

Icons, Prestwich, M25 3AJ Noise Assessment Impact Assessment

REPORT REFERENCE NO. J004657-7404-TD-01

3 November 2023

Tel: 01925 759380

Email: enquiries@pdaltd.com





Document Control Sheet

Details of Assessment	
Client	JSA Design
Document Title	Icons, Prestwich, M25 3AJ, Noise Impact Assessment
Report Reference	J004657-7404-TD-01

Client Address:	Company Address:
JSA Design The Base Dallam Lane Warrington WA2 7NG	Philip Dunbavin Acoustics Ltd 3 Bridgewater Court Barsbank Lane Lymm WA13 0ER

Issue	Date	Author	Remark	Status
01	03/11/2023	Tom Dixon	Initial Issue	Final

	Name	Position
Prepared By	Tom Dixon BEng MIOA	Consultant
Checked By	Chris Wright BSc (Hons) MIOA	Consultant

This document has been prepared for the client only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law.

This report has been prepared based upon a scope of works and associated resources agreed between the client and Philip Dunbavin Acoustics Ltd (PDA). This report has been prepared with all reasonable skill, care and diligence and has been based upon the interpretation of data collected. This has been accepted in good faith as being accurate and valid at the time of the collection. This report has been based solely on the specific design assumptions and criteria stated herein.



CONTENTS

1.0	SUMMARY.....	4
2.0	SITE DESCRIPTION	5
3.0	ASSESSMENT CRITERIA.....	8
3.1	National Planning Policy Framework	8
3.2	Planning Practice Guidance – Noise	10
3.3	BS 8233:2014 Guidance on Sound Insulation and Noise reduction for Buildings	11
3.4	BS 4142:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound'	11
4.0	SURVEY DETAILS AND RESULTS	13
4.1	Noise Survey Details	13
4.2	Noise Sources	14
4.3	Results	14
5.0	NOISE IMPACT ASSESMENT	16
5.1	General	16
5.2	Noise break-out from dance/performance space	16
5.3	Noise break-in to adjacent attached property from dance/performance space.....	19
5.4	Noise egress from the external seating area.....	19
5.5	Noise from patrons & taxis attending the venue.....	21
5.6	Noise from the kitchen extract	22
	APPENDIX I – NOISE SURVEY FULL RESULTS.....	25
	APPENDIX II – DEFINITION OF ACOUSTIC TERMS.....	41
	APPENDIX III – NOISE BREAKIN TO SNOOKER HALL FULL CALCULATION	42



1.0 SUMMARY

At the request of JSA Design, PDA has carried out a noise impact assessment in relation to the new Icons venue located to 511 Bury New Rd, Prestwich, Manchester M25 3AJ.

The proposal is to convert the ground and basement levels of the existing building into a cabaret bar and restaurant. There is also a first floor level to the existing building but it is understood the first floor does not form part of the proposed development and will incorporate its own separate entrance.

The noise impact considers the following:

- Noise break-out from dance/performance space
- Noise break-in to the adjacent attached property through the party wall
- Noise egress from the external seating area
- Noise from patrons & taxis attending the venue
- Noise from the kitchen extract

Overall a low impact has been evaluated as a result of noise egress from the development.

Note regarding the assessment of the kitchen extract

We have based the noise impact assessment for the kitchen extract on a reference kitchen extract system as details regarding the extract system that will be installed are not available presently. Additionally we have assumed that kitchen extract duct/flue will terminate in what would be considered the worst position in regards to a noise impact assessment as this position faces onto the nearest residential receivers. Based on the results of the assessment it is concluded that the kitchen extract will have a low impact on the surrounding environment on the assumption that the installed kitchen extract/intake fan and silencer combination do not exceed the total sound power level/noise emission levels as detailed in Table 11. This should be confirmed for before installation, or else a re-evaluation of the proposed system should be undertaken to ensure that the overall noise impact of the proposed kitchen extract system is still 'low'.

2.0 SITE DESCRIPTION

The new Icons venue will be located to 511 Bury New Rd, Prestwich, Manchester M25 3AJ. The development is a refurbishment project. It is understood that the existing building was previously being used as a pool and snooker hall.

The proposal is to convert the ground and basement levels into a cabaret bar and restaurant. There is also a first floor level to the existing building but it is understood the first floor does not form part of the proposed development and will incorporate its own separate entrance.

An overview of the proposed development is provided below.



Figure 1: Site Overview (Site boundary Highlighted Red, Indicative)

The proposed development is adjoined to an existing commercial property (Prestwich Liberal Club), which includes for a bar, snooker lounge and bowling green.

The nearest noise sensitive receivers to the proposed development have been identified as the nearest residential properties as indicated by Figure 1.

The proposed opening times for the development are as follows:

11:00-00:00 Sunday - Thursday
11:00-02:00 Friday – Saturday

The proposed room layouts for the development are provided below.

