Blue Acoustics NS500

New Community Centre and Mosque

57 Dartmouth Street, West Bromwich B70 8BY

Planning Application :

Prepared by :
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On behalf of :
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1 Executive Summary

The noise climate is driven by distant traffic noise from the A41, which runs E/W 400m to the north. Wildlife noise becomes more audible at night.

Mosques by their very nature promote social responsibility within the community, and loud and unruly behaviour is therefore rare. As such, external noise generated by member movements is expected to be low.

Whilst night time prayer times may be as early as 04:30, night time prayers attract very low patron numbers and so the potential for noise impact through conversation is even lower.

Calculations indicate that large daytime congregations outside the building (most likely during Friday afternoon prayers) would generate a relatively low noise impact at the nearby receptors.

Mosques generally serve the local community and as such, a large proportion of worshippers will reside locally and are therefore expected to arrive by foot. Vehicle noise is unlikely to be generate a significant adverse effect at the nearby receptors. However, members should be encouraged to arrived in an orderly manner and park close to the mosque if possible, with music turned down to minimise the chance of complaint from the neighbours.

The LA90 by night remains relatively high after 04:30, the earliest prayer time, and is unlikely to be exceeded by singular external conversations, considering that patron numbers are very low at night. Despite this, It is advised that members are encouraged to park closer to the mosque at night. This would ensure that any conversations would be at distance from the nearby receptors.

Calculations indicate that service breakout noise will register 25 to 30dB below background noise for day and night time services respectively, at the surrounding receptors for the given building design and worst case scenarios adopted.

	LpA @ NSRs	LA90	Assessment Level
Daytime Capacity Prayers (Friday Afternoon)	20 dB	45 dB	-25 dB
Night Time Prayers (With Amplified Service)	10 dB	40 dB	-30 dB

Table 13 : Service breakout noise assessment table

2 Introduction

Blue Acoustics has been instructed to carry out a noise survey to support a planning application for a new build development on Dartmouth Street in West Bromwich. The development is for the erection of a new-build mosque on an area of un-developed land. The development features a main building with a main (male) prayer hall + overspill hall on the ground floor, and a woman's prayer hall on the 1st floor, along with a number of classrooms and ancillary rooms. The development also features 2 x parking areas, one on behind the main building and another on an area of undeveloped land on the opposite side of Duke Street.

Figure 1 : Existing plot

The site is surrounded by residences on all sides. The male prayer hall occupies most of the eastern side of the building at ground floor level, whilst the female prayer space and education spaces are situated on the 1st floor.

The site is surrounded by residences on all sides at varying distances, the nearest being 1 Brook Street @ approx. 4m from the nearest facade. The site features parking areas, both of which are cited close to receptors.

To establish realistic breakout noise levels, the building has been acoustically modelled using SonArchitect, with noise measurement data taken during Friday afternoon prayers within another Birmingham mosque, similar in size. The modelled breakout noise data was used to carry out a worship noise impact assessment, referenced against the measured background noise levels over particular periods of interest. In the event of an adverse noise impact, the building envelope has been re-designed and the report updated to minimise the noise impact at the nearby receptor(s).

The following statement was issued by a representative for the development :

"The total capacity for the main hall will be 150, extended to 300 for busier services which include Friday prayers. From late April to August, prayer services are expected to span the daylight period which will be approximately 04:00 to 23:00. During the majority of this period only 10% of the attendees are anticipated to attend. Externally every effort is made to ensure there is no disturbance or noise. The majority of the attendees live a walking distance from the site and so vehicle movements will be minimal. The Basement will be available for community activities not directly related to the mosque/Islamic centre as it has a direct access from Duke St."

The site was attended on Friday 10th November 2023 during which long term noise monitoring equipment was installed at the rear of the existing mosque, in a sheltered position to attain worst case background noise data representative of the surrounding dwellings. Noise data was measured from Friday midday to Sunday midday to establish worst case background noise levels for Saturday and Sunday morning.

3 Site Detail

The site is situated on Dartmouth Street in West Bromwich. The plot is an area of undeveloped land at the end of, and between Brook St and Duke St. The immediate area is dense residential surrounding the site on all sides, with the exception of a ground floor corner shop to the south and an existing mosque on the opposite side of Brook St. Traffic flow is relatively infrequent and slow past the site.

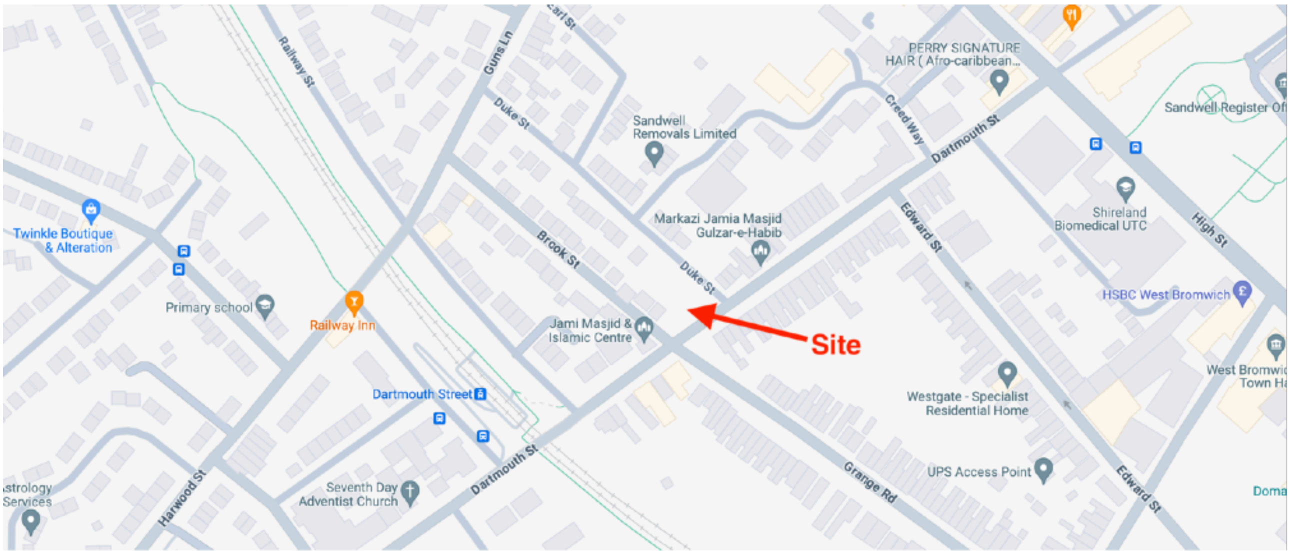

Figure 2 : Location map

The development necessitates the demolishment of an existing dwelling, 59 Dartmouth, to provide room for the mosque and its west car park (approx. 10 spaces). An additional car park will be created from an area of un-developed land to the NE, on the opposite side of Duke St, potentially providing a similar number of spaces.

The building construction is as yet unknown though assumed to be thick brick or concrete block cavity walls with double glazed window units.

The following Noise Sensitive Receptors (NSRs) have been adopted to ensure worst case assessment of potential breakout noise.

NSR	Address	Location
1	1 Brook Street	Dwelling immediately to the west of the centre with external amenity areas that border the site. Clear line of sight to the mosque and west car park
2	1a & 1b Brook Street	2 x dwellings west of 1 Brook St, also with external amenity areas that border the site. Clear line of sight to the mosque and west car park
3	2 Duke Street	Dwelling adjacent to the NW boundary line. SE facade has no windows but rear and front windows have partial line of sight towards the west car park and the mosque. Direct line of sight towards the north carpark.
4	53. 55 & 57 Duke Street	East of site on opposite side of Duke St. Orientated with rear windows overlooking the north car park
5	62 & 64 Dartmouth Street	Properties opposite the site facing directly towards the main hall front facade

Table 1 : Noise Sensitive Receptors (NSRs)

