

Plot 9a, First Street

Planning Condition Verification Report

First Street Developments Limited

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1.0

Introduction

1.0 Introduction

Cundall has been commissioned to carry out acoustic pre-completion verification measurements at the newly constructed Plot 9A development at First Street, Manchester.

The purpose of this report is to document measurements undertaken on site and to determine compliance with Planning Conditions 16 and 17 attached to the proposed planning decision notice for the development (Ref: 132600/FO/2021).

This assessment has been prepared by Cundall who are Members of the Association of Noise Consultants (ANC).

The report author, checker, and verifier are all Corporate Members of the Institute of Acoustics (MIOA) and have over three years' relevant experience within the last five years.

1.1 Test equipment used

Table 1-1 summarises the equipment used in testing:

Item of equipment	Serial number	Calibration certificate	Date of last calibration	Next calibration due
NTi Audio sound level meter Type XL2	A2A-16315-E0	06292/2	07/07/2023	06/07/2025
NTi Audio pre-amplifier Type MA220	8550			
NTi Audio microphone Type MC230A	A17555			
Larson Davis Calibrator Type CAL200	16781	06850/2	18/07/2024	17/07/2025

Table 1-1: List of equipment used

2.0

Compliance criteria

2.0 Compliance criteria

2.1 Local Authority Noise Policy Guidance

2.1.1 Planning condition 16

Manchester City Council have issued a decision notice in relation to the proposed development (Ref: 132600/FO/2021). Planning Condition 16 attached to this decision relates to entertainment noise associated with the development and states the following;

“16) The premises shall be acoustically insulated and treated to limit the break out of noise in accordance with a noise study of the premises and a scheme of acoustic treatment that has been submitted to and approved in writing by the City Council as local planning authority. 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.

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB(Leq,5min), respectively.

b) Prior to occupation of the development a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that acceptable criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

Reason - To safeguard the amenities of the occupiers of the building and occupiers of nearby properties, pursuant to policies SP1 and DM1 of the Core Strategy and saved policy DC26 of the Unitary Development Plan.”

2.1.2 Planning condition 17

Planning Condition 17 attached to the decision relates to noise from external plant items associated with the development and states the following;

17) Before first occupation of the development the building, together with any externally mounted ancillary equipment, shall be acoustically insulated in accordance with a scheme 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 equipment.

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 (LAeq) below the typical background (LA90) level at the nearest noise sensitive location.

“Upon completion of the development and within 6 months of the equipment becoming operational, a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that above criteria is met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the noise criteria. This report shall be submitted to and approved in writing by the City Council as local planning authority within 6 months of the equipment becoming operational along with a timescale that confirms when any necessary changes will be implemented.

Reason - To safeguard the amenities of the occupiers of nearby residential accommodation, pursuant to saved policy DC26 of the Unitary Development Plan for the City of Manchester and policies SP1 and DM1 of the Core Strategy.”

2.2 BS 4142

'BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound' (BS 4142) 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:

3.0

Site context

3.0 Site context

The site is located at the southeastern edge of Manchester City Centre and is located within the First Street Strategic Development Framework (SDF) 2018 area. It is part of a wider vision to create a mixed-use neighbourhood in the area, supported by a mixture of leisure, office and residential blocks. The site is known as Plot 9a and is bound by River Street to the north, a future development site known as Plot 10 to the east, future development Plot 9b to the south, and Medlock Street to the west.

The nearest existing noise-sensitive properties are considered to be the apartments at the Macintosh Mill development to the east of the site on the opposite side of Wilmott St.

