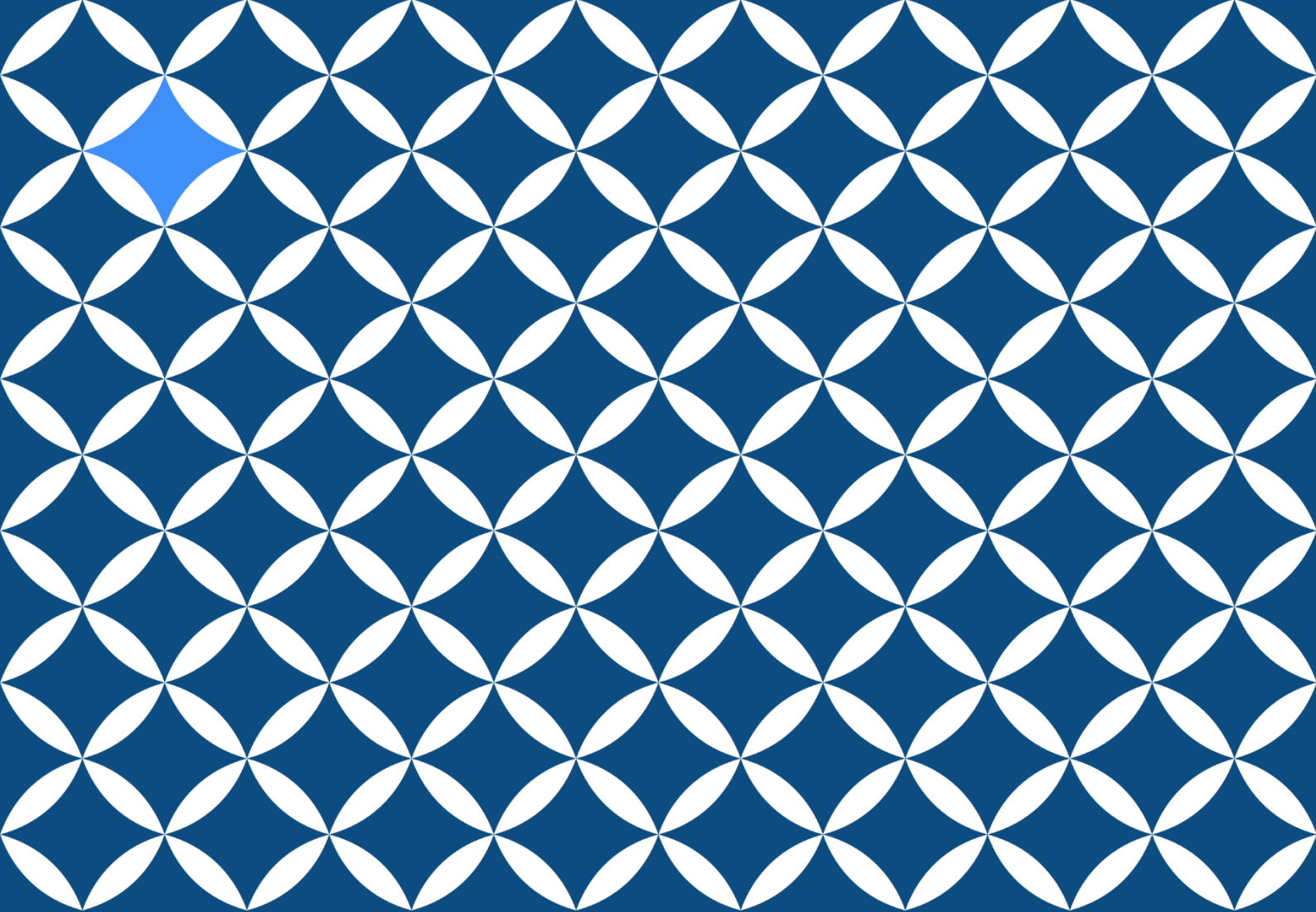




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Land at Hillkirk Street, Manchester

Environmental Noise Survey & Noise Impact Assessment Report

P2812-SOL-REP-01 P01

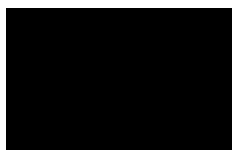
09 January 2026

PROJECT Land at Hillkirk Street, Manchester
Environmental Noise Survey & Noise Impact
Assessment Report

CLIENT AshtonHale

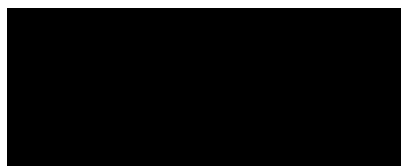
**DOCUMENT
REFERENCE** P2812-SOL-REP-01 P01

SIGNED



Mike Hartley

CHECKED



Joe Sinker

DATE 09 / 01 / 2026

REVISIONS

Issue No.	Reviewer	Authorised by	Approval Date	Summary of Revisions
01	JLS	JLS	06/01/2026	Initial issue.
02	JLS	JLS	07/01/2026	Update to vehicle count

Disclaimer

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Name of Organisation Sol Acoustics Limited

Company Registration Number 4218702

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1 Introduction

1.1 Scope

- 1.1.1 Sol Acoustics Limited have been commissioned by AshtonHale to undertake a baseline noise survey and noise impact assessment of the proposed car park at land off of Hillkirk Street in Manchester as part of a temporary planning application.
- 1.1.2 The proposals comprise the development of an existing occasional use carpark to allow for more frequent use and allocated parking.
- 1.1.3 The purpose of this report is as follows:
- ◆ To assess the proposed scheme in accordance with '*ProPG: Planning & Noise 2017*' and Manchester City Council's '*Planning and Noise Technical Guidance*' and '*The Institute of Environmental Management & Assessment Guidelines for Environmental Noise Impact Assessment*'.
 - ◆ To specify appropriate daytime and night-time environmental noise limits based on the results obtained from the environmental survey undertaken at site in accordance with BS 4142:2014+A1:2019 and Local Authority requirements.
 - ◆ Using the maximum occupancy of the proposed car park determine the acoustic impact of the proposed car park development on the worst affected noise sensitive receptors in accordance with BS 4142:2014+A1:2019,
- 1.1.4 This report has been produced by suitably qualified and competent professionals with relevant experience as detailed in Table 1:

Name	Position	Qualifications	Membership of professional bodies	Experience
Mike Hartley	Senior Consultant	MEng(Hons) Acoustical and Audio Engineering	Member of the Institute of Acoustics, Association of Noise Consultants registered pre-completion tester	7 years relevant acoustic consultancy experience.
Joe Sinker	Executive Consultant	MSc(Research) Acoustics and Audio Engineering, BSc(Hons) Audio Technology	Member of the Institute of Acoustics, Association of Noise Consultants registered pre-completion tester	10 years relevant acoustic consultancy experience.

