

Client: Dawnvale Group
Project: 40 Chorlton Street, Manchester
ACA Ref: 221015-R003
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40 Chorlton Street, Manchester

1. SUMMARY

ACA Acoustics Limited has undertaken acoustic commissioning testing following the completion of a restaurant at 40 Chorlton Street, Manchester. The testing is required to demonstrate that sound levels from operational noise and mechanical plant associated with the restaurant achieves Manchester City Council's planning requirements.

The scheme has been installed in accordance with Manchester City Council's approval, requiring that entertainment noise from the venue does not exceed a sound level 5dB below the LA90 sound level externally in each octave band, along with internal sound levels within structurally adjoined residential properties should not exceed LAeq 47dB and 41dB in the 63Hz and 125Hz bands respectively.

In addition, the mechanical plant has been installed in accordance with the requirements of Manchester City Council's requirement that the rating sound level of the installed mechanical plant should not exceed a sound level of 5dB below the measured background sound level.

Measured sound levels from both operational noise and the installed mechanical plant are very low and subjectively inaudible at the respective assessment positions, meeting the requirements of Manchester City Council and as such Conditions 13b and 16b of decision notice for application 137851/JO/2023 may be discharged.

2. ACOUSTIC CRITERIA

2.1. Mechanical Plant Noise Criteria

Condition 16 of the decision notice for application 137851/JO/2023 as issued by Manchester City Council states:

16) a) Externally mounted ancillary plant, equipment and servicing, relating to the restaurant/bar use to the ground floor and basement, shall be installed in and/or acoustically treated in accordance with the following details:

-Supporting Information MEP SERVICES DESIGN SPECIFICATION

*-Supporting Information RECIRCULATING EXTRACT UNIT
-Noise assessment or information (prepared by ACA Acoustics ref. 221015-R002)
All received by the City Council, as Local Planning Authority, on 15/08/2023*

The scheme shall be implemented in full before the ground floor and basement use commences or as otherwise agreed in writing by the City Council, as local planning authority, and shall remain in situ for the lifetime of the development.

b) Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise 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 minimise the impact of the development and to prevent a general increase in pre-existing background noise levels around the site, pursuant to policy DM1 of the Core Strategy.

Part a) of this criteria specifies that external emissions of entertainment noise should meet the criteria specified within ACA Acoustics report reference 221015-R002, such that the mechanical plant does not exceed a rating level 5dB below the measured background sound level.

2.2. Operational Noise Criteria

Condition 13 of the decision notice for application 137851/JO/2023 as issued by Manchester City Council states:

“13) a) Notwithstanding the details approved under CDN/23/0559 (Noise assessment or information prepared by ACA Acoustics ref. 221015-R001A received by the City Council, as Local Planning Authority, on 15/08/2023), 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 shall 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 DM1 and SP1 of the Manchester Core Strategy (2012) and saved policy DC26 of the Unitary Development Plan for Manchester (1995)”

Part a) of these criteria specifies that external emissions of entertainment noise should not exceed a sound level 5dB below the measured LA90 sound level at the nearest residential windows. Internally, sound levels should not exceed LAeq 47dB and 41dB in the 63Hz and 125Hz bands respectively.

3. ACOUSTIC COMMISSIONING TESTING

ACA Acoustic have undertaken measurements of operational noise and the installed mechanical plant during the late-night period of the 21st – 22nd March 2024. Measurements were taken within the first-floor hotel rooms numbers 103 and 104.

Measurements of external sound levels were undertaken in accordance with the methodology within BS 4142:2014+A1:2019, and internal sound levels were carried out generally following procedures set out in The Association of Noise Consultants’ “ANC Guidelines – Measurement of Sound Levels in Buildings”.

During the sound level survey the weather was mostly dry with a light shower during the internal portion of the sound level survey which had ceased prior to undertaking the external sound level surveys. This is not considered to have altered the acoustic climate in the vicinity.

The following equipment was used during the survey. An on-site calibration check was conducted on the meter prior to the survey and checked after with no change noted.

