

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

026283-R01-C

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The Stables, Manchester

Planning condition 9 discharge report – Operational noise egress

London, Manchester, Edinburgh, Birmingham, Leeds, Bristol

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Version	Date	Comments	Author	Reviewer
A	22 Sep 25		JP	MR
B	6 Jan 26	Updated following reduction of the in house PA system limiter and verification measurements	JP	MR
C	27 Jan 26	Updated following reduction of the Event space PA system limiter and verification measurements	JP	MR

Disclaimer

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Summary

Sandy Brown has been commissioned by Allied London to provide verification measurements of noise egress in relation to The Stables, Manchester.

This report details the acoustic measurements and assessment to support the discharge of planning condition 9 set by Manchester City Council (MCC) within decision notice 138279/FO/2023.

As part of the submitted acoustic planning report written by Sandy Brown (report ref 023690-R01-C), an environmental noise survey was carried out to determine the existing sound levels in the area. The noise survey was performed between 14:20 on 1 September 2023 and 10:45 on 5 September 2023.

The representative background sound levels measured during the 2023 survey were $L_{A90,15min}$ 50 dB during the day and $L_{A90,15min}$ 48 dB at night.

Based on the above and the requirements of Manchester City Council, operational noise limits have been set at the surrounding noise sensitive receptors for the day and night. These limits equate to L_{Aeq} 45 dB during the day and L_{Aeq} 43 dB at night.

Acoustic verification measurements were undertaken on 10 September 2025 to assess amplified sound breakout from both The Stables event space and The Tavern, which are within the operational noise limits set out by Manchester City Council.

Measurements at the nearby noise sensitive premises from both the event space and The Tavern found that with broadband noise or with music playing, the overall L_{Aeq} increase was minimal and could be attributed to the variable existing ambient noise. This also provides a strong indication that the limits at the receptor have been met.

Following the submission of Rev A of this report to MCC, comments were provided by the EHO that *'It is apparent from the measurements that the measured noise level increases by 1 dB when the music is on which would not meet the criteria of 5db below the LA90.'*

A reduction of internal noise by 2 dB to meet the criteria was then agreed with the EHO in the following statement provided by email on 12 December 2025.

'It has been confirmed that the internal noise level can be reduced by 2 dB to ensure the criteria can be met. The report will need to be revised with the new internal limits to reflect the agreed 2 dB reduction and the electronic limiter will need to be set in accordance with the revised internal limit.'

Additional internal verification measurements were undertaken within The Tavern on 5 January 2026 and within the Event Space on 21 January 2026 to confirm the reduced internal noise levels and provide updated internal noise limits.

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1 Introduction

Sandy Brown has been commissioned by Allied London to provide acoustic advice in relation to The Stables, Manchester.

Verification measurements of operational noise egress and assessment have been undertaken to certify that the amplified sound breakout from The Stables (event space) and The Stables Tavern (drinking establishment) is within the operational noise limits set out by Manchester City Council.

2 Site description

2.1 The site and its surroundings

The site location in relation to its surroundings is shown in Figure 1.

