Noise Impact Assessment

Site Address: Muslim Community Centre, 4-5 Cowley Mill Road, Uxbridge, UB8 2QB

Client Name: Muslim Community Centre

Project Reference No: NP-013408

Authorisation and Version Control			
Revision	Date	Reported By	Checked By
01	17/11/2025	M. Welsh, MSc, MIOA	T. Watkin, MSc, MIOA

Amendment History	
Revision	Summary of Amendments
01	--

Disclaimer

This document has been prepared for the Client only and solely for the purposes expressly defined herein. NOVA Acoustics Ltd owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by NOVA Acoustics Ltd in signed writing, NOVA Acoustics Ltd hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. This report has been solely based on the specific design assumptions and criteria stated herein.

All works undertaken by NOVA Acoustics Ltd are carried out in accordance with NOVA Acoustics Ltd's terms and conditions found at www.novaacoustics.co.uk.

Contact Details

NOVA Acoustics Ltd,
Suite 13, Crown House,
94 Armley Road,
Leeds,
LS12 2EJ

0113 322 7977

www.novaacoustics.co.uk

technical@novaacoustics.co.uk

Delivering sustainable development by promoting good health and well-being through effective management of noise.

Contents

List of Figures

List of Tables

1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise assessment for the installation of a rear roof canopy ('the proposed development') at Muslim Community Centre, 4-5 Cowley Mill Road, Uxbridge, UB8 2QB ('the site'). The intended purpose of the rear shelter is to increase the usability of the community centre and improve the overall functionality of the venue.

The applicant is preparing a planning application ('the application') to be submitted to Hillingdon Council. This technical report has been prepared to support the planning application to be submitted to Hillingdon Council as per the request to the client in the pre-application communications for the project.

A noise survey has been undertaken to establish the prevailing sound levels at the proposed development. The findings have been subsequently used to assess the level of impact from the site. Measures required to mitigate noise from the proposed development have been assessed in accordance with the relevant performance standards, legislation, policy and guidance.

The scope of this noise assessment has been agreed with by the client and the Local Planning Authority and includes an assessment of the external patron noise emissions emanating from the proposed sheltered external area.

This noise assessment is necessarily technical in nature; therefore, a glossary of terms is included in Appendix A to assist the reader.

1.1 Standards, Legislation, Policy & Guidance

The following performance standards, legislation, policy and guidance have been considered to ensure good acoustic design in the assessment:

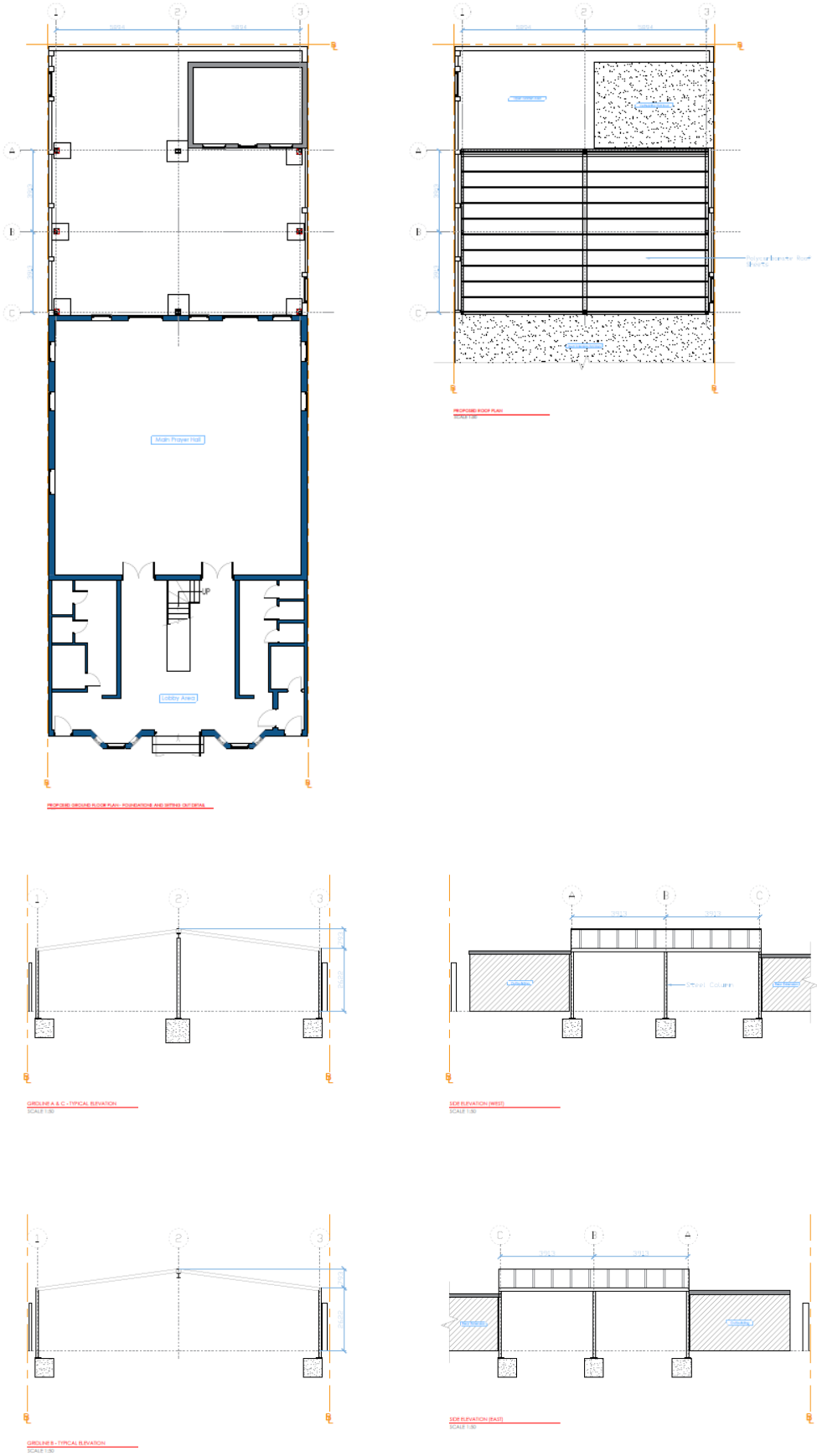
- Hillingdon Council's pre-application response (ref: 48098/PRC/2025/69)
- National Planning Policy Framework (NPPF, 2024)
- Noise Policy Statement for England (NPSE, 2010)
- British Standard BS8233:2014 – 'Guidance on sound insulation and noise reduction for buildings'
- British Standard BS4142:2014+A1:2019 – 'Methods on rating and assessing industrial and commercial sound'
- IEMA 'Guidelines on Noise Impact'

Further information on the legislation can be found in Appendix B.

