450 Barlow Moor Road
Manchester

Acoustic Planning Report
1599/APR1
0494

27 April 2026

For:

Mr Hiwa Zada

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1.0 Introduction

Lighthouse Acoustics has been appointed by Mr Hiwa Zada to undertake a detailed environmental sound survey at 450 Barlow Moor Road, Manchester and to undertake an assessment of typical operational sound breakout from the proposed restaurant/shisha lounge to the nearest residential receptors via the proposed open bi-folding doors.

The survey methodology, results and assessment are presented in this report.

2.0 Objectives

To establish the Local Authority's acoustic requirements for the proposed restaurant/shisha lounge premises.

To undertake a detailed environmental sound survey in order to establish existing environmental sound levels at the proposed development.

To undertake an assessment of operational noise breakout through the proposed open bi-fold doors to the nearest residential receptors based on typical source noise levels for a restaurant/shisha lounge.

To comment on the calculated result and the likelihood of achieving an appropriate level of noise breakout at the nearest residential receptors.

To propose mitigation measures where required in order to achieve the requirements of the Local Authority.

3.0 Site Description

The proposed restaurant/shisha lounge is at 450 Barlow Moor Road, Manchester. The site comprises a two storey semi-detached building with yard/garden to the rear and forecourt area to the front. The ground floor is currently vacant and was formerly used as office space whilst the 1st floor is currently an occupied flat. The proposals include the conversion of the ground floor to a restaurant/shisha lounge and the 1st floor to storage.

The site is bound by commercial premises to the north (dental practice) residential properties to the east, adjoining commercial premises to the south (restaurant with flat above) and Barlow Moor Road to the west.

The adjoining restaurant to the south (488 Barlow Moor Road) and a further restaurant situated to the north of the site (456-458 Barlow Moor Road) both feature covered external seating areas to the front of the properties.

The site plan below indicates the site boundary and the surrounding environment.



Site plan indicating the site boundary and the surrounding environment

4.0 Local Authority Requirements

Whilst the Planning & Noise Technical Guidance document (dated October 2022) produced by Manchester City Council states requirements for entertainment venues, they are applicable to venues where music is the dominant sound source of operational activities.

We are unaware of any requirements that Manchester City Council have for venues where conversation is the dominant sound source of operational activities with background music only.

As such, for sound breakout it is proposed that L_{Aeq} restaurant/shisha lounge operational sound levels are designed to achieve the representative L_{A90} background sound levels at the window of the nearest noise sensitive receptor.

5.0 Environmental Sound Survey

5.1 Measurements

Automated environmental sound measurements were undertaken from 12:00 hours on Friday 17 April 2026 to 16:00 hours on Monday 20 April 2026. During this period the L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels were measured continuously over 15 minute periods.

5.2 Weather Conditions

At the start of the survey period there was a light southerly breeze (<3m/s) and the sky was scattered cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 13°C.

At the end of the survey period there was a light northerly breeze (<3m/s) and the sky was scattered cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 14°C.