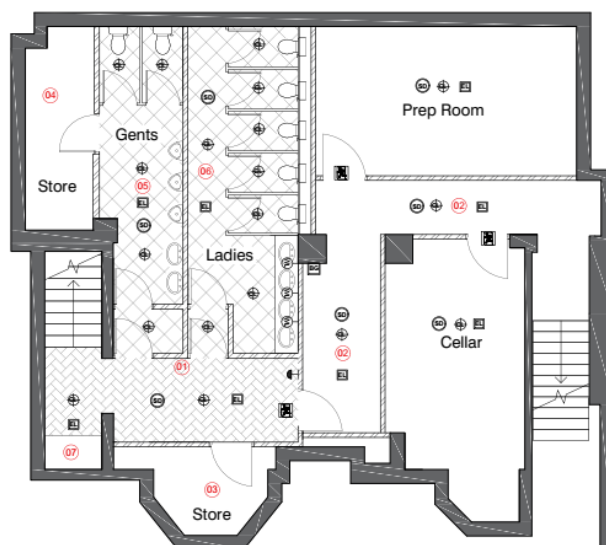


Figure 2. Proposed Basement Level



Figure 3. Proposed Ground Floor Level

3.0 ASSESSMENT CRITERIA

3.1 National Planning Policy Framework

National Planning Policy is guided by the National Planning Policy Framework (NPPF) updated in June 2019 and July 2021. With regard to Noise the Framework states the following;

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.*

Planning policies and decisions should also 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:

- *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;*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

The terms 'significant adverse impact' and 'adverse impact' are defined in the explanatory notes of the 'Noise Policy Statement for England (NPSE)' which states;

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The notes also offer an explanation of the term 'adverse impacts' as follows;

... refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.



Although no specific noise limits for LOAEL and SOAEL have been defined, in 2014 the UK Government published a planning practice guidance document for noise which indicates where these limits fall with relation to the perception of noise. A summary is reproduced in Section 4.2 below, and the full document is published at <https://www.gov.uk/guidance/noise--2>. It is considered that guidance from other acoustic standards may be employed to determine suitable levels within the overall principal of the National Planning Policy Framework.

The National Planning Policy Framework also states:

Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

3.2 Planning Practice Guidance – Noise

In March 2014 (updated July 2019) the UK Government published further guidance on the assessment of noise for planning purposes in the form of the on-line publication, Planning Practice Guidance on noise (<http://www.gov.uk/guidance/noise--2>). This document offers further guidance on the typical levels which constitute the NOEL, LOAEL and SOAEL. The relevant section is reproduced in the table below;

Table 1. Planning Practice noise level guidance

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

It is notable from the above planning guidance that development should not normally be permitted above Significant Observed Adverse Effect Levels, and should aim to minimise Other Adverse Effect Levels (below SOAEL but above LOAEL). However, it is clear that noise is permitted to approach and/or exceed the Lowest Observed Adverse Effect Level, providing that noise is mitigated and reduced to a minimum.

3.3 BS 8233:2014 Guidance on Sound Insulation and Noise reduction for Buildings

Dwelling houses, flats and rooms in residential use

British Standard 8233:2014, Guidance on Sound Insulation and noise reduction for buildings, gives guidance on internal noise levels within dwellings, flats and rooms in residential use when unoccupied. The following criteria are for Living and Dining Rooms for daytime use and Bedrooms for night time.

Table 2. BS 8233 Recommended Indoor Ambient Noise Levels

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 $L_{Aeq,16hour}$	–
Dining	Dining room/area	40 $L_{Aeq,16hour}$	–
Sleeping (daytime resting)	Bedrooms	35 $L_{Aeq,16hour}$	30 $L_{Aeq,8hour}$

It should however be stressed that the above criterion relates to steady noise, in this case from road traffic etc., excluding unusual noise events departing from the typical noise character of the area.

With regard to gardens and external areas, BS 8233:2014 (section 7.7.3.2) gives the following advice:

For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

3.4 BS 4142:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound'

The standard describes a method of determining the level of sound of a commercial nature, together with procedures for assessing the impact of such a sound outside nearby noise sensitive areas.

The standard may be thought of as a procedure for comparing the sound from commercial sources with background sound levels in the absence of the commercial sound and determining the likely impact of the sound on noise sensitive residences.

In accordance with BS 4142 the background sound level is the typical A-weighted sound pressure level at the assessment position that is exceeded for 90% of a given time interval (L_{A90}). The specific sound level is the equivalent continuous (L_{Aeq}) sound pressure level at the assessment position produced by the commercial source over a given time interval.

Certain acoustic features can increase the impact over that expected from a simple comparison between the specific sound level and the background level. Where such features are present, these are taken into account by adding corrections to the specific sound level.

This correction is applied based on whether the following features occur, or are expected to be present. The correction values can either be determined subjectively, or by various objective measurement procedures.

