Residential Noise Assessment

Site Address: 872 Rochdale Road, Manchester, M9 8AH

Client Name: Kevin Rippingham

Project Reference No: NP-012796

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

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1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise impact assessment for a new build residential development ('the proposed development') at 872 Rochdale Road, Manchester, M9 8AH ('the site'). The proposed development is for the erection of a three-storey building to form 9 two-bedroom apartments (Use Class C3a), with associated landscaping, access, parking and boundary treatment.

The applicant has received conditional approval for planning application No.116509/FO/2017 from Manchester City Council. This report has been prepared to discharge Condition 7 imposed by the Local Planning Authority ('LPA').

A noise survey has been undertaken to establish the prevailing sound levels at the proposed development. As the external envelope of the building is already complete, both external and internal measurements have been utilised. The findings have been subsequently used to assess whether the requirements of Condition 7 have been met. Measures required to mitigate noise impacts for the proposed development have been assessed in accordance with the relevant performance standards, legislation, policy, and guidance.

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:

- The Local Planning Authorities ('LPA') conditional approval; specifically, 'Condition 7'.
- National Planning Policy Framework (2024).
- Noise Policy Statement for England (2010).
- British Standard BS8233:2014 – 'Guidance on sound insulation and noise reduction for buildings'.
- Approved Document O: Overheating (2021).
- Acoustics Ventilation Overheating: Residential Design Guide 2020' (AVO Guide).

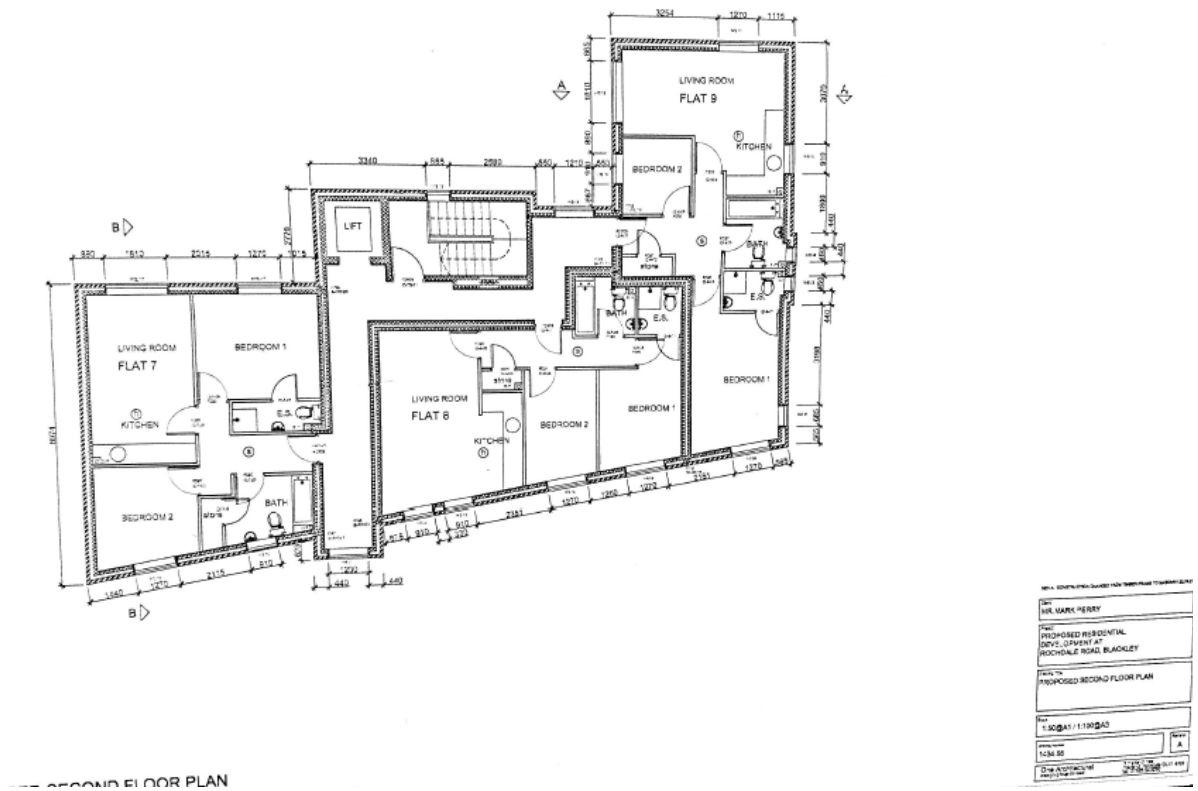
Further information on the legislation can be found in Appendix B.

