auricl
acoustic consulting

181-183 Wilmslow Road

Rusholme, Manchester

Noise Impact Assessment Report

14 August 2019

For

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SUMMARY

A restaurant is proposed as part of 181-183 Wilmslow Road in Rusholme.

auricl has undertaken an indicative assessment of noise emissions associated with patrons visiting the restaurant, in comparison to existing noise levels measured at the site during the quietest portion of the proposed operating hours.

The assessment concluded that the noise impact of patrons is likely to be negligible in comparison to existing noise levels.

Nonetheless, a noise management plan has been proposed to maintain this and ensure no adverse impact to surrounding residents.

1.0 Introduction

A restaurant is proposed as part of 181-183 Wilmslow Road in Rusholme.

The development involves the new restaurant on the ground floor, with residential apartments on the upper floor levels, in a mixed commercial and residential area.

auricl has been appointed to undertake an indicative assessment of noise emissions associated with patrons visiting the restaurant, in comparison to existing noise levels measured at the site during the quietest portion of the proposed operating hours, which is presented in this report.

An explanation of the acoustic terminology used in this report is presented in Appendix A.

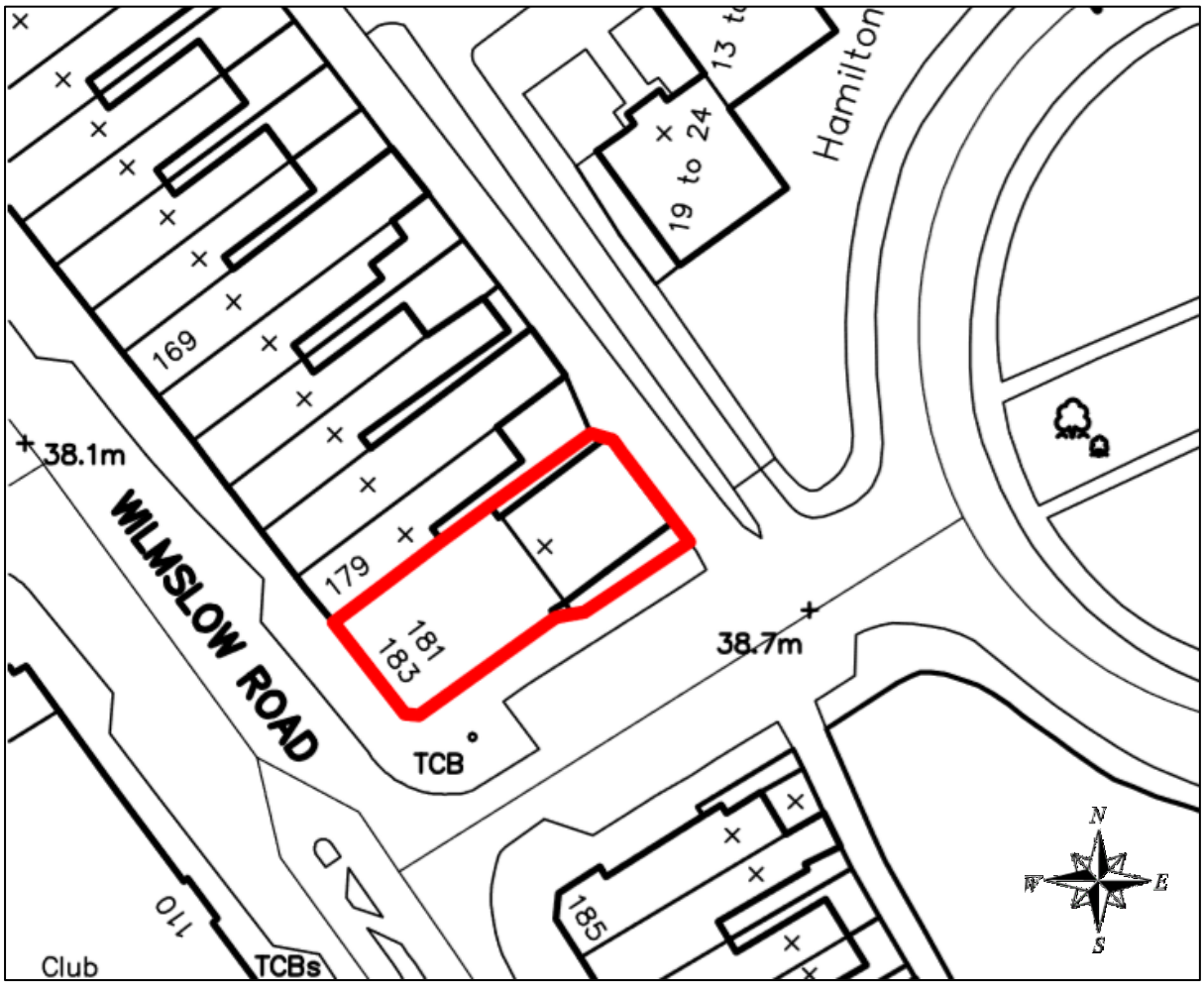
2.0 Site Description

The site is located at 181-183 Wilmslow Road in Rusholme, Manchester. The site involves a new commercial use on the ground floor, with residential apartments on the upper floor levels.

The site is located in a mixed commercial and residential area, with residential flats located to the north-east at 19-24 Park Crescent.

Figure 2.1 shows the site extent in **red**.

Figure 2.1 Site Extent and Surroundings



3.0 Existing Noise Levels

3.1 Noise Survey Methodology

Measurements have been undertaken to assess existing background noise levels at a time when they are expected to be at their lowest during the restaurant's operational period.

The restaurant is proposed to operate from 08:00 hours to 01:00 hours, therefore manned noise measurements were undertaken between 00:00 and 01:00 hours on Friday 10 May 2019, thereby yielding a worst-case for the noise impact assessment.

L_{Aeq} and L_{A90} noise levels were measured over 15-minute periods.

Noise from the surroundings was noted to be relatively constant, therefore the measurement periods are considered appropriate for assessing noise impact.

The equipment used for the noise survey is summarised in Table 3.1.

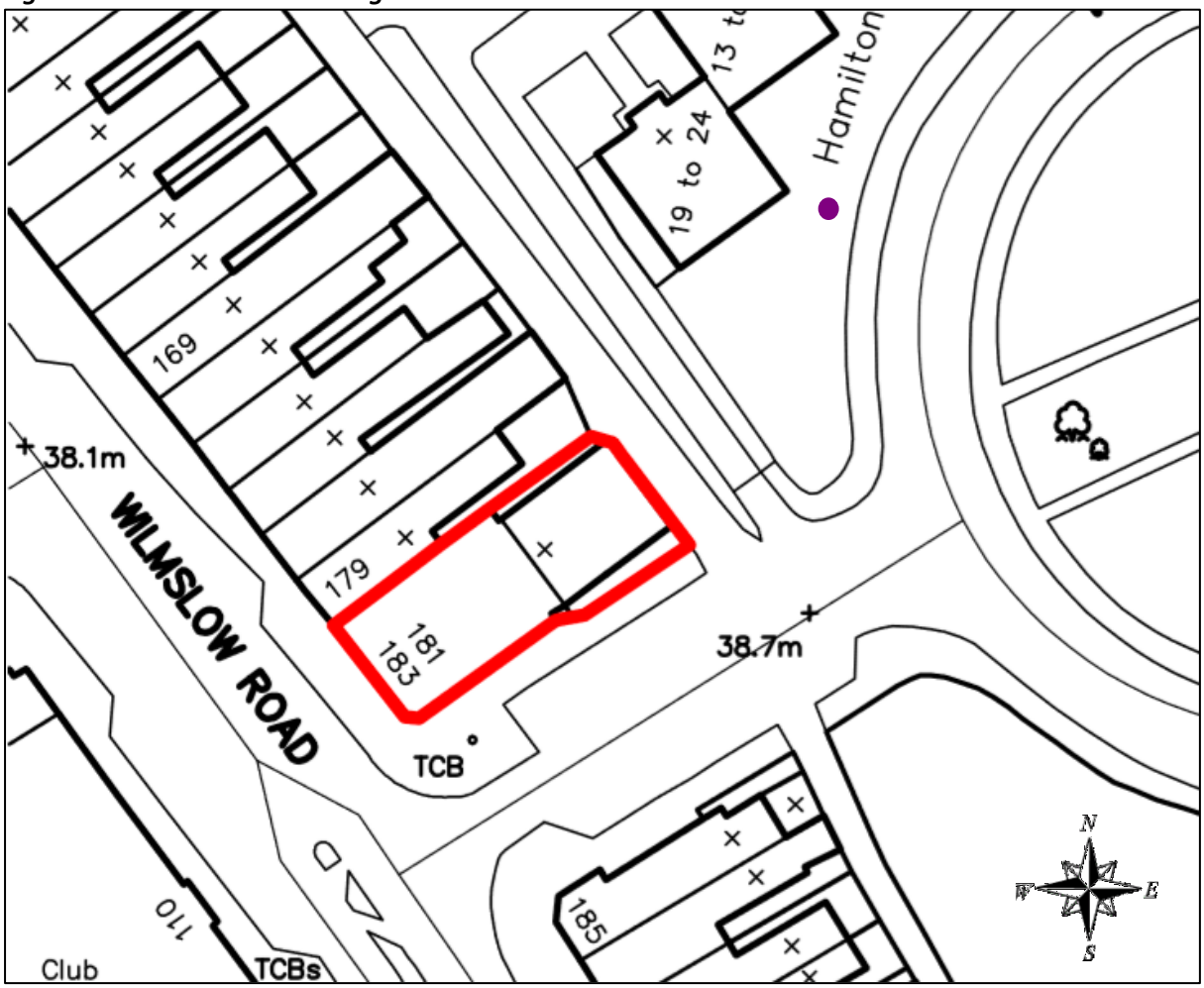
Table 3.1 Description of Equipment used for Noise Measurements

