

NOISE IMPACT ASSESSMENT

Site:	The Workshop, Alexandra Road
References:	52-179
Date:	02 July 2026
Client:	Manchester City Council





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QUALITY ASSURANCE

Report references

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EXECUTIVE SUMMARY

Site Address	130 Alexandra Rd, Manchester M16 7WD
Grid Reference	E 383312, N 395494
Proposed Development	Proposed remodel of existing office building into homeless accommodation.
Surveys Completed	E3P have conducted two unattended noise surveys to capture the levels of noise associated with surrounding traffic routes, as well as to quantify the existing levels of background sound on site. Unattended measurements have also been conducted to measure the levels of noise associated with surrounding non-associated noise sources, such as commercial premises, a school and a general practice.
Assessments Completed	E3P have conducted two unattended surveys to quantify the levels of background sound across the site and the levels of noise associated with Alexandra Road and a nearby school playground. Attended measurements have also been conducted to capture and identify any other noise sources associated with surrounding commercial premises.
Mitigation Recommended	A sealed acoustic enclosure is required for the proposed ASHP configuration in order to reduce noise levels to 5 dB below the background.
Conclusions and Discussions	With mitigation measures in place, no adverse impact is predicted.



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1. INTRODUCTION

1.1. BACKGROUND

E3P has been commissioned by Manchester City Council to undertake a Noise Impact Assessment for a proposed homeless shelter at The Workshop in Manchester, to be referred to hereafter as 'the Site'.

This assessment looks to determine the key noise sources in the immediate vicinity of the Site and to assess their impact, if any, upon proposed residential receptors and to specify mitigation measures, where required.

It is understood that Environmental Health has proposed two planning conditions aimed at controlling internal noise levels and overheating as well as controlling the impact of noise from any proposed fixed plant items.

NSE4(b) (Residential sound insulation AND overheating) has been proposed as:

Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from Alexandra Road shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises.

The potential for overheating shall also be assessed, and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria shall be required to be achieved when providing adequate ventilation as defined by Approved Document F of the Building Regulations (whole dwelling ventilation):

Bedrooms (night-time - 23.00 - 07.00): 30 dB L_{Aeq} (individual noise events shall not exceed 45 dB $L_{Amax,F}$ by more than 10 times)

Living Rooms (daytime - 07.00 - 23.00): 35 dB L_{Aeq}

Gardens and terraces (daytime): 55 dB L_{Aeq}

Higher internal noise levels than those specified above may be allowed when higher rates of ventilation are required in relation to the overheating condition.

NSE6 (External plant/equipment/servicing) has been proposed as well:

Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme 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. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before the use commences or as otherwise agreed in writing by the City Council as local planning authority.

As such, this report aims to clear these conditions set out for this project.

1.2. REPORT OBJECTIVES

The objectives of this report are as follows:

- ✳ Establish and measure the existing sound levels across the site, day and night.



- ✦ Consider the potential sources of sound impacting the site and to measure source sound levels of all applicable sources.
- ✦ Assess internal and external noise levels associated with road traffic in accordance with criteria given in BS 8233.
- ✦ Assess the impact of commercial sound upon the proposed development and proposed fixed plant items upon pre-existing receptors in accordance with BS 4142
- ✦ Provide advice on mitigation measures, where required.

1.3. PROPOSED DEVELOPMENT

Manchester City Council propose to redevelop The Workshop on Alexandra Road in Manchester to a homeless shelter with associated externally mounted fixed plant.

A snapshot of the proposed development layout is indicated in Figure 1.

Figure 1 Snapshot of the Proposed Development





2. ASSESSMENT METHODOLOGY

2.1. NATIONAL PLANNING POLICY FRAMEWORK (2024)

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:

- ✦ 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. NATIONAL PLANNING PRACTICE GUIDANCE

Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

Local planning authorities' plan-making and decision-making should take account of the acoustic environment and in doing so consider:

- ✦ Whether or not a significant adverse effect is occurring or is likely to occur.
- ✦ Whether or not an adverse effect is occurring or is likely to occur.
- ✦ Whether or not a good standard of amenity can be achieved.

In line with the explanatory note of the NPSE, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase, where applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The “observed effect levels” are as follows:

- ✦ Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur.
- ✦ 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.
- ✦ 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.

Table 2.1 summarises the noise exposure hierarchy, based on the likely average response.



Table 2.1 Noise Exposure Hierarchy

PERCEPTION	EXAMPLES OF OUTCOMES	INCREASING EFFECT LEVEL	ACTION
Not Applicable	No effect	No observed effect	No specific measures required.
Noticeable and Not Intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No observed adverse effect	No specific measures required
Lowest Observed Adverse Effect			
Noticeable and Intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television, speaking more loudly, or having to close windows for some of the time because of the noise where there is no alternative ventilation. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed adverse effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and Disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion, having to keep windows closed most of the time because of the noise where there is no alternative ventilation. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant observed effect	Avoid
Noticeable and Very Disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening, loss of appetite, significant/medically definable harm (auditory and non-auditory).	Unacceptable adverse effect	Prevent

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 situation. These factors include the following:



- ✳ 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. The adverse effect can also be greater simply because there is less background noise at night.
- ✳ For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise can be important.
- ✳ The spectral content of the noise and the general character of the noise. The local topology and topography should also be considered along with the existing and, where appropriate, the planned character of the area.

More specific factors to consider when relevant:

- ✳ Where applicable, the cumulative impacts of more than one source should be considered along with the extent to which the source of noise is intermittent and of limited duration.
- ✳ Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases, a suitable alternative means of ventilation is likely to be necessary.
- ✳ If external amenity spaces are an intrinsic part of the overall design, then the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.3. BUILDING REGULATION: APPROVED DOCUMENT F – VOLUME 1: DWELLINGS (JUNE 2022)

Approved document F Volume 1: Dwellings (ADF) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to means of ventilation within dwellings. The ventilation strategy specified within the ADF are as follows.

1.9 The ventilation strategy in this approved document relies on a combination of all of the following.

a. Extract ventilation from rooms where water vapour or pollutants are likely to be released (e.g. bathrooms and kitchens), to minimise their spread to the rest of the building. Ventilation fans may be either intermittent operation or continuous operation.

b. Whole dwelling ventilation to provide fresh air to the building and to dilute, disperse and remove water vapour and pollutants not removed by extract ventilation.

c. Purge ventilation to remove high concentrations of pollutants and water vapour. Purge ventilation is used intermittently and required only for pollutants produced by occasional activities (e.g. fumes from painting).

1.10 Ventilation may be delivered through natural ventilation, mechanical ventilation or a combination of both.

1.11 The ventilation systems in this approved document are examples of systems that comply with Part F of the Building Regulations. Other ventilation systems may be acceptable if they can be shown to meet an equal level of performance.



Within the ADF there are three system specific ventilation systems that can be utilised to provide sufficient ventilation. These methods are as follow.

1. Natural ventilation with background ventilators and intermittent extract fans (guidance suitable only for less airtight dwellings) - Ventilation provided by thermal, wind or diffusion effects through doors, windows or other intentional openings without the use of mechanically driven equipment. For the purposes of this approved document, natural ventilation refers to a ventilation strategy using background ventilators and intermittent extract ventilation.

2. Continuous mechanical extract ventilation - Mechanically driven ventilation that continuously extracts indoor air and discharges it to the outside.