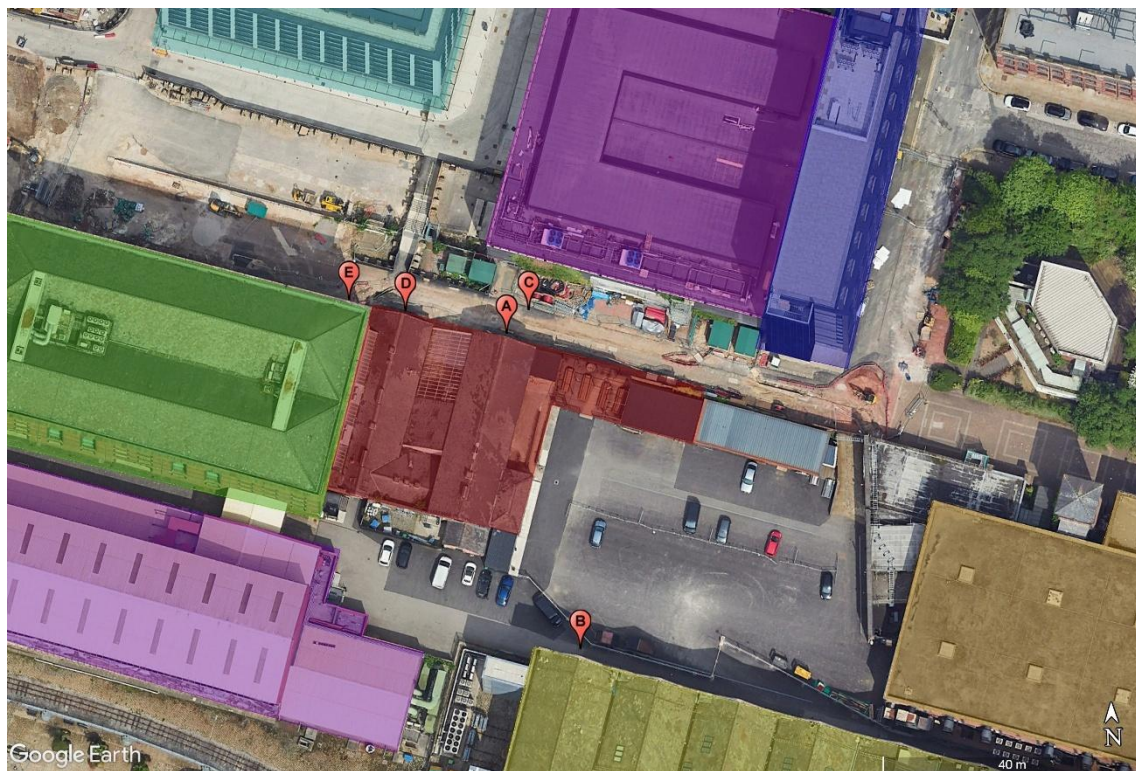


Figure 1 Aerial view of site (courtesy of Google Earth Pro)

The site is bounded by a private road to the south, Grape Street to the north, Bonded Warehouse to the west and a carpark to the east.

2.2 Adjacent premises

The site is adjacent to the following premises:

- Old Granada Studios – offices/studio (purple), Hotel (blue), highlighted in Figure 1.
- Manchester Goods Yard – offices/commercial, highlighted in cyan in Figure 1.
- Bonded Warehouse – offices, highlighted in green in Figure 1.
- Studio 1 – studios/offices, highlighted in orange in Figure 1.
- Science and Industry Museum - commercial, highlighted in yellow in Figure 1.
- The Crystal Maze – commercial, highlighted in pink in Figure 1.

3 The Stables

The Stables currently operates as two usable spaces. On the ground floor is The Stables Tavern, a drinking establishment that operates Monday - Thursday: 12.00-23.00, Friday and Saturday: 12.00 – Late and Sundays: 12:00-22.00. Live music is advertised for every Thursday to Saturday. The Stables Tavern opens onto Grape Street with outdoor seating along the front of the Tavern as well as outside Bonded Warehouse.

The layout of The Stables Tavern is given in Figure 2. The area highlighted in green is currently used as the main bar area, which opens onto Grape Street. The blue 'X' indicates the area where live music is understood to be performed. The area highlighted in orange is named the 'Copper room' and is a lounge area that can be booked for private use.

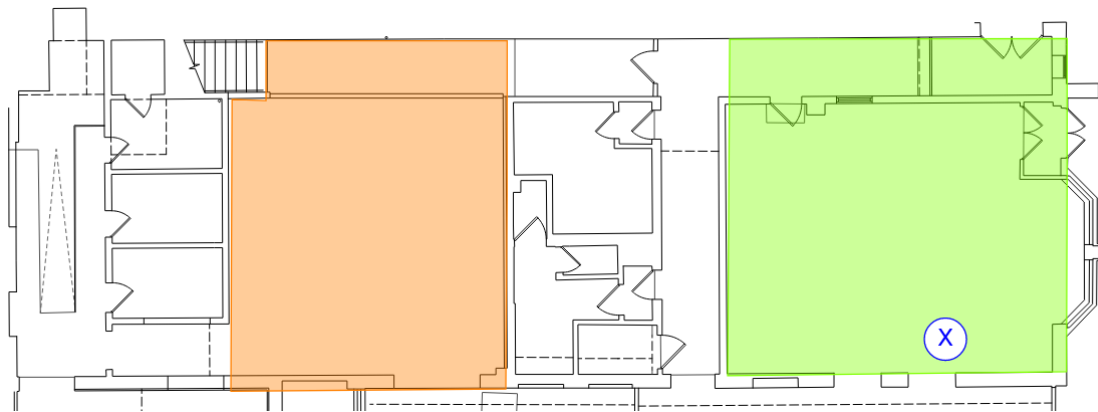


Figure 2 The Stables Tavern site layout

On the upper floor is The Stables event space, which is a room for hire for parties/weddings and corporate events. This also incorporates an outdoor covered smoking area and terrace area. The layout of The Stables event space is given in Figure 3.

