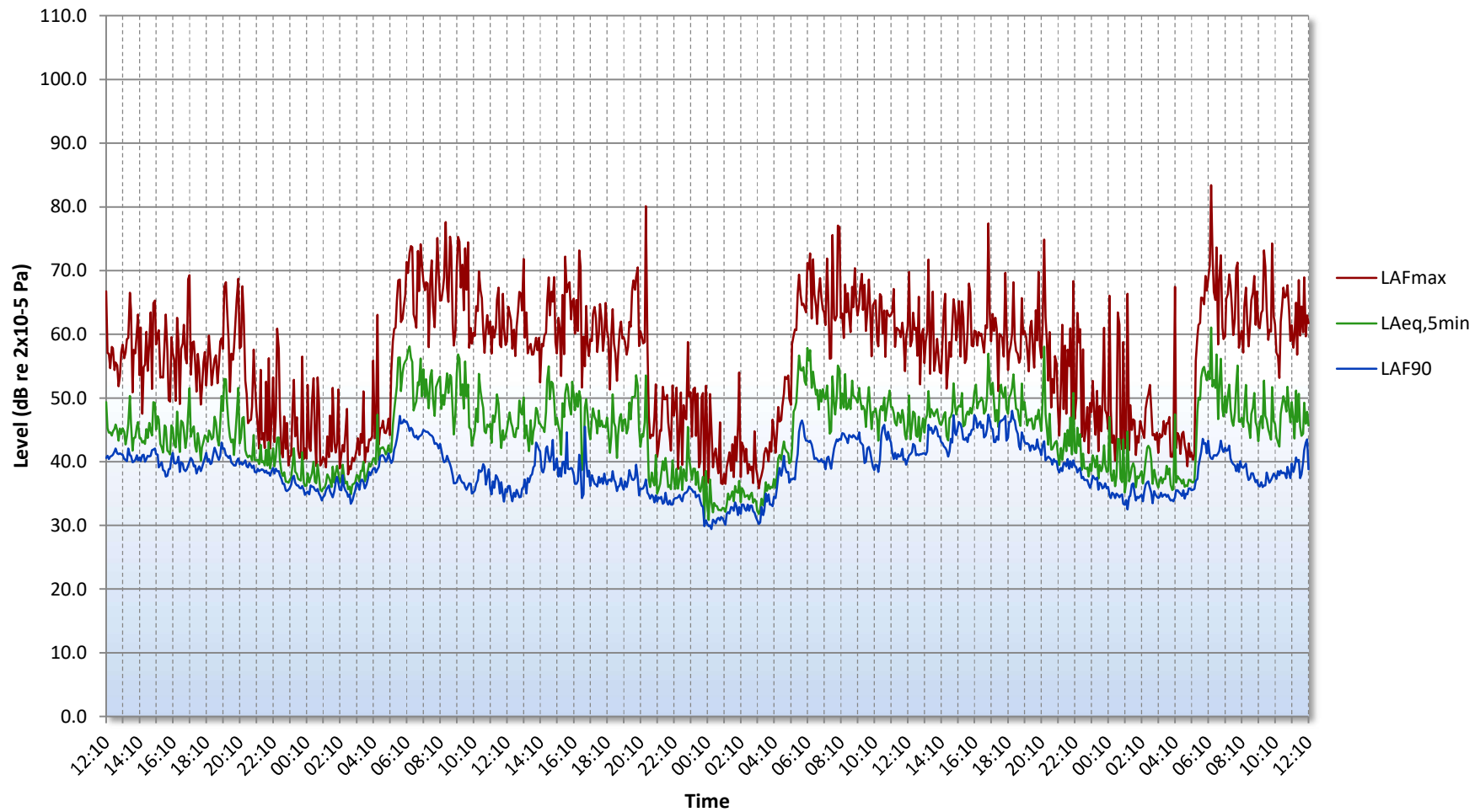


Figure 29394.TH3

Stand Golf Club, Whitefield - Position 3
Representative Daytime Background Noise Level
07/04/2026 to 10/04/2026