Table 1: Competency and experience

1 Location & Description of Development

1.1 Description of the Existing Site

- 1.1.5 The proposed development site is located at land off of Hillkirk Street in Manchester. The Land at Hillkirk Street is currently vacant, comprising of hard-standing ground, which is currently used by Manchester City Football Club on match days (within the 28-day permitted development limit).
- 1.1.6 The proposals aim to obtain temporary planning permission for the car park providing c.176no. spaces next to Sport City and the Etihad Campus in the city centre to increase the frequency of use and expand the users of the car park to the wider Sports City / Etihad Campus facilities in advance of a future development proposal.
- 1.1.7 The site is bounded by Ashton New Road (A662) to the south, Hillkirk Street to the east, and Cambrian Street to the north. The River Medlock borders the site to the west with Holt Town tram stop circa. 130m beyond that. The surrounding buildings to the north and east across Cambrian Street and Hillkirk Street comprise a mix of commercial, industrial, and office space. The surrounding buildings to the south across Ashton New Road comprise residential housing, which have been identified as the nearest noise sensitive receptors affected by the proposals.
- 1.1.8 Ashton New Road is a busy thorough and bus route leading in and out of the city and provides access to the Etihad Campus and surrounding facilities. Hillkirk Street is minor road linking Philps Park Road and Cambrian Street to Ashton New Road.
- 1.1.9 Figure 1 overleaf shows the existing development site location in relation to the current existing surrounding area.

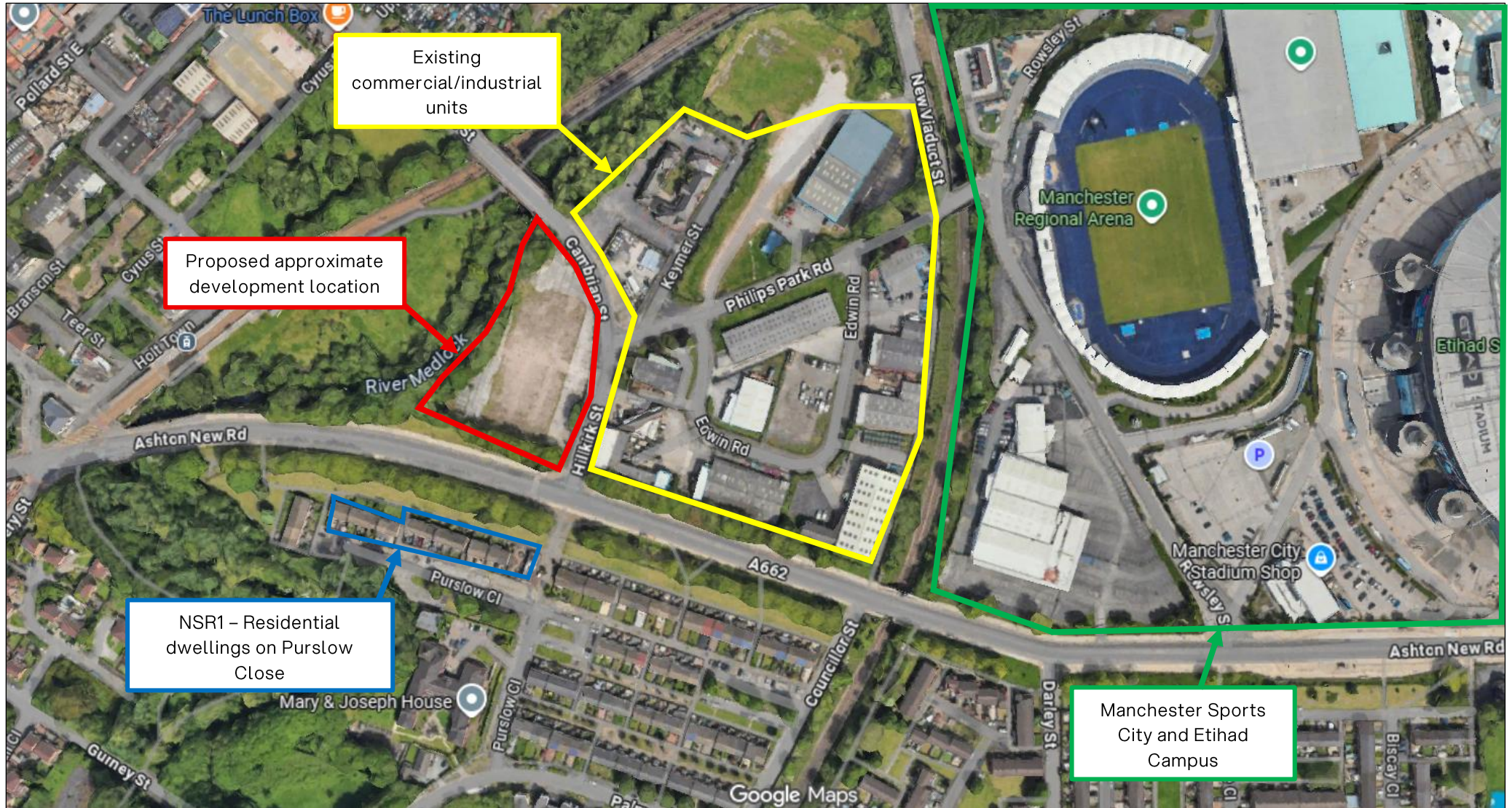


Figure 1: Existing development and surroundings (Google Earth, 2025)

