1 Tony Wilson Place
Manchester, M15 4FN

Proposed New Roof Terrace
Planning Noise Impact Assessment

Report ref.
CS177/24311/Rev 0

Issued to
JLL

Prepared by
Chris Swiejkowski MSc (Eng) MIOA
Senior Consultant

Version	Remarks	Date
Rev 0	Initial report issue.	21.04.2026

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1. INTRODUCTION

LJJ is seeking planning permission for the development of a rooftop terrace at 1 Tony Wilson Place, Manchester, together with associated mechanical services plant. Due to the site location and proximity of nearby noise-sensitive receptors, a Noise Impact Assessment is required to assess the potential effects of the proposals.

The assessment is required to consider noise arising from the operation and use of the proposed rooftop terrace, as well as noise associated with the new mechanical services plant serving the new rooftop terrace.

Accordingly, Spectrum Acoustic Consultants has been commissioned by JLL to undertake a Noise Impact Assessment to evaluate the potential impact of the proposed development and to provide supporting acoustic information for the planning application.

2. SITE DESCRIPTION

The existing building at 1 Tony Wilson Place, Manchester, M15 4FN is a seven-storey high commercial office building located in north part of Manchester approximately 320m south-west from Manchester Oxford Road station and approximately 275m north of the A57(M).

The building is bounded to the north by Tony Wilson Place, beyond which are a number of commercial buildings, as well as a hotel (INNSiDE) operated by Meliá. To the east of the site is a multi-storey car park and an eleven-storey high student accommodation building. To the west of the site is an eight-storey high office building. First Street bounds the site to the south which has a number of office buildings. undergoing construction. An aerial site image is presented in Figure 1.

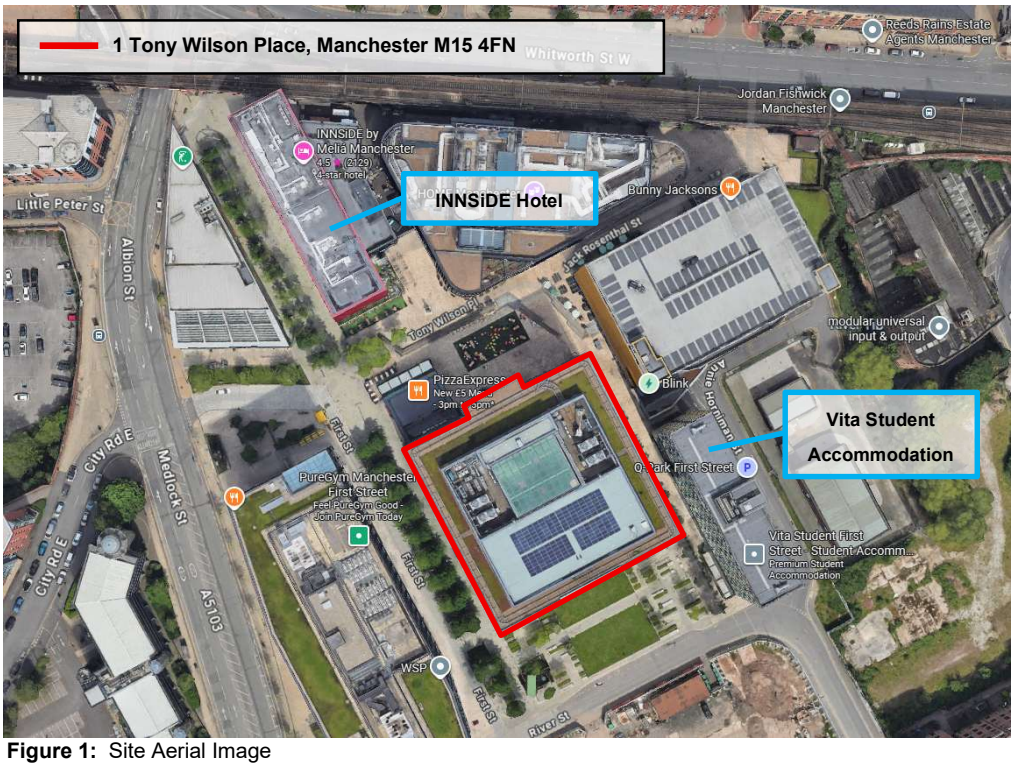


Figure 1: Site Aerial Image

3. PROPOSALS

The proposals comprise the formation of a rooftop terrace at seventh-floor level, located on to the northern part of the existing roof, which is currently used as a flat roof service area.

The proposed terrace comprises a partially enclosed glazed area, together with an adjoining open terrace with perimeter balustrading.

In addition, new mechanical services plant is proposed to serve the rooftop terrace, including an air handling unit (AHU) and a heat pump, to be located at roof level within the existing plant area.

A proposed roof terrace section (taken form architect's drawings) together with the indicative location of the proposed mechanical plant is shown in Figure 2. The proposed scheme drawings are included in Appendix A.

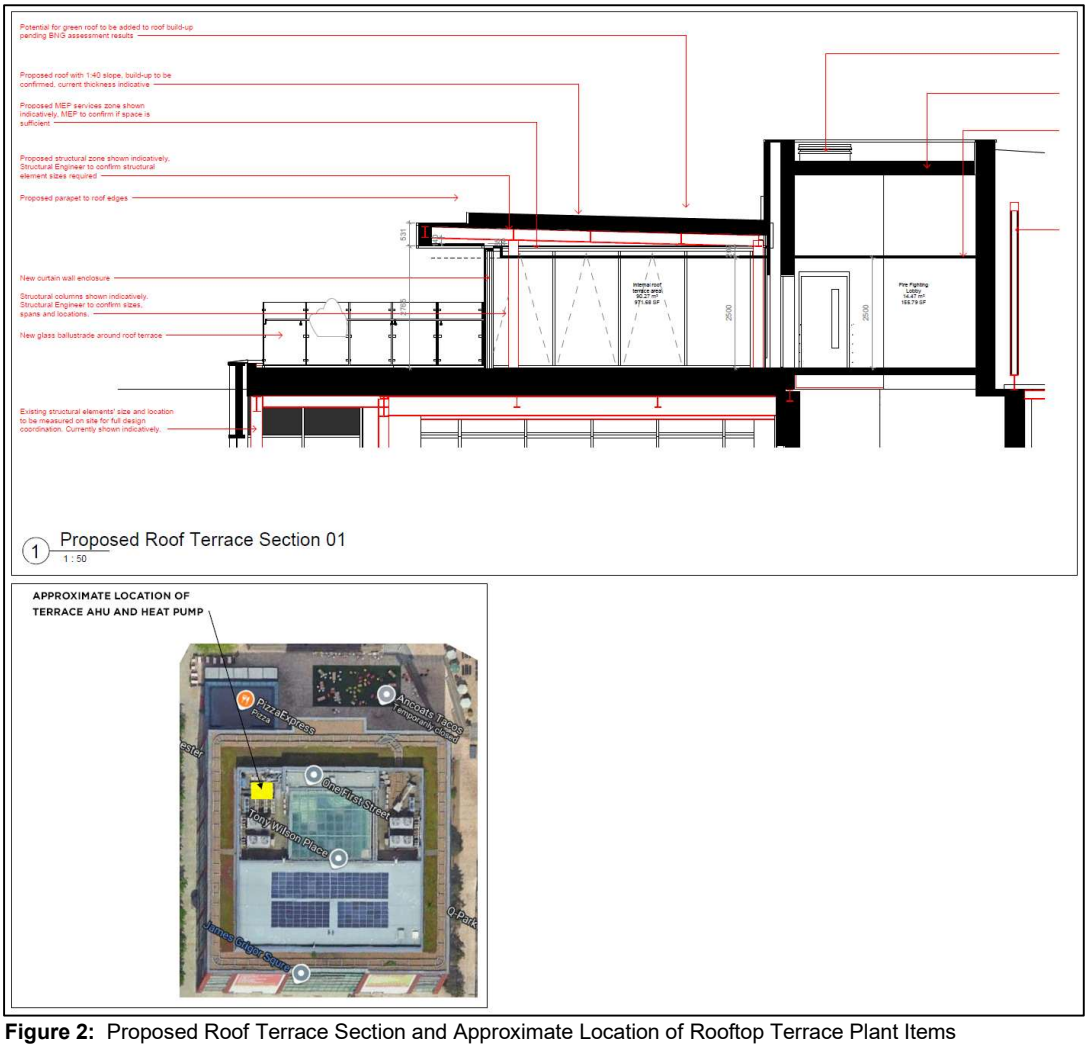


Figure 2: Proposed Roof Terrace Section and Approximate Location of Rooftop Terrace Plant Items

4. GUIDANCE AND ASSESSMENT CRITERIA

4.1 BSBS 4142 *METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND*

The noise impact assessment relating to the proposed new mechanical services plant will be carried out in accordance with the procedures set out in BS 4142[1]:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound.* The principle of BS 4142 is to determine an initial estimate of impact of industrial/commercial sound on nearby residents by comparing the Rating Level (sound level from the industrial/commercial source, with a correction applied for any acoustic features that characterise the sound) with the Background Sound Level (L_{A90} as measured in absence of the industrial/commercial source).

Generally, the greater the difference by which the Rating Level exceeds the Background Sound Level, the greater the magnitude of impact. BS 4142 states that *'a difference of around +10 dB or more is likely to be an indication of a significant adverse impact […]. A difference of around +5 dB is likely to be an indication of 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.'*

However, BS 4142 also advises that '*when making assessments and arriving at decisions […] it is essential to place the sound in context'* so in each case, the context in which the sound is placed must be considered and the initial estimate of impact should be modified accordingly.

For example, it advises '*Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night*.' It also indicates that impacts estimated during '*the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night-time period for sleep purposes*.'