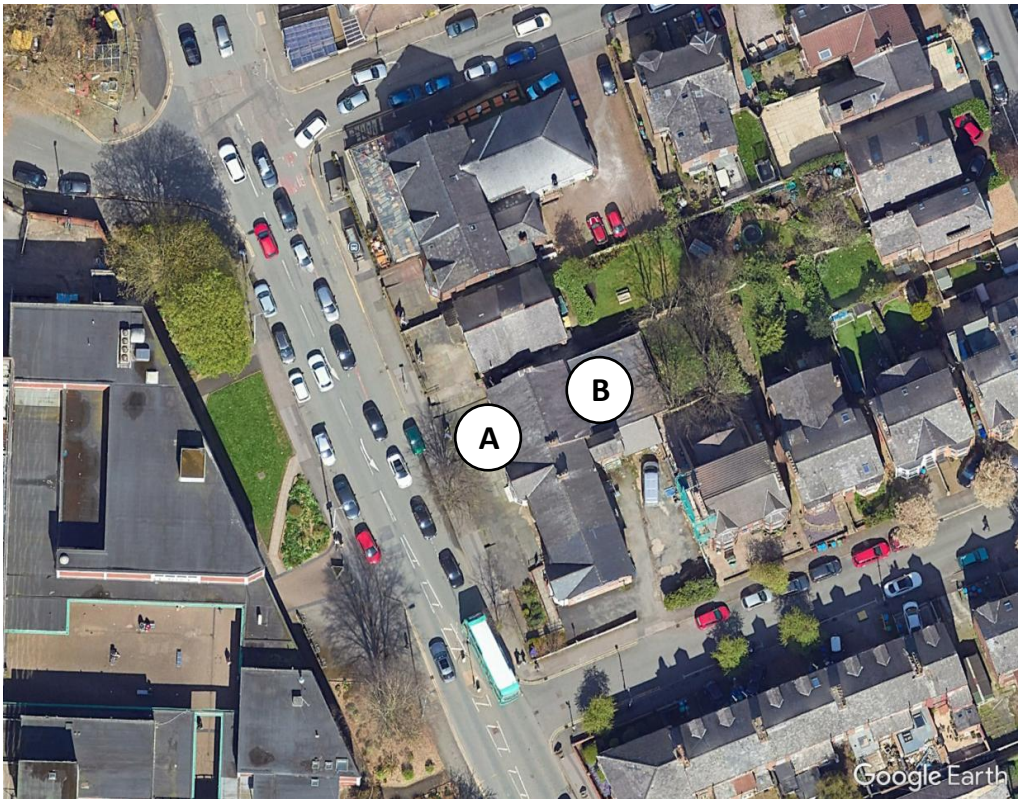
Based on publicly available weather data for the survey period it is understood that weather conditions remained similar for the duration of the survey with no significant periods of rainfall or strong breezes. The weather conditions during the survey period are therefore considered to be suitable for undertaking measurements of sound levels.

5.3 Measurement Positions

Environmental sound levels were measured at two positions on-site as described in the table below.

Position	Description
A	Microphone at 1st floor level on the western façade overlooking Barlow Moor Road.
B	Microphone at 1st floor level on the eastern façade overlooking the rear of the premises.

The measurement positions are shown on the site plan below.



Site plan showing measurement positions

Measurement Position A was selected in order to assess typical environmental sound levels representative of those at the window of the nearest residential receptor to the front of the premises along Barlow Moor Road.

Measurement Position B was selected in order to assess typical environmental sound levels representative of those at the window of the nearest residential receptor to the rear of the premises.

5.4 Equipment

The following equipment was used to undertake the environmental sound survey.

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Class 1 Sound Level Meter	Casella	633C	0721320	06/11/2025
Preamplifier	Casella	495	001414	06/11/2025
Microphone	Casella	251	1025	06/11/2025
Class 1 Sound Level Meter	Casella	633C	2811231	15/09/2025
Preamplifier	Casella	495	001239	15/09/2025
Microphone	Casella	251	1841	15/09/2025
Class 1 Sound Calibrator	Casella	120/1	3864878	05/11/2025
Environmental Noise Kit	Casella	6847	-	-
Microphone Extension Cable	Casella	C6717/5	-	-
Weather Protection System	Casella	6737	-	-

Field calibration checks were performed on the sound level meters prior to and on completion of the survey and were found to be within acceptable tolerance limits.

5.5 Results

5.5.1 Time History Graphs

The results of the environmental sound survey are presented on Time History Graph 1599/THG1 and 1599 THG2 enclosed at the rear of the report.

5.5.2 $L_{A90,T}$ Background Sound Levels

The lowest representative daytime and night-time $L_{A90,15min}$ background sound level measured at each measurement position during the survey period are detailed in the table below.

Position	Lowest Representative $L_{A90,15min}$ Background Sound Levels (dB)	
	Daytime (07:00–23:00)	Night-time (23:00–07:00)
A	50*	40
B	39*	35

* Excluding periods detailed in Section 5.6.