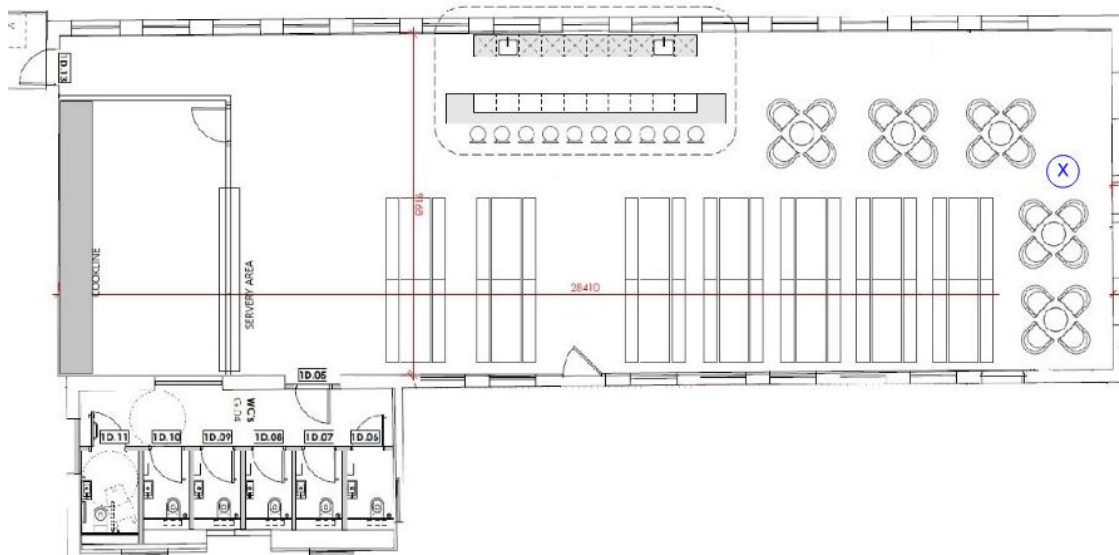


Figure 3 The Stable event space site layout

Both spaces currently use in house PA systems that have control units behind the bar. In The Stables event space these control units lead back to a noise limiter in the form of a 'Cloud CX263', which is locked within the server rack.

In The Tavern, these control units lead back to a noise limiter within the cellar area, which is controlled by external software which cannot be accessed by staff on site.

4 Assessment criteria

4.1 Planning condition 9

Planning condition 9 of planning application number 138279/FO/2023 has stipulated the following with regard to amplified sound breakout:

'9 - a) The premises shall be acoustically insulated and treated to limit the break out of noise in accordance with the Acoustic Planning Report Ref: 023690-R01-C, dated 20 December 2023, by Sandy Brown. The scheme shall be implemented in full before the use commences.

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 to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report shall be submitted to and approved in writing by the City Council as local planning authority. The verification report shall include post completion testing to confirm that acceptable criteria has 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 and timescales for the implementation of those measures.'

Airborne noise may be considered not audible when it is at a low enough level such that it is not recognisable as emanating from the source in question and does not alter the perception of the ambient noise environment that would prevail in the absence of the source in question.

By controlling amplified sound breakout to at least 5 dB below the representative octave band background sound levels, this is considered to be a good indication that it would not be audible externally or internally at the nearest noise sensitive premises. This has therefore formed the basis of the amplified sound breakout assessment criteria.

For the purpose of this assessment, it is assumed that entertainment takes place on a regular basis, which is understood to reflect the operation of The Stables Tavern.

4.2 Operational noise egress limits

Based on the above criteria and the measurement results of the environmental noise survey undertaken in 2023 and submitted as part of the acoustic planning report written by Sandy Brown (report ref 023690-R01-C), the cumulative noise level from amplified sound should not exceed the limits set out in Table 1.