4.2 GUIDELINES FOR COMMUNITY NOISE - WORLD HEALTH ORGANIZATION, 1999 (GCN)

Additionally, Guidelines for Community Noise - World Health Organization, 1999 (GCN) was published in 1999 with the aim of informing legislation and guidance produced at the national and regional levels for the purposes of minimising any potential adverse health effects resulting from noise in the community. It presents guideline noise level criteria for the avoidance of adverse effects such as sleep disturbance and annoyance in a range of specific environments. The preface to WHO states that community noise includes road, rail and air traffic, industries, construction and public work, and the neighbourhood.

The GCN document advises that, to avoid serious annoyance in outdoor living areas during the daytime and evening period, the noise levels should not exceed $L_{Aeq,16hr}$ 55dB and to avoid moderate annoyance, the value should be $L_{Aeq,16hr}$ 50dB. However, these values need further elaboration. There is a variability in individual response to environmental noise, with some people being more noise-sensitive than others. The levels given for outdoor living areas are the noise level below which few people will be moderately annoyed or seriously annoyed. They do not represent an onset of moderate / serious annoyance for the general population. In effect, the levels protect the more sensitive section of the population.

New guidance from WHO titled Environmental Noise Guidelines for the European Region (ENG) was published in 2018. The document takes a very different approach to guidance set out in the previous GCN document by identifying separate thresholds for specific sources rather than for community noise as a whole. Consequently, much of the earlier guidance set out in GCN is now absent from ENG. While

[1] *BS 4142:2014 Methods for rating and assessing industrial and commercial sound*

ENG was intended to supersede GCN, it recognises this absence and states that *'indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.'*

4.3 MANCHESTER CITY COUNCIL CRITERIA

Manchester City Council set out criteria for the assessment of noise from externally mounted plant within their Planning and Noise Technical Guidance (October 2022). In practice, this is typically secured through standard planning conditions, as shown below:

"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."

For the assessment of the potential noise impact, consideration will therefore be given to the BS 4142:2014+A1:2019 assessment level, together with the precautionary guideline noise limits defined by the WHO Guidelines and Manchester's Technical Guidance.

4.4 ADOPTED CRITERIA FOR ROOFTOP TERRACE ACTIVITIES

There are no directly applicable standards that relate to the assessment of noise from 'terraces/beer gardens areas' used for social gathering and event etc. However, guidance given by the Institute of Acoustics[2] on the use of gardens and play areas focuses on possible mitigation measures and includes in section 7 (Control Measures) the following advice:

> *Careful consideration should always be given to the siting of gardens and play areas intended for the use of patrons, in order to minimise the risk of disturbance to neighbours. The use of gardens and external play areas from which noise disturbance has arisen, or may arise, should not commence before the start of formal trading hours and should normally cease at dusk or at 2100 hours, whichever is the earlier.*

It further advises:

> *Consequently, where there are nearby noise sensitive premises, the use of lighting in garden and external play areas late into the evening can be undesirable, unless required for health and safety or security reason. The provision of such lighting may encourage patrons to congregate in these areas and cause noise disturbance at this more sensitive time.*

It is clear in this guidance that although this issue can be significant to residents, there is no accepted method proposed to assess the potential noise impact, and yet clearly the level of impact will be dependent on site conditions, eg the proximity to receptors; whether there is screening of line of sight etc. A quantified assessment does have a role in helping to identify situations of potential noise disturbance.

In situations where individual speech content is understandable by residents, it is likely that the voice level is raised and that would be a matter for premises management and door security staff to monitor and control as part of complying with license conditions regarding nuisance.

[2] *Good Practice Guide on the Control of Noise from Pubs and Clubs, Institute of Acoustics, March 2003*

Noise from premises is defined as neighbourhood noise in the preface to the Guidelines for Community Noise – World Health Organization, 1999 (GCN). The preface to the WHO guidelines also states that neighbourhood noise falls within the definition of community noise.

New guidance from WHO titled Environmental Noise Guidelines for the European Region (ENG) was published in 2018. The document takes a very different approach to guidance set out in the previous GCN document by identifying separate thresholds for specific sources, rather than for community noise as a whole. Consequently, much of the earlier guidance set out in GCN is now absent from ENG. While ENG was intended to supersede GCN, it recognises this absence and states that 'indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.'

Therefore, comparing the predicted noise levels arising from the activities on/within the proposed rooftop terrace at the nearby residential receptor locations, with the measured ambient noise levels during the proposed operating hours of the rooftop terrace is a valid method to establish acceptability for the proposals t

For information purposes, the predicted rooftop terrace noise levels, are also compared with the guideline values for community noise listed in Table 4.1 of the GCN document.

5. ENVIRONMENTAL NOISE MEASUREMENT SURVEY

5.1 NEAREST NOISE SENSITIVE RECEPTORS

The following locations have been identified as the Nearest Nosie Sensitive Receptors (NNSRs) in relation to the proposed rooftop terrace and associated mechanical services plant:

- NNSR 1: Vita Student Accommodation – to the east / south-east of the site
- NNSR 2: INNSiDE hotel – to the north of the site.

The locations of the identified NNSRs are indicated on the site aerial image presented in Figure 3.

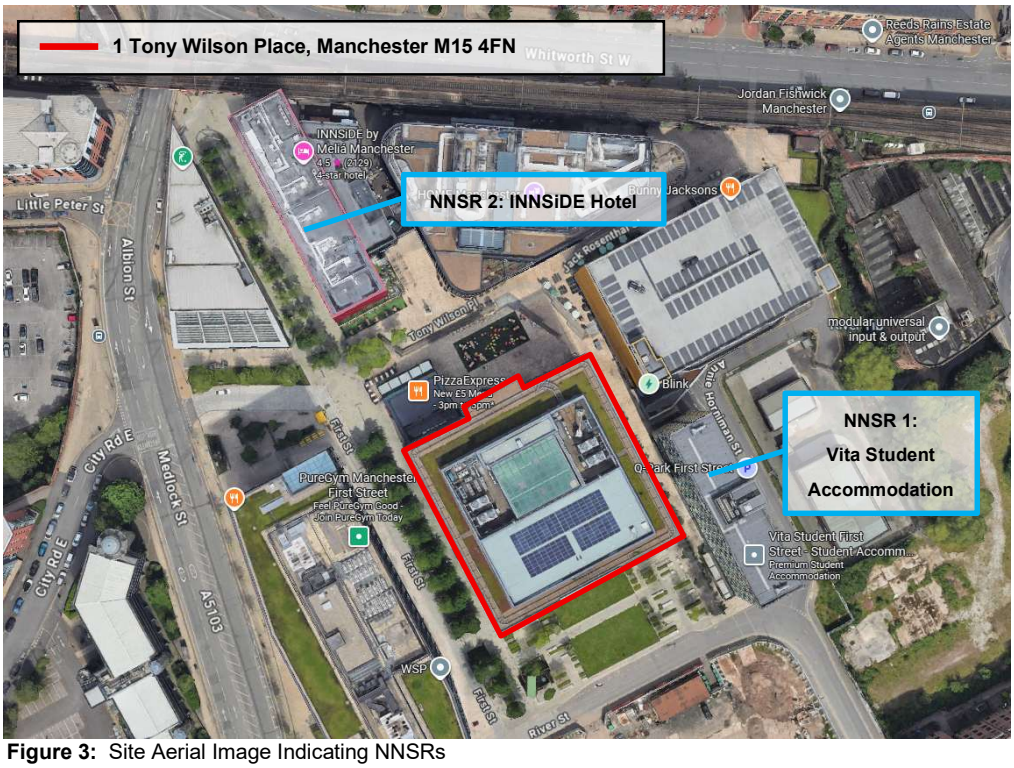


Figure 3: Site Aerial Image Indicating NNSRs

5.2 NOISE SURVEY DETAILS

The noise survey was conducted between 2 April and 9 April 2026.

Continuous automated noise measurements were carried in consecutive five-minute periods at Measurement Position 1 (as described in next section). The parameters recorded during the measurement survey included L_{Aeq}, L_{A90} and L_{AFmax}. In accordance with BS 4142 guidance, L_{A90} is used for describing background noise and, as such, will be used for the purpose of the noise impact assessment. L_{Aeq}, is used to describe the ambient noise level, with L_{AFmax}. representing the maximum noise level measured during the sample period. Both overall and 1/1 octave band measurements were stored for later analysis.

The survey was carried out over several days, during which weather conditions varied, though there were sufficient periods of dry and calm conditions for representative measurement data to be obtained.

5.3 NOISE SURVEY MEASUREMENT POSITION

Based on the nearest noise sensitive receptors described in Section 5.1, the following noise measurement location was selected as being representative of the nearest residential to the proposed rooftop terrace and associated mechanical services plant:

- Measurement Position 1 – located to the north-east corner of the 1 Tony Wilson Place roof, nearest to the western façade of the Vita Student Accommodation (NNSR 1).

This location was selected to provide a representative assessment position relative to the nearest noise sensitive receptor while also being suitably separated from existing noise sources, including existing rooftop plant, Medlock Street and the railway line to the north.

As such, the measurement position was considered appropriate for capturing representative background noise levels with minimal influence from the above noise sources, thereby providing a robust basis for assessing the potential noise impact of the proposed development.

The measurement location is indicated on the site aerial image presented in Figure 4.



Figure 4: Site Aerial Image Indicating MP1 and NNSRs

5.4 NOISE SURVEY INSTRUMENTATION

The following instrumentation was used during the noise measurement survey:

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3010857
- Bruel & Kjaer Type 4189 Microphone s/n 3060807
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2291483

Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

5.5 NOISE SURVEY RESULTS

A summary of the overall measurement results obtained during the environmental noise survey at MP1 is included in Table 1. The results presented in this table include representative time periods corresponding to the proposed operational hours of the rooftop terrace, namely Monday to Saturday (0800-2300) and Sunday (0900-1900).

