

BAR SAN JUAN, XX BEECH ROAD, CHORLTON – PROPOSED EXTENSION

NOISE IMPACT ASSESSMENT

On behalf of:

Bar San Juan

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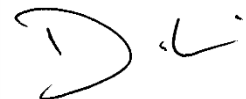
Report prepared by:
Hepworth Acoustics Ltd
21 Little Peter Street
Manchester
M15 4PS

On behalf of:
Bar San Juan

Report prepared by:
David Thurstan BSc MIOA - Senior Consultant



Report checked by:
Donald Quinn BSc FIOA – Managing Director



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1.0 INTRODUCTION

- 1.1 Hepworth Acoustics Ltd was commissioned by Bar San Juan to carry out a noise impact assessment in connection with a proposed first floor extension at Bar San Juan, Beech Road, Chorlton.
- 1.2 Beech Road is a vibrant area occupied by a mixture of commercial and residential uses with a number of bars and restaurants nearby. The nearest dwellings to Bar San Juan are apartments on the first floor, above an estate agents, in the adjoining building.
- 1.3 Bar San Juan is an established Spanish Tapas Bar and very much a dining venue and not a drinking establishment. Trading ceases at 22:30 hours. The existing restaurant has a gross ground floor area of 63 sq m with an outdoor seating area.
- 1.4 It is proposed to convert the first floor, currently a vacant one bedroom flat, to a dining area with separate kitchen and to build new toilets on the ground floor. We understand that the initial proposal is to use the first floor space for the preparation of food as an extension to the existing small open kitchen area on the ground floor. Potentially at a later date having a seated area within the first floor space for customers. In noise terms, use of the space as a dining area is the worst-case (i.e. has the potential to produce the highest levels of noise) and so this has been assumed for the remainder of this report. The proposed first floor layout is shown in Figure 1.
- 1.5 The new area will add approximately 31 sqm of floor space, i.e. half the size of the ground floor trading area. A new staircase will be built to access the loft space, that will be used for storage/office use in conjunction with the operation of the restaurant. As part of the proposals the party wall, at first floor and in the loft space is to be sound-insulated so as to minimise noise transfer into the adjacent property.
- 1.6 The noise assessment has included an inspection of the building and a sound level difference testing between the proposed first floor space and the adjacent apartment. The potential noise impact will be assessed and recommendations of appropriate mitigation measures.
- 1.7 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible. The advice contained within this report has been provided for acoustic purposes only and should be checked for compatibility with structural and fire requirements by others.

2.0 GUIDANCE

NPPF:2021

- 2.1 Paragraph 185 of the National Planning Policy Framework (NPPF) 2021 states that planning policies and decisions should *“ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;”*

NPSE:2010

- 2.2 The Noise Policy Statement for England (NPSE) 2010, which is referred to in NPPF, includes three aims:
- i. Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - ii. Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - iii. Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

Manchester City Council Planning & Noise Technical Guidance 2015

- 2.3 Manchester City Council Planning & Noise Technical Guidance 2015 provides guidance for assessing the potential impact from premises such as restaurants on residential dwellings. The relevant Manchester City Council guidance is set out below.
- 2.4 The following guidance is provided by Manchester City Council regarding entertainment venues that are structurally attached to the nearest dwelling:

‘Music noise levels in the 63Hz and 125Hz octave centre frequency bands (Leq) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq), respectively’.

3.0 SOUND LEVEL DIFFERENCE TESTING

- 3.1 Sound level difference testing was carried out during a site visit on Tuesday 31 May 2022, to establish the existing acoustic separation between the proposed first floor space and the apartment in the adjacent building.
- 3.2 The testing was carried out by generating high levels of pink noise directly within the first floor space above the existing premises using a sound source and loudspeaker. The resulting source noise levels were measured in the space along with the transmitted noise levels in the apartment on the other side of the wall. The acoustic testing was taken as a series of short term third octave band noise measurements.
- 3.3 The noise measurements were carried out with a Bruel & Kjaer 2260 'Type 1' Sound Level Meter (serial no. 02467016). Calibration checks were carried out both before and after the measurement periods with no variance in levels noted.
- 3.4 It was observed that in the adjacent apartment the existing brickwork wall was exposed. Using the results of the noise measurements, it has been possible to calculate the existing level of sound insulation between the proposed first floor space and the adjacent apartment as follows:

Table 1: Calculated sound level difference values (dB)

Description	Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
First floor to adjacent apartment	33	39	48	53	61	66	71

- 3.5 The sound insulation performance values shown in Table 1 demonstrates the wall construction provides good sound insulation at high frequencies with reasonable sound insulation at low to mid frequencies.