The limits apply at 1 m from the worst affected windows of the nearest noise sensitive premises and are presented as facade levels. In this case, these limits would apply at all locations identified in Section 2.2 during the day, and at Old Granada Studios (hotel) during the night.

Table 1 Entertainment noise limits at 1 m from the nearest noise sensitive premises

Time of day	Operational noise egress limits at 1 m from noise sensitive premises, $L_{eq,5min}$ (dB)						
	Octave-band centre frequency (Hz)						
	63	125	250	500	1000	2000	4000
Day (07:00-23:00)	51	44	45	43	41	35	27
Night (23:00-07:00)	49	42	43	41	39	33	25

These are equivalent to $L_{Aeq,5min}$ 45 dB during the day and $L_{Aeq,5min}$ 43 dB at night.

5 Acoustic verification measurements

Acoustic verification measurements were undertaken on 10 September 2025 to assess amplified sound breakout from both The Stables event space and The Tavern. The testing method is discussed in the following sections.

5.1 Methodology

5.1.1 *Measurement locations*

The testing involved generating high levels of amplified sound within The Stables, representative of the venue in use, then undertaking measurements at strategic locations to measure amplified sound breakout. The measurement locations are indicated in Figure 1 and included:

- A) 1 meter from the facade of The Stables event space on Grape Street
- B) 1 meter from the facade of the Science and Industry Museum
- C) 5 meters from the facade of The Stables event space on Grape Street
- D) 1 meter from the facade of The Stables Tavern on Grape Street
- E) 1 meter from the facade of Bonded Warehouse.

At each location, measurements were undertaken with and without amplified sound playing. All measurements were carried out for a 30 second duration at a height of approximately 1.5 m and at least 1 m from any other reflective surface.

Measurements were also taken with doors to each space open to represent events that could occur during hot summer weather with the doors open for ventilation.

5.1.2 *Observations*

The dominant noise sources observed around the site during the background verification measurements were construction works on Old Granada Studios and on the Science and Industry Museum, existing external plant, passing pedestrians and occasional overhead aircraft.

5.2 Broadband noise assessment

Broadband continuous steady pink noise was generated at a constant level first in the event space then in the tavern. The loudspeaker was placed in areas where live music performances would be undertaken, these are indicated by the blue 'X' in Figure 2 and Figure 3.

Two source positions were used within each space, this was based upon the size of the rooms under test and the result tolerance in consideration of the target criteria.

Sound levels in the source room were at least L_{eq} 90 dB in all cases when using the broadband noise source.

5.3 PA system assessment

The in-house PA system was also used to verify the existing use case. In the event space, this system comprised a total of 10 loudspeakers located on the east and west facades and in The Tavern, this system consisted of a total of 6 loudspeakers on the east and west facades in the main bar area and 4 loudspeakers in the 'Copper' room.

During the testing, a generic drum and bass music sample was used on repeat as loud as the PA system was capable (this was controlled by the noise limiter which was locked away).

A photograph of the loudspeakers and volume controller unit is provided in Figure 4.



Figure 4 Photograph of loudspeaker and controller unit

5.4 Verification measurement results

5.4.1 Background noise measurement

For each location, a residual noise measurement (amplified sound source turned off) was undertaken, tabulated in Table 2.

Measurements of broadband noise and amplified music are tabulated in Table 3.

Table 2 Residual noise – Sound pressure levels (L_{eq}) at measurement locations

Measurement location	Measured sound pressure level (L_{eq})							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	dBA
A – Residual noise	61	55	51	50	50	44	37	54
B – Residual noise	61	61	52	49	48	43	37	53
C – Residual noise (same as A)	61	55	51	50	50	44	37	54
D – Residual noise	59	54	52	52	51	45	38	54
E – Residual noise	61	54	52	51	52	45	37	55

Table 3 Sound pressure levels (L_{eq}) at measurement locations for broadband noise and music sample

Measurement location	Measured sound pressure level (L_{eq})							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	dBA
1 –Event space – Broadband noise (source)	93	96	94	89	89	86	87	94
1 –Event space – PA system (source)	80	74	76	74	78	75	67	84
2 – The Stables Tavern – broadband noise (source)	90	96	93	88	86	84	85	93
2 – The Stables Tavern – PA system (source)	70	77	73	69	70	69	65	78
A – Broadband noise (1 meter)	66	65	61	54	53	48	43	58
A – PA system (1 meter)	63	61	58	56	53	46	39	58
A – PA system (1 meter doors open)	61	56	53	54	52	47	40	56
B – Broadband noise (NSP)	63	66	54	49	48	44	38	54
B – PA system (NSP)	62	62	52	51	49	45	41	54
B – PA system (NSP doors open)	62	62	52	51	49	45	41	54
C – Broadband noise (5 meters)	63	65	58	53	52	48	42	57

