

39-41 Piccadilly Plaza, Manchester

Noise Impact Assessment Report

City Tower Unit Trust

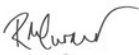
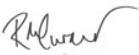
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1.0

Introduction

1.0 Introduction

Proposals are for the change of use from existing sui generis (casino) to a flexible space (to include A1, A2 and A3). The unit is situated at 39 – 41 Piccadilly Plaza directly adjacent to Piccadilly Gardens.

Cundall has been commissioned by City Tower Unit Trust to stipulate limiting levels for new items of services plant associated with the new development.

The purpose of this report is:

- To assess existing noise levels around the site based upon previous noise surveys undertaken by Cundall at the Piccadilly / City Tower complex
- To set cumulative noise emission limits at the nearest noise sensitive receptors for items of plant associated with the new development, in line with relevant British standards and the requirements of Manchester City Council as outlined in their Planning & Noise Technical Guidance document.

2.0

Assessment criteria

2.0 Assessment criteria

This section of the report outlines the key legislation and guidance relevant to the assessment of noise for a development of this type.

2.1 Noise Policy Statement for England

The National Planning Policy Framework (NPPF) was originally published in March 2012 and amended in February 2019. The NPPF is part of government reform to make the planning system less complex and more accessible, and to promote sustainable growth. It replaced existing national planning policies such as Planning Policy Guidance PPG24: Planning and Noise.

The NPPF states:

“170 - Planning policies and decisions should contribute to and enhance the natural and local environment by;

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

and

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

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;”

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2.3 Planning Practice Guidance

In March 2014 Planning Practice Guidance for noise was published. This online document advises on how planning can manage potential noise impacts in new development.

2.4 Local Authority noise policy guidance

Section 3.6.1.5.1 of the Manchester City Council (MCC) 'Planning & Noise - Technical Guidance' document (December 2015) relates to noise limits for building services plant and states:

"Many of the noise complaints Environmental Health receive about noise from plant, equipment and machinery specifically concern the character of the noise emitted. Any noise assessment needs to consider not only the overall level of noise emitted but also its particular characteristics. The noise assessment should be based on BS 4142: 2014 and any application for fixed plant, equipment or machinery must demonstrate that:

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 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location."

2.5 BS 4142:2014

BS 4142:2014 provides methods for rating and assessing sound of an industrial and/or commercial nature, which includes sound from industrial and manufacturing processes, fixed services plant, sound generated by the loading/unloading of goods and sound from mobile plant / vehicles associated with industrial / commercial premises (e.g. fork-lift trucks).

Typically, the greater the difference between the background and rating level, the greater the magnitude of impact, although BS 4142 emphasises that this is highly context-specific.

As a guideline, BS 4142 states that:

- *A difference (between the background and rating level) of around +10 dB or more is likely to be indicative of significant adverse impact, depending on context*
- *A difference (between the background and rating level) of around +5 dB or more is likely to be indicative of adverse impact, depending on context*
- *The lower the rating level relative to the background level, the less likely it is that the specific sound will have an adverse impact*
- *Where the rating level does not exceed the background level, this is an indication that the specific sound will have a low impact, depending on context*

BS 4142:2014 also outlines ratings penalties for sound based on a subjective assessment of its characteristics:

Tonality

For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.

Impulsivity

A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity that is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible."

3.0

Site context

3.0 Site context

The proposed development is situated at 39 – 41 Piccadilly Plaza directly adjacent to Piccadilly Gardens.

The site is bounded by Parker Street to the north east, Portland Street to the south east, New York Street to the south west and Mosley Street to the north west.

Proposals are for the change of use from existing sui generis (casino) to a flexible space (to include A1, A2 and A3).

It is understood that the nearest residential receptor is the Mercure Manchester Piccadilly Hotel.

An aerial photograph indicating the approximate site location (red) and nearest noise sensitive receptor (green) is presented in Figure 1 below:

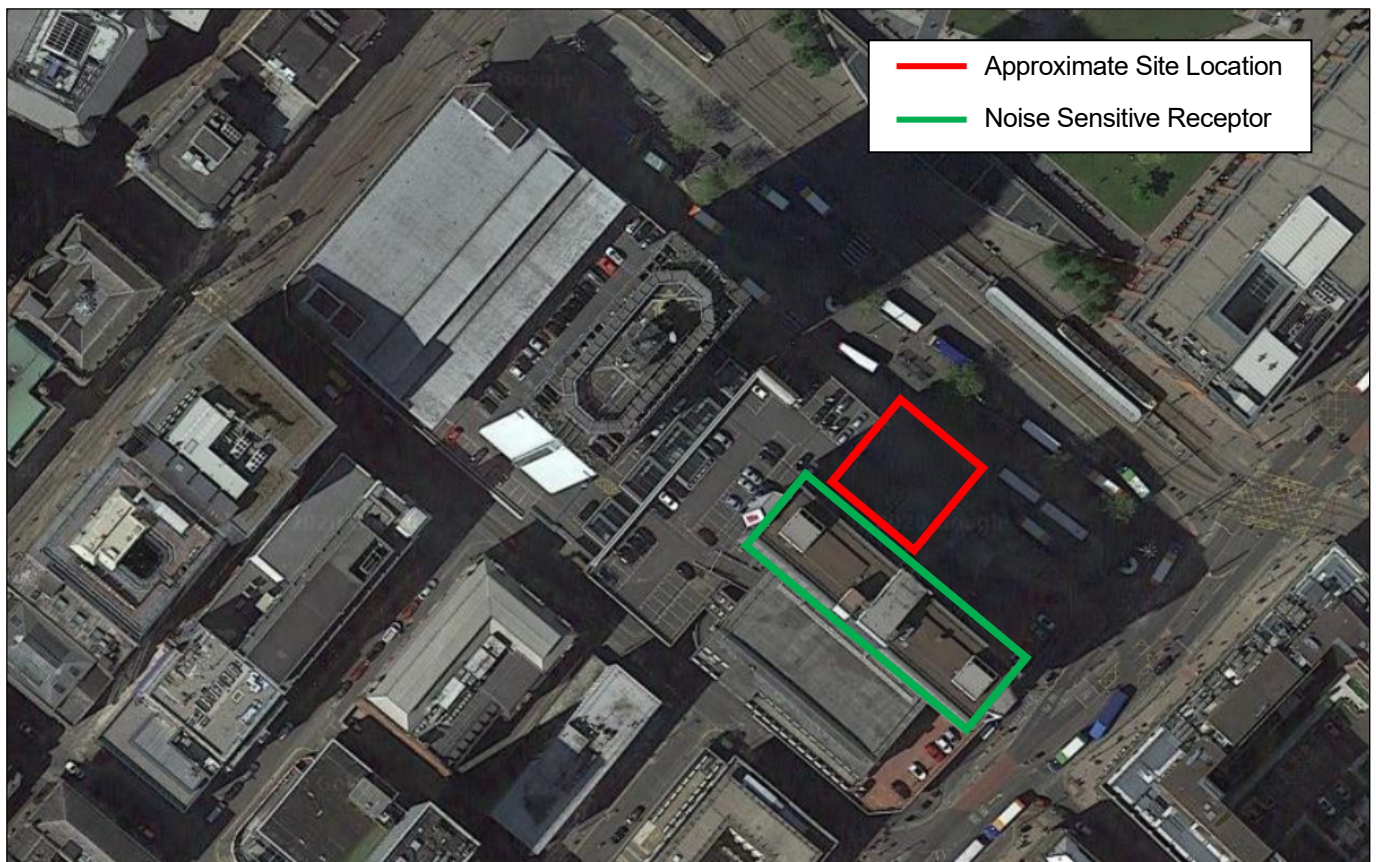


Figure 1 - Site and receptor locations

4.0

Environmental noise survey

4.0 Environmental noise survey

4.1 Approach

It is usual practice to undertake environmental noise surveys to help determine prevailing background noise levels, however this has not been possible due to current COVID-19 guidance; any noise measurements undertaken at present would not be representative of normal background noise levels as a result of reduced road traffic and leisure / retail operations around Piccadilly Gardens.

In line with current guidance¹ published by the Association of Noise Consultants (ANC) and the Institute of Acoustics (IOA), this report has instead been informed by existing survey data available from a previous noise assessment carried out by Cundall on the second-floor podium level of the existing City Tower in Manchester, currently occupied by car parking spaces.

4.2 Survey summary

Attended noise measurements were carried out on the 14 and 15 June 2018 at three positions around the site. The timings of these measurements include the likely worst-case quietest daytime and night-time periods at the nearest noise-sensitive location.

A mark-up of the approximate noise measurement positions (in blue) is shown in Figure 2 below.