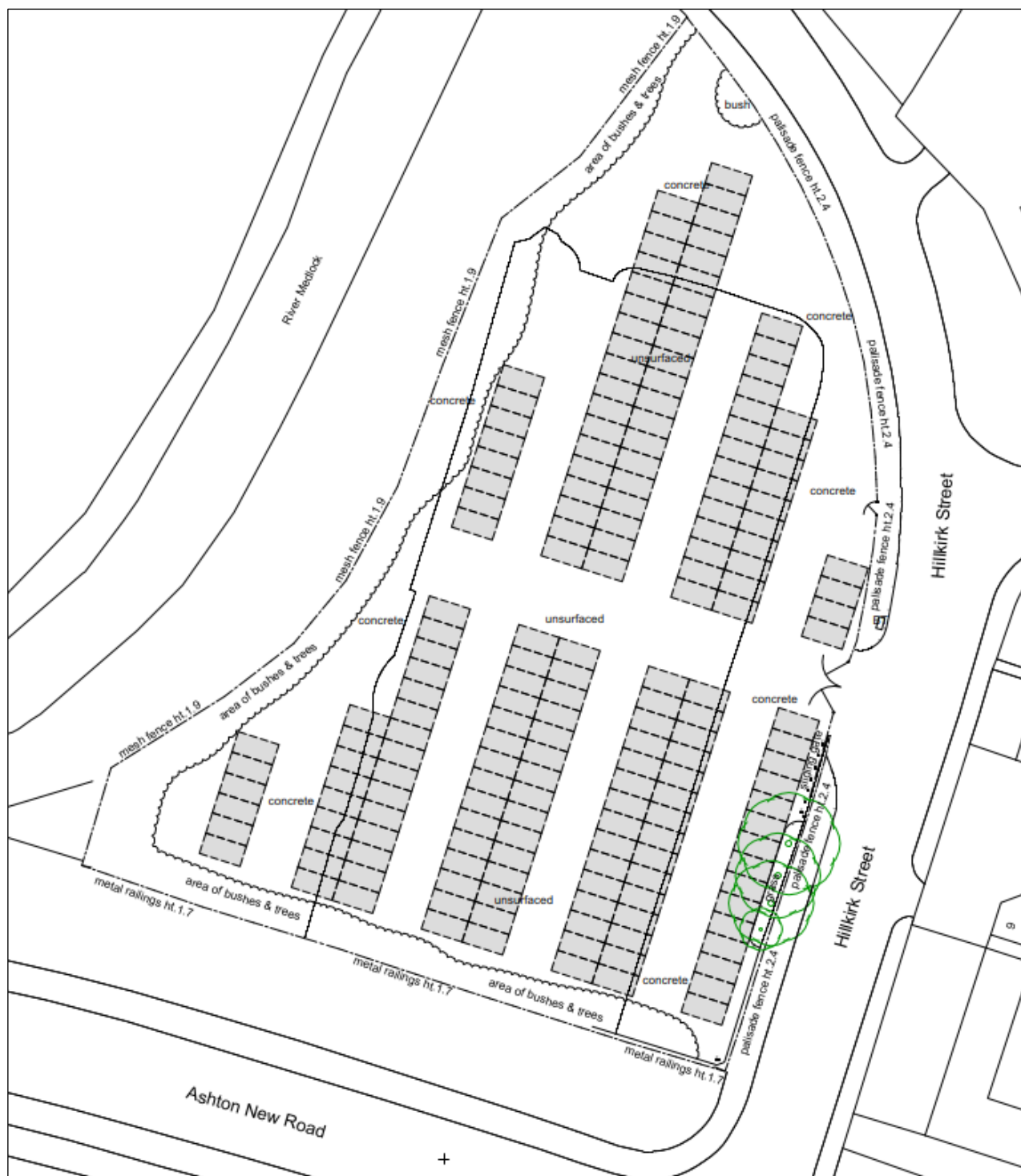


Figure 2: Currently proposed parking allocation layout (c/o cube architecture and design)

2 Baseline Environmental Noise Survey

2.1 Noise Survey Details

- 2.1.1 An environmental survey was conducted by Sol between Thursday 20th November 2025 and Monday 24th November 2025. The survey was undertaken in line with the requirements of BS 7445 'Description and measurement of environmental noise' Parts 1-3.
- 2.1.2 The survey consisted of one long-term unattended measurement positions as described in Table 2 below and shown in Figure 3.

Measurement position	Description
Measurement position 1 ("MP1")	Mast-mounted microphone positioned c.2m above local ground level. The location was representative of "free field" conditions. It was positioned along the southwestern site boundary to the south of the site with direct line of sight to Ashton New Road.

Table 2: Summary of measurement positions

- 2.1.3 MP1 was a secure unattended measurement position intended to quantify the pre-existing baseline noise levels representative of the residential dwellings across Ashton New Road.
- 2.1.4 Type 1 Precision Grade sound measuring instrumentation was exclusively used and a microphone windshield was fitted at all times. Full details of all the instrumentation used and corresponding traceable calibration records are retained on file by Sol and is available for inspection if required.
- 2.1.5 Weather conditions were monitored throughout the survey at MP1. The prevailing weather conditions were generally suitable for the purposes of environmental noise measurements throughout the majority of the noise survey. However, as illustrated on the Time History Graphs in Appendix B, there were periods of wind speeds greater than 5ms⁻¹. Data affected by the adverse weather has been omitted from the noise assessment.
- 2.1.6 Notwithstanding the weather conditions, the microphone system was entirely weatherproofed and fitted with an all-weather environmental windshields, with a bird spike.



Figure 3: Satellite image showing the existing site and noise survey measurement location (Google Earth 2025)

2.2 Noise Survey Results Summary

2.2.1 Table 3 provides a basic summary of the A-weighted broadband environmental noise levels measured during the survey at MP1.

Date	Typical Measured Noise Level (dB, $L_{Aeq,T}$, 10 th Highest L_{Amax} , and Range L_{A90})				
	Daytime		Nighttime		
	$L_{Aeq, 16hr}$	$L_{A90, 15min}$	$L_{Aeq, 8hr}$	$L_{A90, 15min}$	$L_{Amax, 15min}$
20/11/25	58	48-55	54	43-56	
21/11/25	59	49-58	55	45-53	
22/11/25	59	48-56	55	45-53	
23/11/25	59	47-48	54	41-54	
24/11	60	53-58	-	-	-

Table 3: Summary of typical measured noise levels

2.2.2 Appendix B provides further information and a full summary of the measurement data.

2.2.3 Figure 4 and Figure 5 show histogram plots showing the distribution of measured background noise levels at each measurement position for 15-minute daytime and night-time periods based on the representative survey data over the measurement period.