3. Mechanical ventilation with heat recovery - A mechanically driven ventilation system that both continuously supplies outdoor air to the inside of the dwelling and continuously extracts indoor air and discharges it to the outside. For the purposes of this approved document, the guidance for mechanical ventilation with heat recovery applies to centralised or decentralised supply and extract systems, with or without heat recovery.

2.4. BUILDING REGULATIONS: APPROVED DOCUMENT O – OVERHEATING (JUNE 2022)

Approved document O - Overheating (ADO) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to the mitigation of overheating. In relation to noise the ADO provides the following guidance.

3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

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

a. 40dB LAeq,T, averaged over 8 hours (between 11pm and 7am).

b. 55dB LAFmax, more than 10 times a night (between 11pm and 7am).

3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants'

Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.

NOTE: Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020)

2.5. APPROVED DOCUMENT O NOISE GUIDE (2024)

This guide sets out a method to demonstrate compliance to the Building Control Body of the noise constraints in AD-O. This guide aims to provide clarity for practitioners and regulators so that assessments can be carried out consistently, and the outcome is repeatable and reliable.

Any assessment of overheating, in relation to noise, follows this guidance. Importantly, the guide, based on research and typical assumptions, provides the resulting outside-to-inside level difference for window openings necessary to satisfy the simplified method of AD-O which are expected to be:



- ✿ 5 dB for 'high risk' locations; and
- ✿ 10 dB for 'medium risk' locations.

With reference to paragraph 3.3 of AD-O, this implies the following limiting external free-field levels above which external noise precludes the use of the simplified method, and dynamic thermal modelling should be used to demonstrate compliance.

The guide also recommends that $L_{Amax,fast}$ measurement and assessment should be based on a sampling period of 2 minutes.

2.6. BRITISH STANDARD BS 4142:2014+A1: 2019 – METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- ✿ Sound from industrial and manufacturing processes.
- ✿ Sound from fixed installations which comprise mechanical and electrical plant and equipment.
- ✿ Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and
- ✿ Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

The procedure detailed in the standard compares the measured or predicted specific noise level from any of the above with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is typical.

The specific noise level also acknowledges the reference time intervals depending upon whether the noise source operates during daytime (1-hour) or night-time (15-minute) periods.

There are several 'penalties' which can be attributed to the specific sound level depending upon the 'acoustic features' of the sound level under investigation as follows:

TONALITY

- ✿ +2 dB: where the tonality is just perceptible.
- ✿ +4 dB: where the tonality is clearly perceptible; and
- ✿ +6 dB: where the tonality is highly perceptible.

IMPULSIVITY

- ✿ +3 dB: where the impulsivity is just perceptible.
- ✿ +6 dB: where the impulsivity is clearly perceptible; and
- ✿ +9 dB: where the impulsivity is highly perceptible.



INTERMITTENCY

- ✳ +3dB: where the intermittency is readily distinctive against the acoustic environment.

In addition to the above, there is a penalty for 'other sound characteristics' of +3 dB where a sound exhibits characteristics that are neither tonal nor impulsive, though are readily distinctive against the acoustic environment. BS 4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

Assessment of the rating level relative to the background sound level can yield the following commentary:

- ✳ Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact.
- ✳ A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- ✳ A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- ✳ 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

2.7. BRITISH STANDARD BS 8233:2014+A1:2019 – GUIDANCE OF SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

The scope of this standard is the provision of recommendations for the control of noise in and around buildings including residential dwellings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

The standard suggests suitable internal noise levels within different types of buildings, including residential dwellings, as shown in Table 2.2.

Table 2.2 BS 8233:2014 Recommended Internal Noise Level

CRITERION	TYPICAL SITUATION	DESIGN CRITERION $L_{Aeq,T}$ (dB)
Suitable resting and sleeping conditions	Living Room	35
	Bedroom	30

BS 8233 goes on to recommend noise levels for gardens:

It is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors might be warranted.



BS 8233 goes on to say:

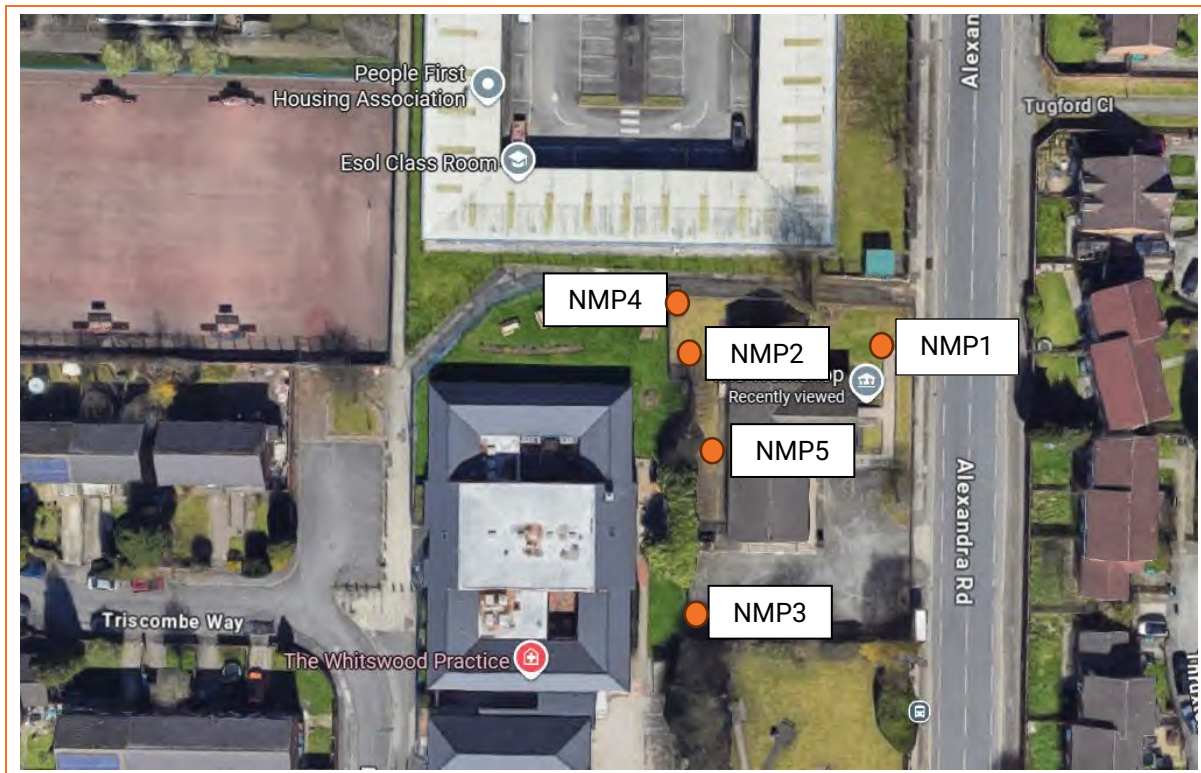
In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.



3. SURVEY RESULTS

E3P has undertaken two unattended noise surveys to quantify the levels of noise associated with Alexandra Road and the levels of background sound across the site. Attended measurements were also conducted to capture any other noise sources surrounding the site, including a nearby school, business park and general practice. The noise measurement positions used for the surveys are detailed in Figure 2.

Figure 2 Noise Measurement Positions



3.1. ROAD TRAFFIC NOISE MEASUREMENT – ALEXANDRA ROAD

E3P has undertaken an unattended road traffic noise measurement over a twenty-four-hour period to quantify the levels of noise associated with traffic along Alexandra Road. The survey was conducted over the following period:

📅 09:00 Thursday 25th to 09:00 Friday 26th June 2026.