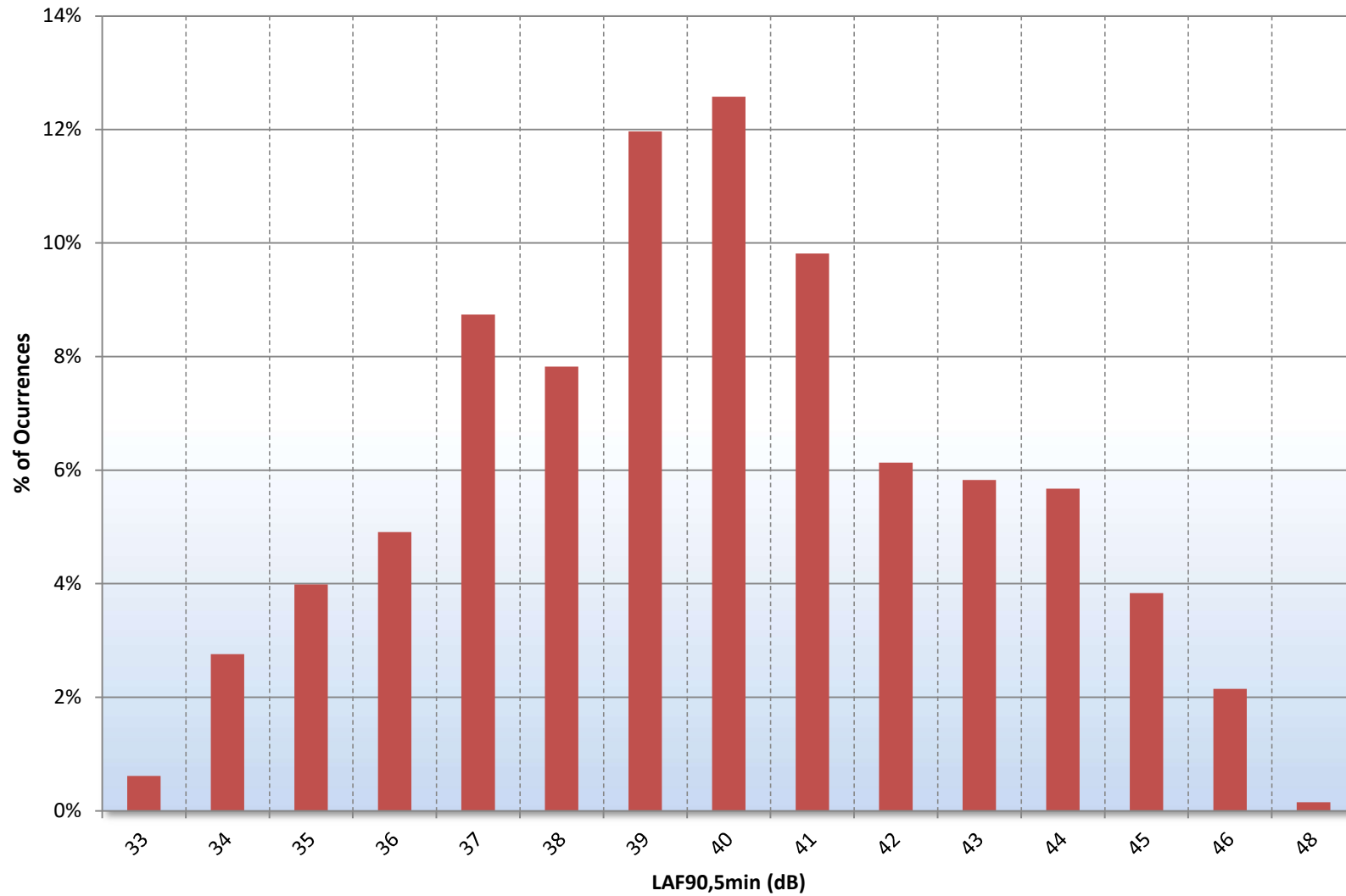


Figure 29394.Daytime L90.TH3

Stand Golf Club, Whitefield - Position 3
Representative Night-time Background Noise Level
07/04/2026 to 10/04/2026