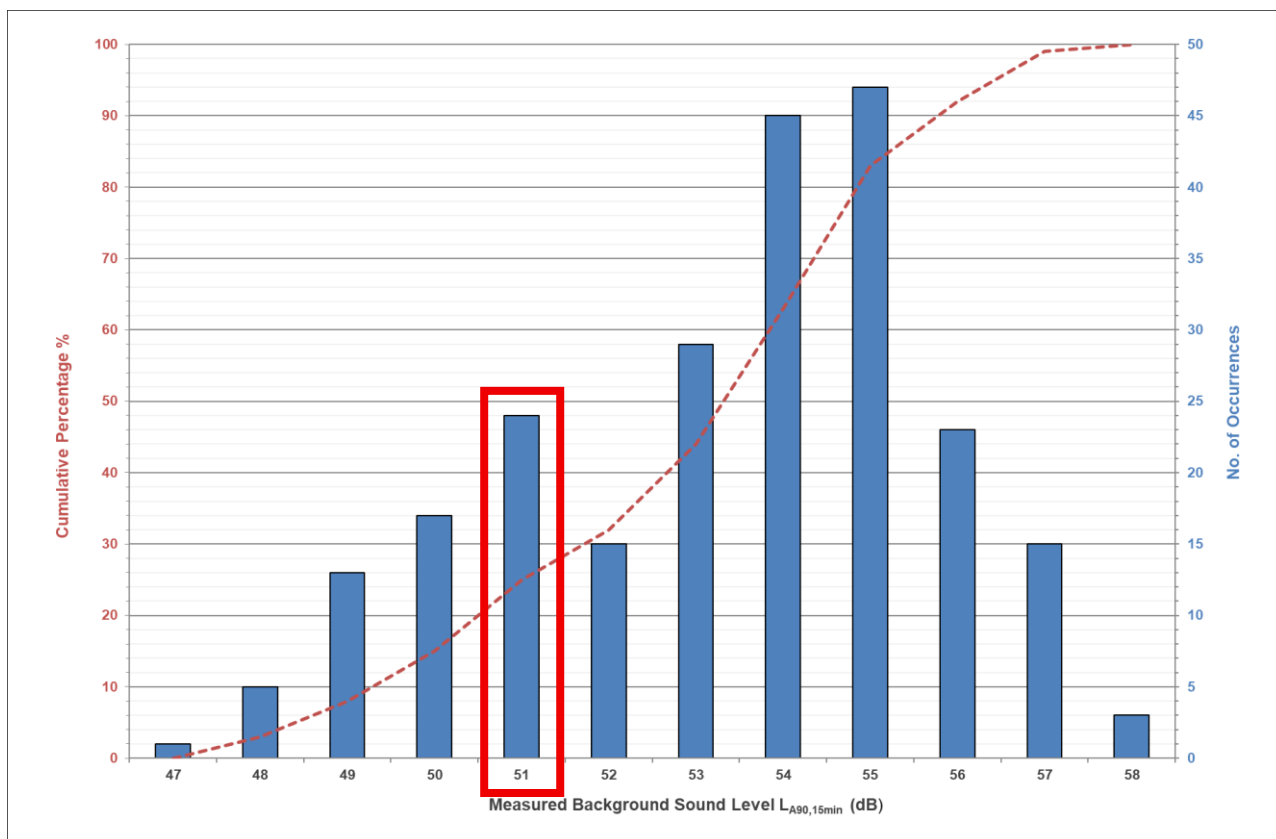


Figure 4: Daytime (07:00-23:00) background noise level histogram at Measurement Position 1

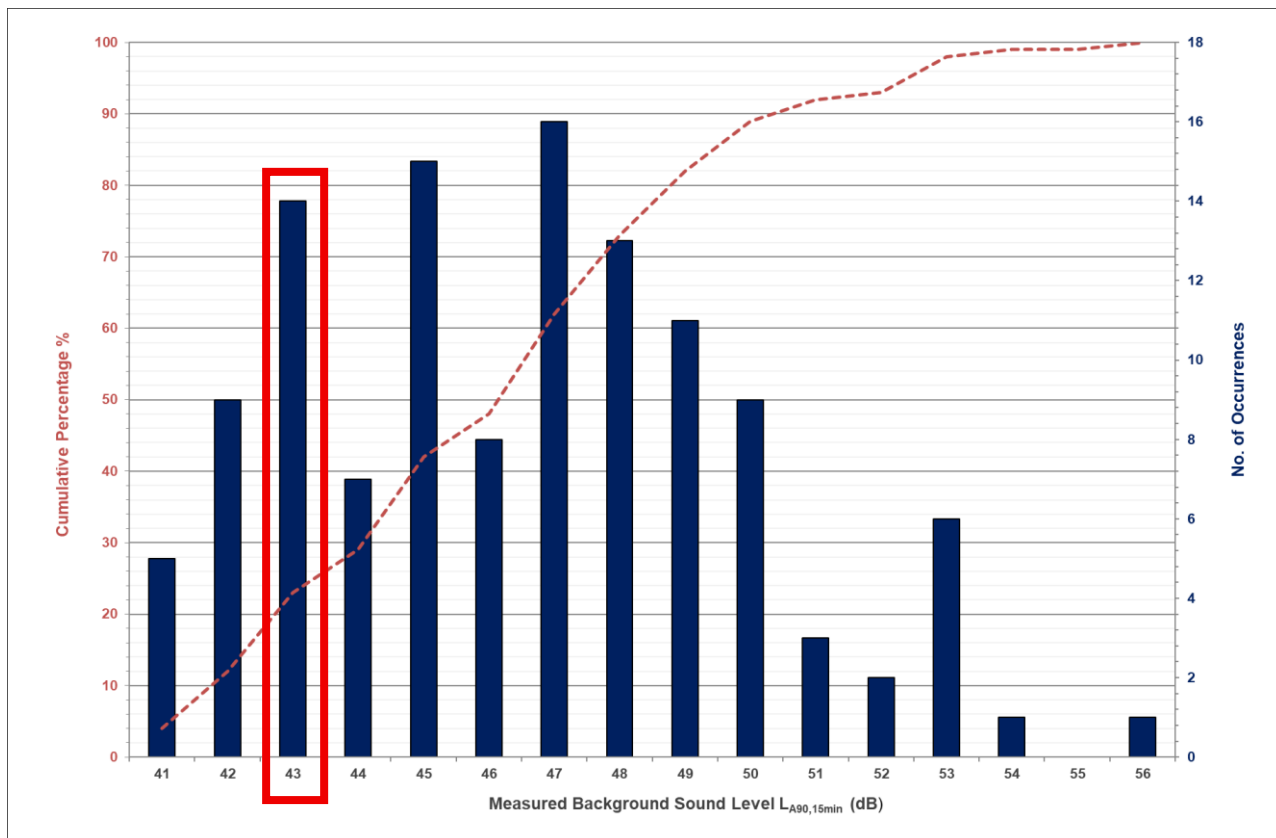


Figure 5: Night time (23:00-07:00) background noise level histogram at Measurement Position 1

2.2.4 From the statistical analysis it is considered that the representative Background Sound Level measured at MP1 was 51dB $L_{A90,15min}$ during the daytime and 43dB $L_{A90,15min}$ during the night-time.

2 Legislation, Planning Policy and Guidance

2.1 National Planning Policy Framework 2025

- 2.1.1 The National Planning Policy Framework ("NPPF") sets out the UK Government's requirements for the planning system. Paragraph 187 advises:

'... Planning policies and decisions should contribute to and enhance the natural and local environment by... e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of... noise pollution... Development should, wherever possible, help to improve local environmental conditions ...'