Please note that all internal noise level measurements were carried out in general accordance with the Association of Noise Consultants document 'Measurement of Sound Levels in Buildings' (2020).

1.2 Proposal Brief

The proposal is for a newly constructed residential building containing 9 no. two-bedroom apartments across a three-storey structure. To the rear of the site will be the associated parking and landscaped areas.

The figure overleaf shows the second-floor general arrangement plan. Further drawings, including the general arrangement plans for the other floors, can be found in Appendix C.



Drawing Ref No. 1434.55 from One Architectural

Figure 1 – Proposed Development

1.3 Local Planning Authority & Background

The proposed scheme was granted condition approval under planning application No. 116509/FO/2017. Condition 7 which relates specifically to noise requires discharging:

"7) Before first occupation of the residential accommodation hereby approved, a scheme for acoustically insulating the residential accommodation against noise from Rochdale Road shall be submitted to and approved in writing by the City Council as Local Planning Authority. The approved noise insulation scheme shall be completed before any of the flats are occupied and shall thereafter retained.

Reason - To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to saved policy DC26 of the Unitary Development Plan for the City of Manchester and policies SP1and DM1 of the Core Strategy."

It should be noted that the development is nearing completion, as such the external envelope of the building is complete and glazing and trickle ventilators specified by the architect are already in situ. This report will assess whether the current sound insulation scheme is sufficient to discharge the condition set by Manchester City Council, or if further mitigation measures are required.

2. Internal Noise Level Criteria

2.1 Internal Noise Level Criteria

The following table outlines the internal acoustic design criteria used in the following assessment.

Activity	Location	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Resting	Living Room	35 dB $L_{Aeq,16hr}$ / NR30	--
Dining	Dining Room/Area	40 dB $L_{Aeq,16hr}$ / NR35	--
Sleeping (Daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$ / NR30	30 dB $L_{Aeq,8hr}$/ NR25 45 dB L_{AFmax*}

**NOTE 1: The maximum criteria have been taken from the World Health Organisation (WHO) Guidelines for Community Noise.*

**NOTE 2: ProPG:2017 which is relevant to 'New Residential' states; "In most circumstances in noise sensitive rooms at night (e.g., bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement 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".*

Note 3: BS8233:2014 states: "Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved".

Note 4: BS8233:2014 states: "The levels shown in Table 4 (criteria shown above) are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g., 1 hour, may be used, but the level should be selected to ensure consistency with the levels recommended in Table 4.

Note 5; BS8233:2014 states: "If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level.