1.2 Proposal Brief

The proposal is for the creation of a sheltered outdoor area that will support community activities, enhance usability of the space regardless of weather conditions and improve the overall functionality of the centre.

The proposed use is to serve as a breakaway space for children attending Islamic classes during weekend and as a waiting area for parents during pick up times. Additionally, the usage will provide sporting activity spaces for the children in the form of a table tennis table and pool table. Figure 1 shows the proposed development.



Drawing Ref No. 4-5CMR/UM/003 & 4-5CMR/UM/004 provided by the client.

Figure 1 – Proposed Development

NOVA Acoustics has been informed of the following:

- The external area will be restricted to operate between the hours of 09:00 to 17:00 hours, daily.
- The external area is to have a maximum capacity of 35no. parents/children in conjunction with the initial planning condition for the previous extension.
- No amplified music or speech is to be played in the external patron area.
- The southern gable end of the development is to remain open-ended; the proposed roof construction is to be made of polycarbonate roof sheets with the sides of the development remaining open to typical garden fencing.

1.3 Local Planning Authority

The LPA have provided the following response to the pre-application for the project with regards to noise.

"Policy D3 of the London Plan (2021) states Part D7) that the development proposals should deliver appropriate outlook, privacy and amenity.

Policy DMHB 11 of the Hillingdon Local Plan: Part Two – Development Management Policies (2020) seeks to ensure that the development proposals do not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space. The supporting text for this policy states that the Council will expect new development proposals to carefully consider layout and massing in order to ensure development does not result in an increased sense of enclosure and loss of outlook.

Policy D13 Agent of Change – Part C of the London Plan (2021) states that: New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.

Part D Development proposals should manage noise and other potential nuisances by:

1. *ensuring good design mitigates and minimise existing and potential nuisances generated by existing uses and activities located in the area.*
2. *Exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations.*
3. *Separating new noise sensitive development where possible with existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.*

E Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed.

The Agent of Change principle places the responsibility for mitigating the impact of noise and other nuisances on the new development. This means that where new development are proposed close to existing noise-generating uses, for example, applicants will need to design them in a more sensitive way to protect the new occupiers, such as residents, businesses, schools and religious institutions from noise and other impacts. This could include paying for soundproofing for an existing use, such as a music venue. The Agent of Change principle works both ways. For example, if a new noise-generating use is proposed close to existing noise, sensitive uses, such as residential development or business, the onus is on the

new use to ensure its building or activity is designed to protect existing users or residents from noise impacts.

Officers would raise concerns in terms of the sense of enclosure to the adjacent residential property at adjacent number 3 Cowley Mill Road. It is understood that this property is under the applicant's ownership but is in residential use. The relatively modest rear garden to this property is already compromised by the existing large single storey extension at the community centre. A further extension or canopy would exacerbate this sense of enclosure and would result in an unacceptable loss of light and outlook to the occupants of this property.

Concerns are also raised in terms of the possible noise and disturbance resulting from the use of this area. Currently the area is a yard, which can be used in connection with the use of the property as a community centre. On 14 December 1994 Planning Permission was granted for change of use of premises to a Muslim Community Centre subject to conditions. One of those conditions is Condition 4 – the number of people using the premises at any one time is limited to a maximum of 35 persons and cannot be used outside the following hours: Mondays to Thursdays 18:00 – 19:30; Fridays 3:00 – 14:00; Saturdays and Sundays 10:00 – 12:00.

However, with the provision of a roof, the hours of operation of the rear yard within these restricted hours are likely to be extended given that the area would be better protected from the weather. Should the applicant wish to pursue a formal planning application, it would be necessary to provide a robust noise assessment to demonstrate that the covered use of this area would not result in an unacceptable level of noise and disturbance to occupants of nearby residential properties."

1.4 Assessment Criteria

Noise from children playing is assessed using the guidance presented in the IEMA 'Guidelines for Environmental Noise Impact Assessment' document. For this type of assessment, the specific noise emissions from the proposed development are logarithmically summed with the existing ambient noise levels; and generally, the lower the increase in level, the lower the level of impact.

The criteria for the assessment and the associated NPPF/NPSE impact levels are outlined in the table below.

Assessment Results	IEMA Outcome	NPPF / NPSE Outcome
Greater than 10dB L_{Aeq} change in sound level at a noise sensitive receptor	Very Substantial	Significant Observed Adverse Effect Level (SOAEL)
Greater than 5dB L_{Aeq} change in sound level at a noise sensitive receptor	Moderate/Substantial	Significant Observed Adverse Effect Level (SOAEL)
A 3dB to 4.9dB L_{Aeq} change in sound level at a noise sensitive receptor	Slight/Moderate	Lowest Observed Adverse Effect Level (LOAEL)
Less than 3dB L_{Aeq} change in in sound level at a noise sensitive receptor	None/Not Significant	No Observed Adverse Effect Level (NOAEL)

Table 1 – IEMA Guidelines Effect Descriptors

2. Environmental Noise Survey

2.1 Measurement Methodology

Shown in the following table ae the measurement dates and particulars. Full details regarding the survey equipment register and weather conditions can be found in Appendix D.

Location	Survey Dates	Measurement Particulars
MP1	30/10/2025 – 03/11/2025	Microphone positioned protruding out of a 1st floor window overlooking the rear yard, approximately 1.5m from the 1st floor façade; the appropriate façade corrections have been applied.

Table 2 – Measurement Methodology

Outlined in the figure below are the site surroundings and measurement locations.