The following noise measurement position was chosen for the survey:

- 📍 Noise Measurement Position 1 (NMP1): Positioned approximately 7 m from the nearside curb edge of Alexandra Road at a height of 1.3 m above local ground level under free-field conditions. The acoustic climate was dominated by traffic along Alexandra Road.

A summary of the measured sound pressure levels is detailed in Table 3.1.



Table 3.1 Road Traffic Noise Measurement – Alexandra Road

MEASUREMENT START TIME	MEASURED SOUND PRESSURE LEVELS	
	$L_{Aeq,1hr}$	10TH HIGHEST $L_{Amax, Fast}$
25/06/2026 09:00	62.2	N/A
25/06/2026 10:00	60.4	
25/06/2026 11:00	59.6	
25/06/2026 12:00	60.8	
25/06/2026 13:00	61.6	
25/06/2026 14:00	61.6	
25/06/2026 15:00	62.0	
25/06/2026 16:00	61.8	
25/06/2026 17:00	61.9	
25/06/2026 18:00	61.7	
25/06/2026 19:00	61.1	
25/06/2026 20:00	61.7	
25/06/2026 21:00	60.5	
25/06/2026 22:00	59.9	
25/06/2026 23:00	58.1	76.0
26/06/2026 00:00	54.8	
26/06/2026 01:00	53.0	
26/06/2026 02:00	50.4	
26/06/2026 03:00	51.3	
26/06/2026 04:00	64.3	
26/06/2026 05:00	61.1	
26/06/2026 06:00	57.7	
26/06/2026 07:00	61.3	N/A
26/06/2026 08:00	63.4	

The derived day- and night-time noise levels at NMP1 are thus 61.4 dB and 58.7 dB, respectively.

3.2. BACKGROUND AND AMBIENT SOUND SURVEY

E3P has undertaken an unattended background sound survey to measure the existing levels of background sound in a position considered representative of proposed receptors. The survey was conducted over the following period:

📅 10:00 Friday 26th to 12:00 Monday 29th June 2026.

The following noise measurement position was chosen for the survey:



- ✦ Noise Measurement Position 2 (NMP2): Positioned approximately 5 m west of the proposed noise sensitive receptors in the northwest of the site under free-field conditions. The acoustic climate was dominated by traffic along Alexandra Road, playground noise in the northwest, and patrons attending the general practice in the southwest. This position is considered representative of the proposed noise sensitive receptors.

This noise measurement position was chosen to also capture noise from the school situated in the northwest.

A table summary of the measured sound pressure levels from the background sound survey is presented in Table 3.2.

Table 3.2 Measured Background and Ambient Noise Levels

DATE	PERIOD	MEASURED SOUND PRESSURE LEVELS (dB)		
		AVERAGE AMBIENT NOISE – SCHOOL NOISE $L_{Aeq, T}$	RANGE OF MEASURED BACKGROUND LEVELS $L_{A90, T}$	MEDIAN MEASURED BACKGROUND LEVELS $L_{A90, T}$
Friday 26/06/26	Daytime	49.7	37.8 – 44.7	41.4
	Night-time	N/A	31.7 – 38.5	35.6
Saturday 27/06/26	Daytime	N/A	36.6 – 44.8	42.3
	Night-time		32.2 – 39.6	35.5
Sunday 28/06/26	Daytime	N/A	35.0 – 46.7	42.4
	Night-time		33.7 – 40.2	36.9
Monday 29/06/26	Daytime	51.0	40.7 – 45.4	43.2

As highlighted in Table 3.2, the minimum median measured background sound levels for day and night are 41.4 and 35.5 dB, respectively. The maximum measured average ambient noise level is shown to be 51.0 dB. These values inform the assessments undertaken in Section 4. Weekend ambient noise levels are not considered in this assessment as school opening hours are restricted to weekdays.

3.3. ATTENDED COMMERCIAL NOISE MEASUREMENTS

E3P has conducted attended measurements of surrounding commercial premises surrounding the site. The surveys were carried out over the following periods:

- ✦ 13:30 to 16:30 Thursday 25th June 2026.
- ✦ 06:00 to 09:00 Friday 26th June 2026.

It is confirmed through observations during the above periods that surrounding premises are operational but only during daytime hours.



The following noise measurement positions were chosen for the commercial noise measurements:

- ✳ Noise Measurement Position 3 (NMP3): Positioned approximately 7 m east of the general practice adjacent to the site, at height of 1.3 m above local ground level under free-field conditions. The acoustic climate was dominated by road traffic along Alexandra Road.
- ✳ Noise Measurement Position 4 (NMP4): Positioned approximately 7 m south of the business park adjacent to the site, at a height of 1.3 m above local ground level under free-field conditions. The acoustic climate was dominated by road traffic along Alexandra Road.
- ✳ Noise Measurement Position 5 (NMP5): Positioned approximately 10 m east of the general practice adjacent to the site, at a height of 1.3 m above local ground level under free-field conditions. The acoustic climate was dominated by rustling trees and road traffic along Alexandra Road.

Table 3.3 details the results of the attended noise surveys.

Table 3.3 Measured Sound Levels of Surrounding Commercial

PERIOD	NMP	MEASURED SOUND LEVEL, $L_{Aeq,T}$ (dB)	NOTES
13:32 – 14:37 25/06/26	NMP3	51.7	No commercial activity or externally mounted plant noise was noted. Noise from road traffic associated with Alexandra Road dominant.
14:35 – 15:40 25/06/26	NMP4	50.8	
15:41 – 16:46 25/06/26	NMP5	48.7	
06:02 – 07:37 26/06/26	NMP4	47.6	
07:39 – 09:14 26/06/26	NMP3	52.1	

Weather conditions were conducive to the measurement of environmental noise throughout. The equipment outlined in Table 3.4 was used for the noise surveys.



Table 3.4 Noise Measurement Equipment and Calibration Dates

MEASUREMENT POSITION	EQUIPMENT DESCRIPTION		MANUFACTURER AND TYPE NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
NMP1, NMP2	Sound Meter	Level	Cirrus Optimus Green CR:171A	G303884	22/09/2026
	Pre Amp		Cirrus MV:200F	12731F	
	Microphone		Cirrus MK:224	215899D	
	Calibrator		Cirrus CR:515	99403	22/09/2026
NMP3 - NMP5	Sound Meter	Level	01dB Fusion	12039	05/08/2027
	Pre Amp		01dB Pre22	1805124	
	Microphone		GRAS 40CE	330832	
	Calibrator		01dB Cal31	87281	06/02/2027

The sound level meters were field calibrated before and after measurements with no significant drift witnessed.



4. NOISE IMPACT ASSESSMENT – BS 8233

For the purposes of this assessment, E3P has used noise modelling software, CadnaA 2026 MR1, to determine the impact of noise from road traffic and school playground sound.

The following inputs have been included in the model:

- ✦ Alexandra Road is calibrated using NMP1.
- ✦ School playground noise is calibrated using NMP2.
- ✦ Site elevations have been taken as existing by way of a 2 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- ✦ Existing buildings are included.
- ✦ A reflection order of 2 has been used in all calculations.
- ✦ Noise levels generated using ISO 9613-2:2024 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

Figures 3 and 4 determine the noise levels across the Site during the daytime and night-time periods, respectively, due to road traffic and school noise.

4.1. EXTERNAL AMENITY AREA NOISE LEVEL ASSESSMENT

The noise model has been used to predict noise levels in potential external amenity areas to be used for relaxation. The predicted levels range between 39 dB and up to 54 dB.