Measurement Location	Date	Time Period	L_{Aeq} (dB)	Representative L_{A90} (dB)
Measurement Position 1	Thursday 02.04.2026	0800-2300	59	57
	Friday 03.04.2026		59	57
	Saturday 04.04.2026		61	58
	Sunday 05.04.2026	0900-1900	58	57
	Monday 06.04.2026	0800-2300	57	56
	Tuesday 07.04.2026		59	57
	Wednesday 08.04.2026		60	56
	Overall		**59**	57

Table 1: Summary of results of environmental noise survey

The measured noise profiles at MP1 are shown in the charts in Appendix B.

When determining the representative background $L_{A90,T}$ levels for the relevant periods, BS 4142[3] guidance states "*a representative level ought to account for the range in background levels and ought not automatically to be assumed to be either the minimum or modal value."* With this in mind, statistical analysis has been used to determine the typical background $L_{A90,T}$ noise levels for each of the sensitive periods. The analysis derived the Mode, Mean and Mean -1 standard deviation values. Once these three values have been established, a judgement was then made as to which value is considered representative. In this instance the modal $L_{A90,T}$ values were used for each of the periods at each measurement positions, as they were considered to be representative.

Based on the results in Table 1 the background noise level used for the noise assessment is L_{A90} 56 dB is taken as the worst-case.

[3] *BS 4142:2014 Methods for rating and assessing industrial and commercial sound*

6. POTENTIAL NOISE IMPACT

The potential noise impacts associated with the new rooftop terrace and considered within this assessment include the following:

1. Noise arising from the operation of the proposed mechanical services plant and its potential impact on nearby sensitive receptors
2. Noise arising from the use of the rooftop terrace and its potential impact on nearby sensitive receptors.

7. ASSESSMENT OF POTENTIAL NOISE IMPACTS

7.1 ASSESSMENT OF NOISE IMPACT FROM PROPOSED MECHANICAL SERVICES PLANT

7.1.1 Mechanical Services Plant Items Details

The client has confirmed that the new plant proposed to serve the rooftop terrace will include:

- 1 x Air Handling Unit (AHU) Nuaire model XBC65HA-EHN-E-LS1S
- 1 x Air Source Heat Pump (ASHP) Mitsubishi PURY-P200YNW-A

The noise output (in terms of sound power levels) generated by the proposed mechanical services plant items is summarised in in Table 2.

Receptor	L_w dB(A)	L_w Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
AHU – Fresh Air Intake	68	77	77	70	64	62	57	46	32
AHU – Discharge	76	83	83	77	73	70	67	59	53
AHU – Breakout	54	69	67	54	49	43	39	33	18
ASHP – Standard	77	94	78	78	75	68	64	61	59
ASHP – Low Noise	61	68	67	60	57	55	46	50	56

Table 2: Sound Power Levels of the proposed new external mechanical services plant

The indication of the proposed mechanical plant locations and manufacture's noise data sheets are included in Appendix B.

The proposed ASHP is capable of operating in two modes: 'standard' and 'low noise'. For the purposes of this noise assessment, the ASHP has been assessed assuming operation in standard mode, which represents the worst-case scenario; therefore, any operation of the ASHP in low-noise mode would result in lower noise levels that those predicted within this assessment.

7.1.2 Prediction of Mechanical Services Plant Noise

It is necessary to consider the noise generated by the equipment, at the nearby residential receptor locations to assess the effect of the proposed new plant.

Predictions of how the noise from each of the mechanical plant sources propagates to sensitive receptors and the cumulative effect of all the noise sources is determined through modelling undertaken using DGMR's iNoise software. This acoustic model implements the procedures set out in ISO 9613-2:2024

"Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation to determine noise levels" and is Quality Assured to all parts of ISO 17534:2015 "Acoustics – Software for the calculation of sound outdoors".

The noise model takes account of the following in its calculations procedures:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

Detailed noise calculations, providing information on total specific noise at each receptor, together with the contributions from each individual noise source, at each receptor location, are computed. To illustrate the model, a noise map, showing the noise contours produced by the new mechanical services plant is provided in Appendix C of this report.

Predicted specific noise levels from the proposed new mechanical plant at the nearest noise sensitive receptors (NNSR 1 and NNSR 2) are summarised in Table 3.

Receptor	L_{Aeq} dB(A)	L_{Aeq} Octave Band Centre Frequency (Hz) 63	125	250	500	1k	2k	4k	8k
NSSR 1. Vita Student Accommodation.	16	12	9	7	8	5	2	0	0
NSSR 2A. INNSiDE Hotel Front Elevation	25	16	16	15	15	19	18	11	0
NNSR 2B. INNSiDE Hotel Rear Elevation	13	9	7	5	3	4	1	0	0

Table 3: Predicted specific noise contribution from the proposed mechanical services plant at NNSRs.

As shown in Table 3, the predicted noise levels at the nearest noise sensitive receptors from the combined proposed new mechanical services plant (i.e. both AHU and ASHP operating simultaneously at full duty) are L_{Aeq} 13-25 dBA.

7.1.3 BS4142 Assessment of Mechanical Services Noise Impact

It is assumed that the proposed new mechanical services plant items would operate during the rooftop terrace opening hours (Mon-Sat 0800-2300 and Sunday 0900-1900). Consequently, for the purposes of this assessment, the predicted plant rating levels will be compared with the background sound levels at the nearest noise sensitive receptors.

Table 4 shows a BS 4142 assessment covering the noise impact associated with proposed new mechanical services plant scheme. It is not expected that any of the proposed plant items will emit distinct impulses or tones. Furthermore, whilst impulsive or tonal characteristics are not anticipated, the plant noise may exhibit other sound characteristics. However, given the very high margin that background noise exceeds the specific sound, no feature of the sound would be distinctive against the existing residual acoustic environment. Therefore, no feature correction has been applied within this assessment.

Receptor	Rating Level (dB)	Penalty Correction (dB)	Rating Level (dB)	Background L_{A90} (dB)	Assessment Level (dB) (Background excess)
NSSR 1. Vita Student Accommodation.	16	0	16	56	-40
NSSR 2A. INNSiDE Hotel Front Elevation	25	0	25	56	-31
NNSR 2B. INNSiDE Hotel Rear Elevation	13	0	13	56	-43

Table 4: Predicted rating levels from the proposed new plant items at NNSRs, compared with the representative background L_{A90} levels

The proposed new rooftop terrace mechanical services plant rating levels would be comfortably lower than the representative background noise level at both nearest noise sensitive receptors: NNSR1 – Vita Student Accommodation and NNSR2 – INNSiDe Hotel . Furthermore, noise levels would not exceed the noise limits set out in Manchester City Council's Planning and Noise Technical Guidance, October 2022 document.

The difference between the rating levels and background levels is such that any uncertainty would have no significance on the outcome of the assessment. Additionally, specific noise levels from the proposed mechanical plant would be comfortably lower than the WHO $L_{Aeq,16\ hour}$ 50dB at both NNSRs.

7.2 ASSESSMENT OF NOISE IMPACT FROM ROOFTOP TERRACE ACTIVITIES

The proposed rooftop terrace is intended solely for use by occupants of the 1 Tony Wilson Place building, with no public access permitted. The client has confirmed the following:

- Operating hours: Monday to Saturday between 0800 and 2300, and Sunday between 0900 and 1900
- Typical/Normal Use: general social purposes, including informal gatherings, conversations and drinking, with no amplified music
- Occasional Use: less than 20 organised events per year, involving relatively low-level amplified (no-live) music
- Maximum occupancy: 60 people

Therefore, the assessment is carried out for the two potential operating scenarios:

A) **'Typical Operation':** Noise arising from people and associated with no amplified music, representing the primary and most frequent use of the rooftop terrace

B) **'Busy/Event Operation':** Noise arising from people and associated activity during occasional events involving amplified (non-live) music, which are expected to occur infrequently and on a limited basis only

Additionally, for 'Operating Scenario B', due to the presence of openable sliding doors to the west, east and north facades, two sub-scenarios have been considered:

- **B1**: doors closed, and
- **B2:** all three doors open.

Scenario B2 is the scenario where noise emission from the proposals would be the highest. While not representative of typical operation and would occur on a few occasions per year, this is the situation that has been analysed in order to present a robust assessment of the noise impact of the proposals.

For Operation Scenario B2, the noise assessment has been undertaken assuming an internal amplified music noise level of L_{Aeq} 85 dBA, as discussed further in Section 7.2.1. This noise level is considered to be very high for the proposed rooftop terrace use and represents an intentionally conservative and worst-case assumption. The adoption of this internal noise level ensures that the assessment robustly considers the maximum reasonably foreseeable noise emission from the proposals, notwithstanding that such levels would not typically be expected to arise even during 'busy/event operation' of the proposed rooftop terrace.

Further discussion regarding the control and limitation of internal amplified music noise levels within the rooftop terrace is provided in Section 8.2.

7.2.1 Rooftop Terrace Activities Noise Data Assumptions

In the absence of site-specific noise data relating to the proposed rooftop terrace activities, appropriate reference has been made to empirical sound power data derived from noise measurements undertaken at comparable external amenity areas.