- The sound contains a distinguishable, discrete, continuous tone (whine, hiss, screech, hum, etc.).
0 – 6 dB penalty

- The sound contains distinct impulses (bangs, clicks, clatters, or thumps). 0 – 9 dB penalty.
- The sound is irregular enough to attract attention. 0 – 3 dB penalty.
- Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

From the addition of the above penalties where appropriate the rating level is established, this being the value that is compared with the background noise. Note that corrections for impulsivity and tonality may be added arithmetically where both are present and likely to affect perception within the same reference period. However, if any single feature is dominant to the exclusion of the others then it might be appropriate to apply a reduced or even zero correction for the minor characteristics.

According to BS 4142 an initial estimate of the impact is given based on the rating level value as follows:

- a rating level 10 dB(A) or more above the background is an indication of significant adverse impact, depending on the context.
- a rating level 5 dB(A) above the background is an indication of an adverse impact, depending on the context.
- where the rating level does not exceed the background level, this is an indication of the specific sound source having a low impact, depending on the context.

BS4142 indicates that the noise source should be evaluated over the appropriate time interval which is as follows:

- 1h during the day (07:00 – 23:00 hours)
- 15 min during the night (23:00 – 07:00 hours)

The above initial assessment may then be modified depending on the context, to take into account;

- The absolute level of the sound.
- The character and level of the residual sound compared to the character and level of the specific sound.
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:
 1. Façade insulation treatment
 2. Ventilation and / or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
 3. Acoustic screening

4.0 SURVEY DETAILS AND RESULTS

4.1 Noise Survey Details

An ambient noise survey was carried out between 11:17 hours, Friday 20th October 2023 and 12:05 hours, Monday 23rd October 2023. All measurements were conducted in 15-minute samples by Tom Dixon and Joe Meadows of PDA Ltd.

The location for the measurement positions utilised for the noise survey is illustrated in Figure 4 below.



Figure 4. Noise Survey, Monitoring Positions

Key

N1- Noise measurement adjacent to the north east boundary and facing Bury New Road. Measurements were conducted 20/10/23, 11:17 to 23/10/23, 12:03 at ground floor level. Measurements were conducted with an NTI XL2 (SN- A2A-04169-D2) -Sound Level Meter

N2- Noise measurement adjacent to the north west boundary. Measurements were conducted 20/10/23, 11:20 to 23/10/23, 12:05 at first floor level. Measurements were conducted with an NTI XL2 (SN- A2A-17853-E0) -Sound Level Meter.

In accordance with IEC 61672-1:2002 the sound level meters have a Class 1 frequency response and can operate as an integrating sound level meter with frequency analysis and statistical functions.

The sound level meters were set to measure 'A' weighted, broadband and 1/3 octave band sound pressure levels and various statistical parameters. The meter was field calibrated both before and after each measurement, in addition to this a valid calibration certificate is held for the meters and calibrators.

It was ensured that the sound level meter was fitted with a windshield at all times. Audio recordings were made throughout the survey. All noise measurements were primarily made utilising a 15-minute sampling period. Additionally the $L_{Aeq,1s}$ parameter were logged throughout the noise survey.

Weather

Weather conditions varied throughout the survey but typically were as follows.

Temperature	-	7-12°C
Wind	-	1.5-5.0m/s
Rain	-	Predominately dry with some intermittent showers

4.2 Noise Sources

The existing ambient noise climate was noted to be dominated by traffic to Bury New Road.

It was noted that a standalone generator was also located near the façade facing New Bury Road. The generator provided a power supply to works currently being undertaken within the development. However the generator was shut down circa 17:00 on the Friday as no construction works took place over the weekend. On a conservative basis therefore we have not included noise levels that occurred pre 17:00 on Friday, 20/10/23, as part of our assessment. Similarly the noise levels that occurred post 07:00 on the Monday, 23/10/23 have not been considered, as it is reasonably assumed that these noise levels may have been affected by additional noise from the generator.

4.3 Results

The full results of the noise survey are available in the Appendix. An overview of the results is provided below.