As such, it is predicted that the No Observed Adverse Effect Level (NOAEL) is achieved in all external amenity areas with the following commentary:

Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.

Accordingly, no action is required for these areas.

4.2. INTERNAL NOISE LEVEL ASSESSMENT

With regards internal noise levels, E3P has assumed a standard glazing specification of 4 mm glass/20 mm air space/4 mm glass affords sound insulation performance in the order of 32 dB however this is for a pink noise spectrum. The same unit, weighted for road traffic noise, has a sound insulation performance value of approximately 28 dB and so this value has been used to calculate internal noise levels for noise break in.

In order to determine any requirements for mitigation, E3P has added the reduction provided by the glazing (28 dB) to the relevant criterion for day (35 dB) and for night (30 dB). As such, any facades subject to noise levels higher than 63 dB during the day and/or 58 dB during the night will require higher specification glazing.

As can be seen from the figures, one facade experiences levels that exceed this criterion, however, it is noted from the provided plans that no bedrooms will be situated by this façade. As such, standard glazing will be sufficient to reduce noise levels by the appropriate amount for all facades.

Consideration must also be given to maximum noise levels generated by road traffic. The 10th highest maximum noise level has been used and distance corrected to the closest façade. Internal maximum



noise levels of 45 dB L_{AFmax} should also not be exceeded. The sound insulation performance achieved by standard glazing (32 dB) has been added to the 45 dB maximum internal noise level limit. As, such facades subject to maximum noise levels above 77 dB will require higher specification glazing.

The maximum noise level at the worst affected facade is calculated to be 62 dB. Therefore, standard specification glazing is sufficient to mitigate against maximum noise levels generated by road traffic along Alexandra Road. Accordingly, no facades will require glazing that outperforms standard.

4.2.1. VENTILATION CONDITION

When considering a partially open window for ventilation purposes, E3P has assumed that a Building Regulations ADF compliant system would be installed as part of the development, in all plots, as it is unlikely the plots are suitable for natural ventilation.

Therefore, the only consideration in relation to noise will be the performance of any window mounted or through walls vents in relation to the passage of external to internal noise.

4.2.2. OVERHEATING CONDITION

E3P has considered the requirements of ADO in relation to opening windows at night to mitigate the potential for overheating, which at this stage is assumed to be required. Therefore, external noise levels at affected facades apply. Any plots that experience noise levels below these limits will be able to have openable windows to mitigate any overheating. Those that exceed these limits will be subject to an Overheating Assessment by a suitably qualified professional.

It is noted that the site is within a high-risk area and, as such, an outside-to-inside level difference for window openings for the simplified method is noted to be 5 dB.

As such, the allowable façade noise levels are 45 dB averaged over the 8 hours night-time period and 60 dB $L_{Amax,fast,2min}$ during the night.

As can be seen from the Figures, certain facades of properties along the boundary with Alexandra Road are subject to higher night-time noise levels than the limits above. As such, an overheating assessment in accordance with ADO is required. The exact facades and plots are highlighted in Figure 5.



5. NOISE IMPACT ASSESSMENT – BS 4142

For the purposes of this assessment, E3P has used noise modelling software, CadnaA 2026 MR1, to determine the impact of noise from fixed plant sound.

The following inputs have been included in the model:

- ✦ Site proposed layout.
- ✦ Fixed plant items are calibrated to the sound levels noted in section 3.3.
- ✦ Ground elevations have been taken as existing by way of a 2 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- ✦ Existing buildings have been included in the model and assumed to have a structured façade.
- ✦ A reflection order of 2 has been used in all calculations.
- ✦ Noise levels generated using ISO 9613-2:2024 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

This assessment looks to quantify the impact of proposed externally mounted fixed plant items upon proposed and existing receptors.

When attending the site to conduct attended measurements, E3P’s surveyors didn’t note any commercial activity or externally mounted fixed plant noise, therefore the only industrial sound source to assess is the proposed ASHP configuration.

For the BS 4142:2014 assessments, penalties are applied to the specific sound level to provide the rating level. These penalties relate to the acoustic features of the sound source. Accordingly, the following objective and subjective features have been accounted for in the assessment, in accordance with the subjective method detailed in BS 4142:2014, for the Site as a whole operation.

Table 5.1 Acoustic Features – Proposed ASHP

ACOUSTIC FEATURE	APPLICABLE?	ATTRIBUTABLE PENALTY	COMMENT
Tonality	No	-	No tonality is attributed to the source.
Intermittency	No	-	No intermittency is attributed to the source.
Impulsivity	No	-	No impulsivity is attributed to the source.
Other	Yes	+ 3 dB	Source is likely to be readily distinct against the background.

5.1. DAYTIME ASSESSMENT

5.1.1. PROPOSED DWELLINGS

Figure 6 shows the specific sound level at the proposed dwellings caused by the proposed ASHP configuration and hand drier noise breakout. Table 5. details the assessment for the proposed



development. Only facades adjacent to internal bedroom spaces have been considered for this assessment.

Table 5.2 Calculation of Rating Level and Comparison with Background Sound Level – Daytime

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
Western Façade	35	38	41	-3
Eastern Facades	40	43		+3
Southeastern Façade	39	42		+1
Southern Façade	27	30		-11

The assessment has determined that the predicted rating level from the proposed ASHP configuration and hand drier noise breakout from the adjacent general practice would exceed the background sound level at certain plots during the daytime period.

As such, mitigation measures are required and will be discussed in Section 6.

5.1.2. PRE-EXISTING DWELLINGS

Figure 7 details the specific sound level at pre-existing dwellings caused by the proposed ASHP configuration. Table 5.3 details the assessment for the proposed development.

Table 5.3 Calculation of Rating Level and Comparison with Background Sound Level – Daytime

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
13 Tugford Close	43	46	41	+5
9 – 11 Tugford Close	44	47		+6
25 Thruxton Close	43	46		+5
23 Thruxton Close	42	45		+4
21 Thruxton Close	41	44		+3

The assessment has determined that the predicted rating level from the proposed ASHP configuration would exceed the background sound level at surrounding residential receptors.

As such, mitigation measures are required and will be discussed in Section 6.



5.2. NIGHT-TIME ASSESSMENT

5.2.1. PROPOSED DWELLINGS

Figure 8 shows the specific sound level at pre-existing dwellings caused by the proposed ASHP configuration. Table 5.4 details the assessment for the proposed development.

Table 5.4 Calculation of Rating Level and Comparison with Background Sound Level – Night-time

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
Western Façade	35	38	36	+2
Eastern Facades	40	43		+7
Southeastern Façade	39	42		+6
Southern Façade	27	30		-6

The assessment has determined that the predicted rating level from the proposed ASHP configuration would exceed the background sound level at existing residential receptors.

As such, mitigation measures are required and will be discussed in Section 6.

5.2.2. PRE-EXISTING DWELLINGS

Figure 9 shows the specific sound level at pre-existing dwellings caused by the proposed ASHP configuration. Table 5.5 details the assessment for the proposed development.

Table 5.5 Calculation of Rating Level and Comparison with Background Sound Level – Night-time

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
13 Tugford Close	43	46	36	+10
9 – 11 Tugford Close	44	47		+11
25 Thruxton Close	43	46		+10
23 Thruxton Close	42	45		+9
21 Thruxton Close	41	44		+8

The assessment has determined that the predicted rating level from the proposed ASHP configuration would exceed the background sound level at surrounding residential receptors.