Figure 2 – Measurement Locations and Site Surroundings

2.2 Context & Subjective Impression

The area surrounding the site consists primarily of residential dwellings with commercial and industrial space located to the south and east of the proposed development. The noise profile was deemed 'typical' for this type of area and was dominated by road traffic noise emissions from Cowley Road and the surrounding local road network, which was supplemented by HGV delivery noise servicing the nearby industrial spaces, audible during lulls of road traffic.

The neighbouring residential dwellings at numbers 3 & 7 Cowley Mill Road are identified as the closest and most exposed noise sensitive receptors. It is assumed that should 'low impact' be achieved at these

closest and most exposed NSRs, then low impact can also be achieved at NSRs located further from the proposed development.

2.3 Environmental Noise Survey Results

Ambient Sound Level Results Summary – External Breakout Area

Presented in the following table is a summary of the ambient sound levels recorded during the proposed operational hours of the external area.

Measurement Period ('T')		MP1 $L_{Aeq,1hr}$ Range (dB)
Date & Day	Hours (hh:mm)	
30/10/2025: Thursday	11:00 – 17:00	49 – 51
31/10/2025: Friday	09:00 – 17:00	51 – 54
01/11/2025: Saturday	09:00 – 17:00	50 – 53
02/11/2025: Sunday	09:00 – 17:00	49 – 51
03/11/2025: Monday	09:00 – 13:00	52 – 54

Table 3 – Ambient Sound Level Results Summary

As can be seen above, the **lowest measured $L_{Aeq,1hr}$** recorded at MP1 was circa **49dB,** with the **modal $L_{Aeq,1hr}$ being circa 51dB**. The IEMA 'Increase in Ambient Noise Level ('IANL') assessment has been based on these two baseline levels.

3. External Breakout Area Noise Assessment

The external area at the rear of the proposed development will hold a maximum of 35no. persons as is per the extant planning condition for the operations of the site, and is to be used primarily as a breakout space for children during Islamic school classes, with a table tennis table and pool table proposed. Additional use of the space will be for parents to wait for picking up their children after classes.

Source noise levels for the assessment have taken from a previous assessment undertaken by NOVA Acoustics for a similar development (report ref. NP-010735). The noise levels were measured at the perimeter of a play area, with the microphone approximately 1.5m from the ground. During the measurement, approximately 30 children were playing, and noise emissions included laughing and shouting.

The measured octave band noise levels are shown in the table below and these are assumed to be continuous over a 1-hour period to form a 'robust' approach.

Description	Octave Frequency Band (Hz, L_{eq} dB)								Overall (L_{Aeq} dB)
	63	125	250	500	1k	2k	4k	8k	
External Area Noise Measurement	53	55	61	67	70	68	63	50	74

Table 4 –External Area Noise Measurement

The sound power level for the entirety of the proposed external covered area is calculated using the following formula:

$L_w = L_p + 10log(S)$, where 'S' is the surface area of the external area (approximately 80m^2).

This is shown in the table below.

Description	Octave Frequency Band (Hz, L_W dB)								Overall (L_{WA} dB)
	63	125	250	500	1k	2k	4k	8k	
External Area Noise Measurement	72	74	80	86	89	87	82	69	93

Table 5 – Calculated External Area Sound Power Level

3.1 Noise Modelling

In order to predict the noise emissions from the external breakout area at the surrounding NSRs, SoundPLAN 9.1 modelling software has been used. The following assumptions and parameters have been used within the software:

- To accurately model the land surrounding the Proposed Development, the topographical data has been taken from the EA's 'National LIDAR Programme' on the DEFRA Data Services Platform.
- The play area noise emissions are modelled as an area source at a height of 1.2m.
- The calculated sound power levels presented in Table 5 have been inputted.
- The modelling has been carried out according to ISO 9613-2 (2024), which assumes 'downwind' propagation.

- The sound map grid height has been set to 1.5m at the development operates during the daytime exclusively.
- The boundary fencing is assumed to be a height of 2m based on the proposed elevations as presented in Figure 1.