- 2.1.2 With specific regard to noise, paragraph 198 states that:

*'... Planning policies and decisions should aim to...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;
... identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason ...'*

2.2 Noise Policy Statement for England

- 2.2.1 The Noise Policy Statement for England ("NPSE") was issued in 2010 and was published by the Department for Environment, Food and Rural Affairs ("DEFRA"). The purpose of the NPSE is to *'... Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development ...'* The aims of the NSPE are as follows:

- ◆ Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise (which includes noise from industrial site) as within the context of Government policy on sustainable development.
- ◆ Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- ◆ Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

- 2.2.2 The NPSE effect levels that relate to the likelihood of significant adverse effects on health and quality of life are as follows:

- ◆ NOEL – “No Observed Effect Level”: The level below which no effect can be detected
- ◆ LOAEL – “Lowest Observed Adverse Effect Level”: The level above which adverse effects on health and quality of life can be detected; and
- ◆ SOAEL – “Significant Observed Adverse Effect Level”: The level above which significant adverse effects on health and quality of life occur.

2.2.3 The NPSE states that a “single objective” noise (or vibration) based measure applicable to all sources and receptors that defines the onset of LOAEL and SOAEL is not possible. However, the thresholds for the onset of each of the effect levels can be defined based upon relevant policy, available Standards, and technical guidance.

2.3 Planning Practice Guidance on Noise 2019

2.3.1 The Planning Practice Guidance on Noise (“PPG-N”) was published in March 2014 and updated in July 2019. It advises on how planning can manage potential noise impacts in new development. The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include:

- *‘... the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;*
- *for a new noise making source, how the noise from it relates to the existing sound environment;*
- *for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;*
- *the spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features), and;*
- *the local arrangement of buildings, surfaces and green infrastructure, and the extent to which it reflects or absorbs noise ...’*
- *where external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.*

2.3.2 The Observable Adverse Effect Level terms presented in the NPSE are adopted in the Government’s PPG-N which presents a table of example outcomes to help characterise the level of effect is reproduced in Table 4.

Response	Example of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not Present	No Effect	No Observed Effect	No Specific Measures Required
No Observed Adverse Effect Level			
Present and Not Intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
Lowest Observed Adverse Effect Level			
Present and Intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and Reduce to a Minimum
Significant Observed Adverse Effect Level			
Present and Disruptive	The noise causes a material change in the behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty on getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and Very Disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 4: PPG-N noise exposure hierarchy table

2.4 BS4142: 2014+A1: 2019 *'Method for rating and assessing industrial and commercial sound'*

- 2.4.1 BS 4142:2014+A1:2019: 'Method for rating and assessing industrial and commercial sound' is intended to be used to assess noise of an industrial nature, which includes sound from fixed installations comprising of mechanical and/or electrical plant and equipment. The methods prescribed in this British Standard use outdoor sound levels in order to assess the likely effects of sound on people who might be inside or outside a dwelling or premises that is used for residential purposes upon which sound is incident.
- 2.4.2 The procedure contained in BS 4142: 2014+A1: 2019 for assessing environmental noise impact is to compare the measured or predicted noise level from the source in question - the "Specific Sound Level" immediately outside the noise sensitive premises - with the corresponding "Background Sound Level". Where the noise contains attention attracting characteristics such as tonal, impulsive, and/or intermittent elements, it may be appropriate to apply a correction to the Specific Sound Level in order to obtain the "Rating Level."
- 2.4.3 BS 4142: 2014+A1: 2019 states that the significance of sound arising from an industrial and/or commercial nature depends upon both the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, and also the context in which the sound occurs:
- ◆ Typically, the greater this difference, the greater the magnitude of the impact;
 - ◆ A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
 - ◆ A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context;
 - ◆ The lower the Rating Level is relative to the measured Background Sound Level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.
- 2.4.4 For the daytime, the assessment is conducted over a one-hour period, and over a 15-minute period at night. The daytime and nighttime periods are defined as occurring between 07:00 hours to 23:00 hours, and 23:00 hours to 07:00 hours, respectively.

2.5 IEMA Guidelines for Environmental Noise Impact Assessment (Version 1.2, November 2014)

- 2.5.1 The Institute of Environmental Management & Assessment ("IEMA") sets out key principles of noise impact assessment that are applicable to all development proposals where noise effects are likely to occur.
- 2.5.2 Table 7-14 of the IEMA Guidance provides guidance for assessing the potential noise impact as due to the change in sound levels. Table 5 below sets out the appropriate assessment criteria for a short-term impact classification:

Short Term Impact Classification	Sound Level Change dB $L_{Aeq,T}$ (positive or Negative), T = either 16hour day or 8hour night
Negligible	$\geq 0\text{dB}$ and $< 1\text{dB}$
Minor	$\geq 1\text{dB}$ and $< 3\text{dB}$
Moderate	$\geq 3\text{dB}$ and $< 5\text{dB}$
Major	$\geq 5\text{dB}$

Table 5: Impact from the change in sound level (short-term only)

2.3 Local Planning Policy

- 2.3.1 Manchester City Council's '*Planning and Noise Technical Guidance*' document published in October 2022 provides guidance on the assessment of noise and vibration impacts associated with various type of development within Manchester.
- 2.3.2 With regards to assessment criteria it states:

"In the context of government policy, the Council require that developments aim for: 1. A noise level between the No Observed Effect Level (this is the level of noise exposure below which no effect at all on health or quality of life can be detected) and the Lowest Observed Adverse Effect Level (this is the level of noise exposure above which adverse effects on health and quality of life can be detected). Conditions may be attached. If point 1 cannot be achieved, then: 2. If the assessment results in a level between the Lowest Observed Adverse Effect Level and the Significant Observed Adverse Effect Level (this is the level of noise exposure above which significant adverse effects on health and quality of life occur), mitigation will be necessary to reduce the level and thus conditions will be attached. If points 1 & 2 cannot be achieved, then: 3. If the assessment results in a Significant Observed Adverse Effect Level after mitigation, the application will be recommended for refusal"

- 2.3.3 With regards to noise from commercial/industrial sources it states:

"...The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location..."

3 Operational Noise Assessment

- 3.1.1 The proposed development is not a new use of the site, but will increase the frequency of the use of the site. As such, the acoustic impact of this shall be assessed.
- 3.1.2 The main noise source noted on site was road traffic noise from Ashton New Road and the surrounding road network. The measurement location is representative of the noise climate at the nearest noise sensitive residential receptors for both, $L_{Aeq,T}$ and L_{A90} , as it is located at an equivalent distance from all principle noise sources.

3.2 Vehicle Movements

- 3.2.1 The main noise source associated with the proposals will be car pass-bys, manoeuvring to park, and door slams from people entering and exiting their vehicles.
- 3.2.2 Table 6 below sets out typical broadband noise levels associated with car parking activities measured by Sol.

Noise Source	Typical Noise Level
Car parking	$L_{Aeq,1min}$ 53dBA @3m
Car door slam	$L_{Af,max}$ 63dBA @3m

Table 6: Source noise level utilised for the assessment

- 3.2.3 Our assessment shall consider the resultant noise level at the nearest noise sensitive receptor based on the maximum number of car movements (186 one way trips) and assessed against IEMA Guidelines for Environmental Noise Impact Assessment criteria, and a BS4142:2014+A1:2019 assessment. The results of which shall be compared to the proposed maximum number of spaces as set out in the proposal.