Table 1 – Internal Acoustic Design Criteria

3. Noise Survey & Assessment

3.1 Measurement Methodology

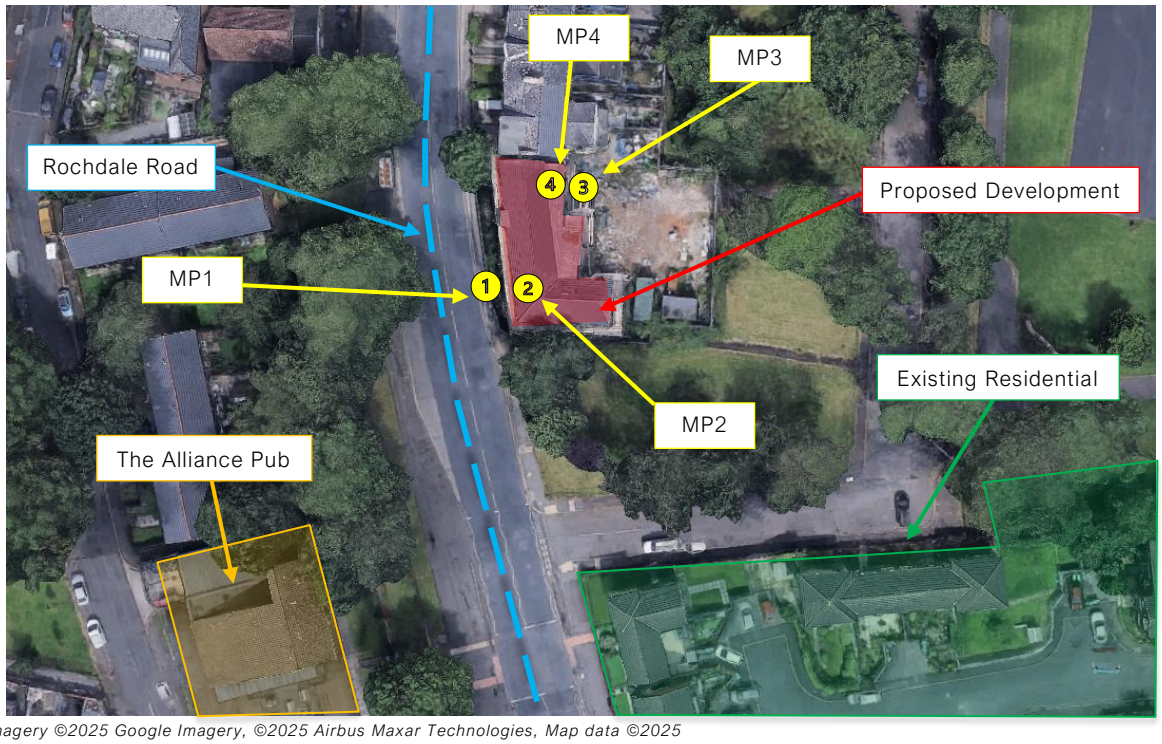
The following table outlines the measurement dates and particulars. All external equipment was fitted with its proprietary environmental kit, including a 130mm windshield. Field calibration checks were performed before and after each measurement; negligible drift noted. Details of the equipment register and local meteorological conditions during the survey are available in Appendix D.

Note that a -3dB façade correction has been applied to MP1 and MP3 due to the microphone being 1.5m from a reflective surface.

Location	Survey Dates	Measurement Particulars
MP1 (External)	13 – 16/06/25	Equipment protruding 1.5m from a second-floor window overlooking Rochdale Road.
MP2 (Internal)		Equipment mounted 1.5m on a tripod within a proposed bedroom on the first floor of the development. The placement of the room is akin to the external measurement on the floor above.
MP3 (External)		Equipment protruding 1.5m from a second-floor window overlooking the proposed rear car parking and David Lewis Recreation Ground.
MP4 (Internal)		Equipment mounted 1.5m on a tripod within a proposed bedroom on the first floor of the development. The placement of the room is akin to the external measurement on the floor above.

Table 2 – Measurement Methodology

The figure below outlines the site surroundings and measurement locations:



Imagery ©2025 Google Imagery, ©2025 Airbus Maxar Technologies, Map data ©2025

Figure 2 – Measurement Locations and Site Surroundings

3.2 Context & Subjective Impression

The proposed development site is located on land off Rochdale Road, Manchester. The area surrounding the site is predominantly residential in nature, with the exclusion of 'The Alliance Pub' approximately 50m southwest of the site boundary.

It is understood the pub operates between 12:00 and 00:30 hours on the weekend, closing at 23:00 hours during the week. During each site visit, noise breaking out from The Alliance Pub' was subjectively inaudible, with it being understood the pub does not have live music and any audible fixed plant facing the site.