4.0 NOISE ASSESSMENT

4.1 Hepworth Acoustics has carried out numerous noise assessments in connection with restaurant developments in the past and we have a library of noise levels for a variety of restaurant/dining establishment styles.

4.2 We understand the potential first floor restaurant space will have music played at modest background levels only. We have measured the following trading noise levels during busy weekend evening trading periods in similar premises which include background music and an open kitchen area:

Table 2: Adopted trading noise levels (dB)

Description	Octave Band Centre Frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
Busy weekend evening (L_{eq})	61	66	69	74	73	69	63	77

4.3 The noise levels shown in Table 2 were taken in a restaurant at least three times the size of the proposed first floor space and so are considered to be a robust basis for assessment.

4.4 We have calculated the likely transmitted operating noise levels from the premises in the adjacent first floor apartment. The resulting noise levels are shown in Table 3.

Table 3: Calculated sound level difference values (dB)

Description	Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Adopted trading area noise levels	61	66	69	74	73	69	63
Sound reduction of wall	33	39	48	53	61	66	71
Resulting noise levels in apartment	28	27	21	22	12	3	-7

4.5 The calculated transmitted octave noise levels shown in Table 3 result in 21 dB $L_{Aeq,T}$ which equates to NR 17 dB. This is a low level of transmitted noise. Furthermore, the calculated 63 and 125 Hz octave band noise levels would be 19 and 14 dB respectively which are well below the Manchester City Council Planning & Noise Technical Guidance criteria.

4.6 Nevertheless, we recommend that mitigation measures are implemented to minimise potential transmission of noise from the premises to the apartment via the wall.

Recommendations

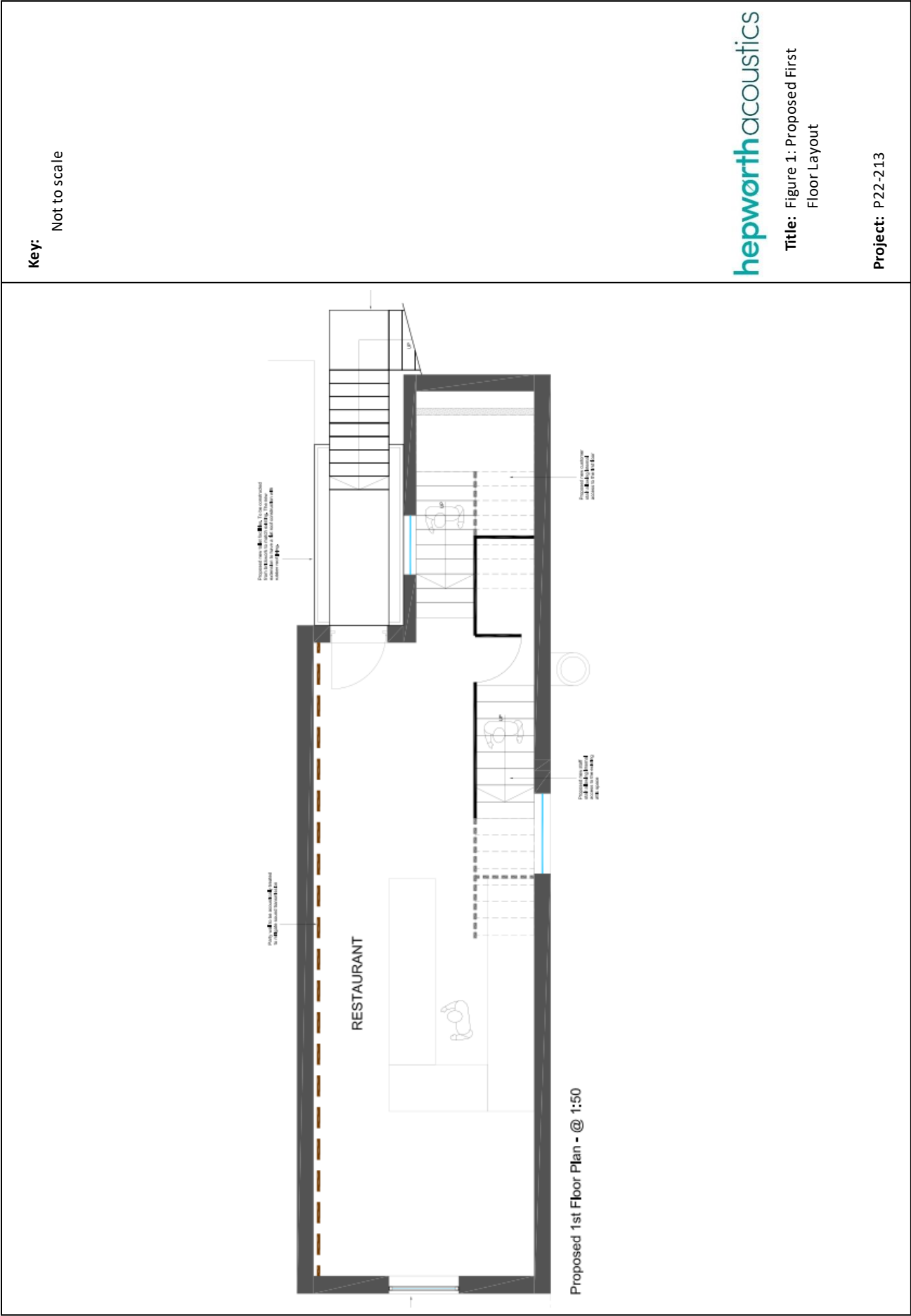
- 4.7 We recommend that music noise levels in the first-floor space are controlled to be no higher than the values set out in Table 2 above.
- 4.8 Whilst the above demonstrates that the existing sound insulation of the separating wall will adequately control the transmission of trading noise to the adjoining apartment, we have provided some recommendations in order to optimise any enhancements to the sound insulation of the wall to provide a greater margin of safety.
- 4.9 Any new lining to the party wall on the first floor and in the loft space should incorporate the following wherever feasible:
- Two layers of 12.5mm thick Gyproc Fireline/SoundBloc plasterboard (or equivalent with minimum surface mass of each board layer of 11.5 kg/m²) mounted onto independent timber or metal studs, with a minimum cavity of 75mm between the existing wall and the new acoustic liner and with 100mm thickness of Rockwool (minimum density 33 kg/m³) in the cavity. The timber or metal studs must not be rigidly connected to the existing separating wall - ideally there would be no ties to the existing masonry wall, but if such ties are necessary appropriate acoustically resilient wall ties should be used;
 - We also recommend that PA system loudspeakers should be installed on appropriate resilient mounts.