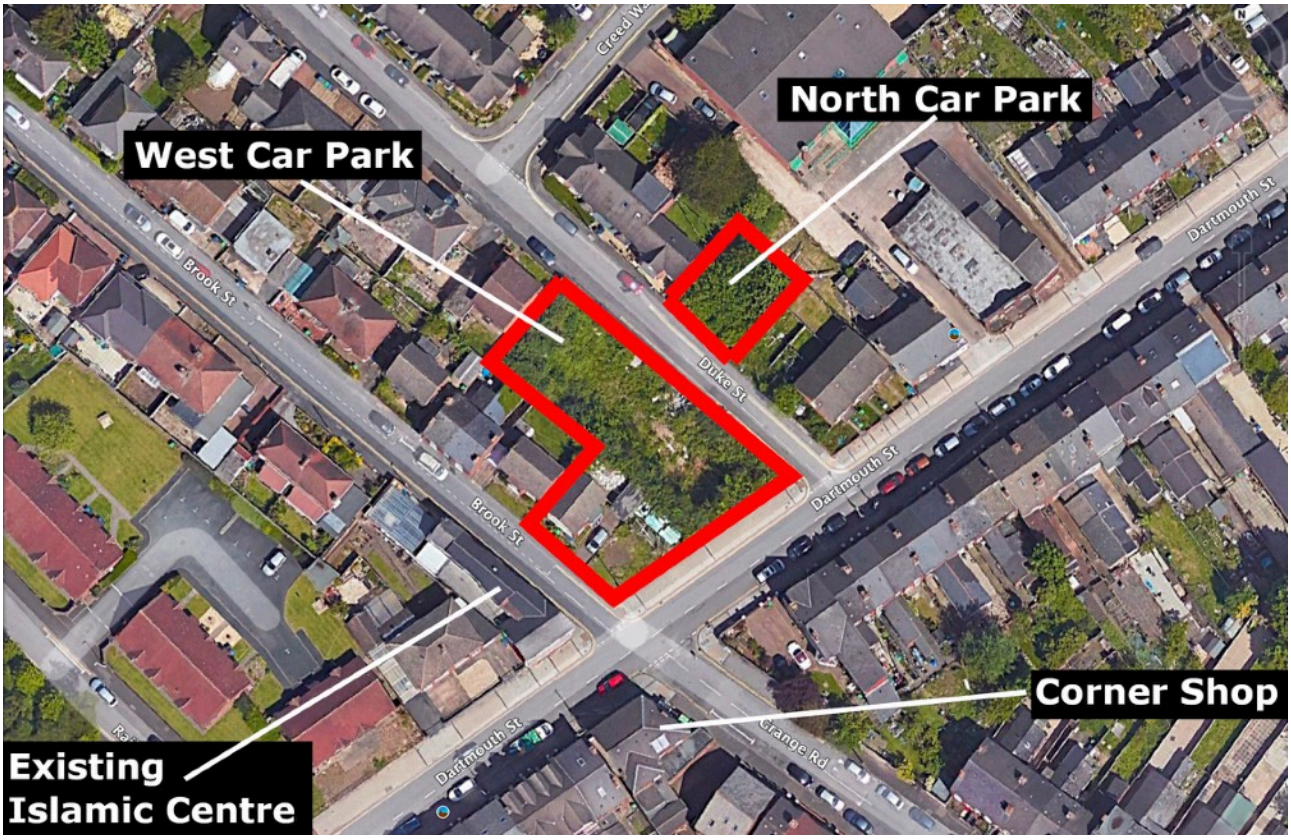

Figure 3 : Aerial view of site

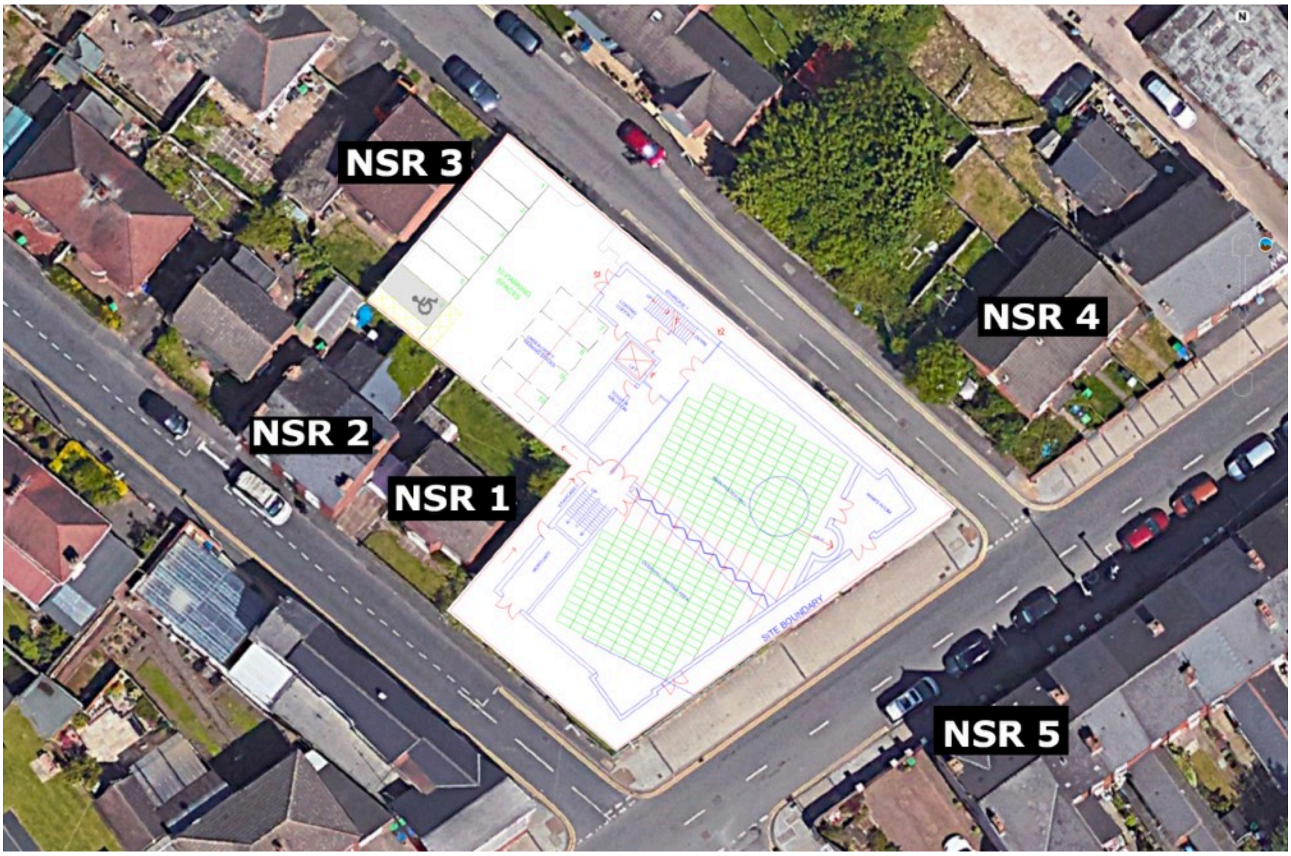

Figure 4 : Graphical overlay with nearby receptors

4 Noise Climate

The noise climate is driven by distant traffic noise from the A41, which runs E/W 400m to the north. Wildlife noise becomes more audible at night.

5 Measurement Details

5.1 Personnel & Equipment

All testing, calculation & evaluation was conducted by Timothy Sherlock-Brown M.I.O.A. of Blue Acoustics. Timothy is a Member of the Institute of Acoustics and possesses an MSc in Applied Acoustics.

Device	Serial Number	Calibration Date	Calibration Cert. No
Cirrus 171B Class 1 Meter	G066520	23.02.2023	188146, 188155
Cirrus 515 Calibrator	69304	23.02.2023	188158

Table 2 : Measurement equipment table

Care was taken to eliminate external influence on the measurements by the application of a windshield, and with particular attention paid to wind speed when selecting measurement periods. Unless otherwise stated, meters were tripod mounted at a height of 1.2-1.5m at an angle of approximately 60 degrees. Calibration was performed before and after each measurement or set of measurements with no notable drift. A drift of up to 0.5dB with a Class 1 meter is considered reasonable and is generally the cause of gradients in variables such as temperature, humidity and battery power.

5.2 Weather Conditions

Dry and cloudy; Temp 4c to 9c; Windspeed 0-5m/s westerly to easterly; Variable % cloud, Light Rain on occasion

5.3 Measurement Positions

Position	Description	Image
P1	Mic protruded out of 1st floor window at the rear of the site. This position was chosen for its sheltered position, and attain background noise data representative of the rear facade of 467 Fox Hollies Road.	

Table 3 : Measurement position table

Figure 5 : Measurement position

6 Presentation of Measurement Results

The following graph details the noise data measured betweenFriday 11:00 - Sunday 13:00.