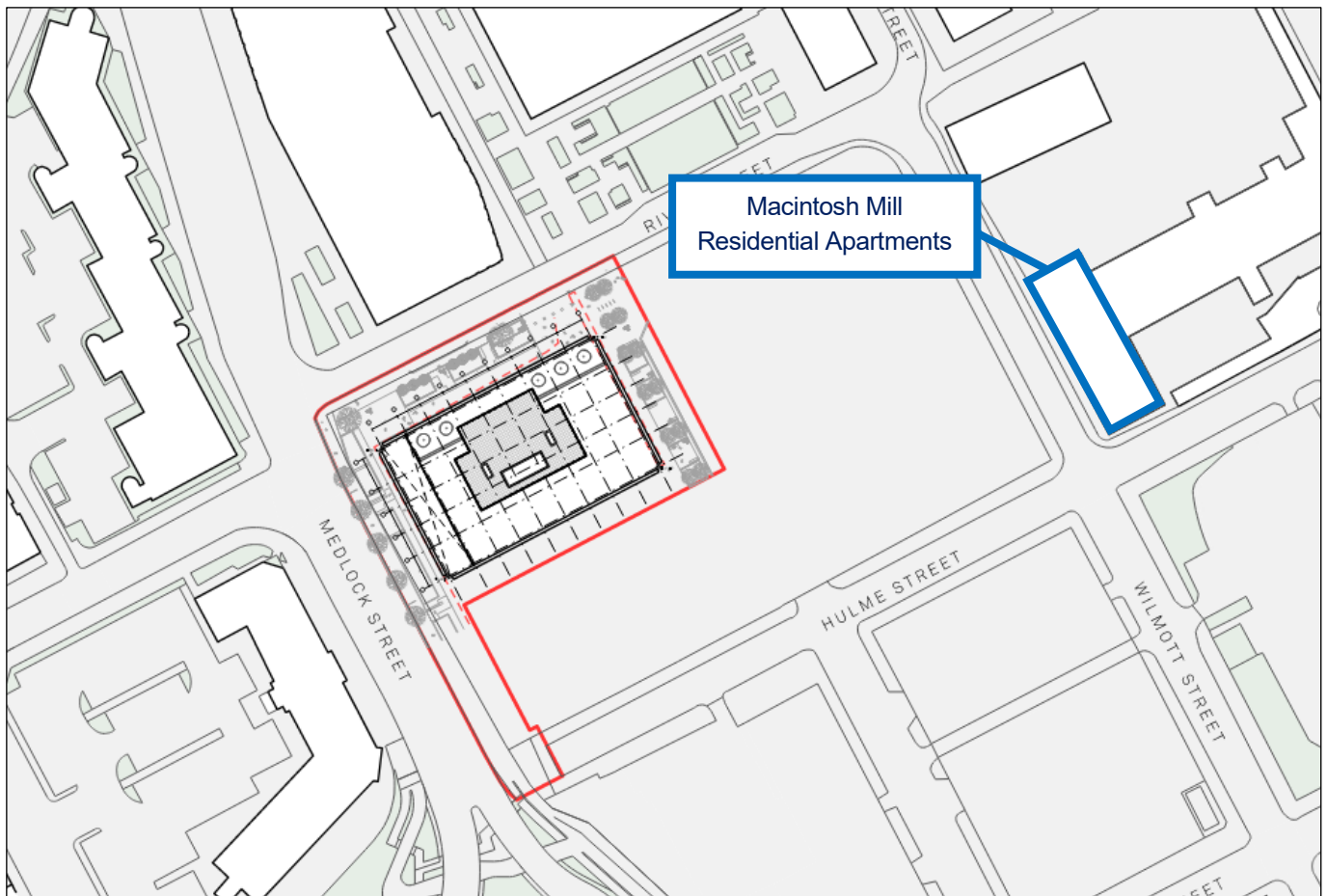


Figure 3-1: Site and nearest noise sensitive receptor location

4.0

Planning condition 16

4.0 Planning condition 16

4.1 Acoustically insulated façade to limit break-out

The ventilation strategy of the building is to utilise mechanical ventilation via centralised air handling plant during the coldest and warmest parts of the year, with natural ventilation the preferable solution during mid-season.

The sound insulation of external glazed elements to the summarised in the following table:

Glazing reference	Build-up	Sound insulation performance
GLVN1/GLVN2	13.52 mm (66.4) LamiGlass (PVB) 16 mm Cavity 11.52 mm (55.4) LamiGlass (PVB)	$R_w(C_{tr}) = 42(-4)$ dB
GLV01/GLV03	10 mm Float Glass 20 mm Cavity 10 mm Float Glass	$R_w(C_{tr}) = 37(-3)$ dB
GLV02	17.52 mm (88.4) LamiGlass (PVB) 16 mm Cavity 17.52 mm (88.4) LamiGlass (PVB)	$R_w(C_{tr}) = 41(-5)$ dB

Table 4-1: Proposed glazing specification

The above glazing systems offer a very high level of acoustic sound isolation performance. As such, the level of external noise break-out from a typical office environment (45 – 60 dBA) is expected to be imperceptible.

The Main Contractor has confirmed that the glazing systems installed at the completed Development are in accordance with the specifications identified in Table 4-1 and visual inspection undertaken by Cundall on 26 November 2024 identified that window installations are well sealed throughout.

4.2 Entertainment noise

Part of Condition 16 a) and Condition 16 b) relate to entertainment noise break-out associated with the Development.

The final design does not incorporate any spaces intended for entertainment purposes. Consequently there are no sources of amplified noise expected to occur during the operational use of the Development.

It is therefore considered that these elements of Planning Condition 16 can be appropriately discharged.

5.0

Planning condition 17

5.0 Planning condition 17

5.1 Compliance measurements

5.1.1 Plant installations

The following items of plant have been installed at the Development across the two roof levels (Level 9 and 10). The plant selections are detailed as follows:

Item	Number of Items
Condenser – Toshiba RAV-GM1101ATP-E	3
Air Source Heat Pump – Trane CMAF 130 HE XLN	2
Chiller – Trane GVAF 105 XSE	1
Smoke Extract	2
AHU	3

Table 5-1: Plant Selection

5.1.2 Methodology

In order to assess the rooftop plant noise levels affecting nearest noise-sensitive receptors, attended daytime measurements have been undertaken on the 26 November 2024.

The approximate measurement locations within the external rooftop plant area are shown in Figure 5-1 below.



Figure 5-1: Noise measurement positions

Noise measurements were made using an NTi XL2 (serial number A2A-16315-E0) precision sound level meter, generally in accordance with BS 7445:2003. The meter was field-calibrated before and after with no significant drift witnessed. Laboratory calibration certificates for all equipment are available upon request.