Measurement location	Measured sound pressure level (L_{eq}) Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	dBA
D – Broadband noise (1 meter)	72	76	71	61	58	57	54	67
D – PA system (1 meter)	56	62	56	52	50	46	40	55
D – PA system (1 meter doors open)	62	62	58	56	57	55	48	61
E – Broadband noise (NSP)	65	68	62	56	54	51	49	60
E – PA system (NSP)	56	53	52	55	51	46	40	56
E – PA system (NSP doors open)	60	58	55	53	52	50	44	57

6 Assessment

6.1 Building envelope

Using the measured sound pressure levels as tabulated above, the sound insulation of the existing building envelope has been calculated.

The assumed sound insulation of the building envelope to set the noise limits made in Sandy Brown report (ref 023690-R01-C), and the measured sound insulation of the existing facade are tabulated below.

Table 4 Building envelope comparison

Measurement	In-situ sound insulation, D (dB) Octave-band centre frequency (Hz)						
	125	250	500	1000	2000	4000	D_w
Sandy Brown report 023690-R01-C - facade sound insulation							
Assumed 350 mm blockwork (with glazing)	26	24	30	41	44	35	35
Assumed standard double glazing	20	18	23	34	37	29	28
On site measured facade sound insulation							
Measured blockwork facade (with glazing)	30	34	36	38	39	46	38
Measured glazed facade	20	22	28	30	28	31	29

The on-site measurements provide a positive indication that the facade (as existing) provides a sound insulation performance in line with the assumptions made in Sandy Brown report

023690-R01-C. This indicates that the operational noise egress limits at the noise sensitive premises will be met.

6.2 Noise sensitive premises measurements

A summary of the attended measurement results is provided in Table 5.

Table 5 Summary of the attended measurement results

Measured location	Internal noise level, $L_{Aeq,30sec}$ (dB)	External ambient noise level, $L_{Aeq,30sec}$ (dB)	
		Amplified sound system operational	Amplified sound system not operational
B	84	54	53
E	78	56	55

6.2.1 Measurements at Science and Industry Museum (Location B)

With amplified music playing, the overall L_{Aeq} measured increased by 1 dB over the measured residual noise L_{Aeq} . There are some discrepancies in the results when the doors of the event space were open, the low frequency measurement data indicates this to be lower than when the doors were closed.

This indicates that there is a variable residual noise level (construction noise was noted around the site) during the measurements.

This is a positive indicator that the limits set out in Table 1 have been met.

6.2.2 Measurements at Bonded Warehouse (Location E)

With amplified music playing, the overall L_{Aeq} measured increased by 1 dB over the measured residual noise L_{Aeq} . There are some discrepancies in the results as the measurements at Bonded Warehouse (up to 10 meters away from The Tavern) are higher by 1 dB with music playing than the measurements taken at 1 meter from The Tavern.

This indicates that there is a variable residual noise level (construction noise and passing pedestrians were noted around the site) during the measurements.

This is a positive indicator that the limits set out in Table 1 have been met.

6.3 Internal noise limits

Sandy Brown report 023690-R01-C also sets out maximum internal operation noise limits to be controlled by electronic limiters during operation. The internal levels set out in the report, as well as the onsite internal noise levels measured using the installed PA system, are tabulated below.

Table 6 Internal operational noise limits comparison

Measurement	Internal operational noise, L_{eq} (dB)								
	Octave-band centre frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	dBA
Sandy Brown report 023690-R01-C – internal operational limit									
Wolfgang Bar (daytime - doors open)	69	68	70	68	66	60	52	52	70
Maria's (daytime - doors open)	69	69	68	68	66	60	52	52	70
Wolfgang Bar (night time – doors closed)	80	85	85	80	80	75	75	75	85
Maria's (night time – doors closed)	80	85	85	80	80	75	75	75	85
On-site limited PA system									
Event space	80	74	76	74	78	75	67	81	84
The Stables Tavern	70	77	73	69	70	69	65	75	78

The current layout of The Tavern is not in line with the assessed design set out in Sandy Brown report 023690-R01-C, which included several doors and glazed windows opening onto an open courtyard. Daytime internal noise limits were set with the intent for these doors and windows to be left open.