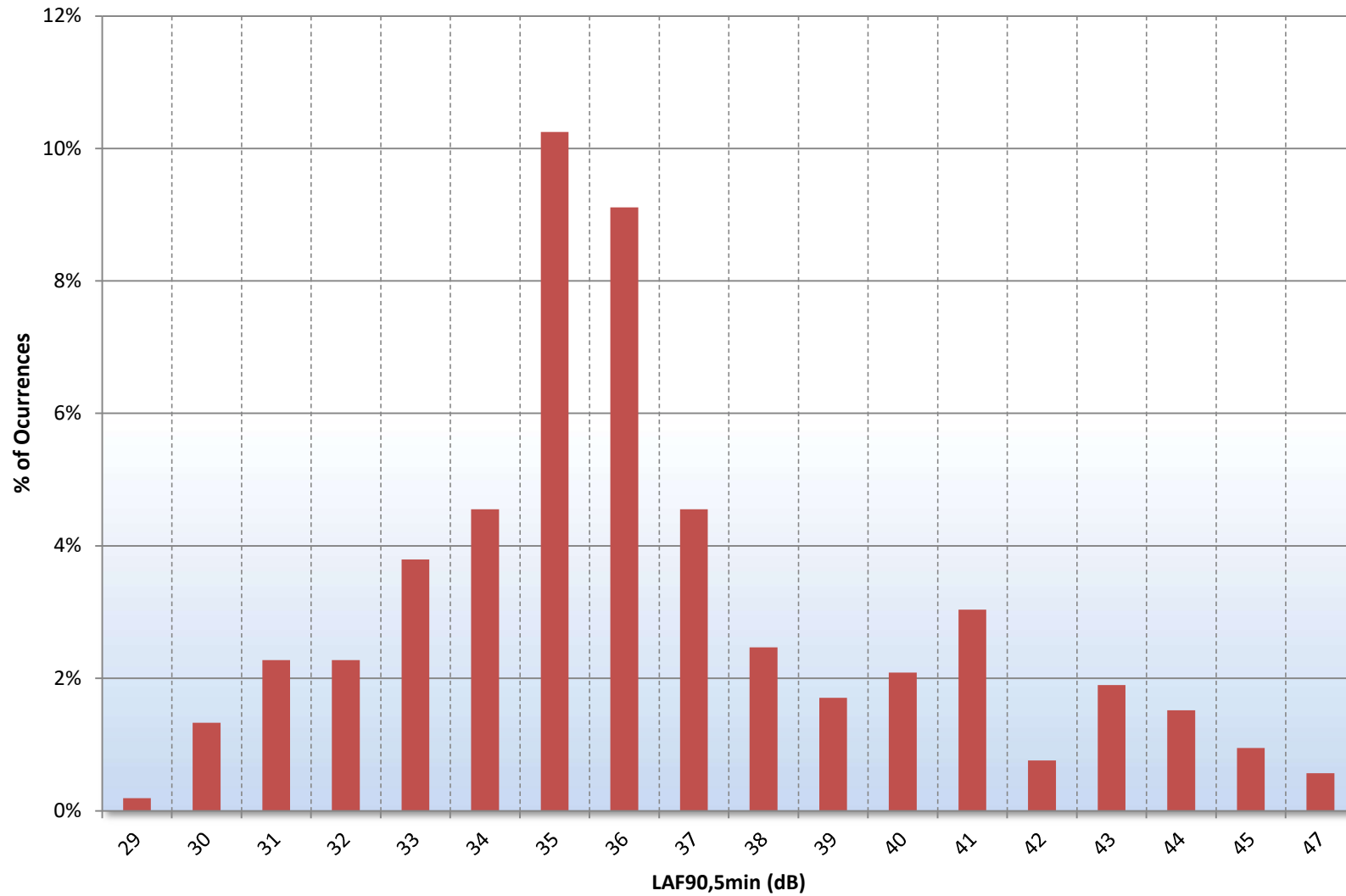


Figure 29394.Night-time L90.TH3

Markup Showing Proposed Glazing
Specification Zones

Figure 29394.SP1

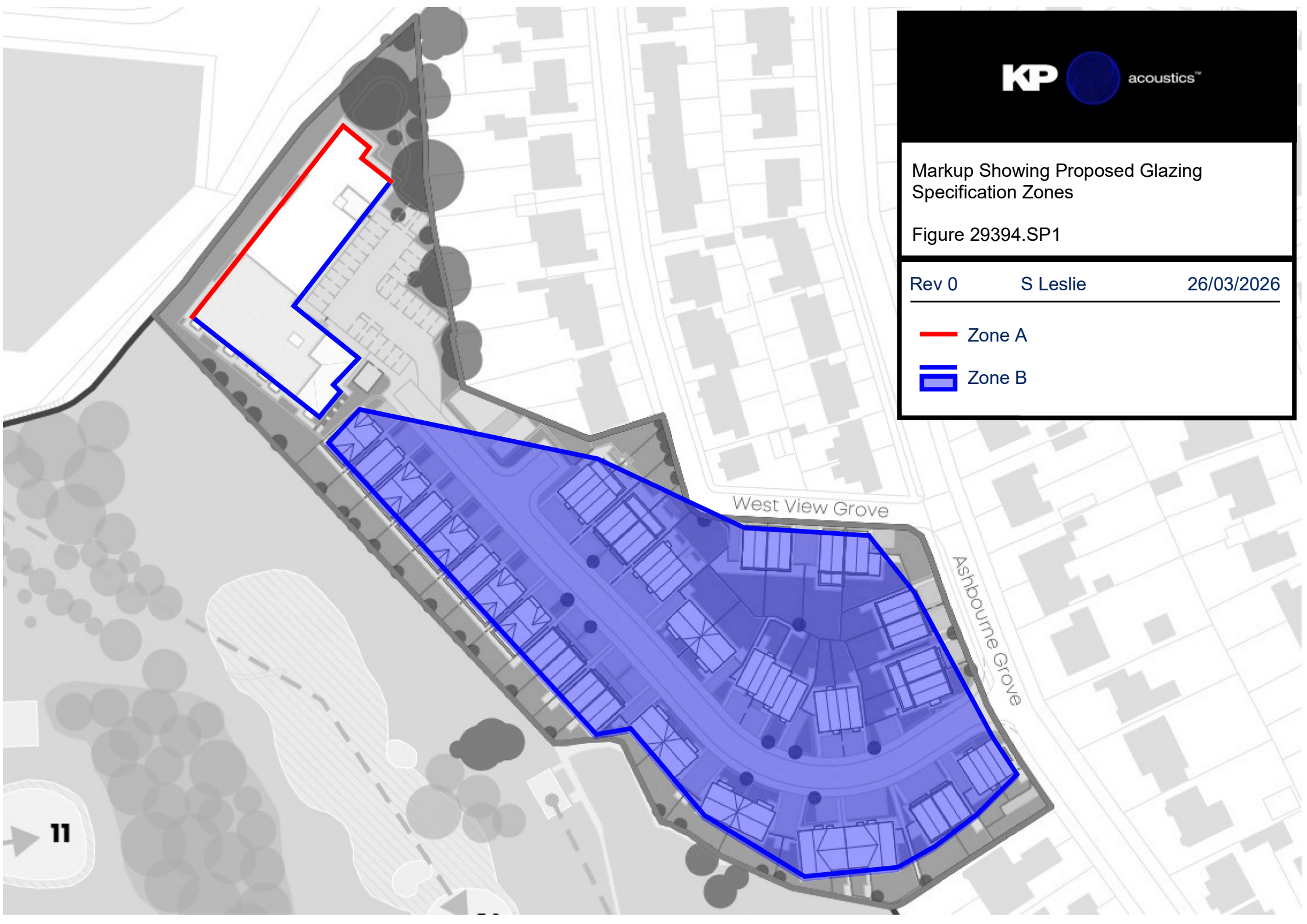
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S Leslie

26/03/2026

— Zone A

— Zone B



GENERAL ACOUSTIC TERMINOLOGY

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq} . The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for no more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise.

L_{90}

This is the level exceeded for no more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Environmental noise terms are defined in BS7445, *Description and Measurement of Environmental Noise*.

APPLIED ACOUSTIC TERMINOLOGY

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.