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Unit 19 The Arches, Red Bank Court, Manchester

29 July 2026

20920-NIA-02-AA-R0

Operational Noise Breakout Impact Assessment

Project Number
20920

Issued For
Splotland Bridge

Company registered in England & Wales no. 07958744
UKAS accreditation is only applicable to pre-completion sound insulation testing services for building regulations and is not linked to the endorsements and certifications shown above

EXECUTIVE SUMMARY

This noise impact assessment has been undertaken in order to assess noise breakout through the external building fabric of a yoga studio and associated café / bar use at Unit 19 The Arches, Red Bank Court, Manchester.

A background noise survey has been undertaken as detailed in the report, in order to determine an appropriate noise emission criterion, in accordance with the requirements of Manchester City Council

Calculations were undertaken for the nearest receiver, identified as Masson Place. It should be noted that if there are closer receivers that Clement Acoustics is not aware of, a reassessment will be necessary, and this should therefore be confirmed by the Client.

It has been demonstrated that compliance with the established criterion is feasible, dependent on the following material considerations:

- The site will operate between 06:00 and 00:00 only
- The noise emissions data for the proposed café / bar use, which have been established based on measurements taken in a similar venue
- Operations are as established in this report and marked on the attached site plan

If there is any deviation from the above, Clement Acoustics must be informed, in order to establish whether a reassessment is necessary.

Clement Acoustics has used all reasonable skill and professional judgement when preparing this report. The report relies on the information as provided to us at the time of writing and the assumptions as made in our assessment.

This report is designed to be suitable to discharge typical noise planning conditions, as per our original scope of work.

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REVISION HISTORY

Issue	Date of Issue	Author	Reviewed	Authorised
R1	29/07/2026	[redacted]	[redacted]	[redacted]
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Issue	Comment
R0	First Issue

1.0 INTRODUCTION

Clement Acoustics has been commissioned by Splotland Bridge to measure existing background noise levels at Unit 19 The Arches, Red Bank Court, Manchester. Measured noise levels have been used to determine noise emissions criteria for a proposed yoga studio with associated café and bar in agreement with the planning requirements of the Manchester City Council.

This report presents the results of the environmental survey followed by noise impact calculations and outlines any necessary mitigation measures.

An acoustic terminology glossary is provided in Appendix A.

2.0 SITE DESCRIPTION

The site is located within a rail bridge archway bound by Red Bank to the west, Back Red Bank and Red Bank Car Park to the east. The surrounding area is mixed commercial and residential in nature. Current proposals are for a yoga studio with associated café / bar. It is understood that the yoga studio is proposed to operate between 06:00 – 20:30, with the café / bar operating between 14:30 – 00:00. It is anticipated that noise levels will be dominated by conversation noise with music played at a background level.

Residential flats within Masson Place have been identified as the nearest affected receivers. This nearest noise sensitive receiver were identified through observations on-site. If there are any receivers closer to that identified within this report, then a further assessment will need to be carried out. Therefore, the closest noise sensitive receiver should be confirmed by the client before the site begins operating. Locations are shown in attached site plan 20920-SP1.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Unattended Noise Survey Procedure

Measurements were undertaken at one position as shown on indicative site drawing 20920-SP1. The choice of this position was based both on accessibility and on collecting representative noise data in relation to the nearest affected receiver.

The surroundings and position used for the monitoring location is described in Table 3.1.

Position No.	Description
UN1	The microphone was mounted to signage at the front of the building. The microphone was positioned 1 m in front of the wall. [1]

Table 3.1 Description of unattended monitoring locations

Note [1]: The position was not considered to be free-field according to guidance found in BS 4142: 2014 *'Methods for rating and assessing industrial and commercial sound'* (BS 4142: 2014), and a correction for reflections has therefore been applied. Based on the presence of the reflective surface and the nature of surrounding noise sources, a correction for reflections of 3 dB has been applied, in line with the recommendations of the standard.

Continuous automated monitoring was undertaken for the duration of the survey between 16:00 on 23 June 2026 and 08:30 on 25 June 2026.

The measurement procedure generally complied with ISO 1996-2: 2017: '*Description, measurement and assessment of environmental noise*'.

3.2 Weather Conditions

At the time of set-up and collection of the monitoring equipment and during the attended measurements, the weather conditions were hot and dry with light winds. It is understood that the weather conditions during the unattended survey remained warm with no precipitation and low wind speeds.