The input sound power data used in the model has been referenced from a study of noise from external customer areas (beer gardens) carried out in 2021 by Spectrum Acoustic Consultants. The study is based on noise measurement data collected at 16 existing Public House sites across the UK. The study covered a wide range of garden types, locations and demographics. The study concludes that there are two trading scenarios which are relevant to Public Houses, which are defined as follows:

- '**Normal Trading**' with a sound power level per square metre of Lw/m^2 67 dB
- '**Busy Trading**' with a sound power level per square metre of Lw/m^2 74 dB

Consequently, these trading scenarios have been considered appropriate analogues for the assessment of noise arising from activities on/within the proposed rooftop terrace and have been adopted within the noise prediction model:

- 'Normal Trading' scenario represents Scenario A - 'Typical Operation' of the rooftop terrace
- 'Busy Trading' scenario represents Scenario B - 'Busy/Event Operation' of the rooftop terrace.

Scenario B 'Busy/Event Operation' also includes noise associated with potential amplified music. In the absence of specific noise data for amplified music use on the proposed rooftop terrace, this scenario has been informed by noise measurement data obtained by Spectrum Acoustic Consultants during a busy Public House weekend evening with DJ music present, representing a robust and appropriately conservative worst-case scenario.

The adopted source sound data assumptions are considered to represent a robust scenario of busy activity on the terrace. The great majority of the time, actual noise levels arising from activities on/within the proposed rooftop terrace would, in practice, be lower than those predicted. Nonetheless, the use of these assumptions ensures a cautious assessment of the potential worst-case noise impact.

7.2.2 Prediction of Rooftop Terrace Activities Noise

The noise generated by rooftop terrace activities has been determined through modelling undertaken using DGMR's iNoise software. This acoustic model implements the procedures set out in ISO 9613-2:2024 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation to determine noise levels" and is Quality Assured to all parts of ISO 17534:2015 "Acoustics – Software for the calculation of sound outdoors".

The noise model takes account of the following in its calculation procedures:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

The noise contour maps for all simulated operating scenarios (A and B-B1/B2) are shown in Appendix C.

The ambient noise levels at the nearest receptors during the proposed operating hours for the roof terrace (0800-2300/0900-1900) are relatively high (see Table 1 in Section 5.5) providing masking to the terrace activities noise. Furthermore, it would be very unlikely that a busy trading scenario would occur between 22:00 and 23:00.

A summary of the predicted noise levels from rooftop terrace compared with the typical ambient $L_{Aeq,T}$ levels measured between proposed operating hours for the rooftop terrace is included in Table 5.

Receptor	Operating Scenario	Predicted terrace activities noise level (dB)	Ambient L_{Aeq} (dB)	Excess over Ambient $L_{Aeq,}$ (dB)
NSSR 1: Vita Student Accommodation	A: Normal Operation	22	58/59	-36/-37
	B1 Busy/Event Operation (closed doors)	29		-29/-30
	B2 Busy/Event Operation (open doors)	34		-24/-25
NSSR 2A: INNSiDE Hotel Front Elevation	A: Normal Operation	45		-13/-14
	B1 Busy/Event Operation (closed doors)	52		-6/-7
	B2 Busy/Event Operation (open doors)	54		-1/-2
NSSR 2B: INNSiDE Hotel Rear Elevation	A: Normal Operation	34		-24/-25
	B1 Busy/Event Operation (closed doors)	41		-17/-18
	B2 Busy/Event Operation (open doors)	45		-13/-14

Table 5: Summary of predicted noise levels from the proposed rooftop terrace activities at NNSRs, compared with the typical ambient L_{Aeq} levels at NNSRs measured during proposed operating hours for the rooftop terrace

Predicted noise levels from rooftop terrace activities would be below the existing ambient L_{Aeq} noise levels at all of the NNSRs, for all assessed operating scenarios.

For information purposes, a summary of the predicted noise levels from rooftop terrace activities, at the noise sensitive residential receptors (NNSR1 and NNSR2) compared with the guideline WHO levels is included in Table 6.

Receptor	Operating Scenario	Predicted terrace activities noise level (dB)	WHO advised levels (dB)
NSSR 1: Vita Student Accommodation	A: Normal Operation	22	55-50
	B1 Busy/Event Operation (closed doors)	29	
	B2 Busy/Event Operation (open doors)	34	
NSSR 2A: INNSiDE Hotel Front Elevation	A: Normal Operation	45	55-50
	B1 Busy/Event Operation (closed doors)	52	
	B2 Busy/Event Operation (open doors)	54	
NSSR 2B: INNSiDE Hotel Rear Elevation	A: Normal Operation	34	55-50
	B1 Busy/Event Operation (closed doors)	41	
	B2 Busy/Event Operation (open doors)	45	

Table 6: Summary of predicted noise levels from the proposed rooftop terrace activities at NNSRs, compared with the WHO criterion

Generally, predicted noise levels from rooftop terrace activities would comply with the WHO guideline level at all NNSRs for all operating scenarios. A marginal elevation relative to the WHO guideline level (to avoid moderate annoyance) is predicted only at NNSR2A (INNSiDe Hotel - Front Elevation) during Operating Scenario B (Busy/Event etc.).

This outcome relates to an external hotel façade receptor and does not affect more sensitive residential receptors NNSR1 (Vita Student Accommodation).

When considered alongside the infrequent nature of the Busy/Event scenario and the fact that predicted noise levels remain well below prevailing ambient noise levels, the resulting noise impact arising from rooftop terrace is considered to be low and not material.

8. ACOUSTIC TREATMENT AND AMPLIFIED MUSIC LIMIT RECOMMENDATIONS

8.1 NEW MECHANICAL SERVICES ASSOCIATED WITH ROOFTOP TERRACE

Based on the results of the mechanical services noise assessment presented in Section 7.1, and on the basis that the proposed plant items are to be installed within the existing rooftop plant compound, the mechanical plant is predicted to operate well within noise criteria at the nearest noise-sensitive receptors.

On this basis, no additional noise mitigation or treatment measures are considered necessary.

8.2 ROOFTOP TERRACE ACTIVITIES AND AMPLIFIED MUSIC

The noise assessment of rooftop terrace activities, as presented in Section 7.2, has considered both typical day-to-day use and a conservative 'Busy/Event Operation' scenario associated with occasional organised events involving amplified (non-live) music. It is noted that such events are expected to occur infrequently and as advised by the client, are limited to fewer than 20 events per year.

The assessment has been undertaken using conservative worst-case assumptions, and predicted noise levels form rooftop terrace use are generally below existing ambient noise levels and are therefore considered to result in a low overall noise impact at nearby noise-sensitive receptors. Whilst a marginal exceedance of the WHO guideline level is predicted at one receptor during Busy/Event scenario, this relates to infrequent use only and is not representative of typical operation. When considered over a typical year, rooftop terrace activities are not expected to result in a material change to, or adverse effect on, the existing noise environment.

To provide a robust and precautionary level of control, and to ensure that noise impacts remain acceptable under all foreseeable operating conditions, **it is recommended that amplified music within the rooftop terrace area be limited to a maximum internal level of L_{Aeq} 75-80dBA.** This conservative measure has been proposed to provide additional confidence and resilience beyond the worst-case assumptions adopted within the assessment, thereby minimising the potential for adverse noise impacts at nearby noise-sensitive receptors.

9. CONCLUSIONS

Spectrum Acoustic Consultants has been commissioned by JLL to undertake a Noise Impact Assessment to assess the potential noise effects associated with the proposed rooftop terrace development at 1 Tony Wilson Place in Manchester, and to provide supporting acoustic information for the planning application.

A background noise measurement survey has been undertaken at location representative of the nearest and most noise-sensitive receptors, and predictions of noise from the proposed development have been completed using industry-standard acoustic modelling software.

The assessment concludes that noise form the proposed mechanical services plant, located within the existing rooftop plant compound, would results in noise levels that are significantly below existing background noise levels at the nearest noise-sensitive receptors, and would therefore not give rise to an adverse noise impact.

For completeness, predicted Nosie levels have also been considered against the criteria set out in Manchester City Council's Planning and Noise Technical Guidance (October 2022), as well as relevant WHO guideline values, and are generally compliant at nearby noise-sensitive receptor.

On this basis, the proposed mechanical services are considered acceptable from an acoustic perspective, with no additional mitigation required.

Noise associated with rooftop terrace activities has also been assessed against relevant guidance. The results demonstrate that, in overall terms and when considered over a typical year, rooftop terrace use would comply with applicable assessment criteria and would not result in a material change to, or adverse effect on, the existing noise environment.

To provide a precautionary level of control during infrequent organised events involving potential amplified music, it is recommended that amplified music within the rooftop terrace are be limited to a maximum internal level of L_{Aeq} 75-80dBA. Subject to this recommendation, the proposed development is considered acceptable in noise terms and suitable to support planning application in accordance with Manchester City Council requirements.