Item	Make & Model	Serial Number
Type 1 sound level meter	01 dB Fusion	11388
Type 1 ½" external microphone	GRAS 40 CE	259634
Calibrator	01 dB CAL 21	34375252

The noise measurement equipment was calibrated before and after the measurements. No significant change was found. Laboratory equipment calibration certificates can be provided upon request.

Measurements of background noise levels were undertaken at an accessible position considered representative of the nearest noise sensitive (residential) properties. The measurement position is indicated in **purple** on Figure 3.1.

Figure 3.1 Site Extent Indicating Measurement Position



Throughout the measurement period, there was no rainfall, a cloudy sky and only light wind. These weather conditions are considered appropriate for undertaking environmental noise measurements.

3.2 Noise Survey Results

The measured ambient L_{Aeq} and background L_{A90} sound pressure levels are summarised in Table 3.2.

Table 3.2 Summary of Measurement Results

Measurement Period	Measured Sound Pressure Level (dB)		
	L_{Amax}	L_{Aeq}	L_{A90}
00:00 – 00:15	67	54	49
00:15 – 00:30	68	53	47
00:30 – 00:45	70	52	45
00:45 – 01:00	68	51	45

The background noise climate at the measurement position was noted to be affected by road traffic noise using Park Crescent and building services plant serving other buildings nearby.

4.0 Indicative Noise Impact Assessment

4.1 Methodology and Significance Criteria

Noise due to patrons and vehicles will be outside the proposed premises and therefore largely uncontrollable by the applicant. We have however undertaken an indicative assessment to illustrate the potential noise impact of these activities.

Since no methodologies or criteria exist for assessing the noise impact of patron noise, we propose to assess future ambient noise levels ($L_{Aeq, T}$) against the measured existing ambient noise levels ($L_{Aeq, T}$) in comparison with significance criteria based on the IEMA document "*Guidelines for Environmental Noise Impact Assessment*" (November 2014), shown in Table 4.1 below.

Table 4.1 Noise Impact Assessment Criteria

Noise Level Change (dB, L_{Aeq})	Noise Impact
< 3	Negligible
3 – 5	Moderate
5 – 10	Substantial
> 10	Very Substantial

Night-time activities (23:00 – 07:00 hours) will be considered over a reference period of 15 minutes, as is common.