It is considered that the weather conditions did not significantly adversely affect the measurements and are therefore considered suitable for the measurement of environmental noise.

It is considered that the weather conditions were suitable for the measurement of environmental noise.

3.3 Equipment

The equipment calibration was verified, by means of a field verification check, before and after use and no abnormalities were observed. The equipment used was as summarised in Table 3.2.

Position	Instrument	Manufacturer	Type
UN1	Class 1 sound level meter[1]	Svantek	977
-	Class 1 sound level meter calibrator[1]	Norsonic	1251

Table 3.2 Instrumentation used during the survey

Note [1]: Calibration certificates available upon request

3.4 Unattended Noise Survey Results

The $L_{Aeq:\,15min}$, $L_{Amax:\,15min}$, $L_{A10:\,15min}$ and $L_{A90:\,15min}$ acoustic parameters were measured at the location shown in site drawing 20920-SP1. Measured noise levels are shown as time histories in Attachment 20920-TH1, with average ambient and typical background noise levels summarised in Table 3.3.

Position	Time Period	Average ambient noise level $L_{Aeq:T}$, dB	Typical background noise level $L_{A90:15min}$, dB
UN1	Daytime (07:00 - 23:00)	54	45
	Night-time (23:00 - 07:00)	46	43
	Operating Hours (06:00 – 00:00)	54	45

Table 3.3 Average ambient and typical background noise levels

4.0 NOISE CRITERIA

4.1 Local Authority Criteria

It is understood that the Manchester City Council policy regarding the impact of entertainment noise is as follows:

> *"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"*

Based on the results of the environmental noise survey and requirements of Manchester City Council, Table 4.1 presents the site operation noise emission criteria.

	Sound Pressure Level, dB, in each Frequency Band, Hz								
	63	125	250	500	1k	2k	4k	8k	dB(A)
Measured Typical $L_{A90,15min}$ (operating hours)	51	46	44	42	40	34	28	17	45
Noise Limit at the façade of the nearest noise sensitive location $L_{Aeq,15min}$	41	37	34	32	30	26	18	7	35

Table 4.1 Operation noise emission limits

5.0 NOISE IMPACT ASSESSMENT

5.1 Source Noise Levels

As the site is not yet operating, measurements taken at similar sites have been used in impact calculations.

Due to the proposed operation of the site, it is expected that internal noise levels will be dominated by conversation noise with contribution from music played at a background level from the café / bar use at the site. As such, reverberant indoor source noise level has been taken from measurements taken in large café / bar with music playing at a background level.

In order to present a robust assessment, the measurement used is the loudest 15 minute period taken during a lunchtime period; through conversation with the operator, it was determined that lunchtime was the busiest period of the café / bar's operation.

The source noise levels used in impact calculations are shown in Table 5.1.

Unit	Sound Pressure Level in each Frequency Band, Hz								
	63	125	250	500	1k	2k	4k	8k	dB(A)
Reverberant café / bar Noise Level	68	75	71	70	68	64	59	51	72

Table 5.1 Noise emissions levels based those measured at similar site and on library data

5.2 Calculation Methodology

To predict the breakout of noise through the external building fabric of the site, calculations have been undertaken using the following standard acoustic formula:

$$SPL_{receiver} = SPL_{source} - SRI_{separation} + 10\,log_{10}\,S - 20\,log_{10}\,r - 14$$

Where:

$SRI_{seperation}$ is the sound reduction of the separating walls [see below],

S is the surface area of the sites wall,

and r is the distance to the nearest receiver

The composite sound reduction index (SRI) of the external walls have been predicted using a combination of measurements taken on site and library data of each element has been used, as shown in Table 5.2. It is understood that the façade facing Back Red Bank will be replaced with a glazed façade in order to present a robust assessment this has been modelled as a nominal double glazing construction. It is assumed that the green roof of the archway is sufficiently dense that there is negligible noise breakout through the roof of the site.

Element	Sound Reduction, dB, in each Frequency Band, Hz							
	63	125	250	500	1k	2k	4k	8k
Masonry Wall (29 m^2)	39	41	43	48	50	55	55	55
Polycarbonate Translucent Panelling (15 m^2)	16	16	22	26	33	38	39	39
Front Door	13	13	17	21	20	20	21	21
Glazed façade (70 m^2)	**19**	**21**	**17**	**25**	**35**	**37**	**31**	**31**

Table 5.2 **Sound Reduction Index (SRI) of wall elements**

5.3 Noise Impact Assessment

The closest receiver has been identified as the window on the eastern facade of a residential property opposite which is a minimum of 17 m from the front of the site.