APPENDIX A

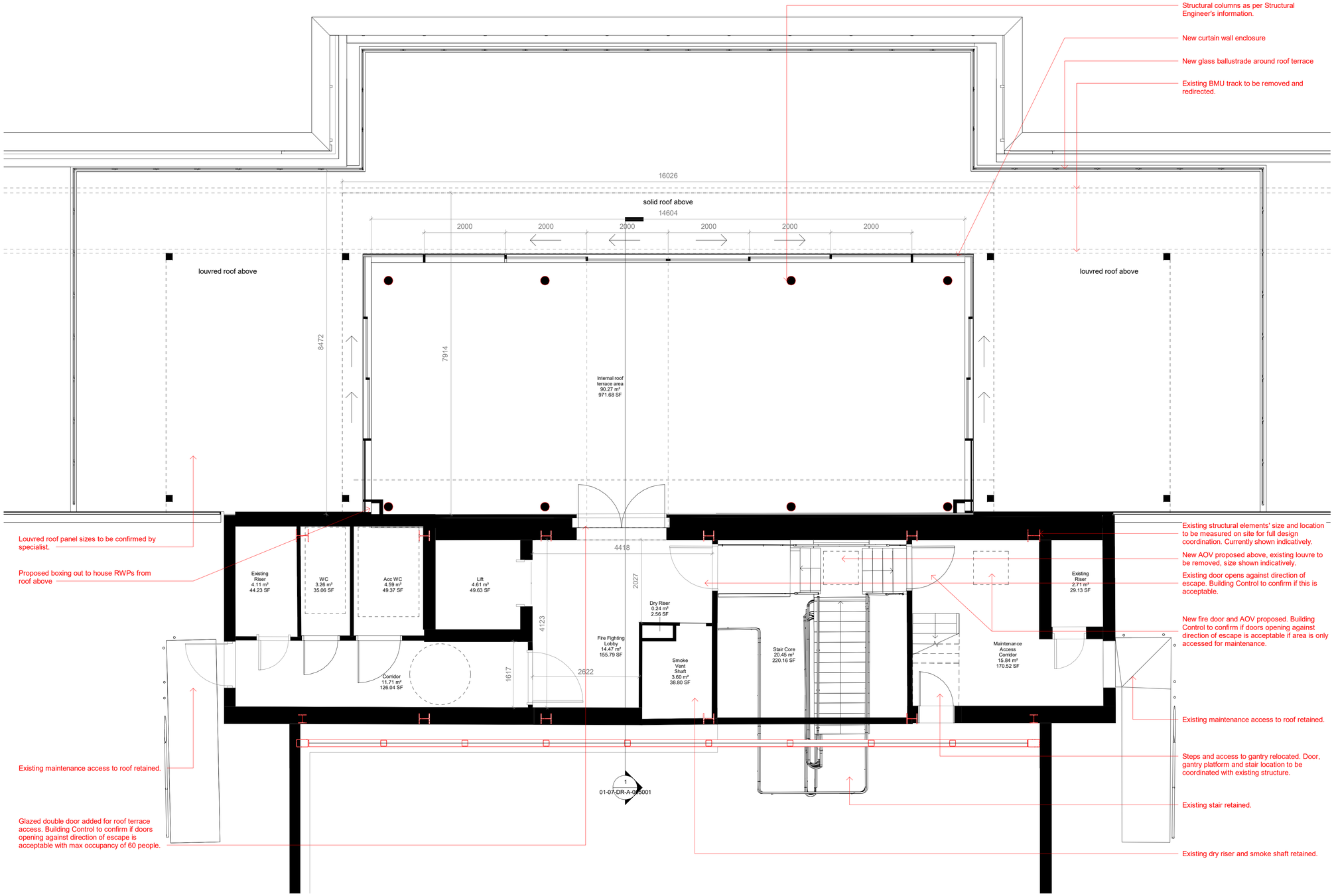
Proposed Scheme

Notes :
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Structural information indicative only. To be confirmed by Structural Engineer.

1:50
1m 0m 1m 2m 3m 4m 5m

Site measurements of structural elements required for full design coordination.



Rev	Description	Date	Drn By	Chk By
P02	AOV at head of stairs and maintenance lobby added. CW opening arrows added, pergola, dry riser and smoke shaft footprint updated as per discussions on site. Fire door added to staircore following fire engineers comments.	2026.03.09	AK	SK
P01	First issue for comment	2026.03.04	AK	SK

DRAFT

jmarchitects

3A | 54 Princess Street
Manchester
M1 6HS

T : 0161 200 6300

man@jmarchitects.net
www.jmarchitects.net

Project
One Tony Wilson Place

Title
Proposed Roof Terrace Plan

Client
Oval Real Estate

Purpose :
Information

Scale :
1 : 50 @ A1

Drawing Number
Project - Originator - Volume - Level - Type - Role - Class&Number
7124-JMA-01-07-DR-A-00 0001

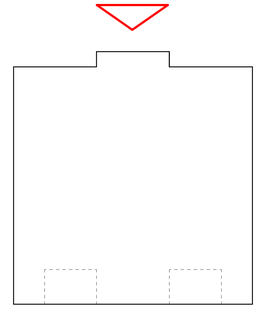
Status: S3
Revision: P02
JMA Project Number: 7124

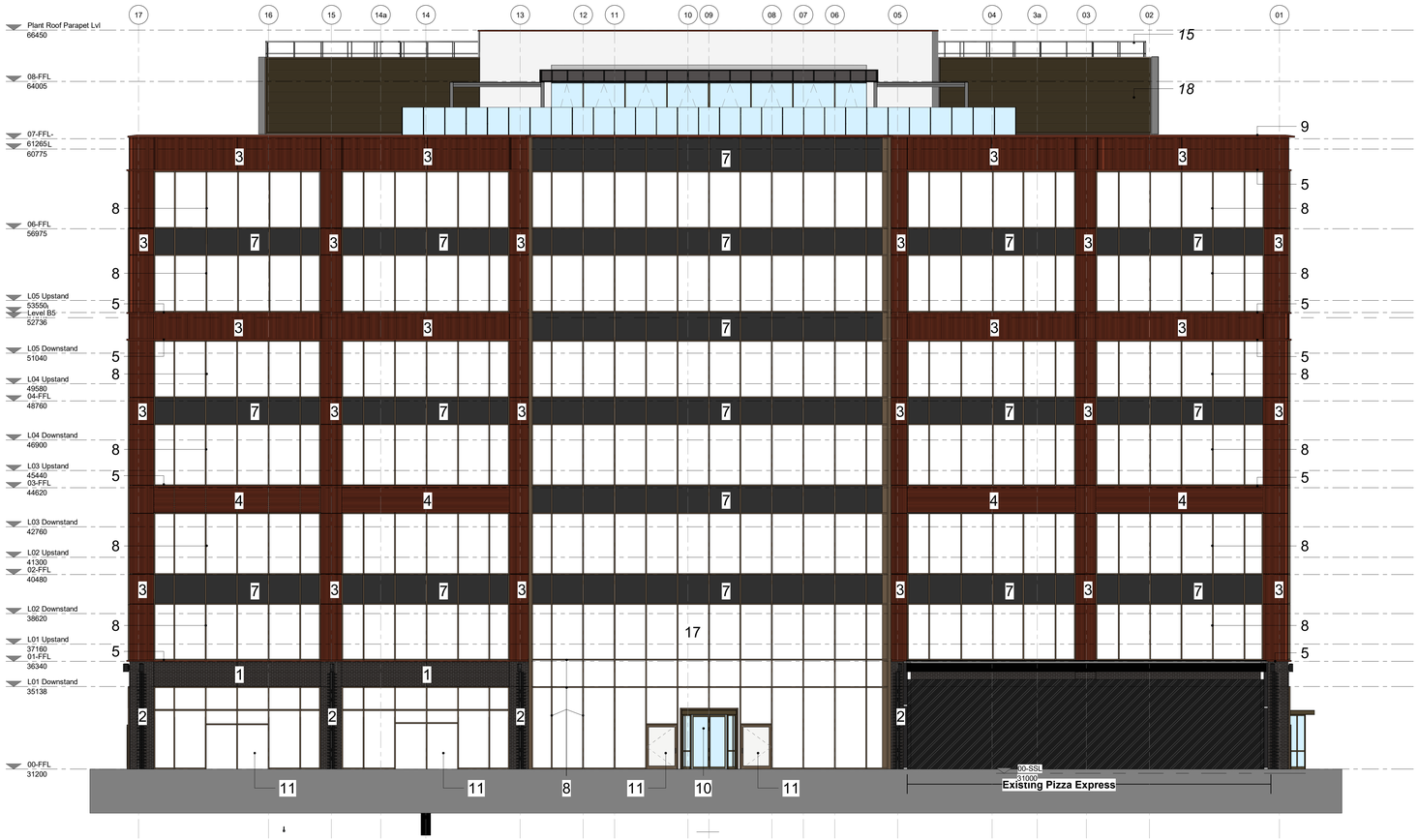
Version: 00.51.13

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Structural information indicative only. To be confirmed by Structural Engineer.

1:100
2m 0m 2m 4m 6m 8m 10m





Materials Key:
1. New Black Brick
2. New Black Glazed Brick Detail
3. New Vertical Ribbed Anodised Aluminium Rainscreen Cladding
4. New Horizontal Ribbed Anodised Aluminium Rainscreen Cladding
5. New Anodised Aluminium Cill
6. New Flat Anodised Aluminium Rainscreen Cladding
7. New Black Glass Spandrel Panel
8. New Anodised Aluminium Curtain Wall Cappings
9. New Anodised Aluminium Parapet Cappings
10. Refurbished Anodised Aluminium And Glass Revolving Door
11. New Glazed Entrance Door
12. New Anodised Aluminium Vertical Fin Detail
13. Refurbished Anodised Aluminium Louvre
14. New Louvre
15. New Handrail
16. Refurbished Doors

17. Existing Glazing Retained
18. Existing Plant Room Screen
19. Existing Dry Riser

Caveats:

1. LAYOUT SUBJECT TO REVISED DFC FIRE STRATEGY REPORT

Rev	Description	Date	Drn By	Chk By
P01	Issued for Employer's Requirements	2020.03.25	BS	SK

jmarchitects

3A | 54 Princess Street
Manchester
M1 6HS

T : 0161 200 6300

man@jmarchitects.net
www.jmarchitects.net

Project
One Tony Wilson Place

Title
North Elevation

Client
Oval Real Estate

Purpose
Tender

Scale
As indicated@ A0

WIP

Drawing Number
Project - Originator - Volume - Level - Type - Role - Number
7124-JMA-01-ZZ-DR-A-001001

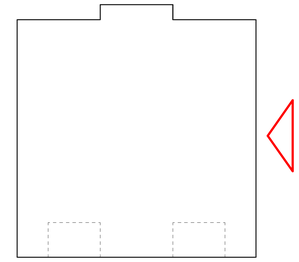
Status S3 Revision P01

JMA Project Number 7124

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Structural information indicative only. To be confirmed by Structural Engineer.