Conclusion

- 4.10 Our assessment has shown that the existing separating wall construction will adequately control the transmission of first floor trading area noise to the adjoining apartment. Nevertheless, the proposals include some enhancements that will provide a greater margin of safety. We have provided some recommendations to ensure that the enhancements assist in optimising the acoustic separation between the first floor dining area and the apartment. We therefore conclude that the proposed use of the first floor space above Bar San Juan would not result in any unacceptable harm to residential amenity by reason of noise disturbance.
- 4.11 Furthermore, there will be no 'significant adverse impacts' or 'adverse impacts' due to noise and so the development would be in line with the aims of the NPPF and NPSE.

5.0 SUMMARY

- 5.1 Hepworth Acoustics was commissioned by Bar San Juan to assess the potential noise impact from the proposed extension at their premises on Beech Road, Chorlton.
- 5.2 This assessment has involved carrying out sound level difference testing the proposed first floor space and the adjacent apartment.
- 5.3 The potential impact of noise transmission from the new first floor trading area has been assessed. The existing separating wall construction will control trading noise transmission to the adjoining apartment to well within Manchester City Council's noise control design criteria. Nevertheless, we have provided some recommendations to optimise the effectiveness of proposed enhancements to provide an even greater margin of safety.
- 5.4 We therefore conclude that the proposed new first floor trading area will not result in any noise impact on residential amenity.



Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

- C_{tr} This is an A-weighted urban traffic noise spectrum, which can be added to $D_{nT,w}$ or R_w in some standards to take into account different source spectra such as low frequency sound.
- R This is the 'Sound Reduction Index' as measured in a laboratory, and is a measure of the sound insulation properties of an building element in a stated frequency band.
- R_w This is the 'Weighted Sound Reduction Index', and is a single figure quantity of R , the laboratory measured Sound Reduction Index.
- $D_{n,e,w}$ This is the weighted element normalized level difference as measured in a laboratory, and is a measure of the sound insulation properties of small building elements such as ventilators.
- D This is the Level Difference and is a field measurement of the airborne sound insulation between adjacent spaces. As well as being field measurement, this term and all other D terms below therefore include on-site conditions other than direction noise transmission through, for example, a wall (flanking transmission).
- $L_{Aeq,T}$ This is the A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.