3.3 Predicted Development Resultant Noise Levels

- 3.3.1 In order to predict the likely resultant environmental noise levels impinging noise sensitive receptors, 3D computer based environmental noise models have been created using the DataKustik 'CadnaA' Noise Mapping software. The following assumptions have been made in the generation of the noise model:

- ◆ The noise model was set up to apply the noise prediction methodology set out in ISO 9613-2: 'Acoustics – Attenuation of Sound propagation outdoors – Part 2: General Method of Calculation';
- ◆ The model was set to include up to second order reflected noise from solid structures;
- ◆ Ground absorption has been set to $G=0$ (hard ground) with the exception of large, grassed areas ($G=1$).
- ◆ Acoustic screening and reflections afforded by nearby buildings and solid structures.
- ◆ Car movements have been modelled as moving point sources over a predetermine path based on the proposed development layout.
- ◆ Maximum noise events as a result of car door slams have been modelled as point sources at the worst-case location closest to the noise sensitive receptor.

- 3.3.2 Based upon the above, the resultant noise levels from car park movements and max noise events from car door slams have been predicted at the nearest noise sensitive receptor.
- 3.3.3 Table 7 and Table 8 summarises the corresponding unweighted, predicted noise level based on the maximum 186 one-way trips, and predicted L_{AFmax} noise events as based on typical noise levels taken from our acoustic 3D model.

Assessment Location	Broadband Noise Level, dB $L_{Aeq,1\text{ hour}}$
Ground floor residential window (1.5m height)	43
First floor residential window (4m height)	45

Table 7: Summary of predicted car park movements noise levels

Assessment Location	Broadband Noise Level, dB L_{AFmax}
Ground floor residential window (1.5m height)	30
First floor residential window (4m height)	33

Table 8: Summary of predicted car door slam maximum noise events

3.4 Noise Impact Assessment

- 3.4.1 Based on the number of car parking spaces and proposed use of the car park, we have assumed a maximum comprising 372 total movements (two full one-way trips) could occur during the 16-hour daytime assessment period and a maximum of 186 one-way trips could occur during the 8-hour night-time assessment period.

IEMA Assessment

- 3.4.2 An assessment of the resultant change in noise level as a result of the predicted noise levels has been undertaken based on the criteria of IEMA noise impact assessment. The resultant change in daytime and night-time sound level is detailed in Table 9 and Table 10 respectively.

Assessment Location	Predicted incident $L_{Aeq,16\text{ hour}}$ noise level	Existing Noise $L_{Aeq,16\text{ hour}}$ Level	Resultant Ambient Noise $L_{Aeq,16\text{ hour}}$ Level	Sound Level Change, dB $L_{Aeq,16\text{ hour}}$
Ground floor residential window (1.5m height)	34.1	58	58.0	0.0
First floor residential window (4m height)	36.0		58.1	0.0

Table 9: Resultant change in daytime noise levels

Assessment Location	Predicted incident $L_{Aeq,8 \text{ hour}}$ noise level	Existing Noise $L_{Aeq,8 \text{ hour}}$ Level	Resultant Ambient Noise $L_{Aeq,8 \text{ hour}}$ Level	Sound Level Change, dB $L_{Aeq,16 \text{ hour}}$
Ground floor residential window (1.5m height)	34.1	54	54.0	0.0
First floor residential window (4m height)	36.0		54.1	0.1

Table 10: Resultant change in night-time noise levels

3.4.3 As seen from Table 9 and Table 10 the resultant change in ambient noise level is negligible and therefore in line with the Local Authority requirement of achieving a noise level between NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level).

BS4142 Assessment

- 3.4.4** An assessment of the predicted noise levels against typical background noise levels has been undertaken.
- 3.4.5** The predicted maximum noise event levels from car door slams are 23dB $L_{AF,max}$ at the worst-case affected residential window. As this is 20dB below the typical lowest background noise level it is not likely to be subjectively impulsive at the receptor, as such no penalties have been applied.
- 3.4.6** The resultant level above typical background daytime and night-time sound level is detailed in Table 11 below.

Noise Sensitive Receptor	Assessment Period	Predicted Specific Level, dB $L_{Aeq,T}$	Acoustic Character Correction, dB	Predicted Rating Level, dB L_{Ar,T_r}	Typical Background Sound Level, dB $L_{A90,15min}$	Rating Level sub. Background $\pm$ dB
Ground floor residential window (1.5m height)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	40	0	40	51	-11
	Nighttime (23:00hrs – 07:00hrs) T = 15 minutes	34	0	34	43	-9
First floor residential window (4m height)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	45	0	45	51	-6
	Nighttime (23:00hrs – 07:00hrs) T = 15 minutes	39	0	39	43	-4
* Key Green: low impact (less than or equal to 0dB) Amber: sub-adverse impact to adverse impact (i.e. +1dB to +5dB) Red: adverse to significant adverse impact (+6dB or higher)						

Table 11: BS4142 summary assessment

- 3.4.7 As seen from Table 11 the predicted incident noise level is more than 5dB below the typical daytime and below the existing typical night-time background noise level. The daytime assessment is in line with the Local Authority requirement to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location for commercial/industrial noise sources.
- 3.4.8 The nighttime assessment is 1 dB above the Local Authority criteria. However, given that the context of the noise generated by the development proposals and the main noise sources within the area it is unlikely to cause a significant impact on the nearby noise sensitive receptors and therefore an indication of a NOEL to LOAEL impact and in line with the Manchester City Council Local Plan requirements.

Maximum Noise Events

- 3.4.9 The highest predicted incident external maximum noise events, as a result of car door slams, are at least 23dB $L_{AF,max}$, which is significantly below the WHO guidance internal noise level of 45dB $L_{AF,max}$ at which sleep disturbance could occur and is therefore also in line with the Local Planning Authority requirement.