1:100
2m 0m 2m 4m 6m 8m 10m





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13. Refurbished Anodised Aluminium Louvre
14. New Louvre
15. New Handrail
16. Refurbished Doors

17. Existing Glazing Retained
18. Existing Plant Room Screen
19. Existing Dry Riser

Caveats:

1. LAYOUT SUBJECT TO REVISED DFC FIRE STRATEGY REPORT

Rev	Description	Date	Drn By	Chk By
P01	Issued for Employer's Requirements	2025.03.25	SS	SK

jmarchitects

Project
One Tony Wilson Place

Title
East Elevation

Client
Oval Real Estate

Purpose
Tender

Scale :
As indicated@ A0

WIP

Drawing Number
Project - Originator - Volume - Level - Type - Role - Number
7124-JMA-01-ZZ-DR-A-001002

Status S3 Revision P01

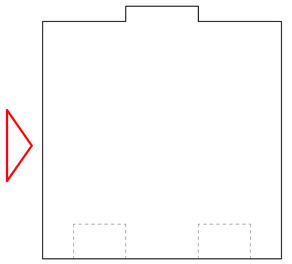
JMA Project Number 7124

3A | 54 Princess Street
Manchester
M1 6HS
T : 0161 200 6300
man@jmarchitects.net
www.jmarchitects.net

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1:100
2m 0m 2m 4m 6m 8m 10m





Materials Key:
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14. New Louvre
15. New Handrail
16. Refurbished Doors

17. Existing Glazing Retained
18. Existing Plant Room Screen
19. Existing Dry Riser

Caveats:

1. LAYOUT SUBJECT TO REVISED DFC FIRE STRATEGY REPORT

Rev	Description	Date	Drn By	Chk By
P01	Issued for Employer's Requirements	2025.03.25	SS	SK

jmarchitects

3A | 54 Princess Street
Manchester
M1 6HS

T : 0161 200 6300

man@jmarchitects.net
www.jmarchitects.net

Project
One Tony Wilson Place

Title
West Elevation

Client
Oval Real Estate

Purpose
Tender

Scale
As indicated@ A0

WIP

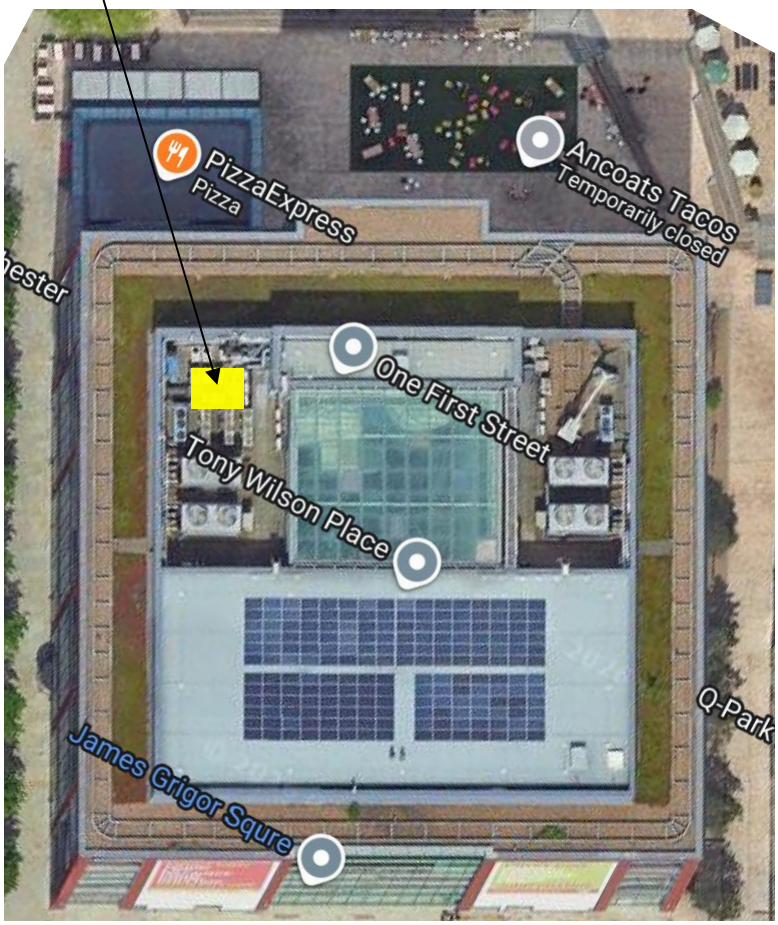
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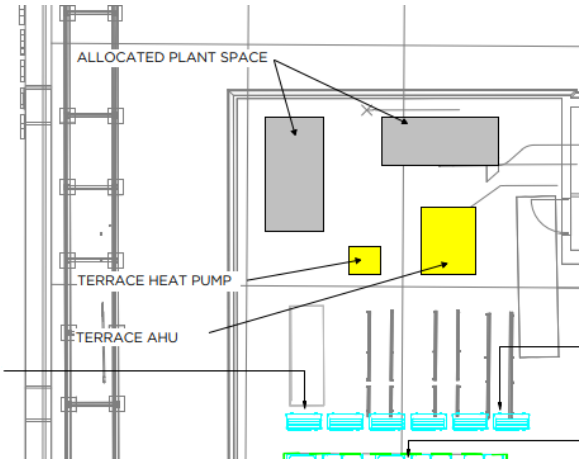
Status S3 | Revision P01

JMA Project Number 7124

Preliminary Location of Terrace Heating/Cooling & Ventilation Equipment

APPROXIMATE LOCATION OF TERRACE AHU AND HEAT PUMP





The plant serving the terrace will be located approximately in this area allowing for allocated equipment such as WC exhaust fans. The heat pump units will be of the same type used for the main scheme.

Noise Data - AHU

Project: n/a

Tony Wilson Place, Manchester
Location: MVHR Internal

Technical Data

XBC+

Fan Code:	**XBC65HA-EHN-E-LS1S**
Installation Manual Links:	671948
Supply	
Required duty:	0.6 m³/s at 150 Pa
Actual duty:	0.639 m³/s at 170 Pa
Actual at required flow:	0.6 m³/s at 210 Pa
Extract	
Required duty:	0.6 m³/s at 150 Pa
Actual duty:	0.639 m³/s at 170 Pa
Actual at required flow:	0.6 m³/s at 210 Pa
When speed controlled to required duty:	
Motor input power:	**0.771 kW**
Specific Fan Power:	**1.3 W/(l/s)**
At full speed:	
Motor input power:	0.929 kW
Specific Fan Power:	1.5 W/(l/s)
Maximum Fan Speed:	1,850 RPM
Electrical Supply:	230V 1 Phase 50 Hz
Nominal Motor Rating	1 kW
Motor Current (flc):	6 A
Motor Current (sc):	6 A
Heater Power:	9 kW
Heater Current (flc):	38 A
Heater+Motor Current (flc):	44 A
Max. operating temp:	40°C
Weight:	476 kg

Sound Data

Noise calculated speed controlled to required duty (93.96%)

Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	69	67	54	49	43	39	33	18	33
Induct Intake	77	77	70	64	62	57	46	32	47
Induct Supply	81	83	77	72	70	66	59	52	55
Induct Discharge	83	83	77	73	70	67	59	53	55
Induct Extract	79	77	68	65	62	58	46	33	47
For 100% speed:	+2	+2	+2	+2	+2	+2	+2	+2	

dBA is spherical at 3 metres. For hemi-spherical add 3 dBA.

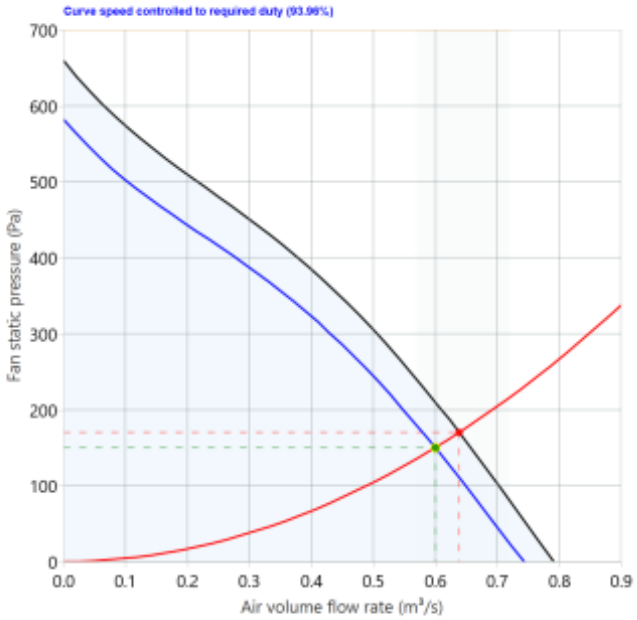
Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

Specification

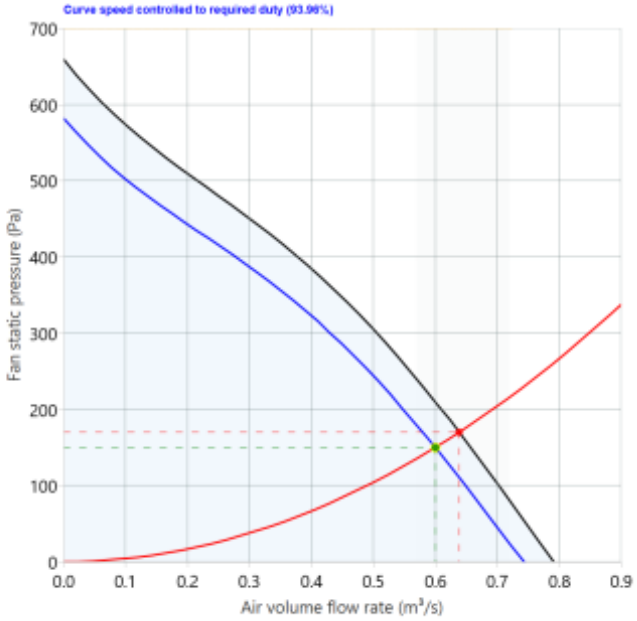
XBC65HA-EHN-E-LS1S. Nuaire XBOXER Supply & Extract HX unit. Incorporating high efficiency Counterflow plate heat exchanger 100% bypass facility (patent app. for) automatic control and actuator. Backward curved impellers, IP54 EC motors and speed control. Double skinned construction (patented). G4 Supply G4 Extract panel filters (spares included). Electric heater battery and burst fired temperature controller. EcoSmart Classic control of ventilation/heating. For ceiling/underfloor/slab mounted applications. Supply/Discharge connections on unit centreline; Intake/Extract connections are configurable on site to either side of unit. Rotational side mounted control. Unit will be supplied LEFT HANDED. 5 year warranty (UK and Ireland only)

ES-LCD2
LCD touch screen ventilation user control panel in white compatible with Ecosmart system. Control has built in time clock. Supplied with pre-plugged 10m length of communication cable.