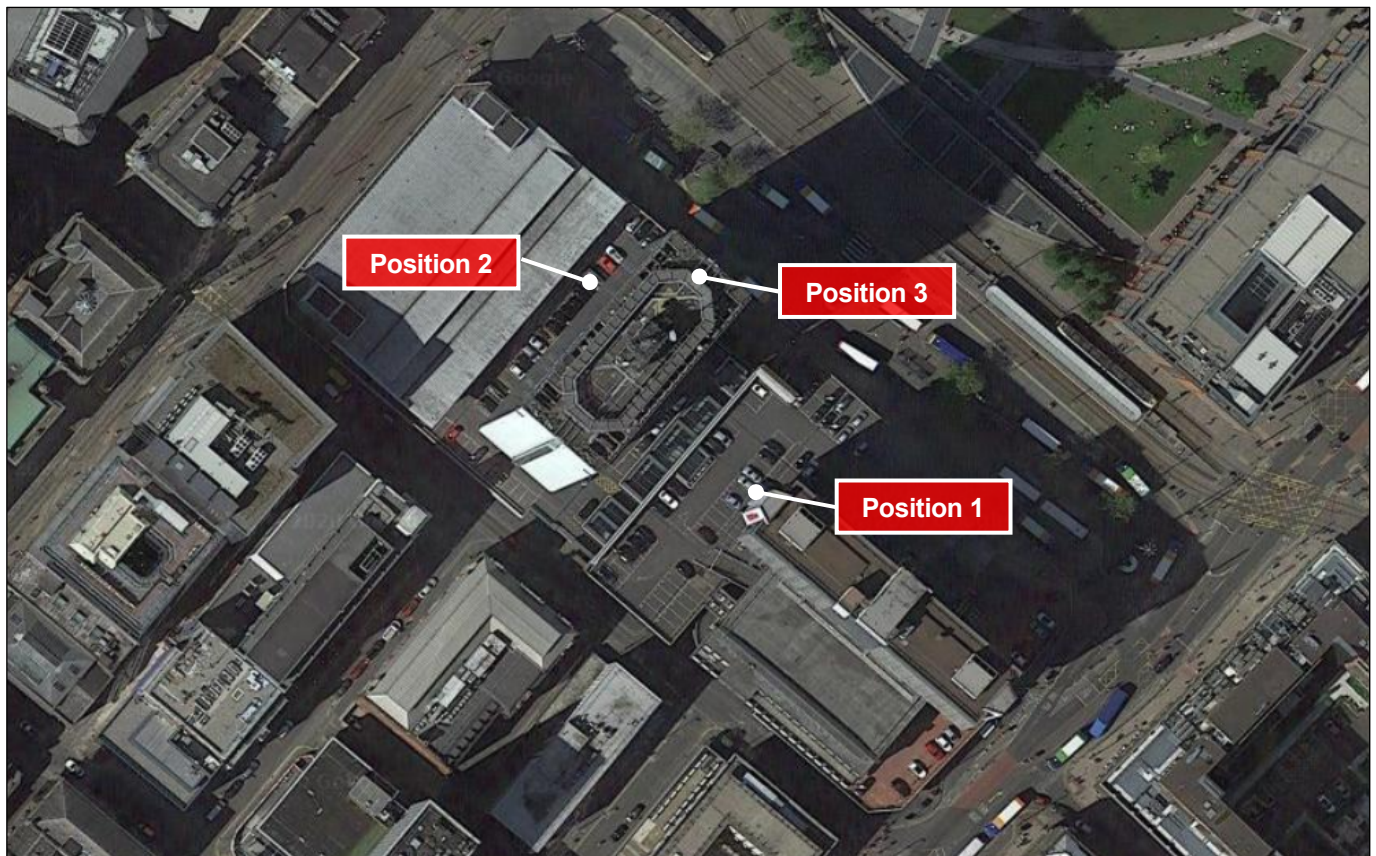


Figure 2 - Noise measurement positions mark-up

¹ 'Joint Guidance On The Impact Of Covid-19 On The Practicality And Reliability Of Baseline Sound Level Surveying And The Provision Of Sound & Noise Impact Assessments (Version 4)' accessed on 29/06/2020 at

<https://www.ioa.org.uk/sites/default/files/Joint%20Guidance%20On%20the%20Impact%20of%20Covid.IOA%20ANC%20V4.pdf>

4.3 Weather conditions

The weather conditions during the site visits were recorded and are presented in the table below.