Equipment	Serial Number
NTi Audio Class 1 sound level meter type XL2-TA	A2A-16877-E0
Svantek calibrator type SV33B. Compliant to IEC 60942:2003	57595

Table 1: Equipment used

While on site the hotel rooms were selected as survey locations because room 104 is directly above the main dining space and also the mechanical plant location, with windows directly over the fan louvres. Room 103 is directly above the main dining space and also the Brasserie, and also has structural columns which allows for worst-case assessment of flanking noise.

Internal sound levels during the survey were very low, with little to no contribution from other sources other than some external noise from low levels of external road traffic and other activity in the vicinity.

External sound levels included contribution from road traffic, other nearby bars and clubs which were open, along with noise from pedestrians. Noise from one off events, such as police/ambulance sirens and particularly rowdy pedestrians etc were excluded from the sound level survey.

3.1. Mechanical Plant Commissioning Survey

During the sound level survey, all the installed mechanical plant was powered on simultaneously, such that a worst-case scenario could be measured.

Summary results of the measured sound levels are shown in Table 2 below.

Measurement Position	Mechanical Plant Operating	Mechanical Plant Powered Off
Room 104, External to the window overlooking external louvres	LAeq 60dB	LAeq 62dB* LA90 57dB
Room 104, Internal	LAeq 32dB	LAeq 32dB

Table 2: Mechanical plant sound level survey results.

*sound levels with the equipment switched off were raised slightly due to fluctuating traffic and other external activity.

The specific sound level of the equipment is determined by logarithmically subtracting the background sound level from the sound level measured with the equipment operating. Measured sound levels indicate a specific external sound level of LAeq ≤ 50 dB. This is at least 5dB below the measured sound level of LA90 57dB, and comfortably meets the requirements of Manchester City Council.

The plant was subjectively inaudible externally to the windows of room 104, which is situated directly over the mechanical plant louvres. Sound levels to other hotel rooms will be even lower than this.

Internal sound levels from the mechanical plant operating were also subjectively inaudible. Specific sound levels were LAeq ≤ 22 dB, and at this level would not be noticeable to occupants of the room.

3.2. Operational Music Noise Commissioning Survey

During the sound level survey ACA Acoustics measured internal and external sound levels from operational music noise.

Music was playing at typical volume as confirmed by the client and results of the survey are shown in Table 3 below.

Measurement Position	Specific Sound level	Criteria
Room 104, Internal	63Hz: ≤36dB 125Hz: ≤30dB	63Hz: ≤47dB 125Hz: ≤41dB
Room 103, Internal	63Hz: ≤43dB 125Hz: ≤36dB	63Hz: ≤47dB 125Hz: ≤41dB

Table 3: Operational sound level survey results.

Assessment of the external octave-band sound levels from the operational music noise is shown in Table 4 below.

		63Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz	8kHz
Room 104	Specific sound level	≤52	≤55	≤50	≤44	≤46	≤44	≤39	≤32
	Background sound level	60	64	57	51	51	48	42	34
	Difference	-8	-9	-8	-6	-4*	-4*	-3*	-2*
Room 103	Specific sound level	≤53	≤52	≤49	≤45	≤46	≤42	≤37	≤29
	Background sound level	60	64	57	51	51	48	42	34
	Difference	-7	-12	-8	-6	-5	-6	-5	-5

Table 4: Operational sound level survey octave band assessment results.

*Specific sound levels are subjectively inaudible at the nearest residential properties and are limited by other activities in the area, and are likely to be lower than those reported, meeting the requirements of Manchester City Council.

4. CONCLUSION

ACA Acoustics have undertaken commissioning acoustic testing on the installed mechanical equipment and operational sound levels at 40 Chorlton Street, Manchester.

Measured sound levels from the plant and music noise are very low, and are subjectively inaudible at the nearest residential properties, both internally, through structure and airborne transmission through the building structure, and also externally.

As such the requirements of Manchester City Council have been met and the relevant planning conditions may be discharged.