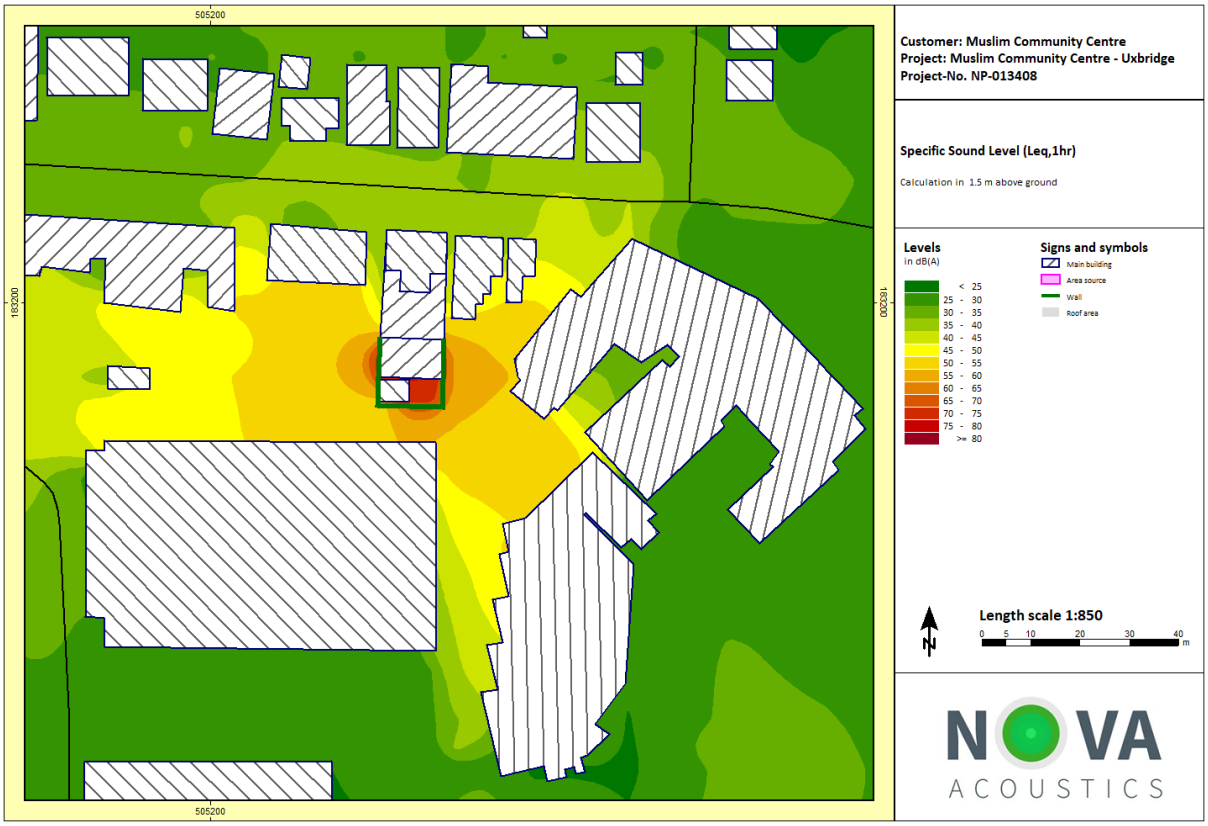


Figure 3 – Predictive Sound Map

3.2 IEMA 'Increase in Ambient Noise Level' Assessment

Shown in the following table is the increase in ambient noise level at the most affected NSR.

The existing noise level is based on the lowest ambient measured during the proposed operational periods which occurred on the Thursday at 12:00 and on Sunday at 16:00, ensuring a robust assessment. The assessment also shows the anticipated impact levels over the typical daytime $L_{Aeq,1hr}$ sound level.

Location	Time Period	Noise Level ($L_{Aeq,1hr}$ dB)			Increase (dB)
		Existing	Predicted	Cumulative	
Quietest Periods					
NSR1 Garden	09:00 – 17:00	49	54	55.2	+7.8
NSR1 Façade			48	51.5	+4.8
Typical Periods					
NSR1 Garden	09:00 – 17:00	51	54	55.8	+6.2
NSR1 Façade			48	52.8	+3.5

Table 6 – Increase in Ambient Noise Level Calculations

As can be seen in the assessment above, noise from the external area is predicted to increase the ambient noise level by up to 6.2dB at the most affected NSR garden during the quietest 1-hour periods. When assessed with the IEMA guidelines, this is classed as 'moderate/substantial' increase, which equates to 'Significant Observed Adverse Effect Level' ('SOAEL') when assessed with the NPSE and NPPF. At the closest façade of NSR1, this impact decreases to 'not significant' which would be classed as a 'No Observed Adverse Effect Level' ('NOAEL') in line with the NPPF and NPSE.

During more typical times throughout the day, noise from the external breakout area is predicted to increase the ambient noise level by up to 4.8dB in the most affected NSR garden. This would be classed as a 'slight/moderate' increase in line with the IEMA guidelines, which would equate to a 'Lowest Observed Adverse Effect Level' ('LOAEL') in accordance with the NPPF and NPSE. These impacts are reduced to 'not significant' at the closest façade which would be classed as a 'No Observed Adverse Effect Level' ('NOAEL') in line with the NPPF and NPSE.

In light of the above assessments, additional mitigation is deemed necessary minimise noise impact.

3.3 Recommendations & Mitigation Measures

It is recommended that fence boundary between the proposed development and NSR1 is replaced with a close boarded acoustic fence with a minimum surface mass of 10kg/m^2. The fence should abut the proposed roof structure to improve the level of screening from the proposed covered external area and the neighbouring NSR; there should be no gaps between the fence and roofing.

It is also advised to install a Class A absorption panel product along the rear wall to minimise reflections off it and back towards the closest NSRs. These measures are illustrated in the following figure.

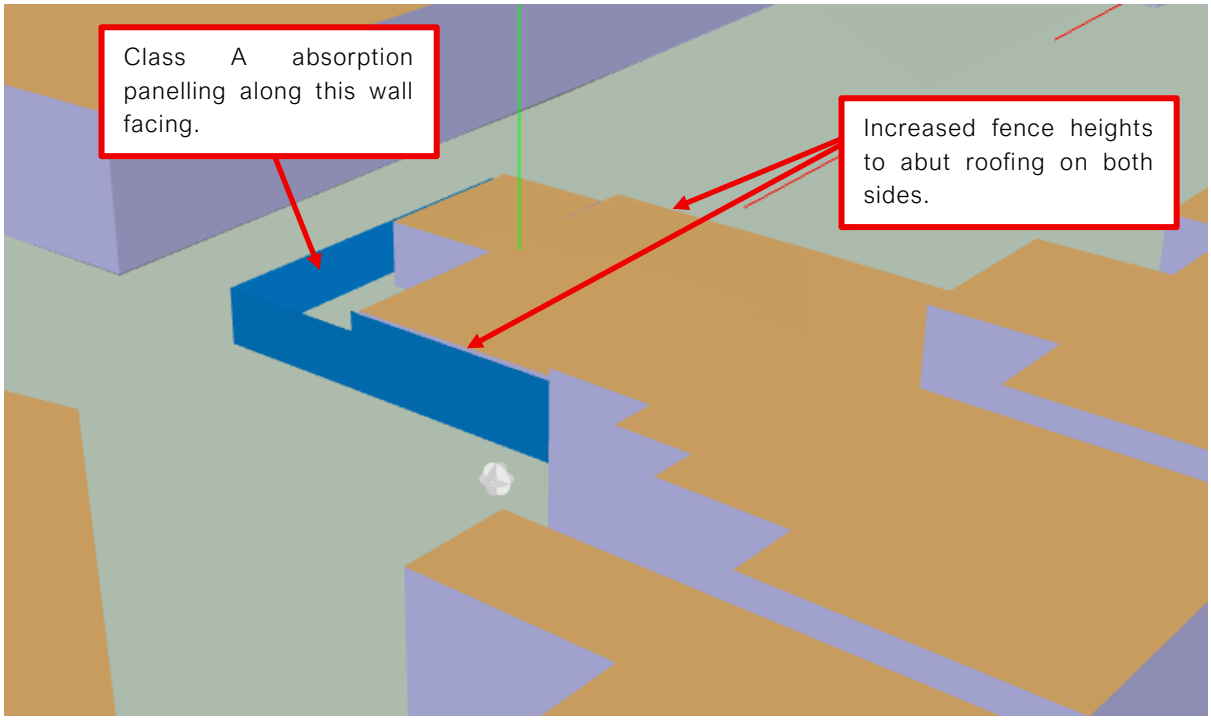


Figure 4 – Proposed Mitigation Measures

Hexagonal weatherproof panels from Quietstone, providing up to Class A absorption. These can be found at https://www.quietstone.co.uk/product/acoustic-panels/.