5.6 Discussion of Sound Climate

At the start and end of the survey period the dominant sound sources at Position A were noted to be frequent road traffic along Barlow Moor Road and passing pedestrians. Elevated sound levels can clearly be seen on Time History Graph 1599/THG1 between 11:00 and 16:00 hours on Sunday 19 April 2026. This is understood to be due to the Manchester Marathon which passed along Barlow Moor Road. Measurements during this period will therefore be excluded from the subsequent assessments.

At the start and end of the survey period the dominant sound sources at Position B were noted to be frequent road traffic from the surrounding road network. Elevated sound levels can clearly be seen on Time History Graph 1599/THG1 up to 22:30 hours on Friday 17 April 2026, between 10:00 to 23:00 hours on Saturday 18 April 2026, between 09:00 to 22:00 hours on Sunday 19 April 2026 and from 12:00 hours on Monday 20 April 2026. This is understood to be due to the operation of the existing kitchen extract fan serving the adjoining commercial premises to the south (488 Barlow Moor Road). Measurements during these periods will therefore be excluded from the subsequent assessments.

Whilst we are unable to comment on dominant sound sources or individual sound events during the survey period, based on the surrounding environment it is likely that road traffic remained the dominant sound source in the absence of the sound sources stated above.

6.0 Bi-Folding Doors Assessment

6.1 Operating Hours

The restaurant/shisha lounge is proposed to operate between 07:00 and 23:00 hours 7 days a week during which time the bi-folding doors situated in the front facade of the premises have the potential to be opened.

Typical restaurant/shisha lounge $L_{Aeq,T}$ operational sound levels are therefore assessed to the windows of the nearest residential receptor (1st floor 488 Barlow Moor Road) against the lowest representative $L_{A90,15min}$ background sound level measured at Position A during this period.

6.2 $L_{Aeq,T}$ Operational Sound Levels

Typical operational sound levels measured within a similar sized restaurant/shisha lounge premises to that proposed are detailed in the table below along with the corresponding L_{eq} octave band sound pressure levels.

Position	$L_{eq,T}$ Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Internal	58	59	61	66	67	57	52	42	69

The dominant sound sources included background music (no subwoofers) and customer/staff conversations.

6.3 $L_{A90,T}$ Background Sound Level

The lowest representative $L_{A90,15min}$ background sound level measured at Position A during the proposed operating hours of the restaurant/shisha lounge is detailed in the table below.

Position	Lowest Representative $L_{A90,15min}$ Background Sound Level (dB)
	Daytime (07:00 to 23:00)
A	50

6.4 Existing Constructions

It is understood that the ground floor front façade comprises the following construction.

Element	Typical Construction
Facade	Masonry wall & glazed windows/doors

The following Sound Reduction Indicies have been allowed for the ground floor façade elements.

Element	Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Masonry wall	32	40	44	45	51	56	56	56
Glazed windows/doors	20	22	25	34	37	35	39	46

The area of the bi-folding doors when open is understood to be approximately 6m^2.

6.5 Calculation

The sound pressure level radiated from the bi-folding doors due to restaurant/shisha lounge operational sound levels has been calculated using the following formula:

$$L_p = L_{prev} + 10 \log S - 6 - SRI + 10 \log Q - 20 \log R - 11 - D$$

Where:
L_p is the sound pressure level at the receiver, dB;
L_{prev} is the reverberant sound pressure level in the source room, dB;
S is the surface area of the separating element, m^2;
SRI is the sound reduction indicies of the separating element, dB;
Q is the directivity factor for the separating element, dB.

R is the distance in meters between the separating element and the receiver, m;
D is the directivity correction for the separating element, dB.

6.6 Results

The calculated restaurant/shisha lounge L_{Aeq} operational sound level incident upon the windows of the nearest residential receptor due to the bi-folding doors being open is presented in the table below.