Screening of the nearest noise sensitive receptor from the rear façade of the site is provided by the envelope of the railway arch bridge the site is located within.

Taking into account all necessary acoustic corrections, the resulting noise level at the identified residential windows would be as shown in Table 5.3. Detailed calculations are shown in Appendix B1.

Element	Sound Pressure Level, dB, in each Frequency Band, Hz								
	63	125	250	500	1k	2k	4k	8k	dB(A)
Calculated bar noise at the façade of the nearest noise sensitive location $L_{Aeq,15min}$	27	35	26	21	17	13	7	0	24
Noise Limit at the façade of the nearest noise sensitive location $L_{Aeq15min}$	41	37	34	32	30	26	18	7	35
Level Difference	-14	-2	-9	-11	-13	-13	-11	-8	-11

Table 5.3 Noise levels and project criterion at noise sensitive receiver

As shown in Table 5.3 and Appendix B, the operation of the site as currently proposed are expected to meet the requirements of Manchester City Council.

5.4 Maximum Allowable Operation Noise Levels

As shown in Table 5.3 and Appendix B1, operations of the site as currently proposed are significantly below the requirements of Manchester City Council.

These operations are not understood to change; however, in order to allow for flexibility in the use of the site, Table 5.4 shows the maximum allowable reverberant noise levels in each frequency band. Detailed calculations for this scenario are shown in Appendix B2.

	Sound Pressure Level, dB, in each Frequency Band, Hz								
	63	125	250	500	1k	2k	4k	8k	dB(A)
Maximum allowable internal ambient noise level within the site, $L_{Aeq,15min}$ dB	81	77	79	81	81	76	69	59	84

Table 5.4 Maximum allowable noise levels within the site

6.0 CONCLUSION

An environmental noise survey has been undertaken at Unit 19 The Arches, Red Bank Court, Manchester. The results of the survey have enabled criteria to be set for noise emissions from the café / bar operations of the proposed yoga studio in accordance with the requirements of the Manchester City Council.

A noise impact assessment has then been undertaken using previously measured noise data from similar sites to predict noise levels due to the proposed operations at nearby noise sensitive receivers. The assessment indicates that predicted noise levels from operations as proposed are expected to achieve the requirements of Manchester City Council. Furthermore, an assessment of the maximum allowable internal noise level has been provided, compliant with the requirements of the Local Authority.

N

Not to scale

Description:
Indicative site plan showing noise monitoring position and site location