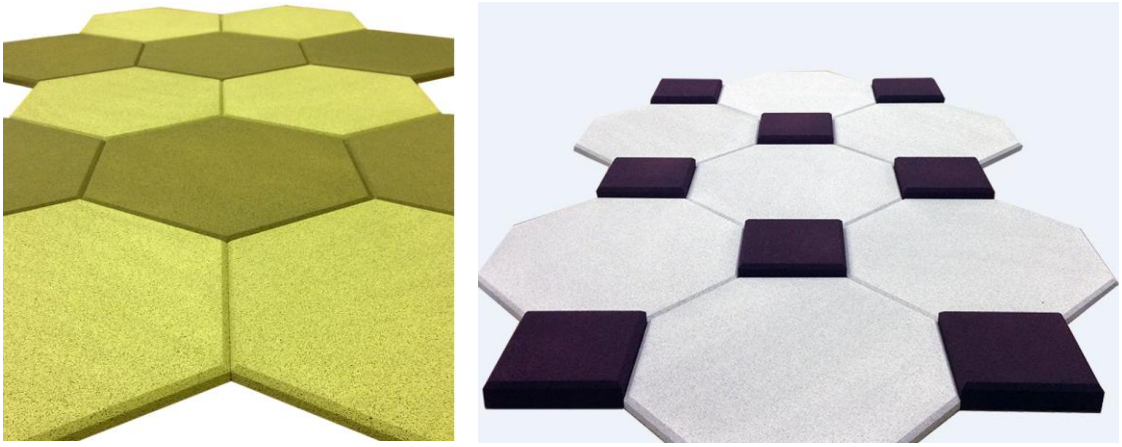


Figure 5 – Hexagonal Acoustic Panelling

Weatherproof absorbent foam, such as 'Stratocell Whisper FR', can be installed in various formations. This can be found at https://www.acousticshop.co.uk/stratocell-whisper-fr.

Figure 6 – Whisper Foam Acoustic Panelling

Moss wall panels, which are classed as a 'living wall' panels, could be directly affixed to walls or purchased within decorative frames.

Figure 7 – 'Living Wall' Acoustic Panelling

Woodwool products can also often be used for external applications.

Figure 8 – Woodwool Hexagonal Acoustic Panelling

The following panelling incorporates both woodwool (shown in red) and living moss.

Figure 9 – Woodwool and 'Living Wall' Acoustic Panelling

The revised noise modelling and specific sound level map can be seen in the following figure.

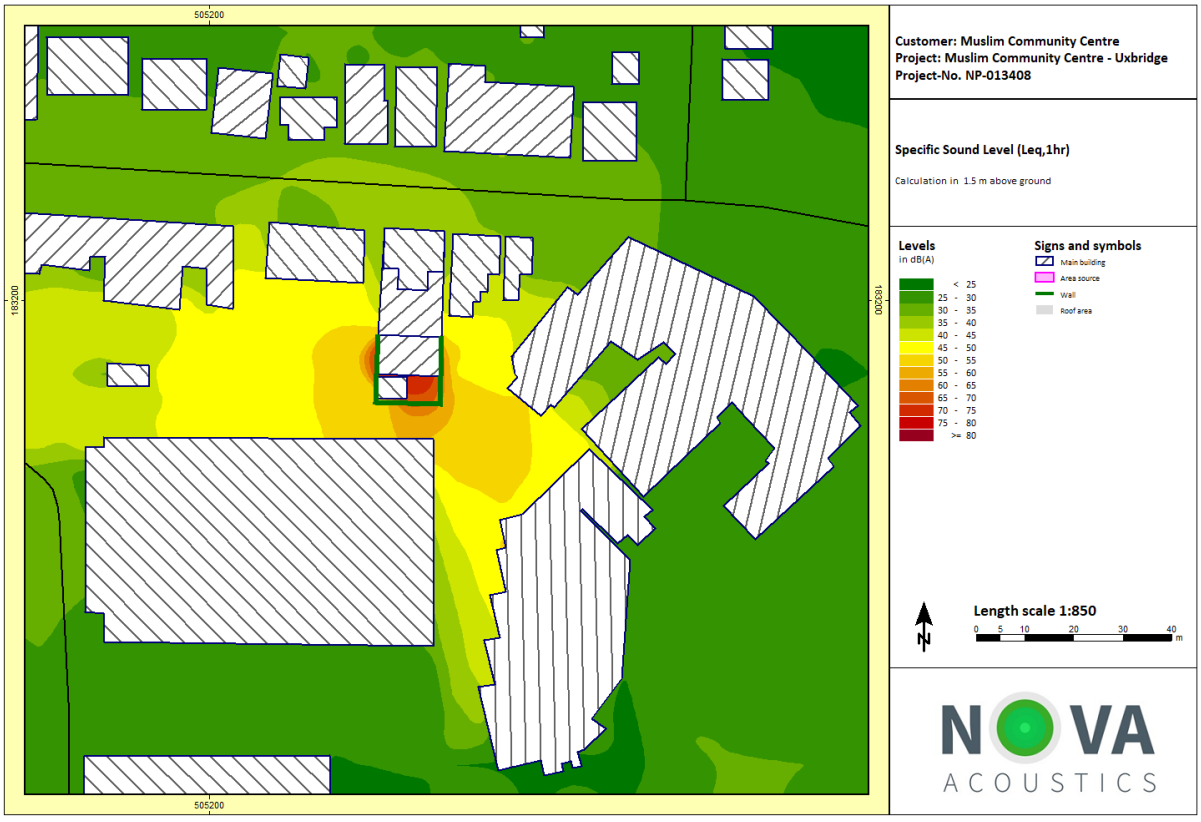


Figure 10 – Mitigated Predictive Sound Map

The updated modelling results with the mitigation included are presented in the table below.