The noise profile is dominated by road traffic noise emissions, particularly on Rochdale Road. To the east of the site is the David Lewis Recreation Ground which consists of a park, playground and tennis courts. Sound levels emanating from this area are viewed to be insignificant and contribute minimally to the wider soundscape of the area.

Road traffic noise levels are higher on the western and southern facades due its proximity to Rochdale Road. Whilst it is also the main noise source affecting the rear of the site (eastern façade), this location benefits from shielding provided by the intervening structure. Secondary sound sources include foliage rustling in light winds and nearby birdsong.

3.3 Environmental Noise Survey Results

The following section outlines the measured sound levels during the survey. The time history results can be found in Appendix D. As discussed earlier in the report, MP1 and MP3 have had a -3dB façade correction applied to the reported sound levels to convert them from a façade to a free-field level.

Data measured between 23:03 and 01:30 hours on the first night and 11:38 and 12:18 hours on the second day have been excluded due to it being deemed to be atypical. Analysis of the data during the period showed particularly elevated sound levels between 1kHz and 4kHz, which is suspected to be from nearby sirens and / or an alarm.

It should also be noted that the internal noise level measurements were undertaken in entirely unfurnished rooms. At the time of the monitoring, there were no plasterboard finishings. As a result, the below internal noise level measurements have been accordingly corrected to 0.3s to reflect a furnished state within a bedroom.

It should also be noted that all trickle vents were set to their 'open' position throughout the measurements.

Location	Measurement Period ('T')	Octave Frequency Band (Hz, $L_{eq,T}$, dB)							$L_{Aeq,T}$ (dB)	'Typical' $L_{AFmax,2min}$ (dB)
		63	125	250	500	1k	2k	4k		
MP1 (External)	$L_{eq,16hr}$ (Day)	67	61	60	59	63	61	55	66	--
	$L_{eq,8hr}$ (Night)	62	55	56	56	61	61	55	66	87
MP2 (Internal)	$L_{eq,16hr}$ (Day)	36	34	28	24	28	26	18	31	--
	$L_{eq,8hr}$ (Night)	30	28	24	21	26	24	17	29	47
MP3 (External)	$L_{eq,16hr}$ (Day)	60	55	50	47	49	46	44	53	--
	$L_{eq,8hr}$ (Night)	54	47	45	43	46	44	42	50	69
MP4 (Internal)	$L_{eq,16hr}$ (Day)	32	21	17	13	16	15	16	19	--
	$L_{eq,8hr}$ (Night)	27	16	13	11	13	14	16	17	32

Table 3 – Sound Level Results Summary

3.4 Assessment Summary

Based on a comparison of the above internal noise levels and the criteria outlined in Section 2, there would only be an exceedance of 2dB in relation to night-time maximum noise levels at MP2 fronting onto Rochdale Road.

As this is within 1-2dB of the target criterion, this would be considered marginal and is deemed acceptable.

Based on the above assessment, the proposed internal noise criteria have not been exceeded in any instance. As a result, the requirements have been met.

4. Conclusion and Action Plan

The proposed development has been assessed against the acoustic design criteria, and a sound insulation scheme has been provided to ensure the criteria has been achieved.

An internal noise level survey has been carried out and has indicated that the internal noise level criteria has not been exceeded in any instances by a margin greater than 2dB (this is a standard level of measurement tolerance and as such is deemed acceptable).

Based on the above, the requirements of Manchester City Council have been met.

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: 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), published 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 4 – 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 5 dB.