As the current layout has no doors or windows opening into the open courtyard, the measured internal noise limits are deemed suitable as they are in line with the night-time limits set (which included all doors and windows being closed).

No limits were set out for the event space as part of the assessment undertaken in Sandy Brown report 023690-R01-C as this was not included in the design scope.

However, as shown in Table 3, no increase in ambient noise was perceivable with either the internal broadband noise (L_{Aeq} 94 dB) or the PA system (L_{Aeq} 80 dB) operational. This is a strong indication that even with the increased internal operation noise level used by the PA system, the limits at the receptor will still be met.

7 Updated verification measurements

Following the submission of Rev A of this report to MCC, comments were provided by the EHO that *'It is apparent from the measurements that the measured noise level increases by 1 dB when the music is on which would not meet the criteria of 5db below the LA90.'*

A reduction of internal noise by 2 dB to meet the criteria was then agreed with the EHO in the following statement provided by email on 12 December 2025.

'It has been confirmed that the internal noise level can be reduced by 2 dB to ensure the criteria can be met. The report will need to be revised with the new internal limits to reflect the agreed 2 dB reduction and the electronic limiter will need to be set in accordance with the revised internal limit.'

7.1 Methodology

Additional internal verification measurements were undertaken within The Tavern on 5 January 2026 and the Event space on 21 January 2026 to confirm the reduced internal noise levels and provide updated internal noise limits.

Measurements were taken of the existing system (as previously assessed) to confirm they were in line with the previous assessment.

Additional measurements were then taken whilst lowering the electronic limiter (undertaken by Hollowsphere AV) to achieve 2 dB below the previously assessed limit.

7.2 PA system assessment

The in-house PA system was also used to verify the reduced noise limits. During the testing, a generic drum and bass music sample was used on repeat as loud as the PA system was capable (which was controlled by the noise limiter).

A photograph of the physical volume controller unit, as well as the computer software controlling the noise limiter within The Tavern are provided in Figure 5.

A photograph of the physical controller unit for the Event space is provided in Figure 6.

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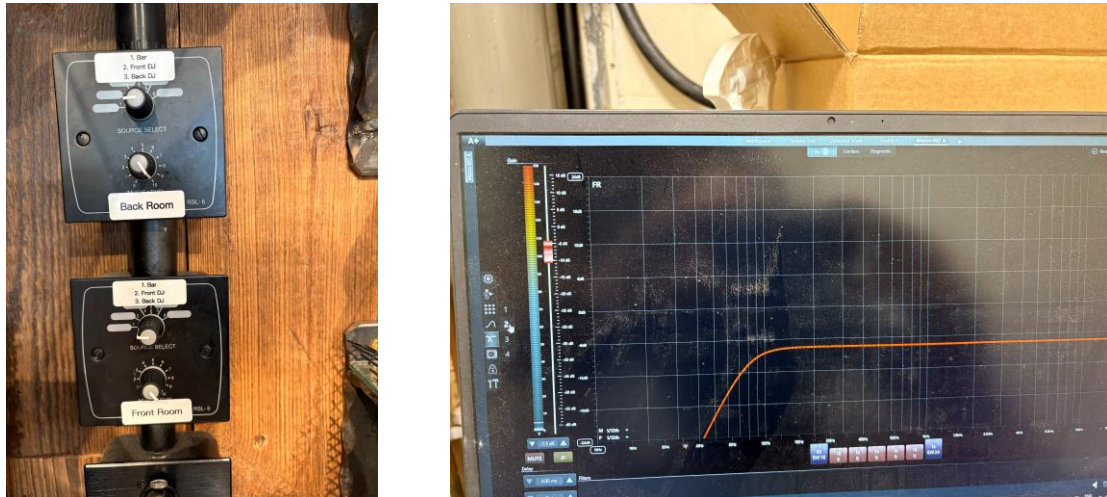


Figure 5 Photograph of volume controller unit and software limiter (The Tavern)



Figure 6 Photograph of volume controller unit (event space)

7.3 Internal noise limits

The internal noise limits as set out in Rev A of this report, as well as the updated onsite internal noise levels measured using the installed PA system, are tabulated below.