As such, mitigation measures are required and will be discussed in Section 6.



6. MITIGATION

It was shown in section 5.4 that a reduction in the order of 11 dB is required from the proposed ASHP configuration to be equal to the measured background sound level.

However, Environmental Health states in NSE6 that the proposed externally mounted plant items must not exceed 5 dB below the background at receptors, therefore mitigation in the order of 16 dB is required for the proposed ASHP configuration.

It is recommended that the client considers the installation of an acoustic enclosure surrounding the ASHP.

This level of reduction could be provided by an enclosure that provides a minimum sound reduction of 16 dB R_w with acoustically sealed gaps and doors.

E3P cannot provide detailed advice on adequate enclosures and therefore it is recommended that the client approach a suitable professional who is able to provide details on potentially viable enclosures.

Alternatively, a quieter ASHP configuration that provides a sound pressure level of no more than 49 dB at 1 m would reduce the rating level to 5 dB below the background at the worst affected receptor during the worst affected period.



7. CONCLUSIONS AND DISCUSSION

E3P was commissioned to undertake a Noise Impact Assessment for the proposed homeless shelter development at The Workshop in Manchester.

This assessment looked to determine the key noise sources impacting upon the development site and to assess their impact, if any, upon the noise-sensitive use and to recommend mitigation measures, where necessary. The impact of noise from proposed fixed plant items have also been considered.

E3P has undertaken unattended surveys to quantify the levels of noise associated with Alexandra Road, and a nearby school. The background sound level was measured through the installation of a noise monitor for a full weekday and weekend period. Attended measurements have also been conducted to capture and identify any other potential noise sources associated with the nearby General Practice and business park.

E3P has undertaken 3D noise modelling to assess road traffic and school noise across the site, within potential external amenity areas and incident upon facades and assessed in accordance with BS 8233. E3P has also assessed the fixed plant associated with the development in accordance with BS 4142:2014.

The assessment determined that a full overheating assessment in accordance with the guidelines indicated in Part O is required for certain facades to allow for the provision of an alternative method of providing the mitigation of overheating without the need for opening windows.

The BS 4142 assessment of the proposed fixed plant items determined the proposed and pre-existing dwellings would experience adverse impact in both day- and night-time periods. As such, mitigation measures are required in relation to commercial noise to protect external amenity areas of certain gardens.

A sealed acoustic enclosure is required in order to reduce noise levels emitted from the proposed ASHP configuration by 16 dB to decrease the rating level at the worst affected receptor in the worst affected period to 5 dB below the background sound level as per the guidance provided in NSE6 by Environmental Health.

With mitigation measures in place, this assessment has shown that no adverse impact is predicted day or night at the receptors due to road traffic sound.

END OF REPORT

Appendix I: Limitations





GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P "Terms of Business" or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.
3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.
4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

NOISE AND VIBRATION IMPACT ASSESSMENTS

5. Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative and reliable in order to inform an accurate assessment.
6. Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance.
7. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.
8. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.
9. E3P does not warrant work/data undertaken/provided by others.

Appendix II: Glossary





NOISE

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source. The most widely used weighting mechanism that best corresponds to the response of the human ear is the "A"-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or LAeq, LA90 etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective but, as a general guide, a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A Typical Sound Pressure Levels

SOUND PRESSURE LEVEL	LOCATIONS/EXAMPLE
0	Threshold of hearing
20-30	Quiet bedroom at night
30-40	Living room during the day
40-50	Typical office
50-60	Inside a car
60-70	Typical high street
70-90	Inside a factory
100-110	Burglar alarm at 1 m away
110-130	Jet aircraft on take off
140	Threshold of pain



ACOUSTIC TERMINOLOGY

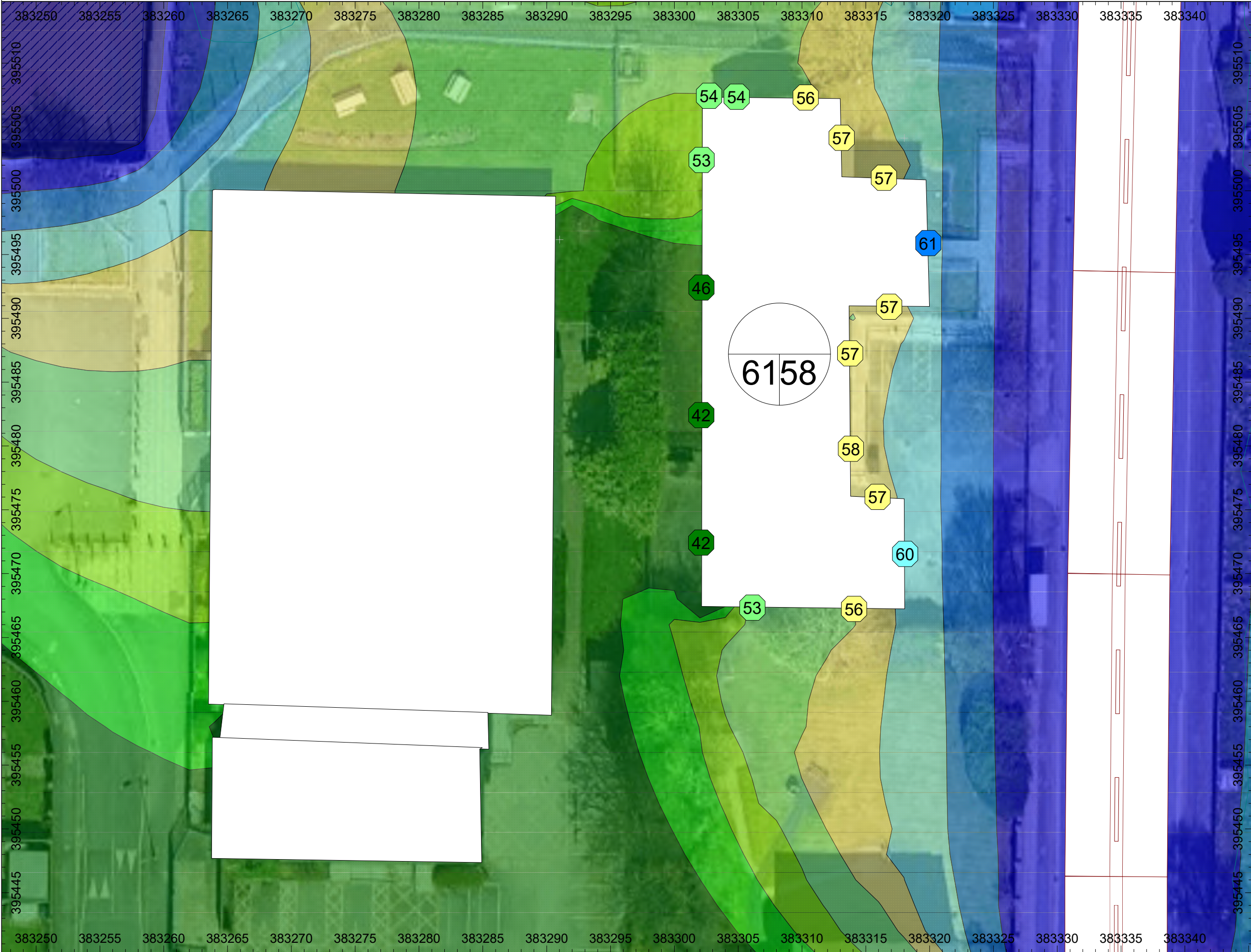
Table B Terminology

DESCRIPTOR	EXPLANATION
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
LAeq, T	LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
LAmix	LAmix is the maximum A-weighted sound pressure level recorded over the period stated. LAmix is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the "fast" sound level meter response.
L10 and L90	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the "average maximum level". Similarly, L90 is the "average minimum level" and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Fast	A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant.
Slow	A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant.
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

Appendix III: Figures



Figure 3 - Daytime Grid Noise Map - Calculation at 1.5m above ground level



Project:
The Workshop

Project-No:
52-179

Client:
Manchester City Council

**Predicted Noise Level,
LAeq,T (dB)**

...	≤ 48
48 < ...	≤ 50
50 < ...	≤ 52
52 < ...	≤ 56
56 < ...	≤ 58
58 < ...	≤ 60
60 < ...	≤ 62
62 < ...	≤ 65
65 < ...	