Location	Time Period	Noise Level ($L_{Aeq,1hr}$ dB)			Increase (dB)
		Existing	Predicted	Cumulative	
Quietest Periods					
NSR1 Garden	09:00 – 17:00	49	50	52.5	+3.5
NSR1 Façade			46	50.8	+1.8
Typical Periods					
NSR1 Garden	09:00 – 17:00	51	50	53.5	+2.5
NSR1 Façade			46	52.2	+1.2

Table 7 – Increase in Ambient Noise Level Calculations – Post-Mitigation

As can be seen above, the largest increase in ambient noise levels predicted in the garden of NSR1 is up to 3.5dB. Given the extant acoustic climate and receptor sensitivity, this worst-case increase would be classed as 'slight' in accordance with the IEMA guidelines, which in line within the NPPF and NPSE equates to a 'Lowest Observed Adverse Effect Level' ('LOAEL').

Given that noise emissions will generally be for short periods of time in the middle of the day, it is thought that this increase may be viewed as acceptable. Further to this, it should be noted that the garden noise level is within the WHO upper external amenity noise limit of 55 dBA.

As seen above at the closest façade during the quietest periods and within the garden of NSR1 for the majority of time ('typical periods'), the IEMA increase would be classed as 'not significant', equating to a 'No Observed Adverse Effect Level' ('NOAEL') in line with the NPPF and NPSE.

It is stated that at NOAEL, *"noise can be heard, but does not cause any change in behaviour, attitude or other physiological response"*. In addition, noise at this level *"can slightly affect the acoustic character of the area but not such that there is a change in the quality of life".*

Additional Operational / Managerial Measures

To further reduce the noise impact from the proposed development it is advised to implement the following noise management plan and control methods:

- Persons using the external areas should be made aware that the site has neighbours and that shouting and raised voices should be minimised. If persons frequently violate this, they should be asked to move inside the premises.
- Staff should actively encourage the gradual dispersal of patrons to minimise the nuisance at closing time.
- Children must be always observed by a trained member of staff and any child found to be repeatedly making excessive levels of noise should be moved inside
- Limits should be applied to the number of people allowed to access the external area, it is noted that the proposals include for the addition of a table tennis table and pool table, these should be

managed by staff to ensure crowding around and raised voices are not present during the operation of these facilities.

- Access to the covered area at the rear should be staggered and limited to 15no. children playing at a time. In doing so, the worst-case noise impact would be reduced by a further 1.5dB and a 'not significant' level of impact in accordance with the IEMA guidelines would be anticipated.

4. Conclusion and Action Plan

The proposed development has been assessed against the acoustic design criteria, and a mitigation scheme has been provided to reduce the predicted levels of noise impact.

Provided the mitigation scheme is fully implemented, the largest increase in ambient noise levels predicted in the garden of NSR1 is up to 3.5dB. Given the extant acoustic climate and receptor sensitivity, this worst-case increase would be classed as 'slight' in accordance with the IEMA guidelines, which in line within the NPPF and NPSE equates to a 'Lowest Observed Adverse Effect Level' ('LOAEL').

Given that noise emissions will generally be for short periods of time in the middle of the day, it is thought that this increase may be viewed as acceptable. Further to this, it should be noted that the garden noise level is within the WHO upper external amenity noise limit of 55 dBA.

At the closest façade during the quietest periods and within the garden of NSR1 for the majority of time ('typical periods'), the IEMA increase would be classed as 'not significant', equating to a 'No Observed Adverse Effect Level' ('NOAEL') in line with the NPPF and NPSE.

It is stated that at NOAEL, *"noise can be heard, but does not cause any change in behaviour, attitude or other physiological response"*. In addition, noise at this level *"can slightly affect the acoustic character of the area but not such that there is a change in the quality of life".*

The following 'Action Plan' is outlined to ensure the design considerations and specifications from this report are duly implemented:

1. The mitigation scheme proposed in Section 3.3 should be implemented in full and retained throughout the lifetime of the development.
2. The operating hours of 09:00 – 17:00 should be adhered to, with no external activities in the covered area taking place outside of these hours.
3. It is recommended that the operational / managerial measures presented in Section 3.3 are duly implemented through a 'robust' noise management plan.

The findings of this report will require written approval from the Local Authority prior to work commencing.

Appendix A – Acoustic Terminology

A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure given by the following formula in decibels (dBA). $L_{pA} = 10 \log_{10} (pA/p_0)^2$. Where: pA is the A-weighted sound pressure in pascals (Pa) and $p0$ is the reference sound pressure (20 µPa)
Background Sound	Underlying level of sound over a period, T, which might in part be an indication of relative quietness at a given location
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T, has the same mean-squared sound pressure as the sound under consideration that varies with time
Facade level	Sound pressure level 1 m in front of the facade
Free-field level	Sound pressure level away from reflecting surfaces
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants
Noise Criteria	Numerical indices used to define design goals in a given space
Noise Rating (NR)	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves
Octave Band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit
Percentile Level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting “F”, which is exceeded for N% of a specified time interval
Rating Level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped
Sound Pressure, p	root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound
Sound Pressure Level, L_p	Quantity of sound pressure, in decibels (dB), given by the formula: $L_p = 10\log_{10}(p/p_0)^{2.}$ Where here: p is the root-mean-square sound pressure in pascals (Pa) and $p0$ is the reference sound pressure (20 µPa)
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies

Appendix B – Standards, Legislation, Policy, and Guidance

This report is to be primarily based on the following standards, legislation, policy and guidance.

B.1 – National Planning Policy Framework (2024)

Government policy on noise is set out in the National Planning Policy Framework (NPPF), updated in 2024. This replaced all earlier guidance on noise and places an emphasis on sustainability. In section 15, Conserving and enhancing the natural and local environment, paragraph 187e, it states:

Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

Paragraph 198 states:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) *Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
b) *Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
c) *Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

B.2 – Noise Policy Statement for England (2010)

Paragraph 198 of the NPPF also refers to advice on adverse effects of noise given in the Noise Policy Statement for England (NPSE). This document sets out a policy vision to:

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

To achieve this vision the Statement identifies the following three aims:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life;
- Where possible, contribute to the improvement of health and quality of life.