Nearest Noise Sensitive Receptor	Calculated L_{Aeq} (dB)
Nearest residential property (1st floor 488 Barlow Moor Road)	49

The assessment indicates that restaurant/shisha lounge L_{Aeq} operational sound levels incident upon the windows of the nearest residential receptor due to the bi-folding doors being open will be 49dB.

Restaurant/shisha lounge L_{Aeq} operational sound levels are therefore likely to achieve the proposed requirement to achieve the representative daytime L_{A90} background sound level of 50dB at the windows of the nearest residential receptor.

6.7 Background Music

For the in-house loudspeaker system, amplified music levels should be limited by means of an electronic noise limiter/compressor. The device should be capable of limiting individual one third octave bands over the frequency range 20Hz to 20kHz and controlling the number of speakers/zones required.

In order to set the device to achieve the requirements of the Local Authority a commissioning visit will be required in conjunction with an acoustic consultant upon completion of the fit-out works and prior to the operation of the restaurant/shisha lounge. The devices should be lockable once set to prevent tampering. Upon completion, a commissioning report should be issued to the Local Authority specifying details of the devices installed and the limits that they have been set to.

7.0 Additional Guidance

In order to minimise sound emissions from the premises the following guidance should be incorporated.

- All staff should be trained on the noise management measures employed by the venue to minimise operational sound emissions from the premises.

- External windows/bi-folding doors should be kept closed between 23:00 and 07:00 hours.

- All external entrance/escape doors should be fitted with self-closing devices. Staff should ensure that the entrance/escape doors are not kept open unnecessarily in order to minimise sound emissions from the premises.

- Internal loudspeakers should face away from external doors and windows and the use of subwoofers should be prohibited.

- Staff should regularly monitor and manage external areas to ensure that customers are not causing a disturbance to local residents. Rowdy behaviour from customers should not be tolerated and anyone behaving in an anti-social way should be asked to leave the premises.

- Deliveries, refuse collections and storage/disposal of waste/recyclables in external areas should be restricted to normal working hours between 08:00 and 18:00 hours Monday to Friday and 08:00 and 13:00 Saturdays.
- A contact telephone number should be made available to local residents/businesses which they can use to report noise disturbances to the venue as and when they occur.

8.0 Mechanical Ventilation

Proposals for the mechanical ventilation systems are not known at this stage of the development. As such, it is not possible to assess atmospheric sound emissions from the proposed mechanical ventilation systems to the nearest noise sensitive receptors.

Once details for the proposed mechanical ventilation systems are known, an assessment of atmospheric sound emissions from the proposed mechanical ventilation systems to the nearest noise sensitive receptors should be undertaken. This will determine whether any attenuation measures are required in order to achieve the acoustic requirements of the Local Authority.

The assessment should be undertaken in accordance with BS 4142:2014 and be assessed against the lowest representative daytime and night-time $L_{A90,15min}$ background sound levels measured at each position during the survey period as detailed in the table below.

Nearest Noise Sensitive Receptor	Lowest Representative $L_{A90,15min}$ Background Sound Levels (dB)	
	Daytime	Night-time
Front (West)	50	40
Rear (East)	39	35

9.0 Conclusions

The Local Authority's acoustic requirements for the proposed restaurant/shisha lounge premises have been established.

A detailed environmental sound survey has been undertaken in order to establish existing environmental sound levels at the proposed development.

An assessment of operational sound breakout through the proposed open bi-folding doors has been undertaken to the windows of the nearest noise sensitive receptors.

Mitigation measures have been proposed where required in order to achieve the requirements of the Local Authority.