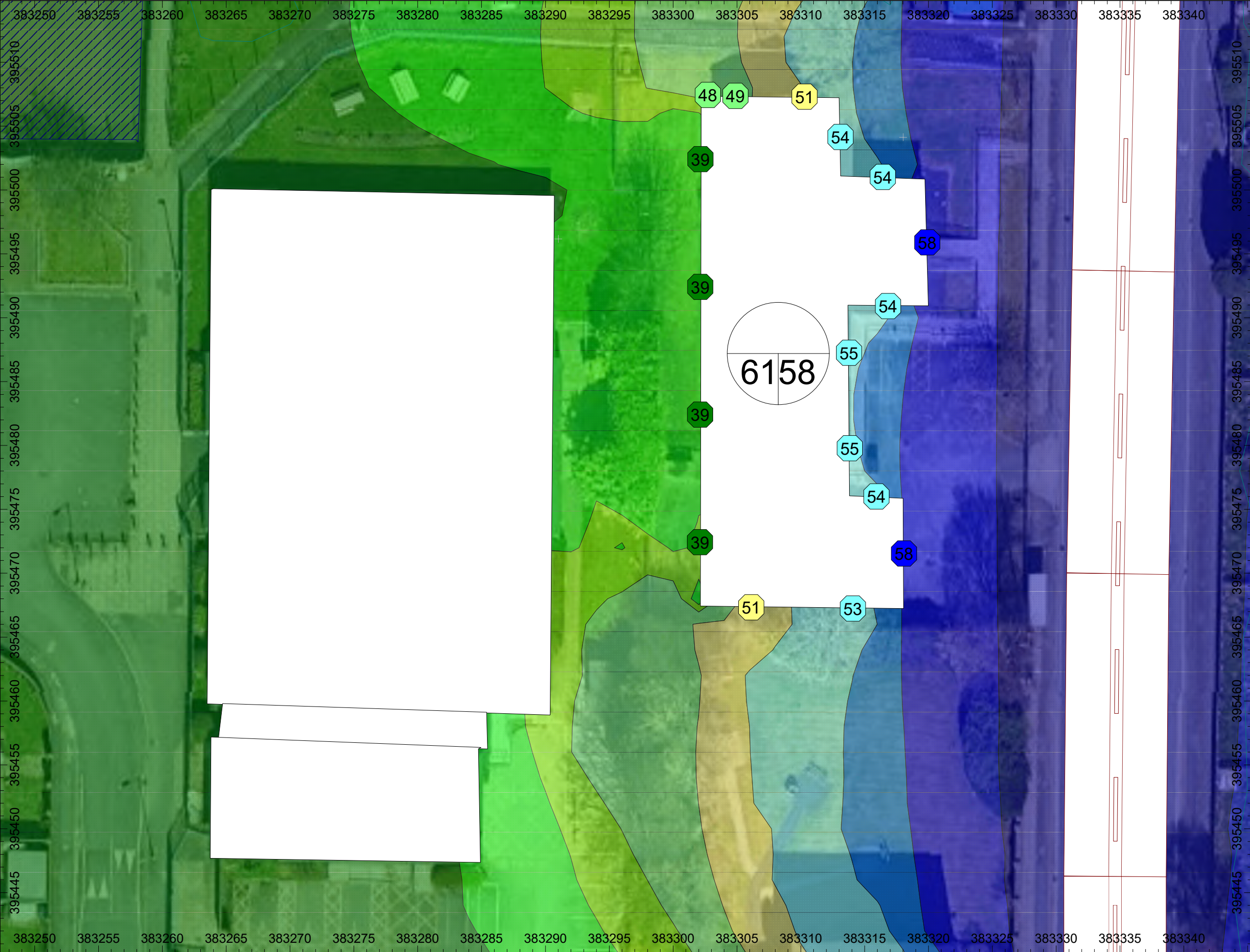
Noise Map Objects

- + Point Source
- Area Source
- Road
- Building
- Barrier
- Contour Line
- Building Evaluation
- Calculation Area



Project Engineer: Ollie Harrison
Date: 30/06/2026

Figure 4 - Nighttime Grid Noise Map - Calculation at 4.0m above ground level



Project:
The Workshop

Project-No:
52-179

Client:
Manchester City Council

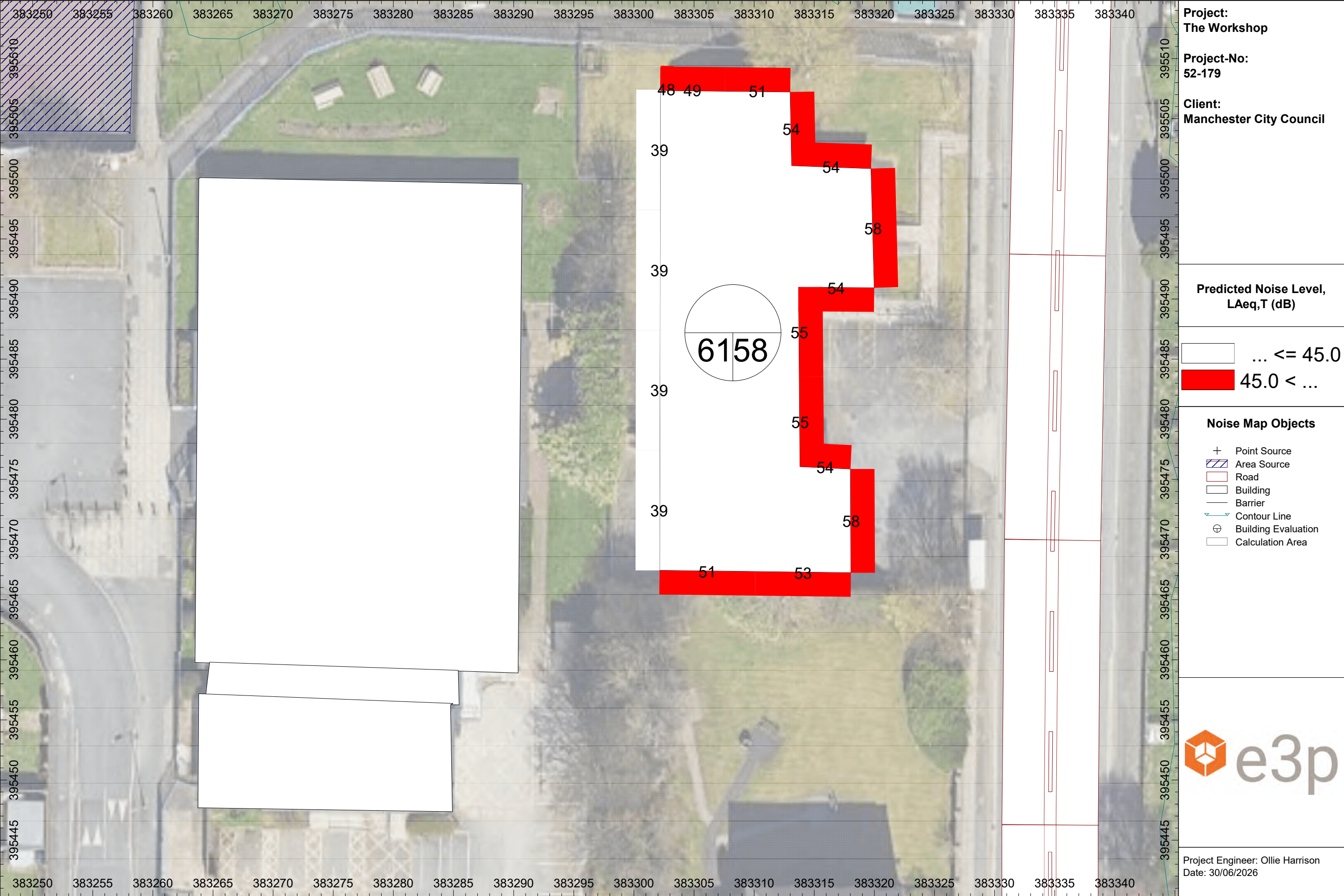
Predicted Noise Level, LAeq,T (dB)	
...	≤ 42
42 < ...	≤ 45
45 < ...	≤ 47
47 < ...	≤ 50
50 < ...	≤ 52
52 < ...	≤ 55
55 < ...	≤ 57
57 < ...	≤ 60
60 < ...	