Monitoring equipment was set up by competently trained Cundall staff and all measurement have been reported for free-field conditions.

It was confirmed by site operatives that all external noise generating plant was fully balanced and operating at design duty levels at the time of the measurements.

5.1.3 Results summary

A summary of source level measurements of external noise generating plant at one metre from the primary rooftop noise sources are detailed within Table 5-2.

All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

Measurement	L _{Aeq,T}
MP1	52
MP2	54
MP3	55
MP4	72
MP5	62
MP6	60
MP7	63
MP8	54
MP9	53
MP10	66
MP11	60
MP12	69

Table 5-2: Plant source level measurements at 1 metre

5.2 Limiting noise levels

Table 5-3 below summarises the existing representative background sound 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. Full details of the noise surveys undertaken, along with the methodology used to determine the limiting plant noise criteria, are available in Cundall's Noise Impact Assessment Report submitted in support of the planning application (Ref: PLOT9A-CDL-XX-XX-RP-Y-45001 Rev P03).

Time period	Existing background noise level dB L _{A90}	Plant noise rating level not to be exceeded at 1 m from nearest noise-sensitive receptor dB L _{A,r,Tr}
Daytime (07:00 – 23:00 hrs)	45	40
Night-time (07:00 – 23:00 hrs)	42	37

Table 5-3: Limiting rating noise levels for building services plant

The above limits are 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).

5.3 Plant noise impact assessment

5.3.1 Assessment of noise levels at NSR

Using the source level measurements of external plant as presented in Table 5-2, the specific sound level at the nearest noise-sensitive receptor has been calculated allowing for standard point-source distance attenuation.

The cumulative specific noise level at 1 metre from the NSR façade has been calculated by considering the noise level measured at 1 metre from each individual plant emission source. The relevant combined distance and screening attenuation values from each source to the NSR were then determined and applied. These resultant noise level from each plant item were subsequently summed to derive a single façade noise level. The predicted levels at Macintosh Mill are shown in Table 5-4 below.

Measurement position	Measured $L_{Aeq,T}$ (dB)	Distance to NSR (m)	Distance attenuation (dB)	Resultant noise level (dB)
MP1	52	128	-42	10
MP2	54	122	-42	12
MP3	55	124	-42	13
MP4	72	112	-41	31
MP5	62	106	-41	21
MP6	60	100	-40	20
MP7	63	100	-40	23
MP8	54	117	-41	13
MP9	53	115	-41	12
MP10	66	105	-40	26
MP11	60	145	-43	17
MP12	69	138	-43	26
Sum (dBA)				34

Table 5-4: Predicted NSR levels at Macintosh Mill

5.3.2 Overall assessment summary

For this assessment the night-time plant noise limit of 37 dB (based on background level of 42 dB) has been accepted as the worst-case noise limit. The BS 4142 assessment using this limit is detailed below in Table 5-5. Subjective impressions of operation of plant did not indicate any acoustic feature corrections in terms of impulsivity, tonality and intermittency.

	A-weighted sound pressure level (dBA)
Calculated specific noise level	34
BS 4142 Impulsivity Correction	0
BS 4142 Tonality Correction	0
BS 4142 Intermittency Correction	0
BS 4142 Rating Level at Receiver	34
Condition 19 noise limits (5 dB below representative background sound level)	37
Assessment of BS 4142 Rating Level Relative to Table 5-3 Limits	-3 dB below Condition 17 night-time noise limit (8 dB below representative background sound level)

Table 5-5: Plant noise rating calculation

It can be seen from the table above that measured plant noise emissions are considered compliant with the requirements of Condition 17.

6.0

Conclusions

6.0 Conclusions

Cundall has been commissioned to carry out acoustic pre-completion verification measurements at the newly constructed Plot 9A development on First Street, Manchester.

Cundall have undertaken measurements on site to determine compliance with Planning Conditions 16 and 17 attached to the proposed planning decision notice for the development (Ref: 132600/FO/2021).

6.1.1 Condition 16

Planning Condition 16 attached to the development decision relates to breakout and entertainment noise associated with the development.

The proposed glazing systems offer a very high level of acoustic sound isolation performance. As such, the level of external noise break-out from a typical office environment is expected to be imperceptible. Visual inspection undertaken by Cundall has identified that window installations are well sealed throughout.

The final design does not incorporate any spaces intended for entertainment purposes. Consequently, there are no sources of amplified noise expected to occur during the operational use of the Development. It is therefore considered that these elements of Planning Condition 16 can be appropriately discharged.

6.1.2 Condition 17

Noise levels of new items of external plant have been measured in relation to the discharging of Planning Condition 17 attached to the proposed development.

Limiting noise levels for external noise impacts at existing nearby noise-sensitive receptors have been set in order to minimise the potential for adverse noise effects in line with Local and National Planning Policy.

An assessment of proposed items of noise generating plant has indicated cumulative rating noise levels at the nearest existing receptor to the development site are predicted to be at least 8 dB below prevailing background sound levels. This is considered a positive indication that the Development's operation will not adversely affect the amenity of nearby residences and that the requirements of Planning Condition 17 have been met.

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