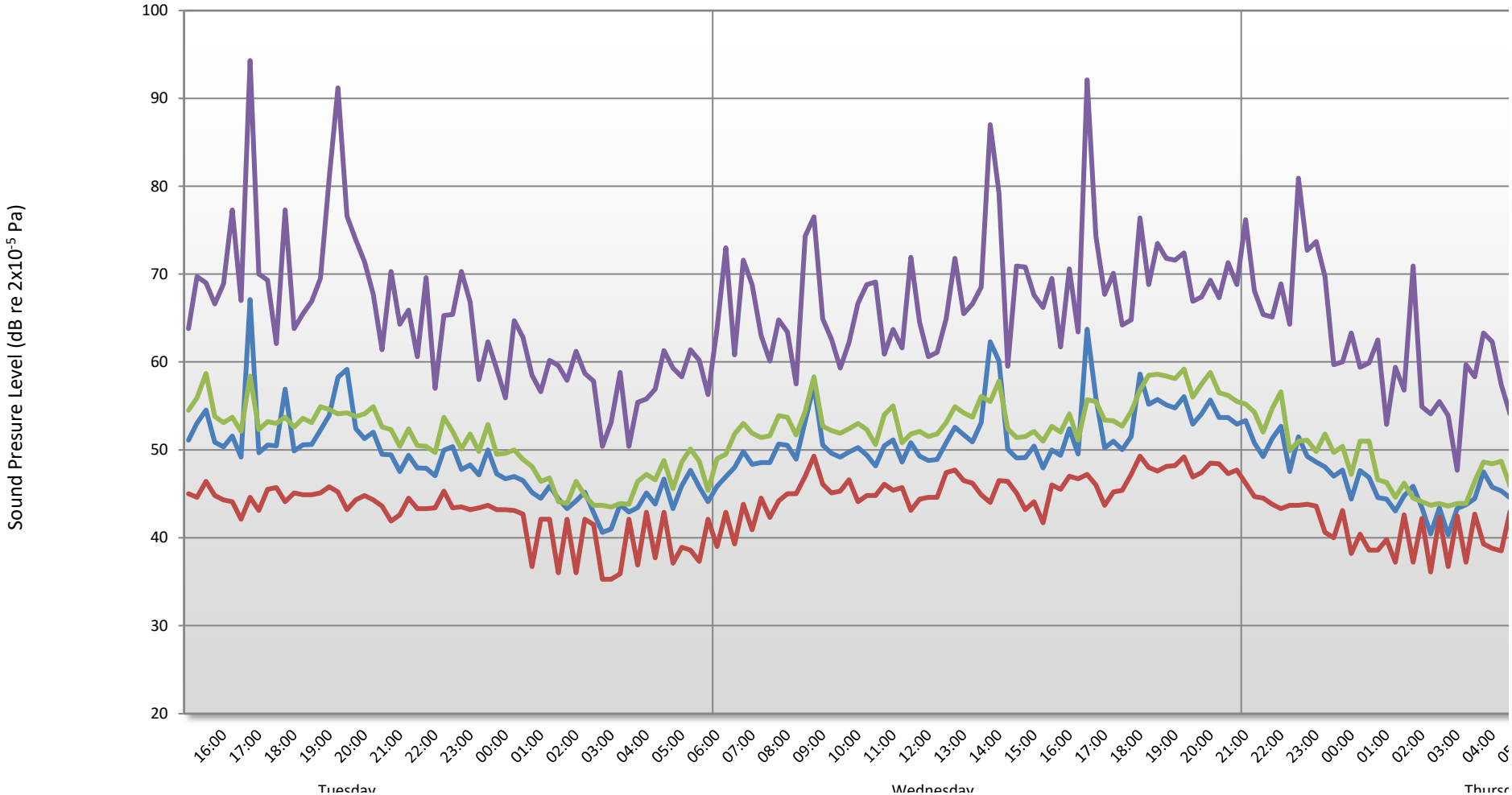
Date	29 July 2026
Reference	20920-SP1
Project Name	Unit 19 The Arches, Red Bank Court, Manchester
Image ©	Google Earth

Key:	
	Unattended Noise Survey Position
	Noise Sensitive Receiver
	Site Location

Unit 19 The Arches, Red Bank Court, Manchester

Position UN1

Environmental Noise Time History
23 June 2026 to 25 June 2026



APPENDIX A

GLOSSARY OF ACOUSTIC TERMINOLOGY

Absorption Coefficient α	The absorption coefficient of a material, usually measured for each octave or third-octave band and ranging between zero and one. For example, a value of 0.85 for an octave band means that 85% of the sound energy within that octave band is absorbed on coming into contact with the material. Conversely, a low value below about 0.1 means the material is acoustically reflective.
Acceleration	The rate of change of velocity, often measured in ms^{-2}. Commonly used to assess human response to vibration and for machine condition monitoring.
Accelerometer	A vibration transducer sensor that is used to measure acceleration.
Airborne noise	Noise which is fundamentally transmitted by way of the air and can be attenuated by the use of barriers and walls placed physically between the noise source and receiver.
Ambient Vibration	The all-encompassing vibration occurring at a given location, at a given time, composed of all vibration sources near and far.
Audible Range	The limits of frequency which are audible or heard as sound. The normal hearing in a typical young adult detects ranges from 20 Hz to 20 kHz, although some people can detect sound with frequencies outside these limits. Typically, as a person ages their audible hearing range decreases.
A-Weighting	A filter applied to the sound recording made by a microphone to approximate the response of the human ear.
Axis	A fixed reference line for the measurement of vibration in a particular direction. Vibration is commonly measured in transverse (T), longitudinal (L) and vertical (V) axes (or X, Y and Z).
Background Noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation. The L_{90} parameter, i.e. the level exceeded for not more than 90% of the time is often used as a descriptor of "background noise" for environmental impact studies.
Background Vibration	The underlying level of vibration in the ambient environment, measured in the absence of the vibration sources of interest.
Continuous Vibration	Vibration that continues uninterrupted over a defined period.
dB(A)	The human ear is less sensitive to low (below 125 Hz) and high (above 16 kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).
Decibel [dB]	The unit that sound is measured in. Decibels are a logarithmic scale hence two equally intense sound sources operating together produce a sound level which is 3 dB higher than one alone and 10 identical, uncorrelated sources produce a 10 dB higher sound level.
Distance Attenuation	Sound which propagates from a point source in free air attenuates by 6 dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.
$D_{nT,w}$	Weighted Standardised Field Level Difference A measure of sound insulation performance of a building element. It is characterised by the difference in noise level on each side of a wall or floor. It is measured in-situ. It is a field measurement that relates to the R_w laboratory measured value but is not equal to it because an in-situ space is not of the same quality as a laboratory space. The value is indicative of the level of speech privacy between spaces. The higher its value the better the insulation performance.
Flanking	Flanking is the transfer of sound through paths around a building element rather than through the building element material directly. For example, sound travelling through a gap underneath a door or a gap at the top of a wall.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch, and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz. In the case of vibration, frequency is the number of oscillations that occurs per second. Frequency is measured in units of Hertz (Hz).
Ground-Borne Noise	Vibration propagated through the ground and then radiated as noise by vibrating building elements such as wall and floor surfaces. This noise is more noticeable in rooms that are well insulated from other airborne noise. An example would be vibration transmitted from an underground rail line radiating as sound in a bedroom of a building located above.
Impact Noise	Impact noise / structure-borne noise is generated when an object impacts with a separating element, causing that element to vibrate and re-radiate as noise in the receiving room. Common domestic examples of impact noise include footsteps and dropping objects.
Impulsive Noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.