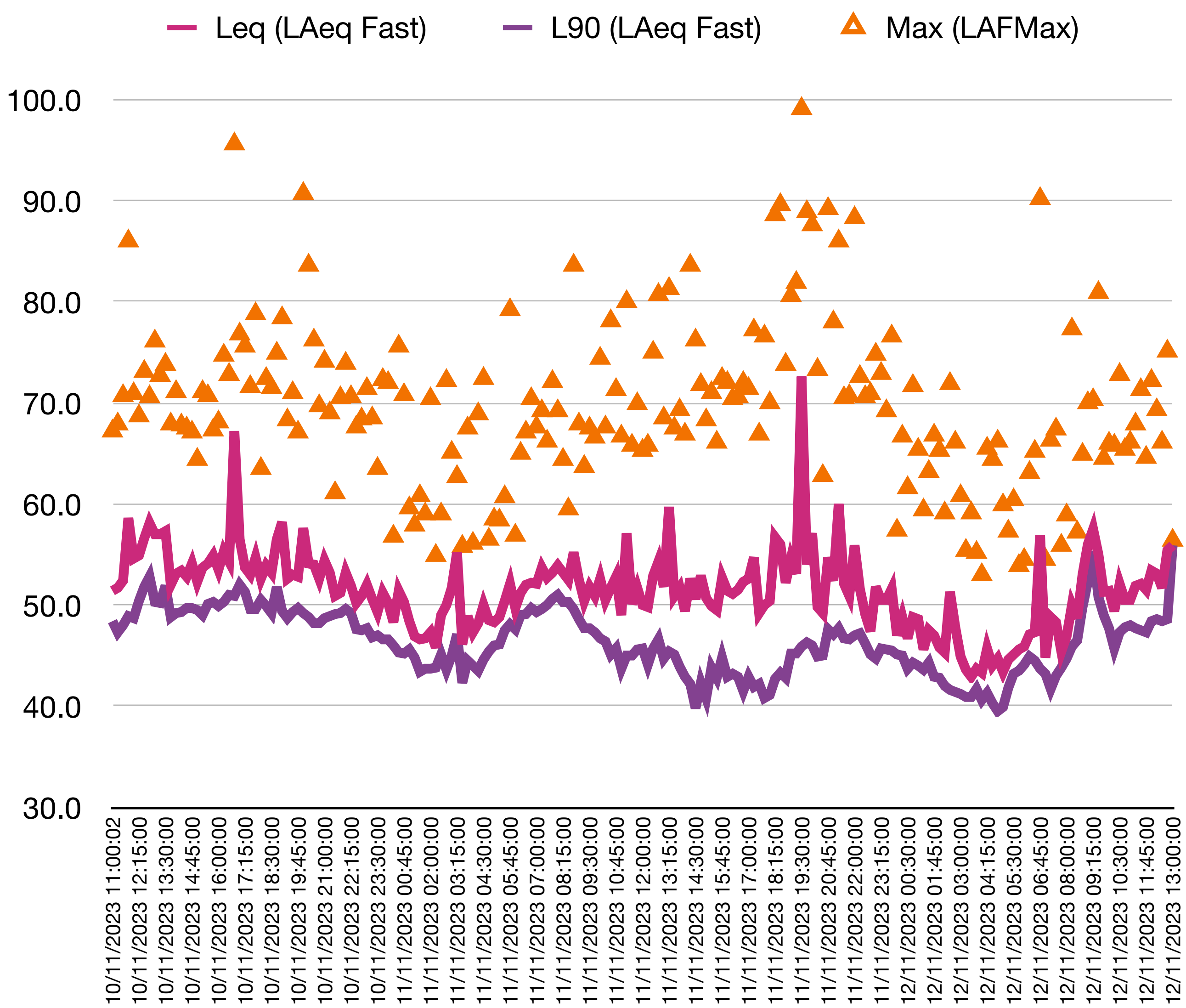

Figure 6 : Long term measurement data

From the measurement data, the following worst case values have been adopted as working criteria for the noise impact assessment :

Daytime LA90	Night Time LA90
45 dB	40 dB

Table 4 : Background noise table

7 Noise Impact Assessment

Service attendance varies significantly, from early morning services which may attract single figure patron numbers, to Friday afternoon prayers @ 1pm which are mostly at full capacity during school holidays.

Blue Acoustics has carried out attended noise monitoring for other mosque developments in and around Birmingham, and patrons were witnessed to arrive and leave in an efficient and orderly manner with little conversation between them. Mosques by their very nature promote social responsibility within the community, and loud and unruly behaviour is therefore rare. As such, external noise generated by member movements is expected to be low. Whilst night time prayer times may be as early as 04:30, night time prayers attract very low patron numbers and so the potential for noise impact through conversation is even lower.

For the purpose of accurate breakout assessment, noise data from an existing mosque service has been used within the acoustic model. The noise data was taken during a Friday afternoon prayer service in a room with approximately 50 members and re-enforced speech through a modest pa system. The members engaged in conversation before and after the service. The greatest noise levels were measured just before and just after the service, when members were engaged in conversation. The data has been adjusted to reflect the increased member numbers associated with this development, totalling 300 in the main hall.
The following standard building components have been used within the model :

Component	Material Makeup	Sound Insulation
Walls	225mm Brick	55 dB (-2, -5)
Roof	Kingspan With Roof Lights	29 dB (-1, -4)
Glazing	Generic 4mm - 16mm - 4mm Double Glazing	

Table 5 : Building component table

7.1 Service Noise

From experience with other Mosques, Blue Acoustics understands that the highest noise levels are generated by the human voice in the form of multiple patron conversations. Before the service starts, patrons enter the hall and engage in conversation. The noise level rises as patron numbers increase, typically peaking just before the service starts. The service traditionally features a single Imam who gives the service, often with moderate sound re-enforcement through a PA system. By night, attendance numbers drops considerably and so the use of amplification is often unnecessary.

The following table details the SonArchitect breakout noise data for the main prayer hall based on the adopted measurement data. Reverberant noise data for both the pre-service conversational noise (150 male members) and the amplified service noise alone were used within the model to indicate the potential for noise disturbance from both a capacity service, and an amplified early morning service without significant conversation, at the nearby receptors.

Main Hall Pre & Post Service Noise : 150 members in simultaneous conversation @ 75 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-8**	**Angular Correction**	**LpA @ NSR**
4 @ 12m	NE	50 dB	-30	NA	20 dB
5 @ 15m	SE	50 dB	-31	NA	19 dB

Table 6 : Main hall breakout noise for capacity service (Friday Prayers)

Female Space Pre & Post Service Noise : 50 members in simultaneous conversation @ 70 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-8**	**Angular Correction**	**LpA @ NSR**
4 @ 12m	NE	45 dB	-30	NA	15 dB

Table 7 : Female Prayer Space breakout noise for capacity service (Friday Prayers)

Education Space Pre & Post Service Noise : 50 members in simultaneous conversation @ 70 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-8**	**Angular Correction**	**LpA @ NSR**
5 @ 15m	SE	45 dB	-31	NA	14 dB

Table 8 : Female Prayer Space breakout noise for capacity service (Friday Prayers)

Main Hall Service Noise : 1 moderately amplified voice @ 60 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-6**	**Angular Correction**	**LpA @ NSR**
4 @ 12m	NE	37 dB	-30	NA	7 dB
5 @ 15m	SE	37 dB	-31	NA	6 dB

Table 9 : Main hall breakout noise for amplified voice only

Female Space Service Noise : 1 moderately amplified voice @ 60 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-8**	**Angular Correction**	**LpA @ NSR**
4 @ 12m	NE	37 dB	-30	NA	7 dB

Table 10 : Female Prayer Space breakout noise for amplified voice only

Education Space Service Noise : 1 moderately amplified voice @ 60 dBA					
NSR	**Facade**	**SWL**	**Lw - 20log(r)-8**	**Angular Correction**	**LpA @ NSR**
5 @ 15m	NE	37 dB	-31	NA	6 dB

Table 11 : Education Space breakout noise for amplified voice only

The following table calculates the combined breakout noise for each state at each NSR.

NSR		LpA @ NSR
4	Main Hall Capacity Service - Members Voices	20 dB
	Female Prayer Space Capacity Service - Members Voices	15 dB
	TOTAL	**21 dB**
5	Main Hall Capacity Service - Members Voices	19 dB
	Education Space Capacity Service - Members Voices	14 dB
	TOTAL	**20 dB**
4	Main Hall + Female Prayer Space - Amplified Voice Only	**10 dB**
5	Main Hall + Education Space - Amplified Voice Only	**9 dB**

Table 12 : Combined service breakout noise levels

	LpA @ NSRs	LA90	Assessment Level
Daytime Capacity Prayers (Friday Afternoon)	20 dB	45 dB	-25 dB
Night Time Prayers (With Amplified Service)	10 dB	40 dB	-30 dB

Table 13 : Service breakout noise assessment table

Calculations indicate that service breakout noise will register 25 to 30dB below background noise for day and night time services respectively, at the surrounding receptors for the given building design and worst case scenarios adopted.

7.2 Patron Noise

Patron noise may be of concern should members congregate outside. The main entrance to the building from Duke Street. Any congregation here or in either of the car parks may result in multiple conversations and hence a noise impact at the nearby receptors 1, 2 and 4. It is unlikely that NSR 3 ill be significantly impacted as the side of the building has no windows, reducing the possibility of line of sight to the offending noise source.