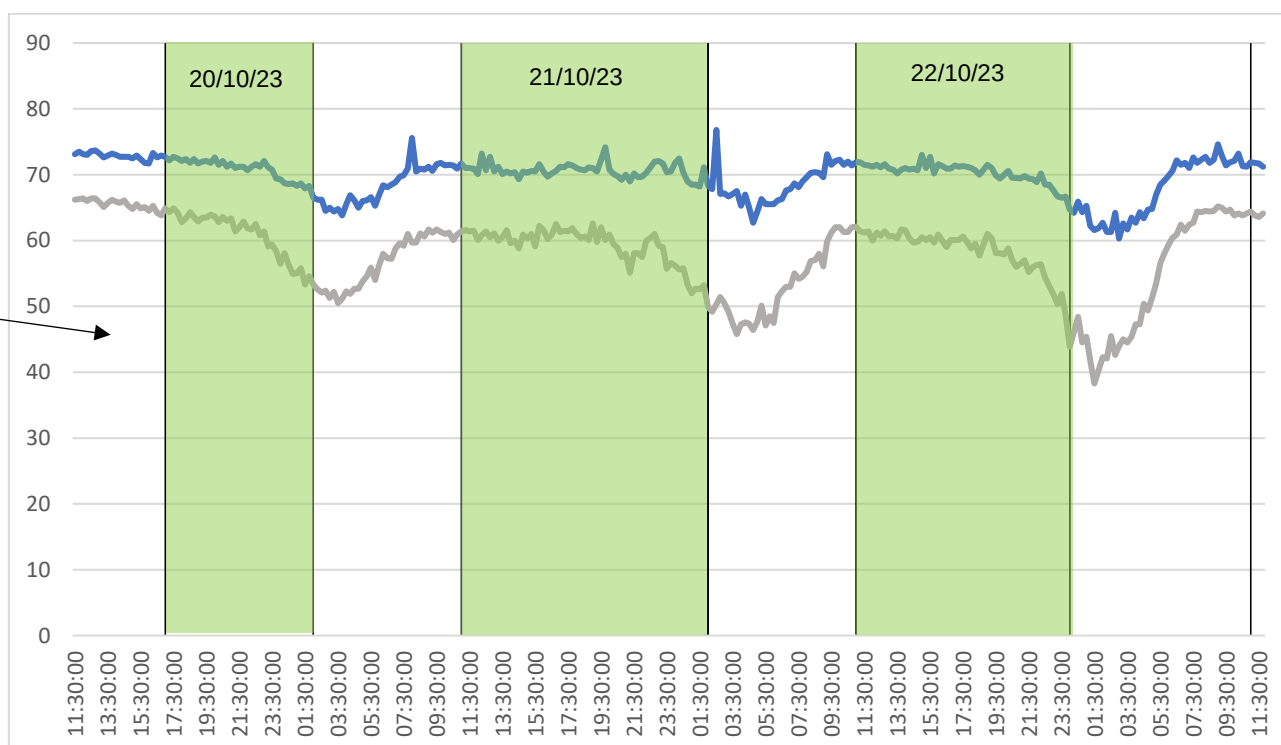


Figure 5. N1, Summary Noise Survey Results

Key

- -L_{Aeq,T} dB
- -L_{A90} dB
- Shaded area illustrates opening hours of the development

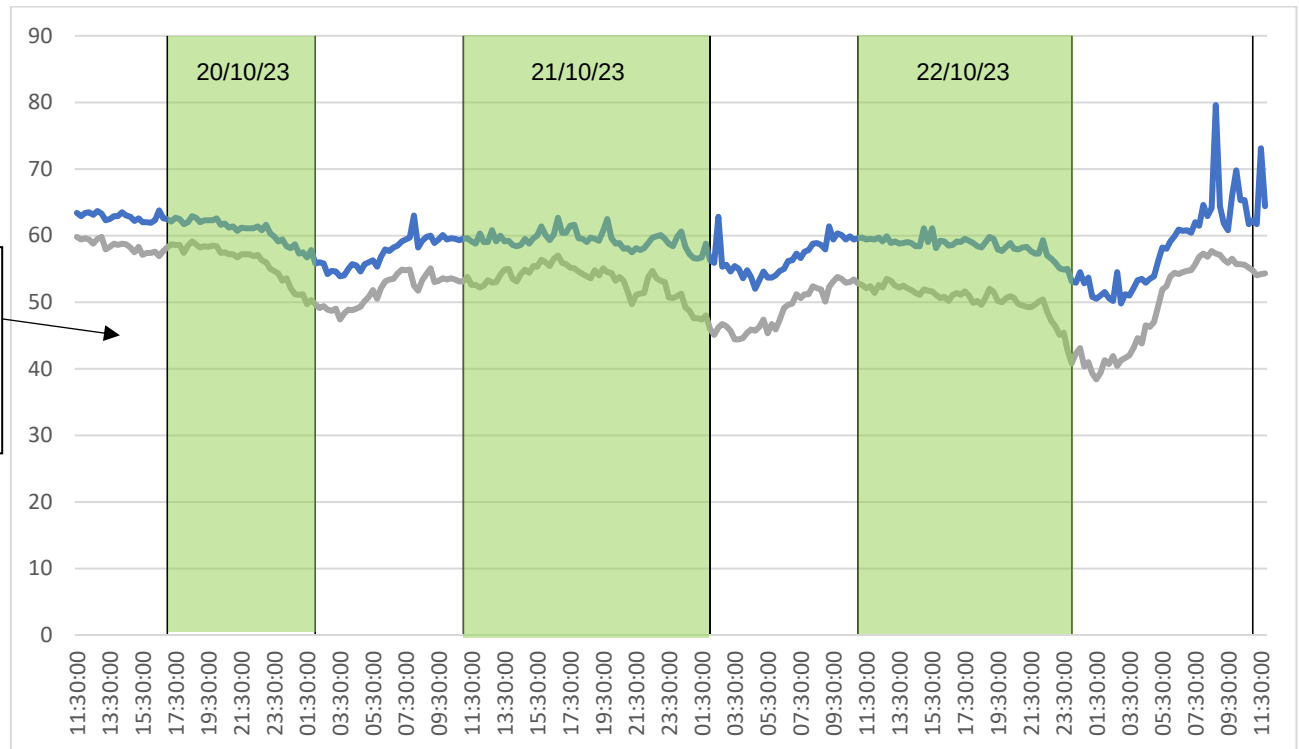


Figure 6. N2, Summary Noise Survey Results

Key

- -L_{Aeq,T} dB
- -L_{A90} dB
- Shaded area illustrates opening hours of the development