Performance Chart (supply)



Performance Chart (extract)



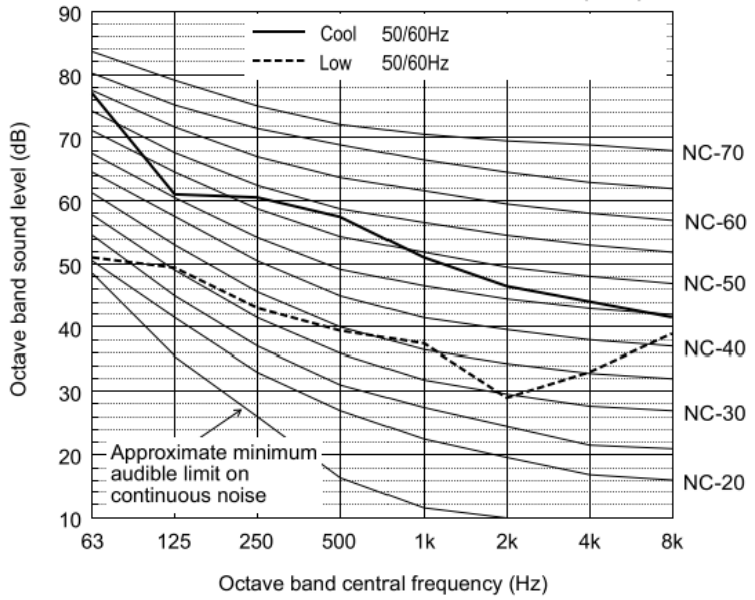
Additional Notes

Selected Ancillaries

1 x ES-LCD2	Ecosmart LCD 2 Touch Screen User Control (White)

Noise Data – Air Source Heat Pump

Sound level of PURY-P200YNW-A2/TR2/RU2(-BS)



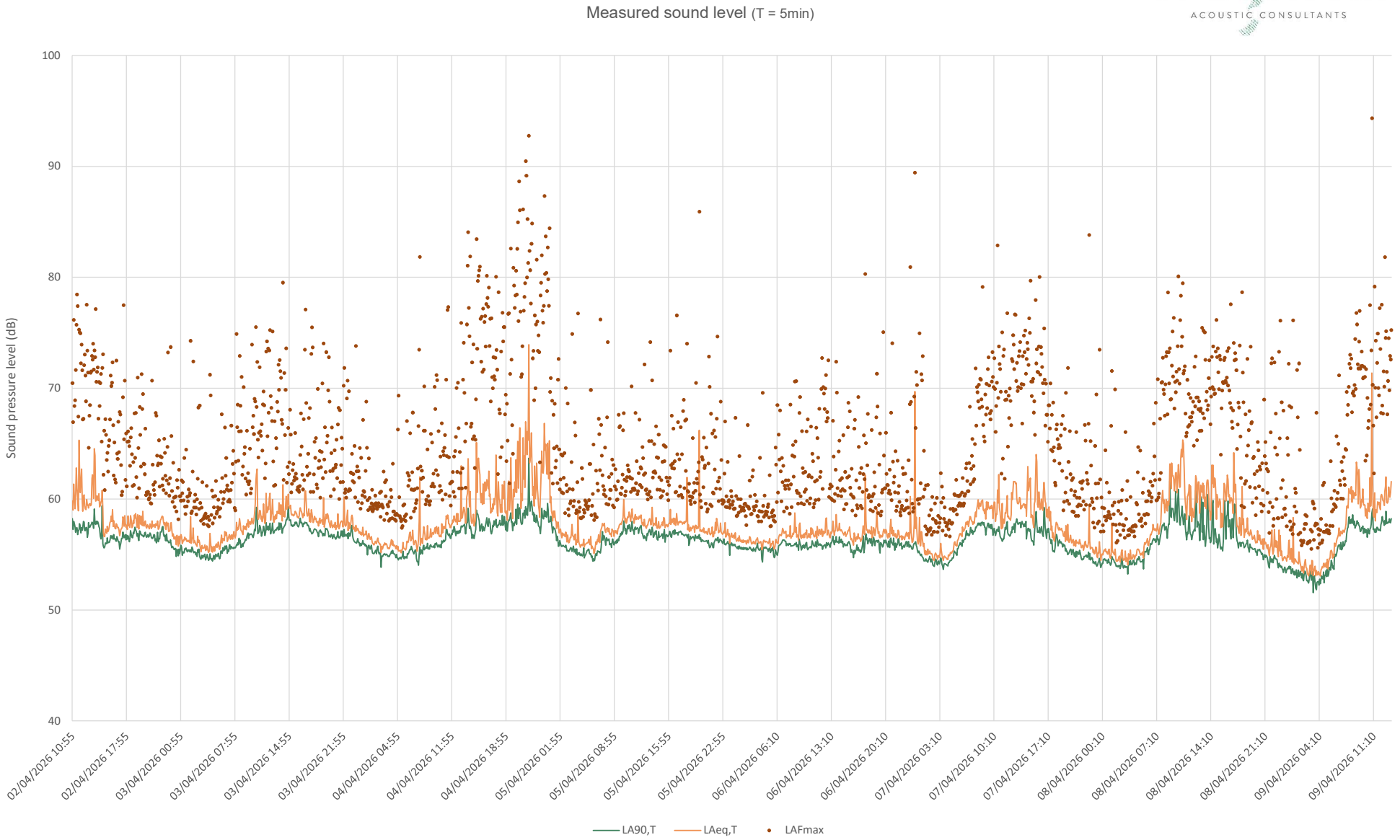
		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	77.0	61.0	60.5	57.5	51.0	46.5	44.0	41.5	59.0
Low noise mode	50/60Hz	51.0	49.5	43.0	39.5	37.5	29.0	33.0	39.0	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

APPENDIX B

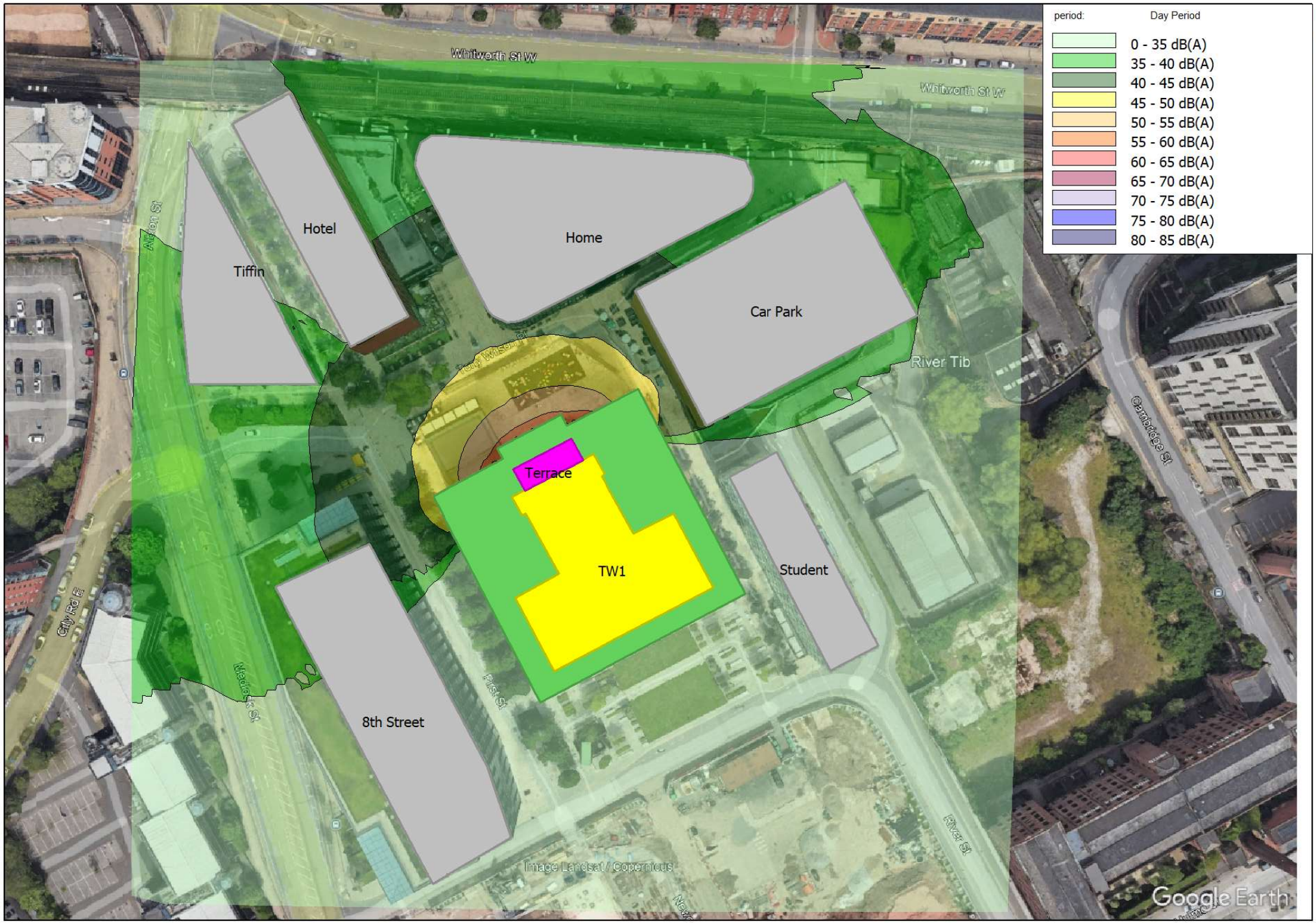
Environmental Noise Survey Graphs

MP1 - Roof Level (SE Corner)