- Noise Map Objects**
- + Point Source
 - Area Source
 - Road
 - Building
 - Barrier
 - Contour Line
 - Building Evaluation
 - Calculation Area



Project Engineer: Ollie Harrison
Date: 30/06/2026

Figure 5 - Overheating Risk Assessment - Calculation at 4.0m above ground level



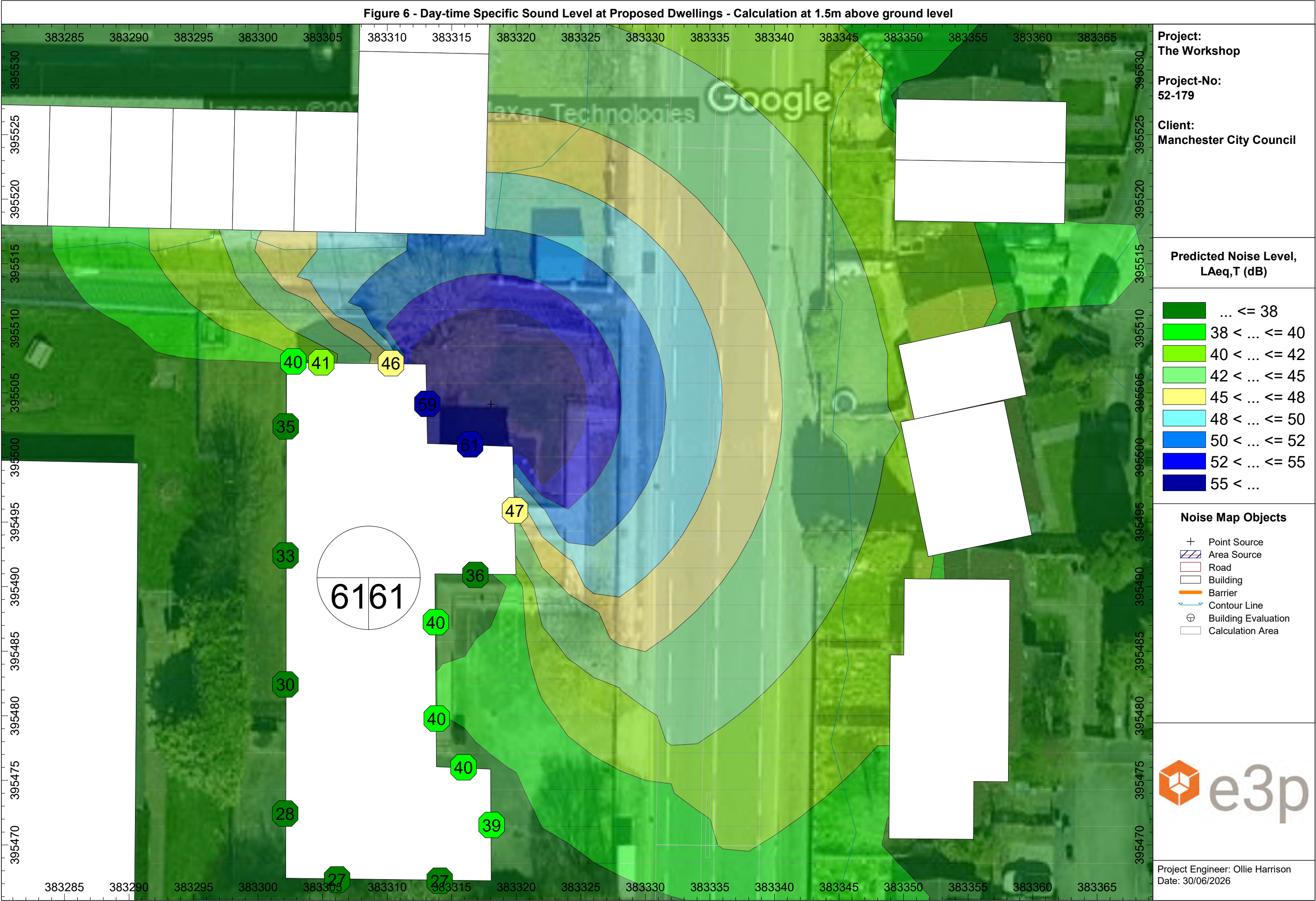
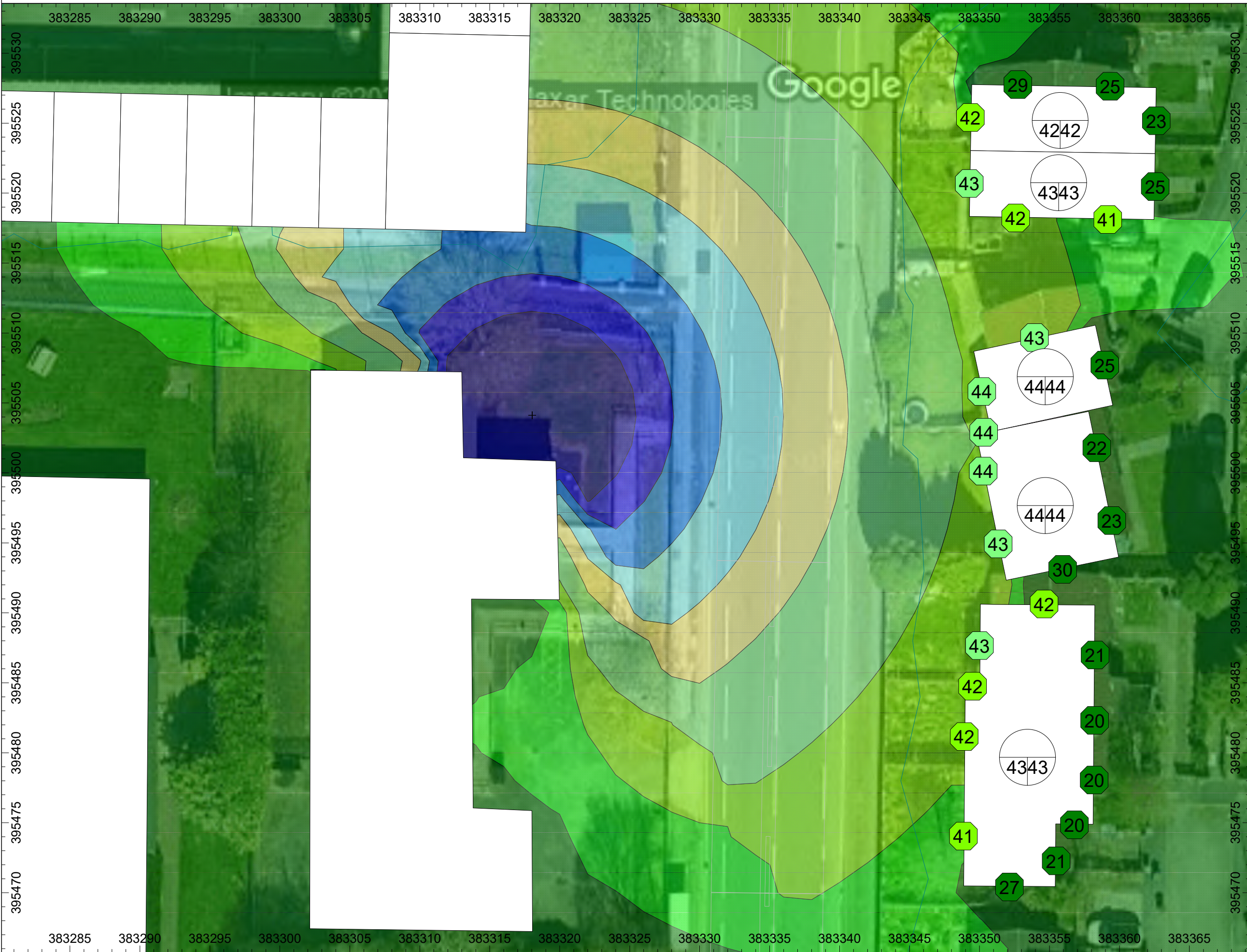