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 – Environmental Survey

C.1 – Time History Noise Data

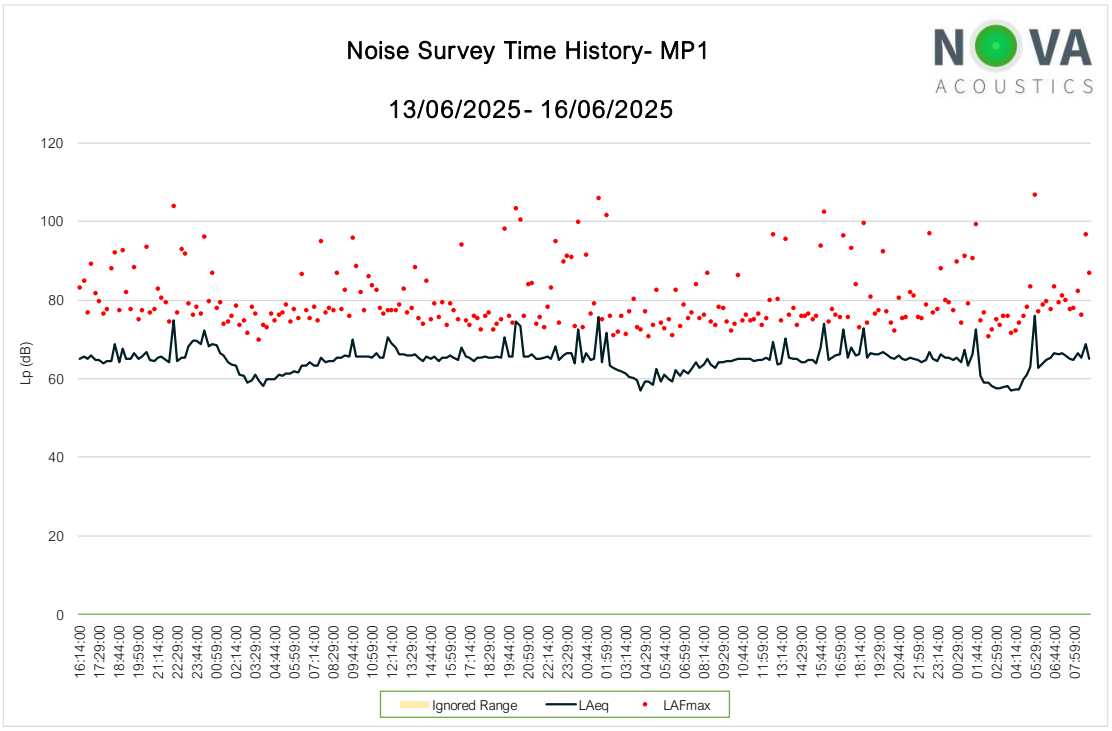


Figure 3 – MP1 Noise Survey Time History - External

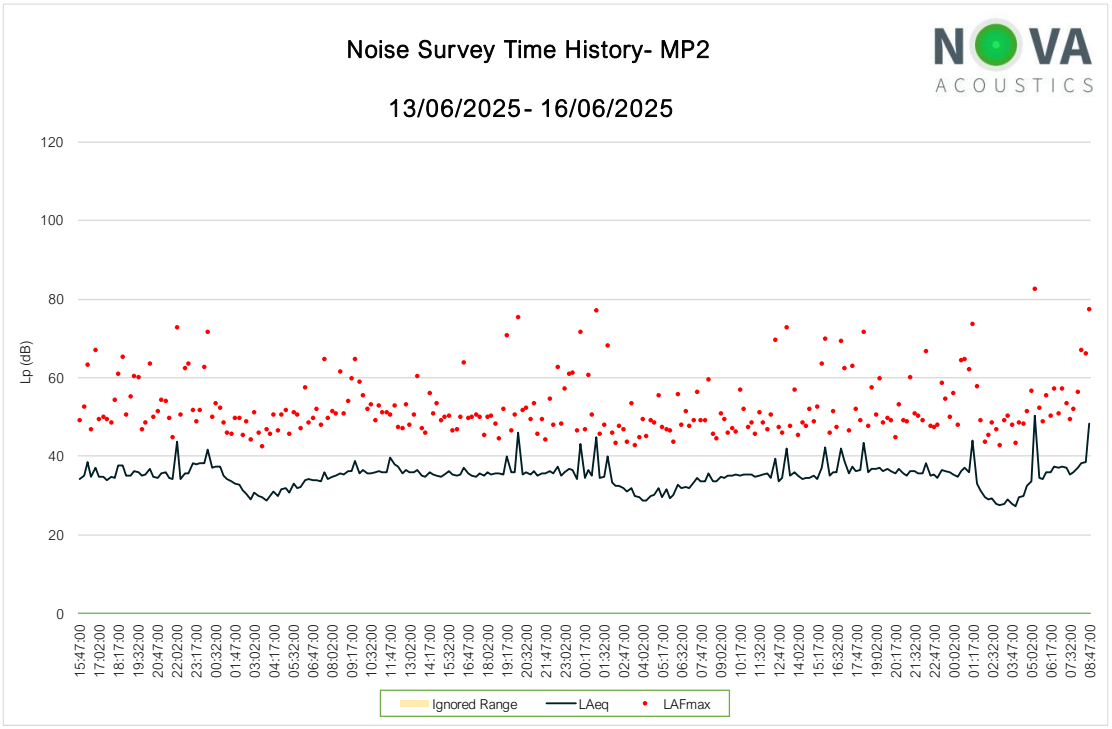


Figure 4 – MP2 Noise Survey Time History – Internal

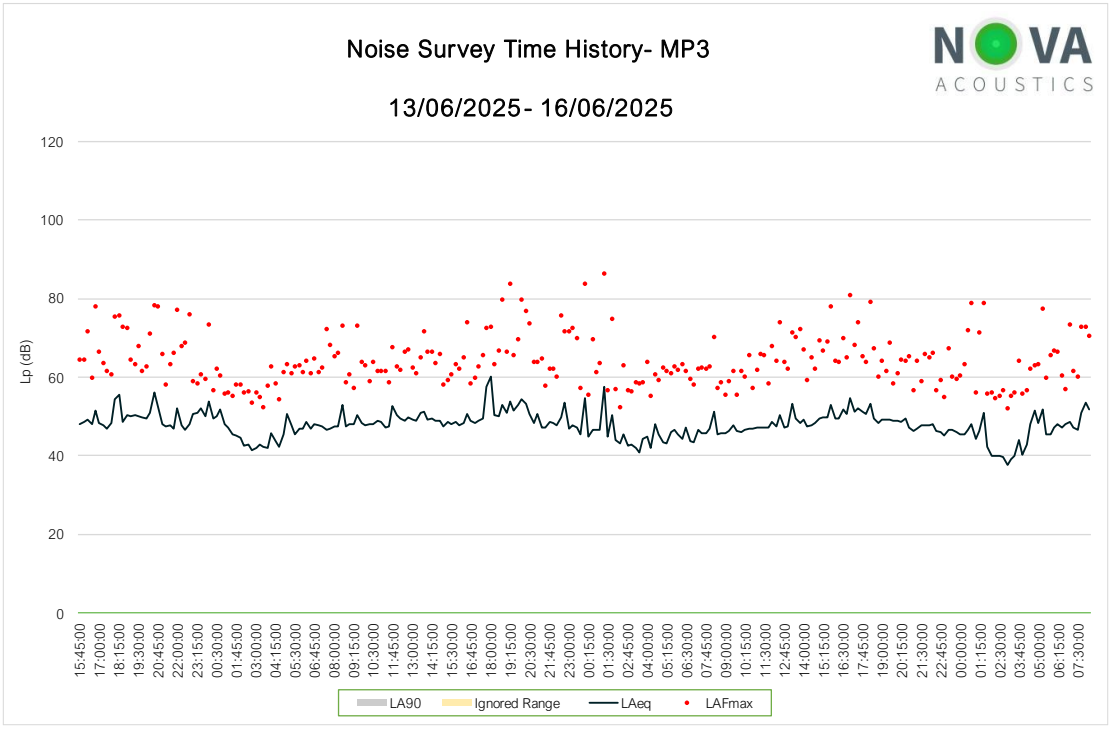


Figure 5 – MP3 Noise Survey Time History - External

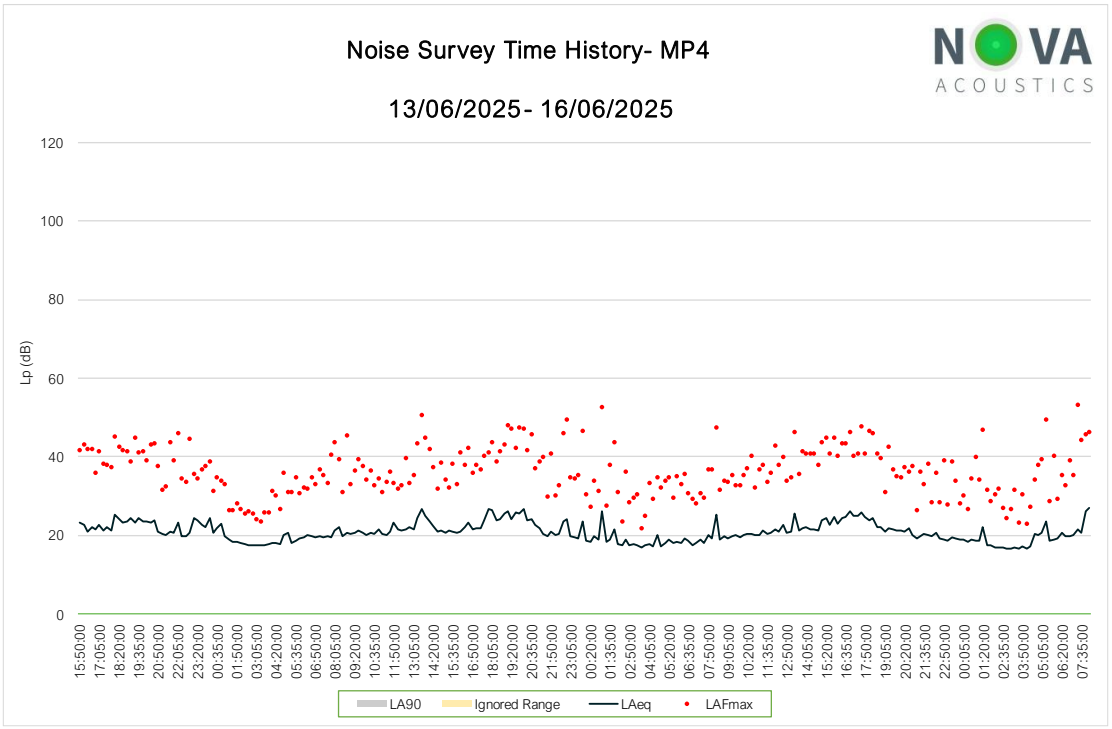


Figure 6 – MP4 Noise Survey Time History – Internal