APPENDIX A

Impulsive Vibration	Vibration that rapidly builds up to a peak followed by a damped decay. May consist of multiple impulsive events, typically less than two seconds in duration.
Intermittent Noise	The level suddenly drops to that of the background noise several times during the period of observation.
Intermittent Vibration	Either interrupted periods of continuous vibration or repeated periods of impulsive vibration.
L_{10}	This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise
L_{90}	This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.
L_{eq}	The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.
L_{max}	This is the maximum sound pressure level that has been measured over a period.
$L_{nT,w}$	Weighted Standardised Field Impact Sound Pressure Level As for $L_{n,w}$ but measured in-situ and therefore subject to the inherent accuracies involved in such a measurement. The equivalent measurement in a laboratory is the $L_{n,w}$. A lower value indicates a better performing floor.
Noise	Unwanted sound.
Octave	An octave represents a doubling or halving in frequency. Noise or vibration levels across a frequency spectrum are commonly given in octave or one-third octave frequency bands.
PPV	Peak Particle Velocity. The absolute maximum value of the vibration velocity signal measured in any axis during a given time interval.
Reflection	Sound wave reflected from a solid object obscuring its path.
R_w	Weighted Sound Reduction Index A measure of the sound insulation performance of a building element. It is measured in very controlled conditions in a laboratory. The related field measurement is the $D_{nT,w}$. The higher the value the better the acoustic performance of the building element.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound Absorption	The ability of a material to absorb sound energy by conversion to thermal energy.
Sound Insulation	Sound insulation refers to the ability of a construction or building element to limit noise transmission through the building element. The sound insulation of a material can be described by the R_w and the sound insulation between two rooms can be described by the $D_{nT,w}$.
Sound Level Meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Power Level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 pico watt.
Sound Pressure Level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone referenced to 20 micro Pascal.
Structure-borne Noise	Audible noise generated by vibration induced in the ground and/or a structure. Vibration can be generated by impact or by solid contact with a vibrating machine. Examples of structure-borne noise include the noise of trains in underground tunnels heard to a listener above the ground, the sound of footsteps on the floor above a listener and the sound of a lift car passing in a shaft.
Subjective Impression of Noise	Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

APPENDIX A

Tonal Noise	Sound containing a prominent frequency and characterised by a definite pitch.
Transmission Loss	The sound level difference between one room or area and another, usually of sound transmitted through an intervening partition or wall. Also the vibration level difference between one point and another. For example, if the sound level on one side of a wall is 100 dB and 65 dB on the other side, it is said that the transmission loss of the wall is 35 dB. If the transmission loss is normalised or standardised, it then becomes the R_w or R'_w or $D_{nT,w}$.
VDV	Vibration Dose Value. A measure of tactile vibration levels used to assess intermittent vibration.
Velocity	The rate of change of vibration displacement, usually measured in mms^{-1}.
Vibration	A mechanical phenomenon whereby oscillations occur about an equilibrium point; a periodic back-and-forth motion of an elastic body or medium, commonly resulting when almost any physical system is displaced from its equilibrium condition.