We will also assess night-time L_{Amax} noise levels against existing baseline levels, given that the quantity and noise level for night-time events can disturb sleep.

It should be noted that the baseline levels used in our assessment are those presented in Table 3.2, which were measured significantly further from the main surrounding noise source (Wilmslow Road) and therefore represent a lower (i.e. more onerous) baseline than would be apparent outside the new residences located on the floor level above the proposed restaurant.

4.2 Patron Noise Levels

auricl has previously measured typical noise levels due to car movements, as shown in Table 4.2.

Table 4.2 Measured Patron Noise Levels

Activity	Measurement Distance (m)	Measured L_{Amax} (dB)	SEL (dB)
Car arrival, reverse to park, engine off, door opened and closed	5	68	70
Car door opened and closed, engine started, car departure	5	68	67

We have also used a typical sound power level of 84 dB L_{wA} for a raised voice, as defined in CIBSE Guide B4: 2016 (originally from Sound Research Laboratories, 1987).

4.3 Assessment

We have undertaken calculation to predict the noise impact at the residential windows on the floor level above the proposed demise during the worst-case (quietest) portion of the proposed operating period (00:45 – 01:00 hours according to Table 3.2).

Our calculations are shown Table 4.3 for $L_{Aeq,T}$ (ambient) noise levels and Table 4.4 for L_{Amax} (maximum) noise levels.

Table 4.3 Patron Noise Impact Calculations – $L_{Aeq,T}$

Activity	Source Level (dB)	Distance Attenuation (dB)	Time Correction (dB)	Predicted Noise Level at Receptor ($L_{Aeq\ (15\ min)}$ dB)
Car arrival, reverse to park, engine off, door opened and closed	70	0	-30	40
Car door opened and closed, engine started, car departure	67	0	-30	37
Raised Human Voice	84	-25	-12	48
	Total Predicted $L_{Aeq\ (15\ min)}$ Noise Level (dB) at Receptor			49
	Lowest Measured Existing $L_{Aeq\ (15\ min)}$ Noise Level (dB)			51
	Total Predicted Future $L_{Aeq\ (15\ min)}$ Noise Level (dB)			53
	Difference to Existing (dB)			**+2**

By comparison of the worst-case predicted future $L_{Aeq,T}$ noise level difference in Table 4.3 with the significance criteria in Section 4.1, it can be seen that the predicted noise impact of the patron noise would be **negligible**.

By comparison of Tables 3.2 and Table 4.3 that future L_{Amax} noise levels for car movements (68 dB L_{Amax}) would be very similar to those measured at the existing site (67-70 dB L_{Amax}). Based on the standard sound power level for raised human speech, our calculations indicate that associated noise levels at the nearest receptors would be approximately 60 dB L_{Amax}, which is lower than existing. The impact on existing night-time L_{Amax} noise levels is therefore also concluded to be **negligible**.

5.0 Noise Management Plan

The assessment in Section 4 above gives a positive indication that external noise levels associated with patrons of the proposed unit will be negligible. Nonetheless, measures have been proposed to maintain this prediction and ensure no adverse impact to surrounding residents, described as follows:

- Patrons will be encouraged, via signage in key positions and verbal reminders, to approach and leave the premises quietly, so as to limit external noise levels
- Patrons will also be encouraged, via signage in key positions and verbal reminders, to promptly leave the vicinity of the premises and not loiter outside
- Patrons arriving by car will be encouraged to arrive/leave promptly and not to leave engines idling

- All new staff will be trained to ensure enforcement of the noise management plan
- A soft closer will be used on the main access door, to ensure the door remains closed when not in use and to avoid noise from the closing of the door
- Loud music will not be played within the premises
- Any music will be limited so as not to be disturbing outside the demise
- Local residents will be made aware of who to contact (telephone or SMS) at the premises in the event of any complaints and action will be taken immediately
- A log of any complaints will be maintained, including the date, time and nature of complaint as well as the corresponding action

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing ($20x10^{-6}$ Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
$L_{An,T}$	The A-weighted noise level exceeded for n% of the time over a given period T. e.g. L_{90}, the noise level exceeded for 90% of the time (background noise level).