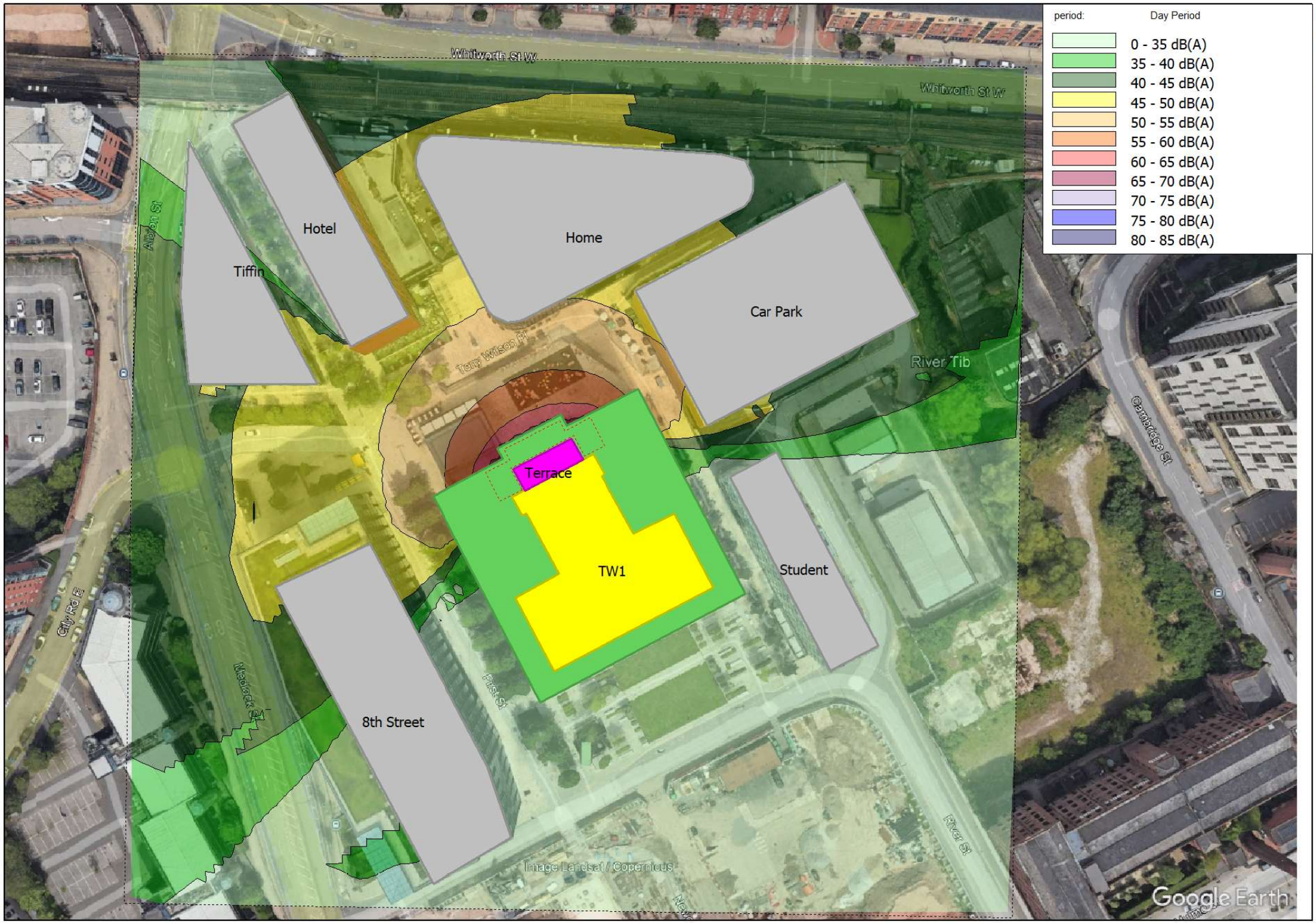


APPENDIX C

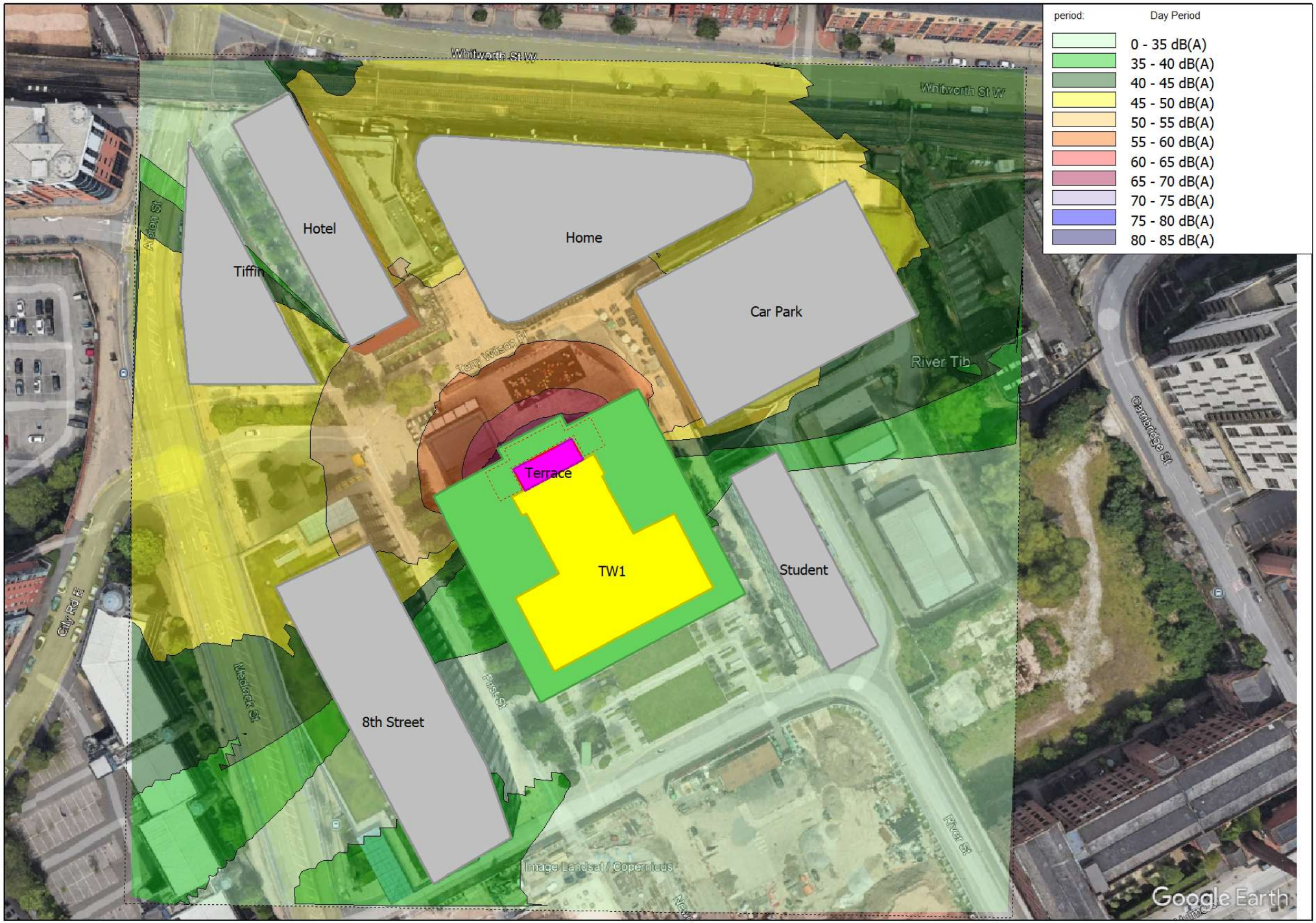
Results of the Noise Prediction Models Relating to the Proposed Rooftop Terrace Development



Rooftop Terrace 'Typical Operation' - Noise Contours at 1.5m above terrace level



Rooftop Terrace 'Busy/Event Operation' (closed door) - Noise Contours at 1.5m above terrace level



Rooftop Terrace 'Busy/Event Operation' (open door) - Noise Contours at 1.5m above terrace level

Head Office
Spectrum Acoustic Consultants Ltd
27-29 High Street
Biggleswade
Bedfordshire
SG18 0JE
UNITED KINGDOM

+44 (0)1767 318871
enquiries@spectrumacoustic.com
www.spectrumacoustic.com