5.0 NOISE IMPACT ASSESMENT

5.1 General

The noise sources associated with the proposed development are identified as follows:

- Noise break-out from dance/performance space
- Noise break-in to the adjacent attached property through the party wall
- Noise egress from the external seating area
- Noise from patrons & taxis attending the venue
- Noise from the kitchen extract

Noise egress from the kitchen extract has been assessed in accordance with BS 4142 methodology. We would note that BS 4142 specifically excludes noise from 'music and other entertainment', 'people' and 'recreational activities'. Therefore this standard is not considered applicable to the assessment of music break out from the development, noise from the seating area or noise from patrons. Notwithstanding the above the overall impact of these noise sources has been conducted by predicting the absolute noise levels at the nearest residential receivers and comparing the results with the existing ambient and background noise levels and BS 8233 and WHO 1999 criteria to ascertain the overall impact for the development.

5.2 Noise break-out from dance/performance space

Regarding the construction of the dance/performance space, while attending site on 20/10/23 the external walls to this area were noted be of brick construction (most likely double brick) and further the room is lined on timber studs supporting a plasterboard layer with mineral wall in the cavity. A very high noise insulation performance is therefore expected from the external walls and noise breakout through the external walls has not been considered further. As the dance/performance space is located to the ground floor there is no concern regarding noise breaking out of the roof due to the full separating floor to the first floor level in addition to the roof construction. Further it is understood that during music events within the dance/performance space, the glazed bi folding doors that separate the dance/performance space with the restaurant will be kept closed. There are no external windows to the dance/performance space to consider. Therefore the only potential significant noise break out path from the dance/performance space, is through the fire escape door as illustrated below. *(It is assumed that no natural vents or louvers will be included within the building envelope to the dance/performance space).*



Figure 7. Potential Noise Break-out path from Dance/Performance Space

It is understood that an additional door to the escape lobby will be included when built but is not shown on the drawing above (see Figure 7, for the location of the additional escape lobby door).

To calculate noise break out via the potential noise escape path as illustrated in Figure 7 we have utilised our own in house noise library. The following reference noise spectrum was measured in a live music venue with a full band playing.

Table 3. Reference spectrum during live band performance

Octave Band L_{eq} 's dB							
63	125	250	500	1k	2k	4 kHz	dBA
94	107	104	98	92	92	89	101

Based on manufacturing test data, typical sound reduction indexes are provided below for a standard timber door with no seals

Table 4. Typical Standard Timber Door, Sound Reduction Index's (R's)

Octave Band R's dB							
63	125	250	500	1k	2k	4 kHz	R_w
19	16	21	21	21	24	26	21

Based on the above we have calculated the sound power level (L_w) for noise that breaks out of the dance /performance space by applying corrections to the reference noise spectrum (Table 3), to account for the size of both escape doors, the room volume of the escape lobby, the reverberation time of the escape lobby (conservatively estimated as 1s in each octave band), and corrected for the conversion of the reverberant sound field into a direct sound field. The evaluated L_w 's for noise that breaks out of the fire escape door are presented below.

Table 5. Noise Break-out through fire door, L_w 's

Octave Band L_w 's dB							L_{WA}
63	125	250	500	1k	2k	4 k	
55	73	61	54	48	43	36	60

The L_w 's for noise breakout from the fire door site as detailed in Table 5 has been used to inform a Sound Plan (SP) computer model which predicts the external noise levels at the nearest residential receivers. This software has been set up to model the sources by taking into account for all reflections and shielding around the site. Please note that the calculations follow the methodology detailed within ISO 9613-2 Acoustics -- Attenuation of sound during propagation outdoors – Part 2: General method of calculation. An overview of the SP model is provided below.

An overview of the model is depicted below.