3.5 Additional Pedestrian Noise

- 3.5.1 There is no specific planning policy or technical guidance for assessing passenger noise. It should be noted that BS 4142 is specifically not intended to be applied to people.
- 3.5.2 Given that the proposed parking shall be used when events are occurring at Sport City, Etihad Campus, or the Co-Op Arena, it is expected that there will already be an increased number of pedestrians walking to these events and any additional noise generated by people utilising the proposed car park will be negligible

4 Summary

- 4.1.1 Sol Acoustics Limited have been commissioned by AshtonHale to undertake a baseline noise survey and noise impact assessment of the proposed car park temporary planning application at land off of Hillkirk Street in Manchester.
- 4.1.2 The purpose of this report is as follows:
- ◆ To assess the proposed scheme in accordance with '*ProPG: Planning & Noise 2017*' and Manchester City Council's '*Planning and Noise Technical Guidance*' and '*The Institute of Environmental Management & Assessment Guidelines for Environmental Noise Impact Assessment*'.
 - ◆ To specify appropriate daytime and night-time environmental noise limits based on the results obtained from the environmental survey undertaken at site in accordance with BS 4142:2014+A1:2019 and Local Authority requirements.
 - ◆ Using the maximum occupancy of the proposed car park determine the acoustic impact of the proposed car park development on the worst affected noise sensitive receptors in accordance with BS 4142:2014+A1:2019,

- 4.1.3 The result of the Institute of Environmental Management & Assessment Guidelines for Environmental Noise Impact Assessment indicate a negligible change in noise level and there for an indication of a NOEL to LOAEL impact and inline with the Manchester City Council Local Plan requirements.
- 4.1.4 The result of the BS4142:2014 Noise Impact Assessment indicate that the predicted worst case incident noise level is more than 5dB below the typical daytime background noise level and at least 4dB below the typical nighttime background noise level and therefor an indication of a NOEL to LOAEL impact and in line with the Manchester City Council Local Plan requirements.
- 4.1.5 Predicted external incident maximum noise event levels do not exceed the internal guideline WHO criterion and are also an indication of a NOEL to LOAEL impact and in line with the Manchester City Council Local Plan requirements.

APPENDIX A

Glossary of Acoustic Terms

Term	Abbreviation	Description
Decibel	dB	A scale for comparing the ratios of two quantities, including sound pressure and sound power.
A-weighting	dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the change in sensitivity of the human ear at varying frequencies.
Sound Pressure Level	L_{pA}	A measure of the sound pressure at a particular location. Typically expressed in dB(A) referenced to 2×10^{-5} Pascals.
Equivalent Continuous Sound Level	$L_{Aeq,T}$	The steady level of sound over a prescribed period of time which would contain the same total sound energy as the actual fluctuating noise under consideration in the same period of time.
Statistical Sound Levels	L_{A10} and L_{A90}	The level of noise exceeded for a percentage of the time period being sampled, namely 10% or 90% respectively.
Background Sound Level	$L_{A90,T}$	The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of the time period being sampled.
Maximum Sound Level	L_{Amax}	The maximum sound or noise level determined with instrumentation set to either a fast time weighting, L_{AFmax} , or a slow time weighting, L_{ASmax} , as occurring during the time period being sampled.
Sound Power Level	L_{WA}	A measure of the total sound energy radiated from a source. Like sound pressure levels, this is also expressed in dB(A) terms, but it is referenced to 1×10^{-12} W.
Broadband		Sound sampled over a wide range of frequencies.
Narrow band		Sound sampled over a specific, restricted frequency range. Used to ascertain the amplitude and significant of individual, audible tones, and to assist in identifying particular sources of noise within a complex, multi-source soundscape environment.
Ambient Sound	$L_{eq,T}$	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, both near and far.
Specific Sound Level	$L_{eq,T}$	The Equivalent Continuous A-Weighted Sound Level at an assessment position produced by a specific sound over a given reference time interval, T_r
Rating Level	L_{Ar,T_r}	The Specific Sound Level plus any adjustment for the acoustic characteristic features of the noise (e.g. intermittency, tones etc.).
Residual Noise	$L_{Aeq,T}$	The ambient sound remaining at given position in a given situation, when the specific sound source is suppressed to such an extent that it no longer contributes to the ambient sound.
Sound Reduction Index	SRI	The reduction in sound energy when transmitted through a panel or similar planar element, typically used in relation to single octave or one-third octave frequency band values.
Weighted Sound Reduction Index	R_w	The Sound Reduction Index expressed as a single figure, as expressed against a reference curve.
Dynamic Insertion Loss	DIL	Reduction in acoustic energy resulting from the insertion of a noise control element (e.g. an attenuator, acoustic enclosure etc.).

Free Field		Noise measuring location that is free from the presence of sound reflecting objects (except the ground), usually taken to mean being at least 3.5 metres distance from reflective surface(s) or greater.
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APPENDIX B

Noise Survey Details and Summary Results

Location

Land off Hillkirk Street, Manchester

Dates, Times, and Weather Conditions

Date	Daytime (07:00 – 23:00 Hours)				Nighttime (23:00 – 07:00 Hours)			
	Temp, °C	Rain, mm/h	Wind Direction	Mean Wind Speed, ms ⁻¹	Temp, °C	Rain, mm/h	Wind Direction	Mean Wind Speed, ms ⁻¹
20/11/25	1	0	NW	0.6	-3	0	E	0.3
21/11/25	1	0	SE	0.3	4	0.5	S	0.9
22/11/25	6	0	SE	0.4	4	0.3	E	0.6
23/11/25	6	0.2	S	1.1	4	0	E	0.3
24/11/25	5	0.1	NW	0.7	-	-	-	-

Personnel

Mike Hartley MEng MIOA – Sol Acoustics

Instrumentation

Measurement Position 1

01dB Cube Sound level meter (serial no. 11571)

01dB Pre22 Microphone preamplifier (serial no. 1805255)

GRAS 40CD Microphone capsule (serial no. 331595)

01dB Cal21 acoustic calibrator (serial no. 34675320)