The following table attempts to predict this impact, assuming different patron numbers engaged in simultaneous conversation outside the entrance. A distance correction of -23dB has been applied based on the formula 20log (15m) to each NSR (1, 2, 4).

The table above indicates that large daytime congregations outside the building (most likely during Friday afternoon prayers) would generate a relatively low noise impact at the nearby receptors.

	LpA @ 1m	LpA @ 15m	Daytime LA90	Night Time LA90
1 x voice	57 dB	34 dB	45 dB	40 dB After 04:30
2 x voices	60 dB	37 dB		
5 x voices	64 dB	41 dB		
10 x voices	67 dB	44 dB		
20 x voices	70 dB	47 dB		
40 x voices	73 dB	50 dB		

Table 14 : Patron noise prediction table

The LA90 by night remains relatively high after 04:30, the earliest prayer time, and is unlikely to be exceeded by singular external conversations, considering that patron numbers are very low at night. Despite this, It is advised that members are encouraged to park closer to the mosque at night. This would ensure that any conversations would be at distance from the nearby receptors.

7.3 Vehicle Noise

To approximate the impact at nearby residences, a distance of approximately 10m has been assumed between the nearby receptors and the centre of either car park. Vehicle noise data has been taken from measurement data for a petrol powered Vauxhall Zafira. This vehicle was chosen to approximate the size and noise of the average car, with diesel vehicles expected to be louder, and electric vehicles expected to be quieter.

Measured noise for a Vauxhall Zafira petrol car		Daytime LA90	Night Time LA90
Vehicle noise @ 2m (10mph)	53 dBA	45 dB	40 dB After 04:30
Distance Correction 20log (2/10)	-14 dB		
Vehicle noise at nearest residential facade	39 dBA		

Table 15 : Vehicle noise prediction table

Vehicle noise is unlikely to be generate a significant adverse effect at the nearby receptors. However, members should be encouraged to arrived in an orderly manner and park close to the mosque if possible, with music turned down to minimise the chance of complaint from the neighbours. 10% of attendees are expected during night time periods which equates to around 30 members. With 30% of these expected to arrive by car, night time vehicle movements may be approximated to 10. This number would decrease with car sharing.

7.4 Plant Noise

There are currently no specified plant units associated with this site. When siting external plant units, care should be taken to chose a suitable position at the design stage, to minimise the risk of an adverse noise impact at the nearby receptors. All plant units should ideally be sited where they have no line of sight to the nearby receptors. Roof positions are ideal as they present the opportunity to screen the area with suitable walling.

8 Conclusions

Mosques by their very nature promote social responsibility within the community, and loud and unruly behaviour is therefore rare. As such, external noise generated by member movements is expected to be low.

Whilst night time prayer times may be as early as 04:30, night time prayers attract very low patron numbers and so the potential for noise impact through conversation is even lower.

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Mosques generally serve the local community and as such, a large proportion of worshippers will reside locally and are therefore expected to arrive by foot. Vehicle noise is unlikely to be generate a significant adverse effect at the nearby receptors. However, members should be encouraged to arrived in an orderly manner and park close to the mosque if possible, with music turned down to minimise the chance of complaint from the neighbours.

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Calculations indicate that service breakout noise will register 25 to 30dB below background noise for day and night time services respectively, at the surrounding receptors for the given building design and worst case scenarios adopted.

9 Uncertainty

This report relies on ambient noise level measurements. Ambient noise at a given location can vary substantially from day to day with variations in road traffic and other sources, and propagation of noise can be strongly affected by weather and atmospheric conditions. We believe our assessment to be representative of typical conditions, but only very long-term noise monitoring could establish the range of variation in these conditions.

BS4142:2014 section 10.0 states that uncertainty in the calculation of sound levels during the assessment process can arise from both the measured values and calculation methods.

To ensure the accuracy of the assessment consideration has been taken for the level of uncertainty in the measured data and associated calculations in the proposed methodology used to undertake the assessment. Where the level of uncertainty could affect the conclusion, reasonably practicable steps have been taken to minimise the level of uncertainty. Where the level of uncertainty is excessive, additional measurements and site visits have been conducted to increase the confidence in the results. In all instances the following steps have been taken to address the uncertainty;

1 Measured Values; A detailed understanding of the source of noise under investigation has been conducted including consideration for the complexity, variability over time and location, the character and effect of the residual sound level in comparison with the source, the measurement location, quantity of measurements and distance/intervening ground conditions, measurement time interval and the range of times measurement were taken, the suitability of weather conditions, the level of rounding and the classification of the instrumentation used to conduct the assessment.

2 Calculation Methods; Consideration has been taken for the accuracy of the measured sound levels, the character of the sound emissions in question, the calculation method and the simplification of the real situation to “fit” the modelled situation. Recognised standards and validated methods and processes have been used to establish accurate values during the calculation process.

For the avoidance of doubt, the level of uncertainty will not be quantified. If appropriate consideration is taken for points 1 and 2 during the collection of data and analysis thereof, then the influence of uncertainty in the final result is at its lowest practical value.

10 Disclaimer

Blue Acoustics takes no responsibility for any physical implementation & strongly suggests the client seek structural advice before carrying out the proposed work. Recommendations in this report are for acoustics purposes only, and it is the responsibility of the Project Manager or Architect to ensure that all other requirements are met including (but not limited to) structure, fire and Building Controls.

The calculations within this report are based upon sourced and or calculated data. It should be understood that complex flanking transmission paths through the structure can lead to excess vibration transmission and that mitigation measures within the rooms may have to be 'tweaked' after construction. Also, build quality can greatly affect partition performance and Blue Acoustics takes no responsibility for the integrity of any physical work carried out.

The opinions and interpretations presented in this report represent our best technical interpretation of the data made available to us. However, due to uncertainty inherent in the estimation of all parameters, we cannot, and do not guarantee the accuracy or correctness of any interpretation and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. The findings and opinions expressed are relevant to the dates of the site works and should not be relied upon to represent conditions at substantially later dates. If additional information becomes available which may affect our comments, conclusions or recommendations, the author reserves the right to review the information, reassess any new potential concerns and modify our opinions accordingly.

Except for the provision of professional services on a fee basis, Blue Acoustics does not have a commercial arrangement with any person or company involved in the interests that are the subject of this report. Blue Acoustics cannot accept any liability for the correctness, applicability or validity for the information they have provided, or indeed for any consequential costs or losses in this regard. Our efforts have been made on a "best endeavours" basis and no responsibility or liability is warranted or accepted by Blue Acoustics.

Appendix 1 – Glossary of Terms

'A' weighting (dB(A)): A frequency dependent correction which weights sound to correlate with the sensitivity of the human ear to sounds of different frequencies.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

Ambient Noise: A measure of the typical noise (excluding any unusual events) present at a site. This is usually described in terms of $L_{Aeq,T}$.

Anonymous noise: Noise that cannot be attributed to a single (specific source). For example noise from cars on a road would be considered anonymous whereas a noisy ventilation unit would not.

Attenuation: A reduction in the intensity of a sound signal.

Audible: Sound that can be heard or is perceptible by the human ear.

Background Noise: A measure of the underlying noise (excluding any unusual events) which is present at a site before a new noise source is introduced. This is usually described in terms of the L_{A90} level: the sound pressure level exceeded for 90% of the time.

C_{tr} Spectrum adaptation term: A correction added to a sound insulation quantity (such as R_W) to take account of a specific (traffic noise) spectra. See BS EN ISO 717-1:1997. For example the difference between internal and external traffic noise levels in dB(A) is calculated using $R_W + C_{tr}$ (equivalent to $R_{traffic}$)

Clearly audible: There is no acoustic definition for clearly audible and as such a noise source may be deemed to be clearly audible if it is both easily identifiable and deemed likely to adversely affect the amenity of residents of any (proposed) development.

$D_{ne,W}$ Weighted element normalized level difference: A single-number quantity which characterizes the airborne sound insulation of a small building element. See BS EN ISO 717-1: 1997

$D_{nT,W}$ Standardised level difference: A single-number quantity which characterizes the airborne sound insulation between rooms. See BS EN ISO 717-1: 1997

Decibel (dB): A unit used for many acoustic quantities to indicate the level of sound with respect to a reference level.

EPU: Environmental Protection Unit, a service within the Environmental Health section of the Regulatory Services Department of Birmingham City Council.

Façade measurement: Noise measurements made outside an external wall of a structure (usually 1 metre from the wall).

Free Field: 1. A free sound field is a field in a homogeneous, isotropic medium free from boundaries. In practice it is a field in which the effects of the boundaries are negligible over the region of interest. The actual pressure impinging on an object (e.g., a microphone) placed in an otherwise free sound field will differ from the pressure which would exist at the point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.
2. An environment in which there are no reflective surfaces within the frequency region of interest.
3. A region in which no significant reflections of sound occur.
4. [BS4142] suggests that free-field environmental noise measurements need to be made at least 3.5m from any reflecting structure.