Date	Period	Weather conditions
14/06/2018	06:00 – 07:00 hours	Dry and cool, 16°C, 7 m/s southern wind, full cloud coverage
	21:00 – 00:00 hours	Dry and cool, 17°C, 5 m/s south-western wind, clear sky
15/06/2018	07:00 – 10:00 hours	Dry and cool, 15°C, 7 m/s western wind, full cloud coverage

Table 1 - Summary of weather conditions during the site visits

4.4 Survey details

Attended noise measurements have been undertaken using a Casella CEL 63X (serial number 1211404) precision sound level meter in accordance with BS 7445-1: 2003. The meter was field calibrated before and after each set of measurements, with no significant drift witnessed. Calibration certificates for all equipment are available upon request.

Monitoring equipment was set up by competently trained Cundall staff and all measurements have been reported for free-field conditions. A table presenting the subjective impressions from site during each site visit is shown below.

Measurement position	Date and time		Noise contributions
1	14/06/2018	06:00 – 07:00 hours	Generally quiet. Faint hum from air conditioning units operating nearby. Some distant noise from construction site on ground floor level to the west of the City Tower, and occasional Metrolink horns.
		23:00 hours – midnight	Some music from the Piccadilly Plaza. Buses and Metrolink tram movements, with occasional tram horns.
2		21:00 – 23:00 hours	Generally quiet. Background noise levels dominated by a hum from air conditioning units operating nearby.
3	15/06/2018	08:00 – 10:00 hours	General noise from the Piccadilly Plaza, including contributions from busses, Metrolink trams and people passing by. Occasional contributions were noted from tram horns, as well as cars driving, reversing and parking near the measurement location. No audible plant.

Table 2 - Summary of measurement periods and subjective impressions for noise contributions on site

4.5 Survey results

A summary of the average ambient noise levels recorded during the survey is detailed within Table 3. The values within the table are the logarithmically averaged $L_{Aeq,15min}$, the maximum $L_{AFmax,15min}$ and the range of $L_{A10,15min}$ and $L_{A90,15min}$ values measured. All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

Measurement date and time		Position	Average dB $L_{Aeq,15min}$	Max dB $L_{AFmax,15min}$	Range dB $L_{A10,15min}$	Range dB $L_{A90,15min}$
14/06/2018	05:59 – 06:59h	1	60	69	60 – 61	59
14/06/2018	23:08 – 00:08h		58	70	59 – 60	57 – 58
14/06/2018	21:05 – 23:02h*	2	57	72	58 – 60	52 – 56
15/06/2018	07:03 – 10:00h	3	65	85	66 – 69	59 – 62

*The last interval measurement is 2:30 mins shorter due to battery failure on the sound level meter.

Table 3 - Summary of attended noise measurement data

5.0

Plant noise emission limits

5.0 Plant noise emission limits

As detailed in Section 2.4, Manchester City Council stipulate the following criteria with respect to noise emissions from new building services plant installations:

“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 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.”

5.1 Limiting noise levels

Measurements taken at Position 1 are those considered most representative of background levels at the Mercure Hotel. The original survey did not take any daytime measurements at this position. It has therefore been decided to apply background limits taken at night-time to daytime hours. Given that background levels are higher during daytime hours, setting limits based upon night-time levels is considered a heavily onerous approach which will see risk of adverse noise effects during daytime hours achieved by default.

Table 4 below summarises the existing background noise levels measured at the site along with limiting noise levels for all new items of services plant, when measured at 1 m from the nearest noise sensitive receptor.

Period	Lowest measured existing background level, $L_{A90,15min}$ dB*	Cumulative limiting noise level for all items of building services plant, $L_{A,T,r}$ dB
Daytime (07:00 – 23:00 hours)	57	52
Night-time (23:00 – 07:00 hours)	57	52

Table 4 - Limiting plant noise levels

The above limit is applicable to the cumulative noise level from all new items of plant when running under normal operation. Where applicable, acoustic feature corrections should be applied to the specific plant noise level to account for any distinguishable acoustic characteristics (e.g. tonality, impulsivity, intermittency).

5.2 Services Plant Proposals

At this stage, the services plant associated with the commercial unit is unknown. It is therefore not possible to carry out an assessment of compliance with the limits stipulated above. It is envisaged that this report will be updated to incorporate an assessment of proposed plant noise once HVAC requirements are known and selections have been made.

6.0

Conclusions

6.0 Conclusions

Prevailing noise levels at 39 – 41 Piccadilly Plaza have been identified based upon historical noise data through a survey undertaken by Cundall. The positions selected for this previous survey are considered to be representative of levels at the nearest noise sensitive receptor, the Mercure Hotel.

Limiting noise levels have been provided for external noise impacts at existing nearby noise-sensitive receptors, in order to minimise the potential for adverse noise effects in line with Local and National Planning Policy. These limits should see that the level of amenity is maintained in the surrounding area.

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