In achieving these aims the document introduces significance criteria as follows:

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur. It is stated that *"significant adverse effects on health and quality of life should be avoided while also considering the guiding principles of sustainable development".*

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected. It is stated that the second aim above lies somewhere between LOAEL and SOAEL and requires that: *"all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also considering the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur."*

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. This can be related to the third aim above, which seeks: *"where possible, positively to improve health and quality of life through the pro-active management of noise while also considering the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim."*

This is further expanded using the updated "Noise Exposure Hierarchy Table" which includes an additional level of impact referred to as the 'No Observed Adverse Effect Level' ('NOAEL'). It is stated that at this level: *"noise can be heard, but does not cause any change in behaviour, attitude or other physiological response"*. In addition, noise at this level *"can slightly affect the acoustic character of the area but not such that there is a change in the quality of life".*

The NPSE recognises that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations and provides no guidance as to how these criteria should be interpreted. It is clear, however, that there is no requirement to achieve noise levels where there are no observable adverse impacts but that reasonable and practicable steps to reduce adverse noise impacts should be taken in the context of sustainable development and ensure a balance between noise sensitive and the need for noise generating developments.

Any scheme of noise mitigation outlined in this report will, therefore, aim to abide by the above principles of the NPPF and NPSE whilst recognizing the constraints of the site.

B.3 – BS8233:2014 'Guidance on Sound insulation and noise reduction for buildings'

BS8233 provides guidance on noise levels from sources without specific character in the built environment, based on the recommendations of the World Health Organization; specifically, 'WHO Guidelines on Community Noise, 1999'. The Guidelines on Community Noise (1999) document defines community noise to include noise from "industries" and "construction". The desirable criteria levels of steady state, "anonymous" noise in unoccupied spaces within dwellings, from sources such as road traffic, mechanical services and other continuously running plant, are tabulated below.

BS8233:2014 Internal Ambient Noise Level Criteria			
Activity	**Location**	**Daytime (07:00 – 23:00)**	**Night-time (23:00 – 07:00)**
Resting	Living Room	35 dB $L_{Aeq,16hour}$	--
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	--
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB L_{AFmax}*

Table 8 – BS8233:2014 Internal Ambient Noise Level Criteria

**ProPG:2017 states that's good acoustic design can be used so that individual noise events do not normally exceed 45 dB L_{AFmax} more than 10 time a night within noise sensitive rooms such as bedrooms. However, where it is not reasonably practicable to achieve the guideline then the judgment of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number distribution, predictability and regularity of noise events.*

It is noted, however, that where development is considered necessary or desirable, despite external noise level above WHO guidelines, the above target levels may be relaxed by up to 5dB.

General recommendations for mitigation to enable these targets to be achieved are provided, including the use of bunds and barriers to reduce external noise and space planning and sound insulation for the control of internal noise levels.

For this assessment, the above criteria are considered to be the 'LOAEL' as defined in the NPSE in Appendix B.