Habitable room: A room used for sleeping or recreation / relaxation.

Hertz (Hz): unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

Inaudible: Sound that cannot be heard or is imperceptible to the human ear.

Industrial-type noise sources: Noise sources that are industrial in character. For example noise from plant and machinery, materials handling operations, or manoeuvring of heavy vehicles.

Institute of Acoustics: A professional body representing persons at all levels working in the field of acoustics. http://www.ioa.org.uk/

$L_{A90,T}$: Sound pressure level exceeded for 90% of the measurement period “T” or ‘background level’.

$L_{Aeq,T}$: Equivalent continuous sound pressure level measured over the time period “T”

L_{Amax}: The maximum RMS A weighted sound pressure level

Mixed Use: Premises or development which will include both residential and non-residential uses

Noise: Unwanted sound.

Noise with a specific character: Noise has a specific character if it contains features such as a distinguishable, descrete and continuous tone, is irregular enough to attract attention, or has strong low frequency content .

Noise Nuisance: A legal term used to describe noise at a level that is disturbing as perceived by a reasonable person. The meaning of nuisance is defined by precedent in common law.

Outdoor Amenity Area: An outdoor area adjacent to a residential building which is designed and intended primarily for the leisure and recreation of the occupants of the dwelling. This will include gardens, landscaped areas, balconies.

R, Sound reduction index: A quantity which characterizes the airborne sound insulation of a material or building element in a stated frequency band. See BS EN ISO 140-3:1995

R_W, Weighted sound reduction index: A single-number quantity which characterizes the airborne sound insulation of a material or building element measured in the laboratory. See BS EN ISO 717-1: 1997

Rating Level: The noise level of an industrial noise source which includes an adjustment for the character of the noise. Used in BS4142.

Residual Noise : The ambient noise remaining at a given position in a given situation when the specific noise level is suppressed to a degree such that it does not contribute to the ambient noise.

Sound insulation: A quantity which is used to characterize the reduction in sound pressure level across an element or partition. (See R, R_W, $D_{nT,W}$, $D_{ne,W}$, C_{tr})

Specific noise source : The noise source under investigation for assessing the likelihood of complaints.

Steady State Noise: Noise that gives fluctuations over a range of not more than 5 dB on a sound level meter set to frequency weighting A and time weighting S. [BS 4142:2014]

Structure borne noise: Noise that propagates through a structure, for example through a building.

Appendix 2 Insulation Data Sheets
Glazing

Sound insulation data for standard products

Glass	Sound reduction index (dB)									
	Octaveband Centre Frequency (Hz)						$R_w(C;C_{tr})$	R_w	R_w+C	R_w+C_{tr}
	125	250	500	1000	2000	4000				
Single glazing										
4 mm Float Glass	17	20	26	32	33	26	29 (-2; -3)	29	27	26
6 mm Float Glass	18	23	30	35	27	32	31 (-2; -3)	31	29	28
8 mm Float Glass	20	24	29	34	29	37	32 (-2; -3)	32	30	29
10 mm Float Glass	23	26	32	31	32	39	33 (-2; -3)	33	31	30
12 mm Float Glass	27	29	31	32	38	47	34 (0; -2)	34	34	32
6 mm Laminated Glass	20	23	29	34	32	38	32 (-1; -3)	32	31	29
8 mm Laminated Glass	20	25	32	35	34	42	33 (-1; -3)	33	32	30
10 mm Laminated Glass	24	26	33	33	35	44	34 (-1; -3)	34	33	31
12 mm Laminated Glass	24	27	33	32	37	46	35 (-1; -3)	35	34	32
Insulating glass units										
4 mm / (6 - 16 mm) / 4 mm	21	17	25	35	37	31	29 (-1; -4)	29	28	25
6 mm / (6 - 16 mm) / 4 mm	21	20	26	38	37	39	32 (-2; -4)	32	30	28
6 mm / (6 - 16 mm) / 6 mm	20	18	28	38	34	38	31 (-1; -4)	31	30	27
8 mm / (6 - 16 mm) / 4 mm	22	21	28	38	40	47	33 (-1; -4)	33	32	29
8 mm / (6 - 16 mm) / 6 mm	20	21	33	40	36	48	35 (-2; -6)	35	33	29
10 mm / (6 - 16 mm) / 4 mm	24	21	32	37	42	43	35 (-2; -5)	35	33	30
10 mm / (6 - 16 mm) / 6 mm	24	24	32	37	37	44	35 (-1; -3)	35	34	32
6 mm / (6 - 16 mm) / 6 mm Laminated	20	19	30	39	37	46	33 (-2; -5)	33	31	28
6 mm / (6 - 16 mm) / 10 mm Laminated	24	25	33	39	40	49	37 (-1; -5)	37	36	32

The above are generally accepted values for generic products taken from EN 12758. They are conservative values that can be used in the absence of measured data.
Data for laminated glass is based on pvb interlayers (excluding acoustic pvb interlayers). Glass thickness for laminated glass excludes interlayer thickness.
Data can be adopted for air or argon gas-filled cavities

R_w = Weighted sound reduction. This scale allows for the response of the human ear and could be used for determining a suitable product to reduce noise such as voices.
C = An adjustment to the R_w scale that could be used for selecting a product to reduce noise from music, radio, tv, high speed traffic and other medium to high frequencies.
C_{tr} = An adjustment to the R_w scale that could be used for selecting a product to reduce noise from urban road traffic, disco music and other noises with a large component of low frequencies.

215mm Brick

Sound Insulation Prediction (v9.0.20)

Margin of error is generally within Rw ±3 dB
- Key No. 5513

Job Name:
Job No.: Initials:sonic
Date:25/01/2022
File Name:

Notes:

Rw	55 dB
C	-2 dB
Ctr	-5 dB

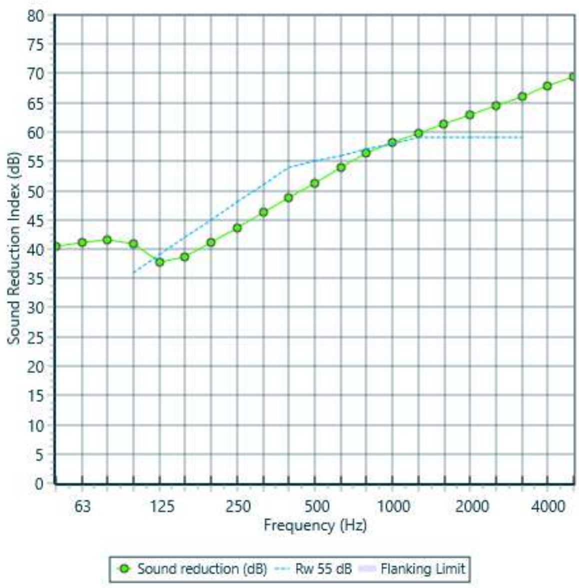
Panel Size = 2.7 m x 4.0 m

Partition surface mass = 344 kg/m²

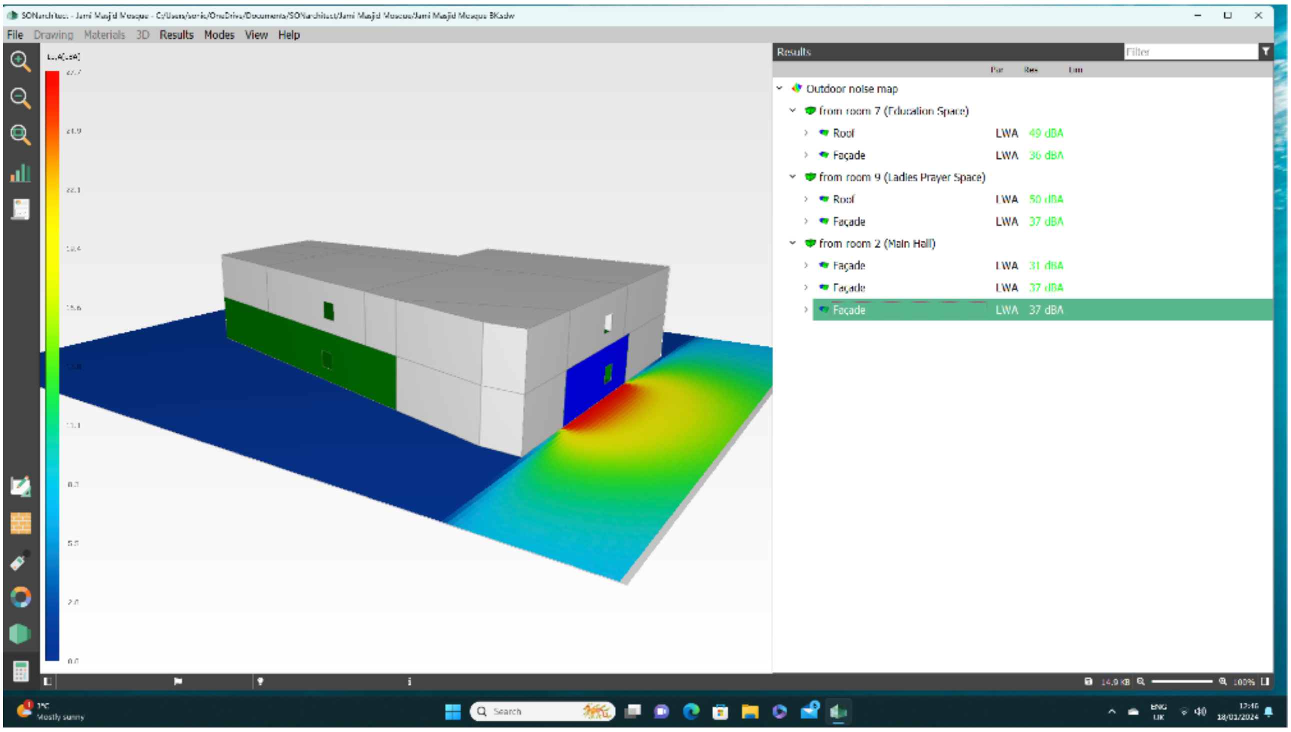
System description

Panel 1 : 1 x 215 mm Brick

freq.(Hz)	R(dB)	R(dB)
50	41	
63	41	41
80	41	
100	41	
125	38	39
160	39	
200	41	
250	44	43
315	46	
400	49	
500	51	51
630	54	
800	56	
1000	58	58
1250	60	
1600	61	
2000	63	63
2500	65	
3150	66	
4000	68	68
5000	69	



Appendix 3 SonArchitect Screen Prints



Appendix 4 Measurement Data Sheets

P1 Data

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
10/11/2023 11:00:02	10/11/2023 11:15:00	00:14:58	51.4	48.4	67.2
10/11/2023 11:15:00	10/11/2023 11:30:00	00:15:00	51.7	47.3	67.9
10/11/2023 11:30:00	10/11/2023 11:45:00	00:15:00	52.4	48.0	70.7
10/11/2023 11:45:00	10/11/2023 12:00:00	00:15:00	58.6	48.9	86.0
10/11/2023 12:00:00	10/11/2023 12:15:00	00:15:00	54.6	48.7	70.9
10/11/2023 12:15:00	10/11/2023 12:30:00	00:15:00	54.9	50.4	68.7
10/11/2023 12:30:00	10/11/2023 12:45:00	00:15:00	56.6	51.8	73.1
10/11/2023 12:45:00	10/11/2023 13:00:00	00:15:00	58.1	52.8	70.6
10/11/2023 13:00:00	10/11/2023 13:15:00	00:15:00	57.0	50.3	76.1
10/11/2023 13:15:00	10/11/2023 13:30:00	00:15:00	57.0	50.2	72.7
10/11/2023 13:30:00	10/11/2023 13:45:00	00:15:00	57.3	51.9	73.8
10/11/2023 13:45:00	10/11/2023 14:00:00	00:15:00	52.0	48.8	67.9
10/11/2023 14:00:00	10/11/2023 14:15:00	00:15:00	53.1	49.2	71.1
10/11/2023 14:15:00	10/11/2023 14:30:00	00:15:00	53.4	49.3	67.8
10/11/2023 14:30:00	10/11/2023 14:45:00	00:15:00	52.8	49.7	67.5
10/11/2023 14:45:00	10/11/2023 15:00:00	00:15:00	54.1	49.7	67.1
10/11/2023 15:00:00	10/11/2023 15:15:00	00:15:00	52.3	49.5	64.4
10/11/2023 15:15:00	10/11/2023 15:30:00	00:15:00	53.7	49.0	71.1
10/11/2023 15:30:00	10/11/2023 15:45:00	00:15:00	54.1	50.1	70.7

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
10/11/2023 15:45:00	10/11/2023 16:00:00	00:15:00	54.9	50.3	67.3
10/11/2023 16:00:00	10/11/2023 16:15:00	00:15:00	53.5	49.9	68.1
10/11/2023 16:15:00	10/11/2023 16:30:00	00:15:00	55.3	50.3	74.7
10/11/2023 16:30:00	10/11/2023 16:45:00	00:15:00	54.3	51.0	72.8
10/11/2023 16:45:00	10/11/2023 17:00:00	00:15:00	67.2	50.9	95.6
10/11/2023 17:00:00	10/11/2023 17:15:00	00:15:00	56.5	52.0	76.8
10/11/2023 17:15:00	10/11/2023 17:30:00	00:15:00	53.7	51.3	75.6
10/11/2023 17:30:00	10/11/2023 17:45:00	00:15:00	53.0	49.6	71.6
10/11/2023 17:45:00	10/11/2023 18:00:00	00:15:00	54.7	49.6	78.8
10/11/2023 18:00:00	10/11/2023 18:15:00	00:15:00	52.6	50.5	63.5
10/11/2023 18:15:00	10/11/2023 18:30:00	00:15:00	53.9	49.9	72.4
10/11/2023 18:30:00	10/11/2023 18:45:00	00:15:00	53.2	49.2	71.5
10/11/2023 18:45:00	10/11/2023 19:00:00	00:15:00	56.5	51.8	74.9
10/11/2023 19:00:00	10/11/2023 19:15:00	00:15:00	58.2	49.4	78.4
10/11/2023 19:15:00	10/11/2023 19:30:00	00:15:00	52.6	48.7	68.3
10/11/2023 19:30:00	10/11/2023 19:45:00	00:15:00	53.0	49.3	71.0
10/11/2023 19:45:00	10/11/2023 20:00:00	00:15:00	52.8	49.7	67.1
10/11/2023 20:00:00	10/11/2023 20:15:00	00:15:00	57.6	49.2	90.7
10/11/2023 20:15:00	10/11/2023 20:30:00	00:15:00	54.1	48.8	83.6
10/11/2023 20:30:00	10/11/2023 20:45:00	00:15:00	54.0	48.2	76.2

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
10/11/2023 20:45:00	10/11/2023 21:00:00	00:15:00	52.6	48.2	69.7
10/11/2023 21:00:00	10/11/2023 21:15:00	00:15:00	54.4	48.7	74.1
10/11/2023 21:15:00	10/11/2023 21:30:00	00:15:00	53.2	48.9	69.0
10/11/2023 21:30:00	10/11/2023 21:45:00	00:15:00	50.9	49.1	61.1
10/11/2023 21:45:00	10/11/2023 22:00:00	00:15:00	51.2	49.2	70.5
10/11/2023 22:00:00	10/11/2023 22:15:00	00:15:00	53.2	49.6	73.9
10/11/2023 22:15:00	10/11/2023 22:30:00	00:15:00	51.9	49.2	70.6
10/11/2023 22:30:00	10/11/2023 22:45:00	00:15:00	50.2	47.6	67.6
10/11/2023 22:45:00	10/11/2023 23:00:00	00:15:00	50.9	47.5	68.4
10/11/2023 23:00:00	10/11/2023 23:15:00	00:15:00	52.0	47.7	71.4
10/11/2023 23:15:00	10/11/2023 23:30:00	00:15:00	50.6	46.8	68.5
10/11/2023 23:30:00	10/11/2023 23:45:00	00:15:00	49.3	47.0	63.5
10/11/2023 23:45:00	11/11/2023 00:00:00	00:15:00	51.2	46.6	72.3
11/11/2023 00:00:00	11/11/2023 00:15:00	00:15:00	50.2	46.6	72.0
11/11/2023 00:15:00	11/11/2023 00:30:00	00:15:00	48.3	46.0	56.8
11/11/2023 00:30:00	11/11/2023 00:45:00	00:15:00	51.4	45.3	75.6
11/11/2023 00:45:00	11/11/2023 01:00:00	00:15:00	50.3	45.2	70.8
11/11/2023 01:00:00	11/11/2023 01:15:00	00:15:00	48.4	45.6	59.6
11/11/2023 01:15:00	11/11/2023 01:30:00	00:15:00	46.9	44.8	57.9
11/11/2023 01:30:00	11/11/2023 01:45:00	00:15:00	46.6	43.4	60.8