Figure 7 - Day-time Specific Sound Level at Existing Dwellings - Calculation at 1.5m above ground level



Project:
The Workshop

Project-No:
52-179

Client:
Manchester City Council

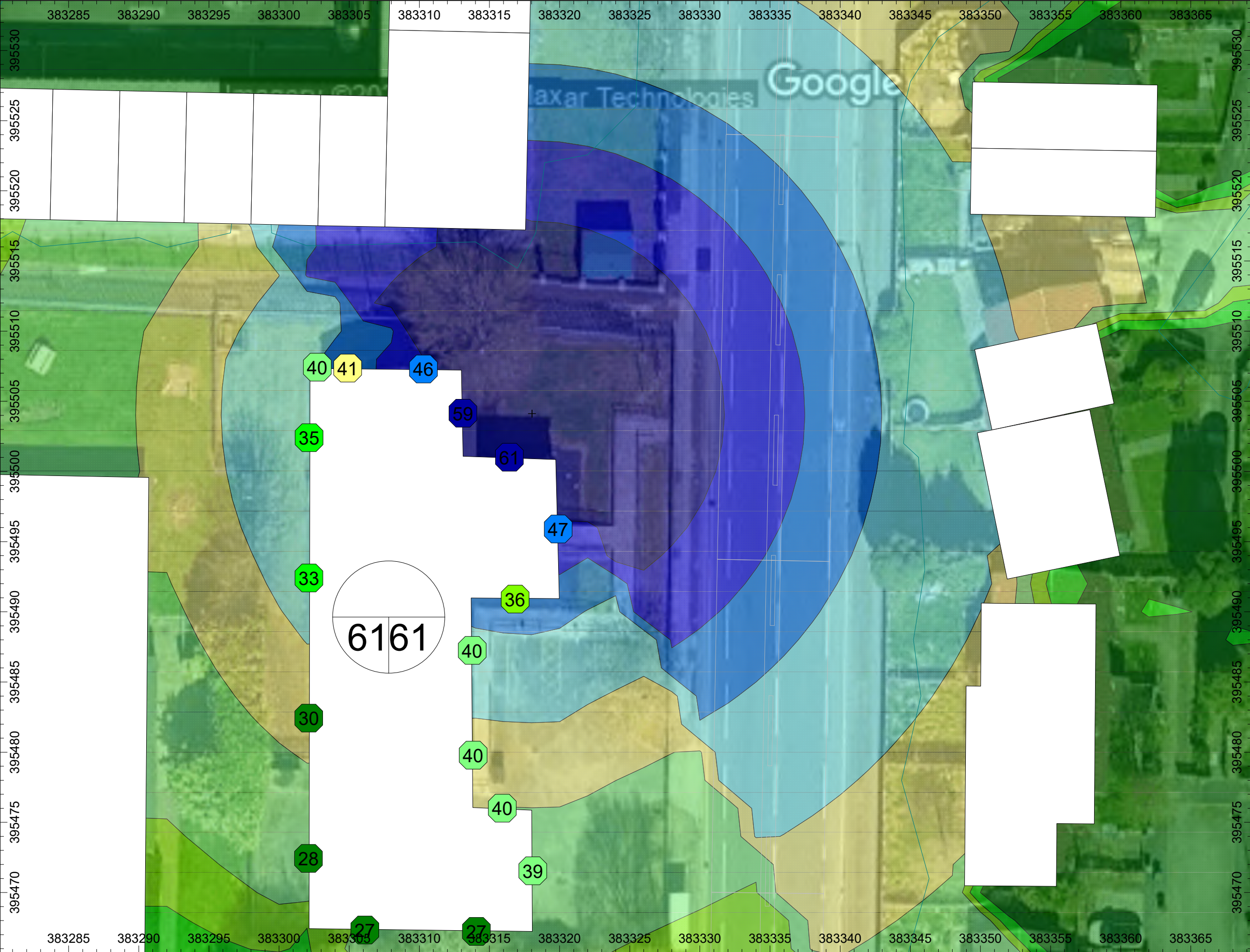
Predicted Noise Level, LAeq,T (dB)	
	... <= 38
	38 < ... <= 40
	40 < ... <= 42
	42 < ... <= 45
	45 < ... <= 48
	48 < ... <= 50
	50 < ... <= 52
	52 < ... <= 55
	55 < ...

- Noise Map Objects**
- + Point Source
 - Area Source
 - Road
 - Building
 - Barrier
 - Contour Line
 - Building Evaluation
 - Calculation Area



Project Engineer: Ollie Harrison
Date: 30/06/2026

Figure 8 - Night-time Specific Sound Level at Proposed Dwellings - Calculation at 4.0m above ground level



Project:
The Workshop

Project-No:
52-179

Client:
Manchester City Council

Predicted Noise Level, LAeq,T (dB)	
	... <= 32
	32 < ... <= 35
	35 < ... <= 38
	38 < ... <= 40
	40 < ... <= 42
	42 < ... <= 45
	45 < ... <= 48
	48 < ... <= 50
	50 < ...

- Noise Map Objects**
- + Point Source
 - Area Source
 - Road
 - Building
 - Barrier
 - Contour Line
 - Building Evaluation
 - Calculation Area



Project Engineer: Ollie Harrison
Date: 30/06/2026

Project Engineer: Ollie Harrison Date: 30/06/2026
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