Appendix B

Acoustic Calculations

18554

20 Red Bank, Cheetham Hill, Manchester

Receiver 1: Masson Place - Proposed Operations

$$SPL_{outdoor} = SPL_{indoor} - SRI_{composite} + 10log_{10}S - 20log_{10}r - 14$$

Noise Breakout Noise Emissions Calculation

Description	Frequency, Hz								dB(A)
	63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	
Reverberant Bar Noise Level *(SPL Indoor)*	68	75	71	70	68	64	59	51	72
Front Wall Composite SRI *(SRI Composite)*	-19	-19	-24	-27	-29	-29	-30	-30	
Correction for Wall Area (50m2) *(S)*	17	17	17	17	17	17	17	17	
Correction for Distance Attenuation (17m) [Assumes Point Source Attenuation]	-25	-25	-25	-25	-25	-25	-25	-25	
Indoor to Outdoor Correction	-14	-14	-14	-14	-14	-14	-14	-14	
Sound pressure level at receiver	**27**	**34**	**25**	**21**	**17**	**13**	**7**	**0**	**24**
Reverberant Bar Noise Level *(SPL Indoor)*	68	75	71	70	68	64	59	51	72
Back Wall SRI *(Glazing)*	-19	-21	-17	-25	-35	-37	-31	-31	
Correction for Wall Area (70m2) *(S)*	18	18	18	18	18	18	18	18	
Correction for Distance Attenuation (33m) *(r)* [Assumes Point Source Attenuation]	-30	-30	-30	-30	-30	-30	-30	-30	
Indoor to Outdoor Correction	-14	-14	-14	-14	-14	-14	-14	-14	
Barrier Attenuation	-16	-20	-24	-25	-25	-25	-25	-25	
Sound pressure level at receiver	**7**	**8**	**4**	**-6**	**-18**	**-24**	**-23**	**-31**	**-2**
Combined Sound pressure level at receiver	**27**	**35**	**26**	**21**	**17**	**13**	**7**	**0**	**24**
Design Criterion	**41**	**37**	**34**	**32**	**30**	**26**	**18**	**7**	**35**
Level Difference	**-14**	**-2**	**-9**	**-11**	**-13**	**-13**	**-11**	**-8**	

Appendix B

Acoustic Calculations

18554

20 Red Bank, Cheetham Hill, Manchester

Receiver 1: Masson Place - Maximum Allowable Operating Noise Levels

$$SPL_{outdoor} = SPL_{indoor} - SRI_{composite} + 10log_{10}S - 20log_{10}r - 14$$

Noise Breakout Noise Emissions Calculation

Description	Frequency, Hz								dB(A)
	63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	
Reverberant Bar Noise Level *(SPL Indoor)*	81	77	79	81	81	76	69	59	84
Front Wall Composite SRI *(SRI Composite)*	-19	-19	-24	-27	-29	-29	-30	-30	
Correction for Wall Area (50m2) *(S)*	17	17	17	17	17	17	17	17	
Correction for Distance Attenuation (17m) [Assumes Point Source Attenuation]	-25	-25	-25	-25	-25	-25	-25	-25	
Indoor to Outdoor Correction	-14	-14	-14	-14	-14	-14	-14	-14	
Sound pressure level at receiver	**41**	**36**	**34**	**32**	**30**	**26**	**18**	**7**	**35**
Reverberant Bar Noise Level *(SPL Indoor)*	68	75	71	70	68	64	59	51	72
Back Wall SRI *(Glazing)*	-19	-21	-17	-25	-35	-37	-31	-31	
Correction for Wall Area (70m2) *(S)*	18	18	18	18	18	18	18	18	
Correction for Distance Attenuation (33m) *(r)* [Assumes Point Source Attenuation]	-30	-30	-30	-30	-30	-30	-30	-30	
Indoor to Outdoor Correction	-14	-14	-14	-14	-14	-14	-14	-14	
Barrier Attenuation	-16	-20	-24	-25	-25	-25	-25	-25	
Sound pressure level at receiver	**7**	**8**	**4**	**-6**	**-18**	**-24**	**-23**	**-31**	**-2**
Combined Sound pressure level at receiver	**41**	**37**	**34**	**32**	**30**	**26**	**18**	**7**	**35**
Design Criterion	**41**	**37**	**34**	**32**	**30**	**26**	**18**	**7**	**35**
Level Difference	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	