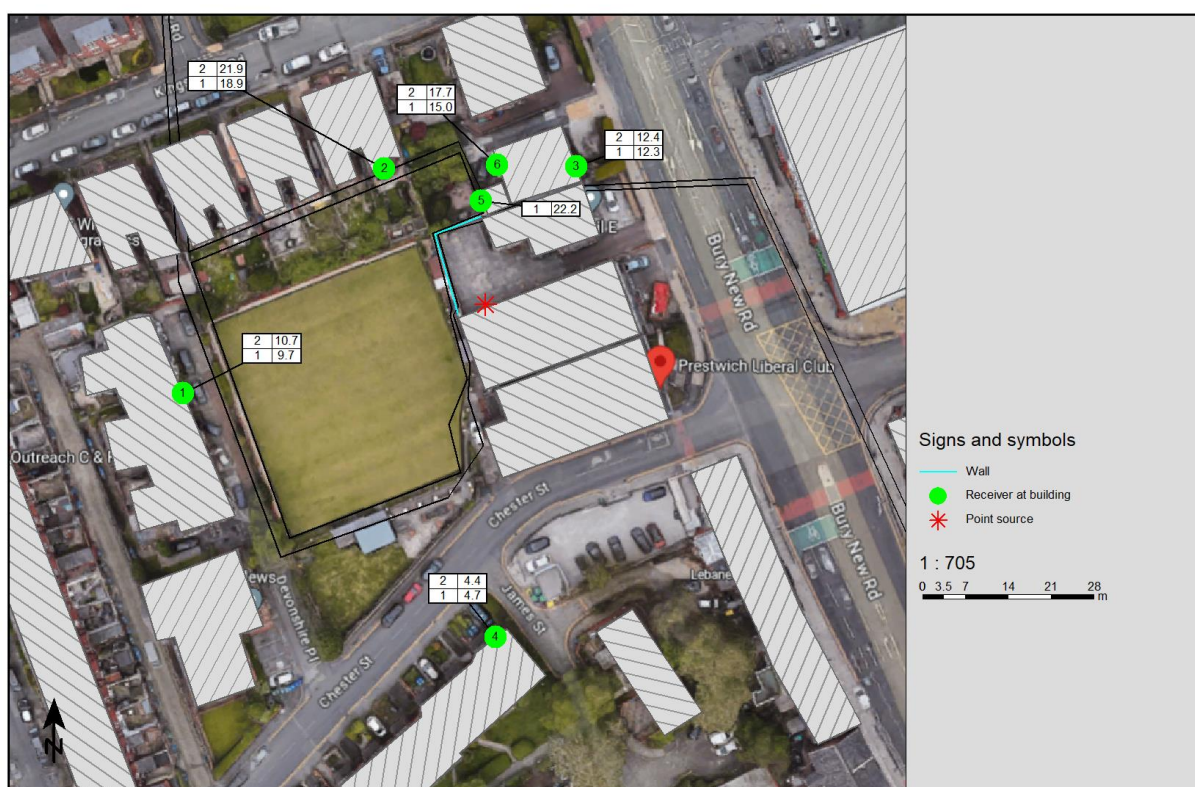


Figure 8. SP Model Overview, Noise Break-out path from Dance/Performance Space

With reference to Figure 8, noise egress through the fire door from the dance/performance space has been calculated as 22 dBA at the worst affected residential receiver.

We would consider the noise survey results at noise monitoring position N2 (Figure 4) to be representative of the background and ambient noise levels at nearest residential receivers to the fire door. With reference to the noise survey results at this position, it can be noted that typically the ambient noise level during the opening hours of the proposed development is circa L_{AeqT} 56 - 60 dBA and the background noise level is circa L_{A90} 49 – 59 dBA. The lowest measured background during the opening proposed opening hours of the development was L_{A90} 43 dBA.

Therefore based on the above it can be noted that the predicted noise level from music break out to the dance/performance space is 21 dB below the lowest measured background noise level at the nearest receiver and is therefore expected to be predominantly in-audible at the nearest residential property.

It can be noted that all predicted noise levels from noise levels from noise break out to the dance/performance space are below the recommended BS 8233 external noise level criteria for amenity spaces (50 & 55 dBA).

A low impact is therefore predicted for noise breakout from the dance/performance space.

5.3 Noise break-in to adjacent attached property from dance/performance space

PDA addended site on 20/10/23 to conduct sound insulation tests across the separating wall between the dance/performance space and the adjacent attached commercial property. It was noted during the tests that the bar and snooker lounge of the adjoining property were on the opposing side of the party wall to the dance/performance space.

The testing methods for airborne were in accordance with the suggested methods presented in BS EN ISO 140-parts 4: 1998 "Field Measurements of Airborne Sound Insulation between Rooms". The results of the tests were analysed in accordance with BS EN ISO 717-parts 1, amended 2006. Overall the separating wall was measured as $D_{n,w}$ 58 dB.

To calculate the equivalent noise level within the snooker lounge during a live music event we have utilised our own in house noise library. Based on measurements conducted within a live music venue with a full band playing (overall noise level of 101 dBA), we have calculated an equivalent noise level of 48 dBA within the snooker lounge. The full calculation is available in the Appendix.

We would consider this to be an acceptable level within the snooker lounge/bar area of the adjoining property. At 48 dBA, noise through the party wall would be expected to be masked either by the playing of moderate background music or by the ambient atmosphere caused by patrons talking. Further to the above we note that due to the relatively high noise insulation performance of the wall, some of the measured D_n 's were limited by background within the receiver room during the test. Therefore it is likely that the actual sound insulation performance of the overall partition is greater than what was measured. We would also consider that the reference spectrum we have used for the calculation is likely to be representative of the greatest ambient noise levels within the dance/performance area and therefore lower noise levels would be expected within the snooker lounge/bar area for other types of acts within the dance/performance area.