C.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek SV971A Class 1 Sound Level Meter	141425	≤0.1
Svantek SV36 Class 1 Calibrator	106876	
Svantek SV971A Class 1 Sound Level Meter	141427	
Svantek SV36 Class 1 Calibrator	106876	
Svantek SV971A Class 1 Sound Level Meter	141346	
Svantek SV36 Class 1 Calibrator	106876	
Svantek SV971A Class 1 Sound Level Meter	143564	
Svantek SV36 Class 1 Calibrator	106876	

Table 5 – 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.

C.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 – Booth Hall (Approx. 0.98km NNW of Site)				
Time Period	Air Temp (⁰C)	Rainfall (mm/h)	Prevailing Wind Direction	Wind Speed (m/s)
13/06/25 – 16:00 – 23:59	14.2 – 25.2	0.0 – 3.2	NNW	0.0 – 6.1
14/06/25 – 00:00 – 23:59	13.8 – 20.9	0.0 – 3.9	NNW	3.3 – 6.8
15/06/25 – 00:00 – 23:59	13.4 – 20.2	0.0 – 0.1	NNW	2.0 – 7.3
16/06/25 – 00:00 – 09:00	11.6 - 18.8	0.0	NNW	2.1 – 6.6

Table 6 – Survey Weather Conditions


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