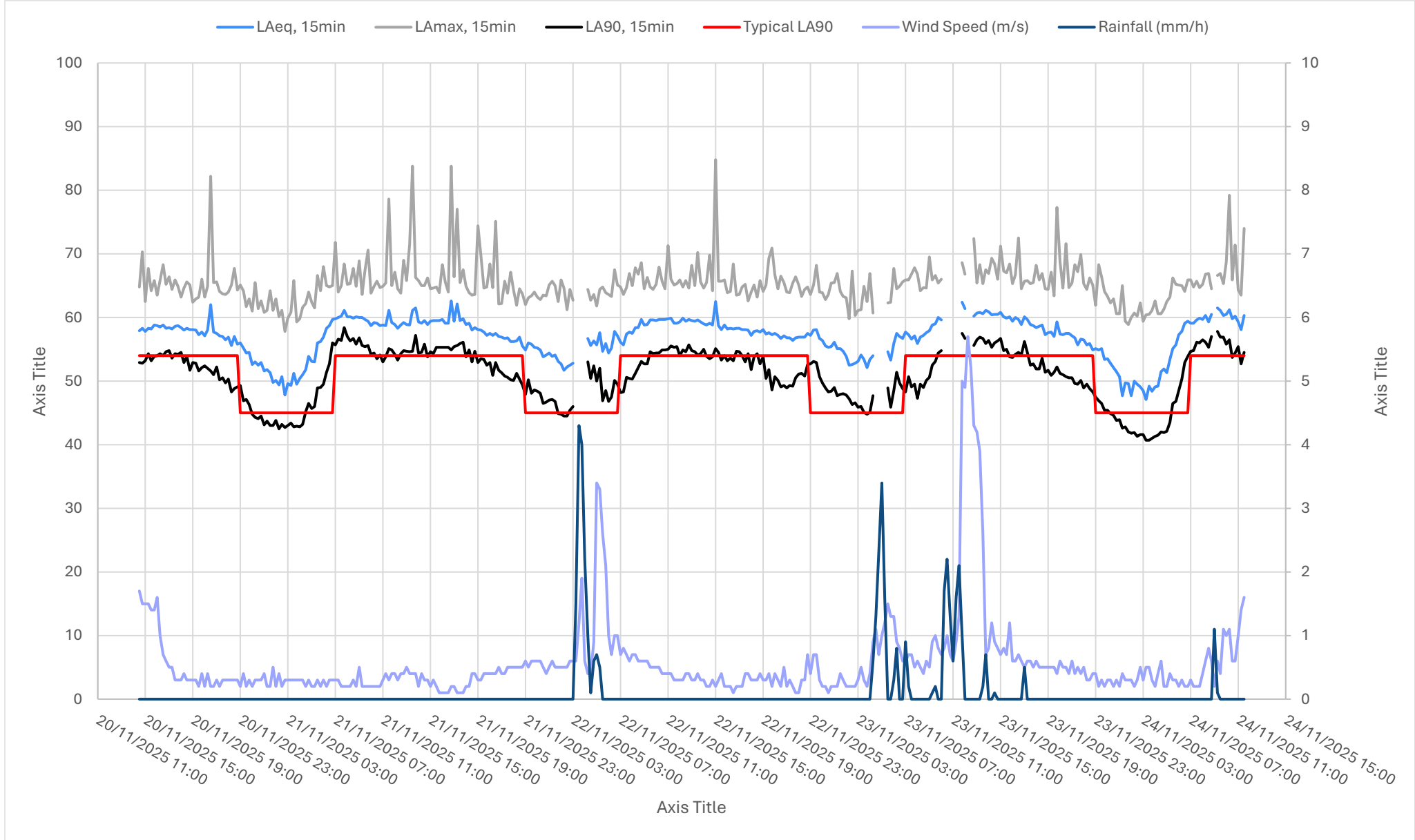
Vaisala WXT520 Weather Station

Methodology

Before and after the measurements the noise monitoring equipment was calibrated to an accuracy of ± 0.1 dB using the Cal 21 Calibrator. The calibrator produces a sound pressure level of 94dB re 2×10^{-5} Pa @ 1kHz.

Measurement Results

Graphs B1 summarise the broadband A-weighted results obtained at Measurement Position 1.



Graph B1: A-weighted environmental noise levels at MP1, 20 March to 24 March 2025

APPENDIX C

Environmental Noise Modelling Results

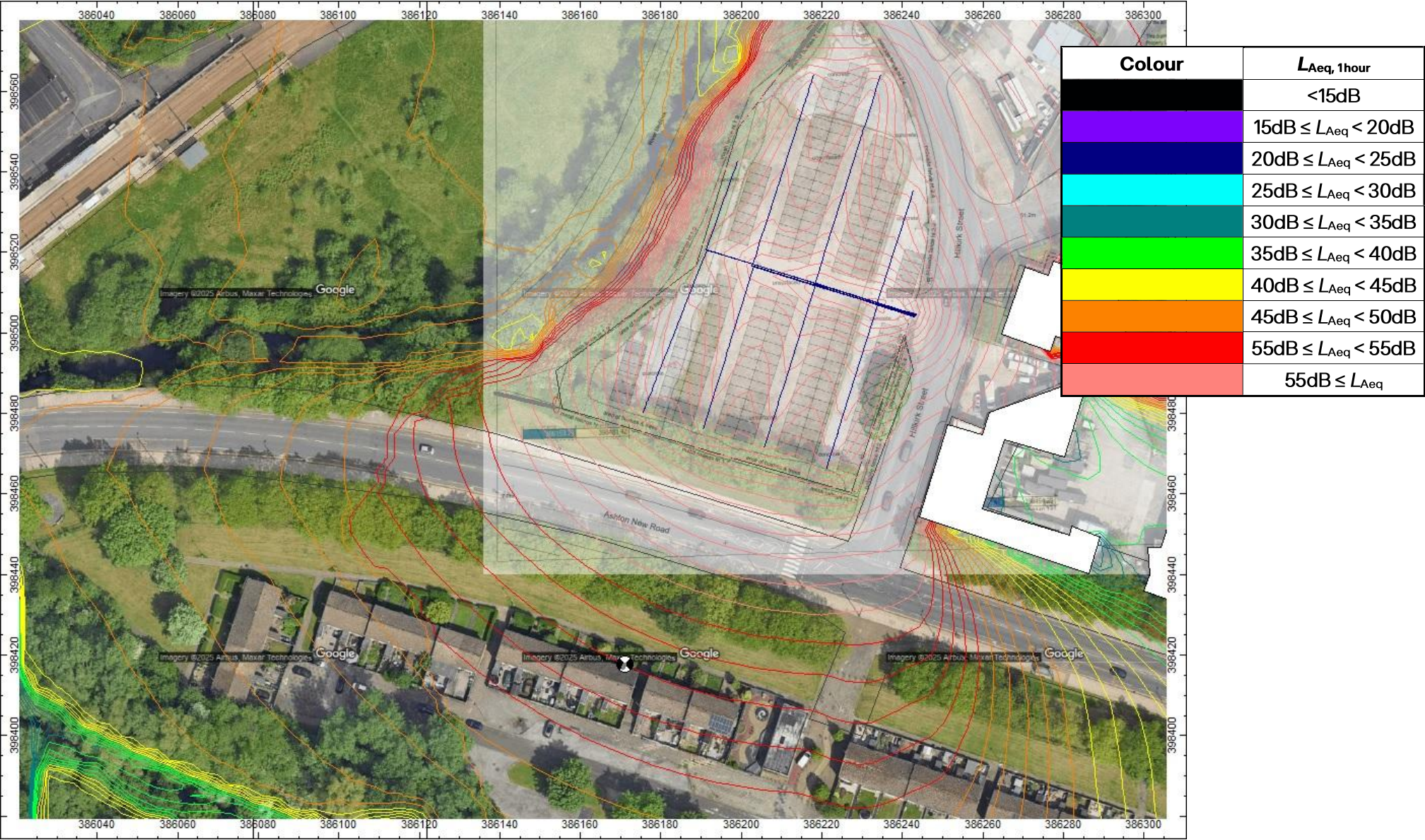


Figure C1: Predicted Specific Sound Level $L_{Aeq,1hour}$ from the Facility at 4m grid height