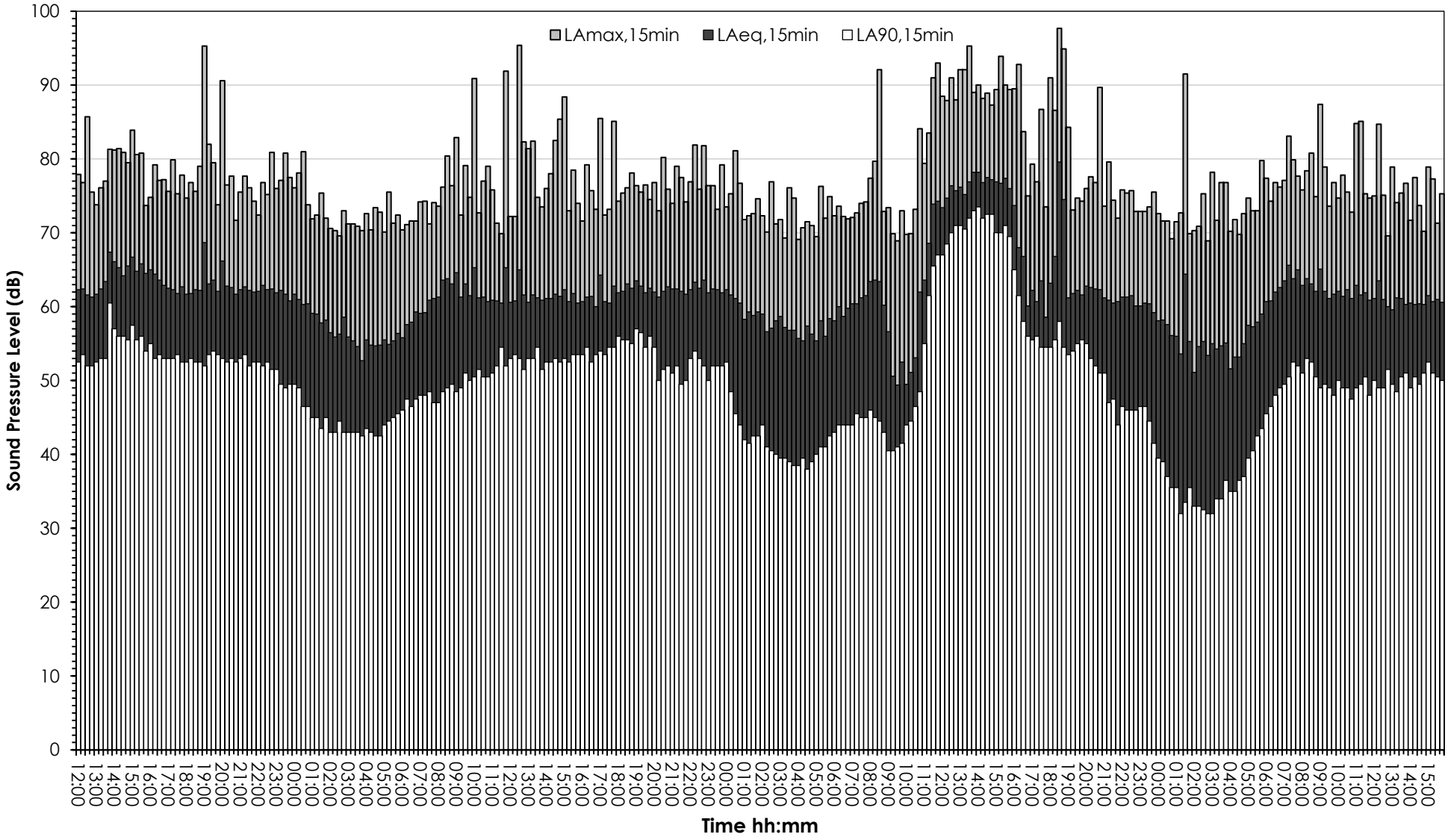
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LIGHTHOUSE ACOUSTICS

1599/THG1

450 Barlow Moor Road, Manchester

Time History Graph - Friday 17 April 2026 to Monday 20 April 2026

$L_{Amax,15min}$, $L_{Aeq,15min}$ & $L_{A90,15min}$ Noise Levels at Position A



1599/THG2

450 Barlow Moor Road, Manchester

Time History Graph - Friday 17 April 2026 to Monday 20 April 2026

$L_{Amax,15min}$, $L_{Aeq,15min}$ & $L_{A90,15min}$ Noise Levels at Position B