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
11/11/2023 01:45:00	11/11/2023 02:00:00	00:15:00	46.7	43.7	59.0
11/11/2023 02:00:00	11/11/2023 02:15:00	00:15:00	47.3	43.7	70.4
11/11/2023 02:15:00	11/11/2023 02:30:00	00:15:00	45.8	43.8	54.9
11/11/2023 02:30:00	11/11/2023 02:45:00	00:15:00	49.0	45.1	59.0
11/11/2023 02:45:00	11/11/2023 03:00:00	00:15:00	50.0	43.6	72.2
11/11/2023 03:00:00	11/11/2023 03:15:00	00:15:00	51.7	45.0	65.1
11/11/2023 03:15:00	11/11/2023 03:30:00	00:15:00	55.2	47.1	62.7
11/11/2023 03:30:00	11/11/2023 03:45:00	00:15:00	46.1	42.3	55.8
11/11/2023 03:45:00	11/11/2023 04:00:00	00:15:00	48.9	44.5	67.5
11/11/2023 04:00:00	11/11/2023 04:15:00	00:15:00	47.3	44.0	56.1
11/11/2023 04:15:00	11/11/2023 04:30:00	00:15:00	48.2	43.5	68.9
11/11/2023 04:30:00	11/11/2023 04:45:00	00:15:00	50.0	44.6	72.4
11/11/2023 04:45:00	11/11/2023 05:00:00	00:15:00	48.5	45.4	56.5
11/11/2023 05:00:00	11/11/2023 05:15:00	00:15:00	48.3	46.0	58.5
11/11/2023 05:15:00	11/11/2023 05:30:00	00:15:00	48.8	46.1	58.4
11/11/2023 05:30:00	11/11/2023 05:45:00	00:15:00	50.4	47.5	60.7
11/11/2023 05:45:00	11/11/2023 06:00:00	00:15:00	52.1	48.1	79.2
11/11/2023 06:00:00	11/11/2023 06:15:00	00:15:00	49.7	47.6	56.9
11/11/2023 06:15:00	11/11/2023 06:30:00	00:15:00	51.2	49.0	65.0
11/11/2023 06:30:00	11/11/2023 06:45:00	00:15:00	52.0	49.1	67.1

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
11/11/2023 06:45:00	11/11/2023 07:00:00	00:15:00	52.2	49.7	70.4
11/11/2023 07:00:00	11/11/2023 07:15:00	00:15:00	52.1	49.3	67.6
11/11/2023 07:15:00	11/11/2023 07:30:00	00:15:00	53.7	49.6	69.2
11/11/2023 07:30:00	11/11/2023 07:45:00	00:15:00	52.7	50.0	66.2
11/11/2023 07:45:00	11/11/2023 08:00:00	00:15:00	53.2	50.6	72.1
11/11/2023 08:00:00	11/11/2023 08:15:00	00:15:00	53.9	51.0	69.2
11/11/2023 08:15:00	11/11/2023 08:30:00	00:15:00	53.2	50.3	64.4
11/11/2023 08:30:00	11/11/2023 08:45:00	00:15:00	52.5	50.3	59.5
11/11/2023 08:45:00	11/11/2023 09:00:00	00:15:00	55.2	49.6	83.6
11/11/2023 09:00:00	11/11/2023 09:15:00	00:15:00	52.5	48.6	67.9
11/11/2023 09:15:00	11/11/2023 09:30:00	00:15:00	50.4	47.7	63.7
11/11/2023 09:30:00	11/11/2023 09:45:00	00:15:00	51.8	47.7	67.5
11/11/2023 09:45:00	11/11/2023 10:00:00	00:15:00	50.9	47.3	66.6
11/11/2023 10:00:00	11/11/2023 10:15:00	00:15:00	52.6	46.7	74.4
11/11/2023 10:15:00	11/11/2023 10:30:00	00:15:00	50.5	46.4	67.6
11/11/2023 10:30:00	11/11/2023 10:45:00	00:15:00	51.7	45.1	78.1
11/11/2023 10:45:00	11/11/2023 11:00:00	00:15:00	52.8	45.7	71.3
11/11/2023 11:00:00	11/11/2023 11:15:00	00:15:00	49.0	43.7	66.7
11/11/2023 11:15:00	11/11/2023 11:30:00	00:15:00	57.1	45.0	80.0
11/11/2023 11:30:00	11/11/2023 11:45:00	00:15:00	50.1	45.0	65.8

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
11/11/2023 11:45:00	11/11/2023 12:00:00	00:15:00	51.7	45.6	69.9
11/11/2023 12:00:00	11/11/2023 12:15:00	00:15:00	50.0	45.7	65.3
11/11/2023 12:15:00	11/11/2023 12:30:00	00:15:00	49.8	44.1	65.8
11/11/2023 12:30:00	11/11/2023 12:45:00	00:15:00	52.9	45.7	75.0
11/11/2023 12:45:00	11/11/2023 13:00:00	00:15:00	54.3	46.6	80.7
11/11/2023 13:00:00	11/11/2023 13:15:00	00:15:00	51.8	44.7	68.5
11/11/2023 13:15:00	11/11/2023 13:30:00	00:15:00	59.7	45.4	81.3
11/11/2023 13:30:00	11/11/2023 13:45:00	00:15:00	50.9	45.1	67.5
11/11/2023 13:45:00	11/11/2023 14:00:00	00:15:00	51.7	43.9	69.3
11/11/2023 14:00:00	11/11/2023 14:15:00	00:15:00	49.4	42.9	66.9
11/11/2023 14:15:00	11/11/2023 14:30:00	00:15:00	52.6	42.2	83.6
11/11/2023 14:30:00	11/11/2023 14:45:00	00:15:00	50.6	39.8	76.2
11/11/2023 14:45:00	11/11/2023 15:00:00	00:15:00	52.9	42.3	71.8
11/11/2023 15:00:00	11/11/2023 15:15:00	00:15:00	50.7	40.8	68.3
11/11/2023 15:15:00	11/11/2023 15:30:00	00:15:00	49.9	43.8	71.0
11/11/2023 15:30:00	11/11/2023 15:45:00	00:15:00	49.5	42.8	66.1
11/11/2023 15:45:00	11/11/2023 16:00:00	00:15:00	52.7	44.8	72.4
11/11/2023 16:00:00	11/11/2023 16:15:00	00:15:00	51.4	42.9	72.0
11/11/2023 16:15:00	11/11/2023 16:30:00	00:15:00	51.1	43.2	70.4
11/11/2023 16:30:00	11/11/2023 16:45:00	00:15:00	51.5	42.9	70.6

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
11/11/2023 16:45:00	11/11/2023 17:00:00	00:15:00	52.3	41.5	72.0
11/11/2023 17:00:00	11/11/2023 17:15:00	00:15:00	52.6	42.9	71.4
11/11/2023 17:15:00	11/11/2023 17:30:00	00:15:00	54.7	41.9	77.2
11/11/2023 17:30:00	11/11/2023 17:45:00	00:15:00	49.2	42.2	66.9
11/11/2023 17:45:00	11/11/2023 18:00:00	00:15:00	50.0	40.8	76.6
11/11/2023 18:00:00	11/11/2023 18:15:00	00:15:00	50.4	41.1	70.0
11/11/2023 18:15:00	11/11/2023 18:30:00	00:15:00	56.7	42.7	88.6
11/11/2023 18:30:00	11/11/2023 18:45:00	00:15:00	56.0	43.3	89.6
11/11/2023 18:45:00	11/11/2023 19:00:00	00:15:00	52.2	42.8	73.8
11/11/2023 19:00:00	11/11/2023 19:15:00	00:15:00	54.6	45.2	80.6
11/11/2023 19:15:00	11/11/2023 19:30:00	00:15:00	53.1	45.2	81.9
11/11/2023 19:30:00	11/11/2023 19:45:00	00:15:00	72.6	45.9	99.1
11/11/2023 19:45:00	11/11/2023 20:00:00	00:15:00	54.0	46.3	88.9
11/11/2023 20:00:00	11/11/2023 20:15:00	00:15:00	57.1	46.0	87.6
11/11/2023 20:15:00	11/11/2023 20:30:00	00:15:00	49.8	44.9	73.3
11/11/2023 20:30:00	11/11/2023 20:45:00	00:15:00	49.2	45.0	62.8
11/11/2023 20:45:00	11/11/2023 21:00:00	00:15:00	54.7	47.6	89.2
11/11/2023 21:00:00	11/11/2023 21:15:00	00:15:00	52.4	47.1	78.0
11/11/2023 21:15:00	11/11/2023 21:30:00	00:15:00	60.0	47.7	86.0
11/11/2023 21:30:00	11/11/2023 21:45:00	00:15:00	52.1	46.7	70.5