Table 7 Additional internal operational noise level comparison

Measurement	Internal operational noise level, L_{eq} (dB)								
	Octave-band centre frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	dBA
On-site limited PA system									
The Stables Tavern 10 Sept 25	70	77	73	69	70	69	65	75	78
Event Space 10 Sept 25	80	74	76	74	78	75	67	81	84
On-site limited PA system									
The Stables Tavern 5 Jan 26	71	83	78	74	73	72	69	64	79
Event Space 21 Jan 26	87	82	82	82	84	82	74	69	88
Reduced limited PA system									
The Stables Tavern 5 Jan 26	70	78	73	70	69	68	64	59	75
Event Space 21 Jan 26	82	77	76	74	78	75	67	61	81

There is some discrepancy between the specific octave band measurements previously set and the updated verification measurements. This is considered to be due to a combination of the drum and bass music sample used, as well as contributions from the internal building services ventilation system.

The updated verification measurements found the internal broadband noise level to be 1 dB louder in The Tavern and 4 dB louder in the Event space than previously assessed, with increased levels in every octave band except for 8 kHz, which was significantly lower.

The software limiter in the Tavern was reduced by 7.5 dB, which provided a broadband reduction of 4 dB from the existing measured system and 3 dB from the previously set limits.

The physical limiter in the Event space was also reduced by 7.5 dB which provided a broadband reduction of 7 dB from the existing measured system and 3 dB from the previously set limits

Whilst the specific octave band requirements have remained broadly the same, the reduction in the 8 kHz octave band has reduced the broadband level down to suitable limits and achieved the EHOs requirements of an additional 2 dB attenuation.

8 Conclusions

Acoustic verification measurements were undertaken on 10 September 2025 to assess amplified sound breakout from both The Stables event space and The Tavern are within the operation noise limits set out by Manchester City Council.

Based on the requirements of Manchester City Council, operational noise limits have been set at the surrounding noise sensitive receptors for the day and night. These limits equate to L_{Aeq} 45 dB during the day and L_{Aeq} 43 dB at night.

The verification measurements were used to calculate the sound insulation performance of the existing facades. This was found to be in line with the assumption made in Sandy Brown report 023690-R01-C, indicating the limits at the noise sensitive premises will be met.

Measurements at the nearby noise sensitive premises from both the event space and The Tavern found that with broadband noise or with music playing, the overall L_{Aeq} increase was minimal and could be attributed to the variable existing ambient noise. This also provides a strong indication that the limits at the receptor have been met.

Following the submittal of Rev A of this report, comments were provided by the EHO that *'It is apparent from the measurements that the measured noise level increases by 1 dB when the music is on which would not meet the criteria of 5db below the LA90.'*

A reduction of internal noise by 2 dB to meet the criteria was then agreed with the EHO.

Additional internal verification measurements were undertaken within The Tavern on 5 January 2026 and within the Event Space on 21 January 2026 to confirm the reduced internal noise levels and provide updated internal noise limits.

Appendix A

Survey details

Equipment

The attended noise verification measurements undertaken on the 10 September 2025 were taken using a NTi XL3 sound level meter.

The attended noise verification measurements undertaken on the 5 January 2026 were taken using a RION NL 52 sound level meter.

The attended noise verification measurements undertaken on the 21 January 2026 were taken using a NTi XL3 sound level meter.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	XL3/ A3A-01221-F0	NTi	2 Dec 26	UCRT24/2613ATR UCRT24/2615
Microphone	MC230A/A280 47	NTi	2 Dec 26	UCRT24/2613ATR
Pre-amp	MA220-230/14610	NTi	2 Dec 26	UCRT24/2613ATR
Calibrator	SV30A/10567	Svantek	20 Sep 26	UCRT24/2251
Sound level meter	NL-52/00932326	Rion	24 Apr 26	TCRT23/1806
Microphone	UC-59/09251	Rion	24 Apr 26	TCRT23/1806
Pre-amp	NH-25/32354	Rion	24 Apr 26	TCRT23/1806
Calibrator	NC-74/34536129	Rion	24 Apr 26	TCRT23/1576

Calibration of the meter used for the measurements is traceable to national standards. Calibration certificates for the sound level meter used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{ASmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a slow time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS 7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*.