Based on the above the existing separating wall construction is considered suitable for purpose and no further modifications to the separating wall are recommended.

5.4 Noise egress from the external seating area

It is understood that the external seating area will accommodate 3 sets of 4no seat tables and 4 sets of 2no seat tables. Therefore it is anticipated that a maximum number of 20 patrons will use the external seating area at any given time. It is understood that music will not be played externally.

To calculate noise egress from the external seating area we have utilised the following typical noise levels for speech measured at a distance of 1m from the speaker. The data has been taken from "Guidance on computer prediction models to calculate the Speech Transmission Index for BB93 Version 1.0".

Table 6. Typical Noise Levels From Talking, L_p's

	Sound Pressure Levels @1m From Speaker (dB), Octave Bands							dBA
	125	250	500	1k	2k	4k	8k	
Normal Voice Effort	51	57	60	54	49	44	39	60

The equivalent L_w's for noise emanating from the external seating area has been calculated by applying corrections to the L_p's as presented in Table 6 to account for a measurement distance of 1m and then multiplied by a factor of 20 to account for the number of seats provided in total. The equivalent L_w's for noise emanating from each table to the external seating area are presented below

Table 7. L_w's from seating area, L_w's

Octave Band L _w 's dB							dBA
125	250	500	1000	2000	4000	8000	
72	78	81	75	70	65	60	81

The L_w's for noise egress from the external seating space have been used to inform a Sound Plan (SP) computer model which predicts the external noise levels at the nearest residential receivers.

An overview of the model is depicted below.

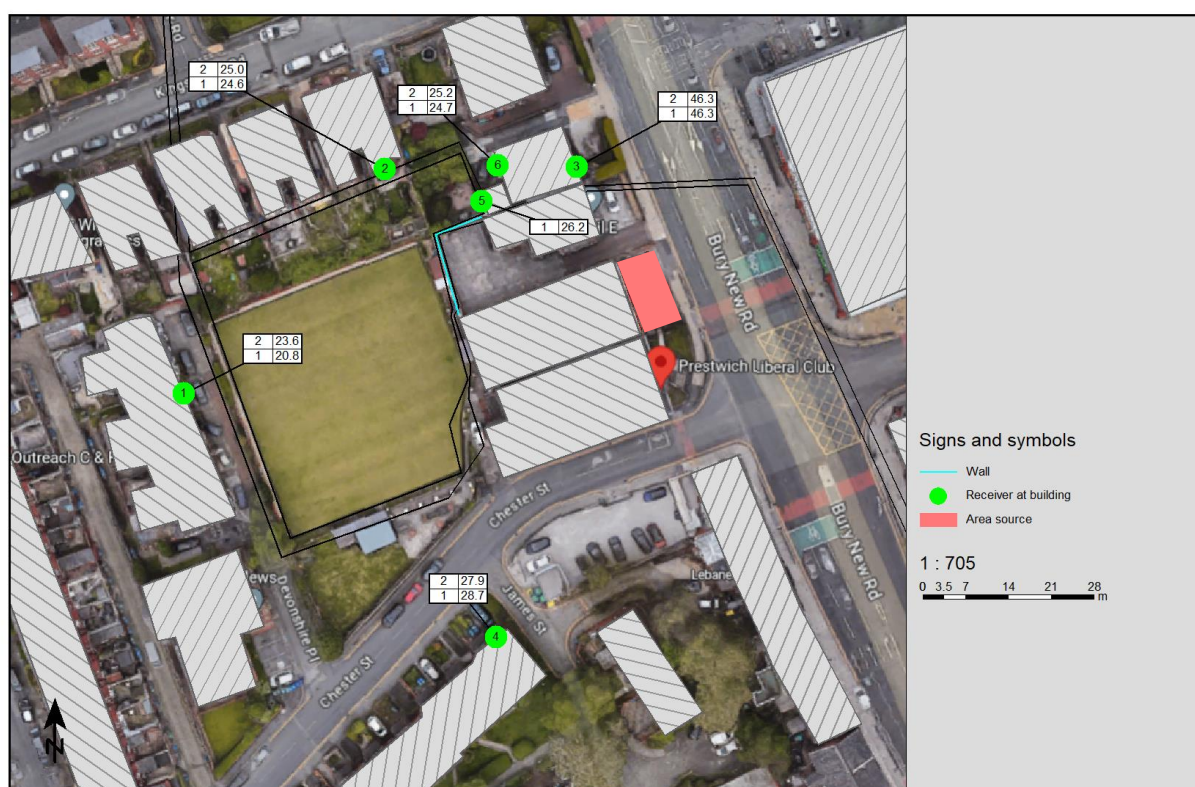


Figure 9. SP Model Overview, Noise Egress From External Seating Area

Noise egress to the worst affected residential receiver in regards to noise emanating from the external seating area has been calculated as 46 dBA. It can be noted that this residential receiver is located to the front of the proposed development and we would consider the noise measurements conducted at position N1 (Figure 4) to be representative of the ambient and background noise levels at this position.