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
11/11/2023 21:45:00	11/11/2023 22:00:00	00:15:00	50.9	46.6	70.7
11/11/2023 22:00:00	11/11/2023 22:15:00	00:15:00	55.9	47.0	88.3
11/11/2023 22:15:00	11/11/2023 22:30:00	00:15:00	51.6	47.2	72.6
11/11/2023 22:30:00	11/11/2023 22:45:00	00:15:00	49.1	46.2	70.6
11/11/2023 22:45:00	11/11/2023 23:00:00	00:15:00	47.4	45.1	70.9
11/11/2023 23:00:00	11/11/2023 23:15:00	00:15:00	51.8	44.7	74.8
11/11/2023 23:15:00	11/11/2023 23:30:00	00:15:00	50.5	45.7	72.9
11/11/2023 23:30:00	11/11/2023 23:45:00	00:15:00	50.5	45.6	69.2
11/11/2023 23:45:00	12/11/2023 00:00:00	00:15:00	51.6	45.5	76.6
12/11/2023 00:00:00	12/11/2023 00:15:00	00:15:00	47.0	45.1	57.4
12/11/2023 00:15:00	12/11/2023 00:30:00	00:15:00	48.8	45.0	66.7
12/11/2023 00:30:00	12/11/2023 00:45:00	00:15:00	46.7	43.7	61.6
12/11/2023 00:45:00	12/11/2023 01:00:00	00:15:00	48.8	44.3	71.7
12/11/2023 01:00:00	12/11/2023 01:15:00	00:15:00	48.6	44.0	65.4
12/11/2023 01:15:00	12/11/2023 01:30:00	00:15:00	45.6	43.6	59.4
12/11/2023 01:30:00	12/11/2023 01:45:00	00:15:00	47.5	44.3	63.2
12/11/2023 01:45:00	12/11/2023 02:00:00	00:15:00	47.0	42.9	66.8
12/11/2023 02:00:00	12/11/2023 02:15:00	00:15:00	45.8	42.8	65.3
12/11/2023 02:15:00	12/11/2023 02:30:00	00:15:00	45.3	42.0	59.1
12/11/2023 02:30:00	12/11/2023 02:45:00	00:15:00	51.3	41.6	71.9

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
12/11/2023 02:45:00	12/11/2023 03:00:00	00:15:00	47.8	41.4	66.1
12/11/2023 03:00:00	12/11/2023 03:15:00	00:15:00	44.9	41.2	60.8
12/11/2023 03:15:00	12/11/2023 03:30:00	00:15:00	43.6	40.9	55.4
12/11/2023 03:30:00	12/11/2023 03:45:00	00:15:00	42.9	40.9	59.1
12/11/2023 03:45:00	12/11/2023 04:00:00	00:15:00	43.7	41.7	55.2
12/11/2023 04:00:00	12/11/2023 04:15:00	00:15:00	43.3	40.6	53.0
12/11/2023 04:15:00	12/11/2023 04:30:00	00:15:00	45.7	41.3	65.5
12/11/2023 04:30:00	12/11/2023 04:45:00	00:15:00	44.0	40.3	64.4
12/11/2023 04:45:00	12/11/2023 05:00:00	00:15:00	44.7	39.5	66.2
12/11/2023 05:00:00	12/11/2023 05:15:00	00:15:00	43.4	39.9	59.9
12/11/2023 05:15:00	12/11/2023 05:30:00	00:15:00	44.6	41.8	57.3
12/11/2023 05:30:00	12/11/2023 05:45:00	00:15:00	45.1	43.2	60.4
12/11/2023 05:45:00	12/11/2023 06:00:00	00:15:00	45.6	43.5	53.9
12/11/2023 06:00:00	12/11/2023 06:15:00	00:15:00	45.9	44.1	54.5
12/11/2023 06:15:00	12/11/2023 06:30:00	00:15:00	47.1	44.9	63.1
12/11/2023 06:30:00	12/11/2023 06:45:00	00:15:00	47.3	44.5	65.2
12/11/2023 06:45:00	12/11/2023 07:00:00	00:15:00	56.9	43.7	90.2
12/11/2023 07:00:00	12/11/2023 07:15:00	00:15:00	44.8	43.2	54.5
12/11/2023 07:15:00	12/11/2023 07:30:00	00:15:00	48.8	41.7	66.3
12/11/2023 07:30:00	12/11/2023 07:45:00	00:15:00	48.3	43.0	67.4

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
12/11/2023 07:45:00	12/11/2023 08:00:00	00:15:00	45.4	43.8	55.9
12/11/2023 08:00:00	12/11/2023 08:15:00	00:15:00	46.9	44.7	58.9
12/11/2023 08:15:00	12/11/2023 08:30:00	00:15:00	50.0	45.9	77.3
12/11/2023 08:30:00	12/11/2023 08:45:00	00:15:00	48.7	46.5	57.2
12/11/2023 08:45:00	12/11/2023 09:00:00	00:15:00	53.0	49.8	64.9
12/11/2023 09:00:00	12/11/2023 09:15:00	00:15:00	56.0	52.3	70.0
12/11/2023 09:15:00	12/11/2023 09:30:00	00:15:00	57.5	55.3	70.3
12/11/2023 09:30:00	12/11/2023 09:45:00	00:15:00	55.0	50.8	80.9
12/11/2023 09:45:00	12/11/2023 10:00:00	00:15:00	51.3	49.0	64.5
12/11/2023 10:00:00	12/11/2023 10:15:00	00:15:00	51.4	47.7	66.0
12/11/2023 10:15:00	12/11/2023 10:30:00	00:15:00	49.4	45.7	65.8
12/11/2023 10:30:00	12/11/2023 10:45:00	00:15:00	52.1	47.3	72.8
12/11/2023 10:45:00	12/11/2023 11:00:00	00:15:00	50.5	47.8	65.4
12/11/2023 11:00:00	12/11/2023 11:15:00	00:15:00	50.5	48.0	66.1
12/11/2023 11:15:00	12/11/2023 11:30:00	00:15:00	51.9	47.7	67.9
12/11/2023 11:30:00	12/11/2023 11:45:00	00:15:00	52.1	47.5	71.3
12/11/2023 11:45:00	12/11/2023 12:00:00	00:15:00	51.5	47.3	64.6
12/11/2023 12:00:00	12/11/2023 12:15:00	00:15:00	53.4	48.4	72.2
12/11/2023 12:15:00	12/11/2023 12:30:00	00:15:00	53.1	48.6	69.3
12/11/2023 12:30:00	12/11/2023 12:45:00	00:15:00	51.7	48.4	66.1

Blue Acoustics NS500 - Jami Masjid Islamic Centre, 57 Dartmouth Street, B70 8BY

Start Time	End Time	Duration	Leq (LAeq Fast)	L90 (LAeq Fast)	Max (LAFMax)
12/11/2023 12:45:00	12/11/2023 13:00:00	00:15:00	55.4	48.6	75.1
12/11/2023 13:00:00	12/11/2023 13:00:01	00:00:01	55.9	55.9	56.4

Service Noise Measurement Data sheet

20-12-18

Cirrus Research plc

Measurement Summary Report

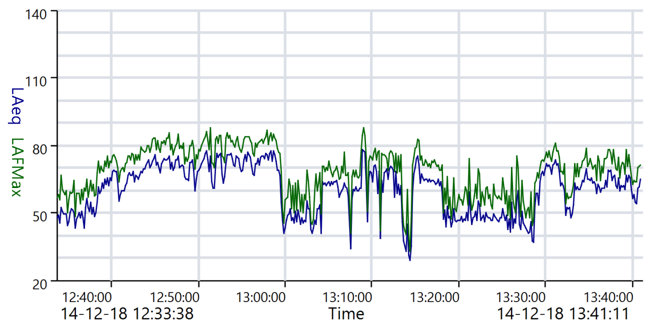
Name	Friday Prayers						
Time	14-12-18 12:33:38	**Person**		**Place**		**Project**	
Duration	01:07:33					Aston Mosque	
Instrument	G068016, CR:171B						

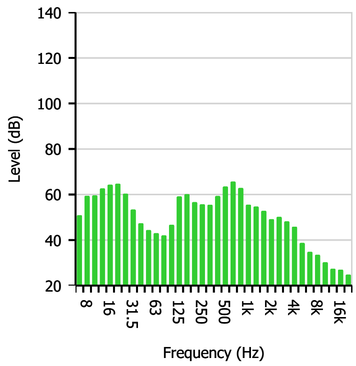
Calibration

Before	14-12-18 12:31	Offset	0.09 dB	**After**	14-12-18 13:47	Offset	-0.13 dB

Basic Values	
LAeq	68.3 dB
LAE	104.4 dB
LAFMax	87.8 dB

Statistical Levels (Ln)	
LAF1	79.4 dB
LAF5	75.3 dB
LAF10	72.4 dB
LAF50	57.9 dB
LAF90	41.0 dB
LAF95	37.4 dB
LAF99	29.8 dB





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