Appendix C – Drawing & Plans

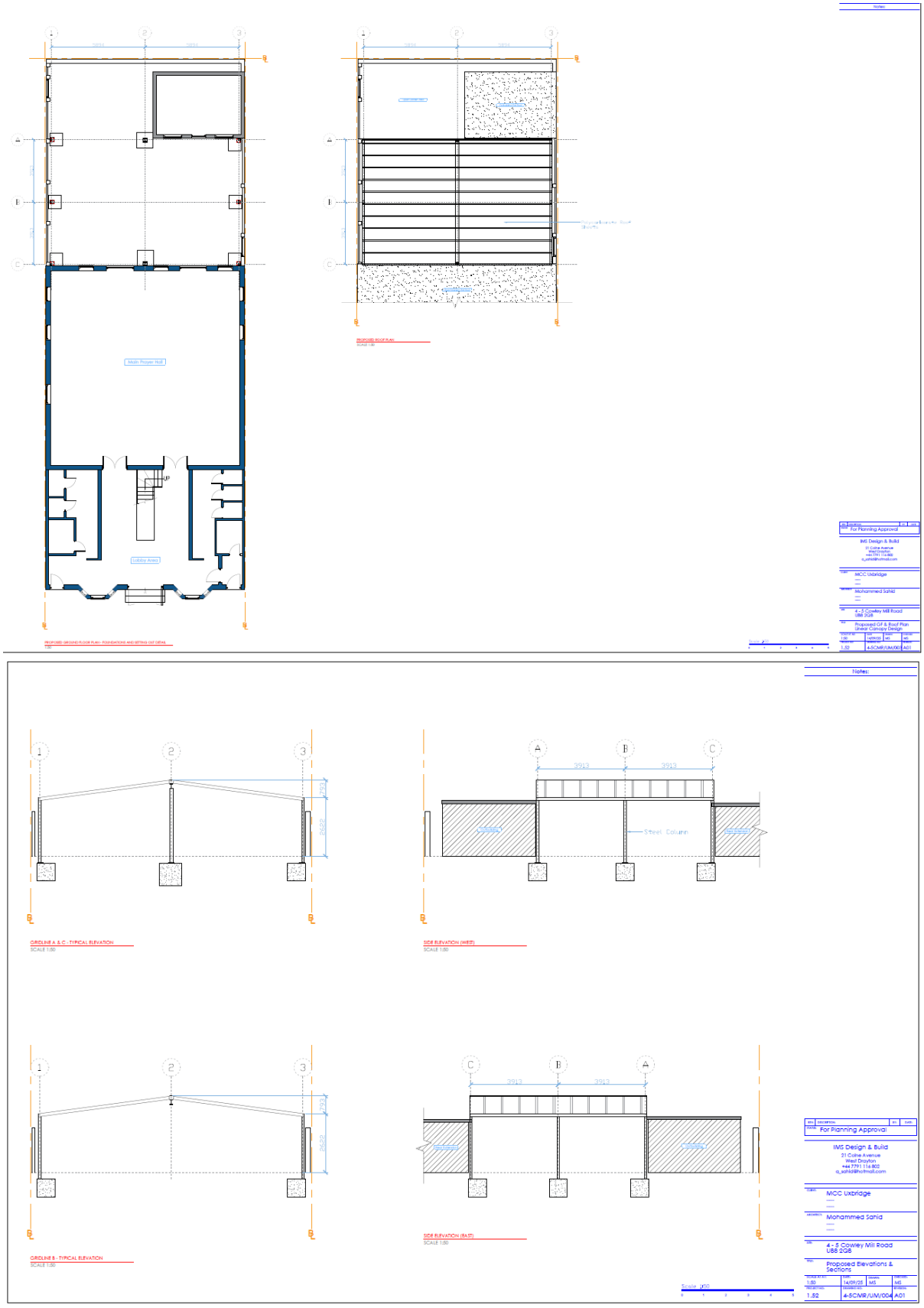


Figure 11 – Proposed Plans & Drawings

Appendix D – Environmental Survey

D.1 – Time History Noise Data

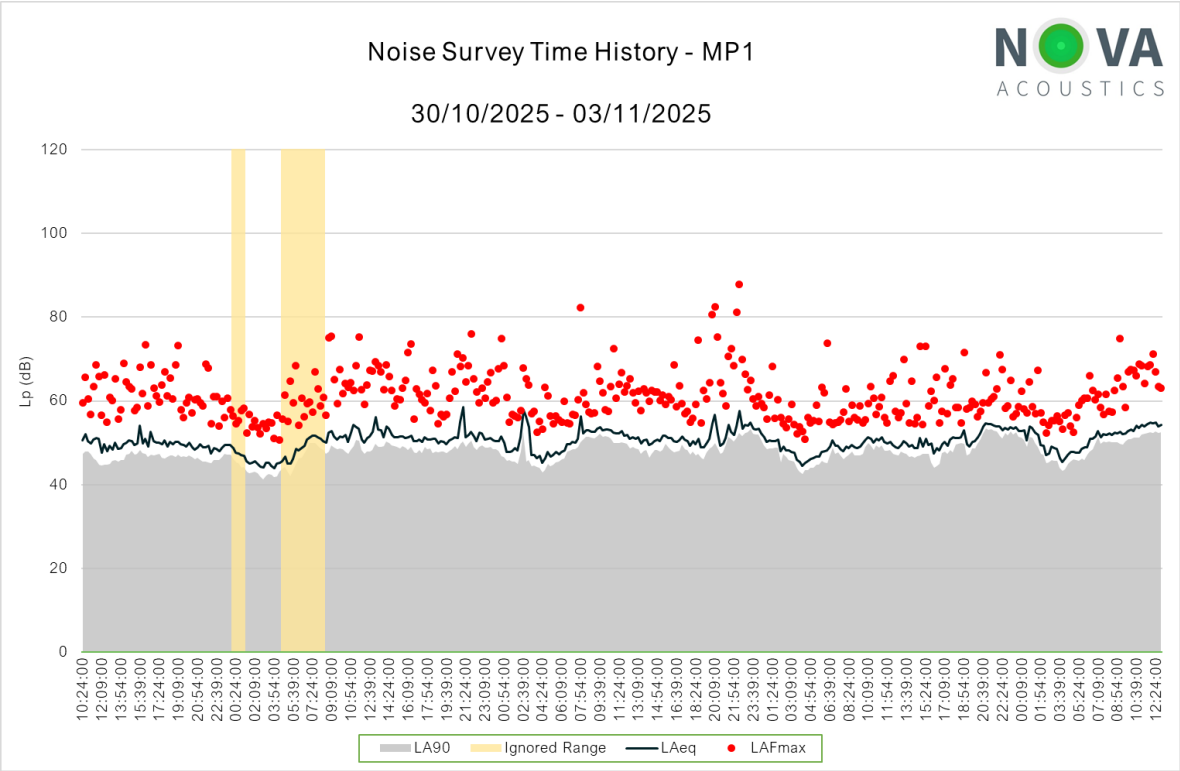


Figure 12 – MP1 Noise Survey Time History

D.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek SV307 Class 1 Sound Level Meter	141420	≤0.1
Svantek SV33B Class 1 Calibrator	125636	

Table 9 – Surveying Equipment

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of ≤0.1 dB. All sound level meters are calibrated every 24 months and all calibrators are calibrated every 12 months, by a third-party calibration laboratory. All microphones were fitted with a protective windshield for the entire measurements period. Calibration certificates can be provided upon request.

D.3 – Meteorological Conditions

As the environmental noise survey was carried out over a long un-manned period no localised records of weather conditions were taken. However, all measurements have been compared with met office weather data of the area, specifically the closest weather station, and the data from the weather station is outlined in the table below. When reviewing the time history of the noise measurements, any scenarios that were considered potentially to be affected by the local weather conditions have been omitted.

The analysis of the noise data includes statistical and percentile analysis and review of minimum and maximum values, which aids in the preclusion of any periods of undesirable weather conditions. The weather conditions were deemed suitable for the measurement of environmental noise in accordance with BS7445 Description and Measurement of Environmental Noise. The table below presents the average temperature, wind speed and rainfall range for each 24-hour period during the entire measurement.

Weather Conditions – Frithwood Weather (Approx. 9km NE of Site)				
Time Period	Air Temp (^{0}C)	Rainfall (mm/h)	Prevailing Wind Direction	Wind Speed (m/s)
30/10/2025: 00:00 – 23:59	3.9 – 13.1	0.0 – 0.3*	SW	0.0 – 1.8
31/10/2025: 00:00 – 23:59	12.4 – 14.8	0.0 – 0.5	SSW	0.0 – 2.6
01/11/2025: 00:00 – 23:59	7.2 – 15.1	0.0 – 0.3*	SSW	0.0 – 4.4
02/11/2025: 00:00 – 23:59	5.3 – 12.4	0.0 – 0.3*	W	0.0 – 3.1
03/11/2025: 00:00 – 23:59	5.3 – 15.7	0.0	WSW	0.0 – 3.5

Table 10 – Weather Conditions

**Rainfall occurred for a short duration and further analysis of the measured data indicated it did not have an effect on the results.*


NOVA
ACOUSTICS