

Assessment of operational noise transmission from a proposed themed bar

The Chase, Printworks, Manchester



Client: Leisure Television Rights Limited

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CONTENTS

0. SUMMARY	2
1. INTRODUCTION	3
2. ACOUSTIC CRITERIA	3
3. SOUND INSULATION TEST ON EXISTING STRUCTURE	3
4. CONCLUSION	5

0. SUMMARY

- 0.1. A new themed bar is being proposed within Unit 21 Upper, Printworks, Manchester.
- 0.2. ACA Acoustics have been commissioned to assess the impact of operational noise emissions from the proposed bar. The assessment is required to demonstrate the development will cause any adverse impacts to nearby noise-sensitive occupants. This report presents results of the assessment.
- 0.3. There are no residential receptors in the immediate vicinity of the site and ACA Acoustics have identified the closest likely noise-sensitive receptors as being Hotel Indigo on Corporation Street around 50m to the rear of the Printworks development.
- 0.4. Based on previous developments within the city, ACA Acoustics understand Manchester City Council will typically require entertainment noise (music and other amplified sources) to be at least 10dB below the background LA90 sound level outside the closest noise-sensitive receptors in each octave frequency band.
- 0.5. A sound insulation test was carried out on the building structure using a loudspeaker playing 'white noise' at around 105dBA internally. Noise from the speaker was completely inaudible immediately outside the façade with no identifiable increase in the measured sound levels. Sound levels from traffic and other existing sources was relatively high and completely dominant. This confirms that during the test noise breakout using the white noise source was at least 10dB below the background sound level to this position at the façade and would have been considerably lower at any nearby receptors.
- 0.6. Furthermore, the proposed venue will play music at background levels only. The overall sound level inside the bar – including noise from patrons – is expected to be around LAeq 85dB with music volumes set below LAeq 80dB.
- 0.7. Sound emissions during operation will be 20-25dBA lower than those used during the white noise test.
- 0.8. In conclusion, operational noise emission from the proposed bar will be low, will be inaudible and not be disturbing to any nearby noise-sensitive receptors, and will fully comply with Manchester City Council's typical planning consent requirements. No further noise mitigation measures will be required. It is recommended that the City Council may approve the proposed scheme.

1. INTRODUCTION

The client is proposing to open a new 'The Chase' themed bar at Unit 21 Upper, Printworks, Manchester.

ACA Acoustics Limited has been commissioned by Decon PM on behalf of the client to carry out an assessment of operational noise emissions from the proposed bar to nearby noise-sensitive properties and, where necessary, make recommendations to reduce sound levels to ensure that the amenity of occupants is not compromised.

This report presents results the assessment.

2. ACOUSTIC CRITERIA

Based on previous development within the city, it is anticipated that Manchester City Council will require noise emissions from the proposed bar to be adequately controlled.

A typical planning condition is likely to require,

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 10dB below the LA90 (without entertainment noise) in each octave band at the façade of the nearest noise sensitive location.

3. SOUND INSULATION TEST ON EXISTING STRUCTURE

Sound insulation tests have been carried out on the existing structure. The tests were conducted by Tommy Burn of ACA Acoustics on Wednesday 22nd May 2024.

To carry out tests strictly in accordance with BS EN ISO 16283 a loudspeaker would have needed to play high-volume noise externally. This was considered impractical, partly due to the need to close an area of the street to avoid damaging passing pedestrian's hearing. Therefore, a level difference

test was carried out, largely following the methodology of BS EN ISO 16283-1, whereby high volume 'white noise' was played inside the venue, sound levels were measured in the venue and then measured externally to the façade. The speaker was switched off and background sound levels measured externally, allowing the reduction in the sound level offered by the existing building envelope (the level difference) to be calculated.

The following equipment was used during the survey; the sound level meter was calibrated before the survey and checked after with no deviation noted.

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

Table 1: Equipment used

Sound levels measured internally with the speaker playing white noise were around 105dBA with a flat octave band spectral shape, as required by the Standard. Although the proposed venue will play background music only, setting the source level at such a high volume assists in more accurately determining the performance of the structure.

The proposed unit is at first floor level and there is no direct access door between the unit and outside.

Sound levels were measured externally to the façade of the unit.

Summary results in octave band levels are shown in the table below.

Description	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Source sound level	98dB	103dB	103dB	100dB	99dB	97dB	95dB	95dB
Sound level outside façade with speaker playing	62dB	59dB	53dB	52dB	50dB	46dB	40dB	30dB
Background outside façade	62dB	59dB	52dB	51dB	49dB	47dB	40dB	33dB

Table 2: Summary sound insulation test result on façade

Table 2 demonstrates that even with very high-volume white noise playing in the venue, there is no noticeable difference in the measured sound levels to immediately outside the façade.

This indicates that the white noise was around 10dB or more below the prevailing residual noise.

Due to background sound levels from traffic and other sources it was not possible to determine the level difference of the building structure.

The client has advised that only background music will be played in the venue. The theme of the venue will be based around customers using electronic game stations, where there is a requirement for customers to hear and understand what is being said. Based on measurements in similar bars, ACA Acoustics estimate internal sound levels will be around LAeq 85dB during a busy weekend evening, which will primarily comprise talking and laughing from customers. Music levels would typically be set 5 to 10dBA lower than this overall value.

It is therefore clear that operational noise from the venue will be completely inaudible and significantly more than 10dBA below the background sound levels immediately outside the façade and much lower to any nearby noise-sensitive properties.

4. CONCLUSION

A new themed bar is being proposed at Unit 21 Upper, Printworks, Manchester.

ACA Acoustics have undertaken sound insulation tests on the existing building structure.

With white noise playing at 105dBA internally, noise breakout to outside was not audible above the existing background noise.

The proposal is for the bar to have background music only, at significantly lower levels that used during the sound insulation test.

This demonstrates that operational noise emissions from the proposed bar will be very low, inaudible to any nearby noise-sensitive properties and comfortably comply with the requirements of Manchester City Council.

It is recommended that no further mitigation measures would be required and that the scheme may be approved by the City Council.