It is understood that the external seating area will open from 11:00 - 20:00. From the noise survey results at position N1 (Figure 4) the following ambient and background noise levels have been derived at the nearest residential receiver during the opening times of the external seating area.

Table 8. L_w's from seating area, L_w's

	20/10/23	21/10/23	22/10/23
L _{Aeq,T} (11:00-20:00)	72*	71	71
**Typical L _{A90} (11:00-20:00)	64	61	61

Notes

*Evaluated L_{Aeq,T} 1700-20:00 as prior to that the external generator was operational (see Section 4.2)

**Typical evaluated as the modal L_{A90} throughout the 11:00-20:00 period

Based on the above it can be noted that noise egress from the proposed seating area is predicted to be circa 25-26 dB below the ambient noise level and circa 15-18 dB below the background noise level. Therefore noise from the proposed seating area is predicted to be predominately in-audible at the nearest residential receiver.

Further to the above it should be considered that the calculation of noise egress from the external seating area is based on the assumption that all seats to the external seating area are occupied and that all patrons talk simultaneously (considered a worst-case scenario in regards to noise egress from the external seating area). It can be noted that even if all seats to the external areas are occupied it is considered unlikely that all patrons will frequently speak simultaneously. For the majority of the time noise egress from the seating areas would be expected to be below the levels depicted by Figure 9 at the nearest residential receivers.

It can be noted that all predicted noise levels for noise egress from the seating area below the recommended BS 8233 external noise level criteria for amenity spaces (50 & 55 dBA).

A low impact is therefore predicted for noise egress from the external seating area.

5.5 Noise from patrons & taxis attending the venue

In regards to noise from taxis and patrons arriving and leaving the development, we would note that the external ambient noise climate is dominated by traffic noise to Bury New Road. Bury New Road is a busy A-road, for which circa 18525no cars and taxis (22572no including all vehicles HGV's etc) would be expected to pass on the road according to the latest traffic flow data (2022) from the Department for Transport. Link to the traffic source data is provided below.

<https://roadtraffic.dft.gov.uk/manualcountpoints/46572>

Review of the noise survey and the audio recordings would also indicate that the ambient and background noise climate is dominated by traffic at all times. We would therefore conclude that any taxis driving to and from the proposed development would produce an insignificant amount of noise relative to existing general traffic levels and in any case would be indistinguishable from general traffic noise levels to the existing road.

In regards to noise from patrons we would note from the noise survey results at noise monitoring position N1 (Figure 4) that the ambient noise climate to the front of the development (where the entrance to the development is) is typically L_{Aeq,T} 70 dBA during the opening times of the development and the background noise level is typically circa L_{A90} 60 dB. We would therefore expect noise from individuals talking as they walk to and from the venue to be predominantly masked by traffic noise. Further it can be noted that there are no residential amenity spaces located to the front of Bury New Road (where the entrance to the development is) to consider.

Therefore no significant noise is predicted to emanate either from taxis or patrons as they arrive or leave the venue. A low impact is therefore predicted for noise egress from taxis and patrons.

5.6 Noise from the kitchen extract

Details regarding the kitchen extract are unavailable for assessment presently. However based on similar sized venues we have worked on we would expect a system similar to the following.

Reference Kitchen Extract System

- MUB 042 500D4 Multibox
- LDC-B 400-1200 Silencer baffle (to external ductwork termination side)
- External grille area 0.4m²

The following L_w's for the fan unit and insertion losses for the silencer are provided by the manufacturers as follows.

Table 9. Reference MUB 042 500D4 Multibox, L_w's

L _{WA} , Octave Band Levels, dB								dBA
63	125	250	500	1k	2k	4k	8k	
49	68	72	78	82	79	71	65	85

Table 10. LDC-B 400-1200 Silencer, Insertion Losses

Insertion Losses, Octave Band Levels, dB							
63	125	250	500	1k	2k	4k	8k
6	10	18	23	31	36	25	19

Equivalent L_w's for the noise breaking out of the kitchen extract ductwork has been calculated by applying corrections to the L_w's for the fan unit to account for the insertion losses of the fan. On a conservative basis other attenuation factors such as the end loss reflection at the point of the duct termination and any attenuation due to bends or the length of the duct run have not been included in our calculations. The resultant L_w's are presented in Table 11 below.

Table 11. Noise Break-out from Kitchen Extract, L_w's

L _w , Octave Band Levels, dB								dBA
63	125	250	500	1k	2k	4k	8k	
43	58	54	55	51	43	46	46	56

We have initially assumed that the kitchen extract will terminate at the first floor level to north east side of the development. This would be considered a worst case scenario in regards to noise egress from the kitchen extract as this location is facing the nearest residential properties to the rear of the development.

The L_w's for noise egress from the kitchen extract have been used to inform a Sound Plan (SP) computer model which predicts the external noise levels at the nearest residential receivers.

An overview of the model is depicted below.

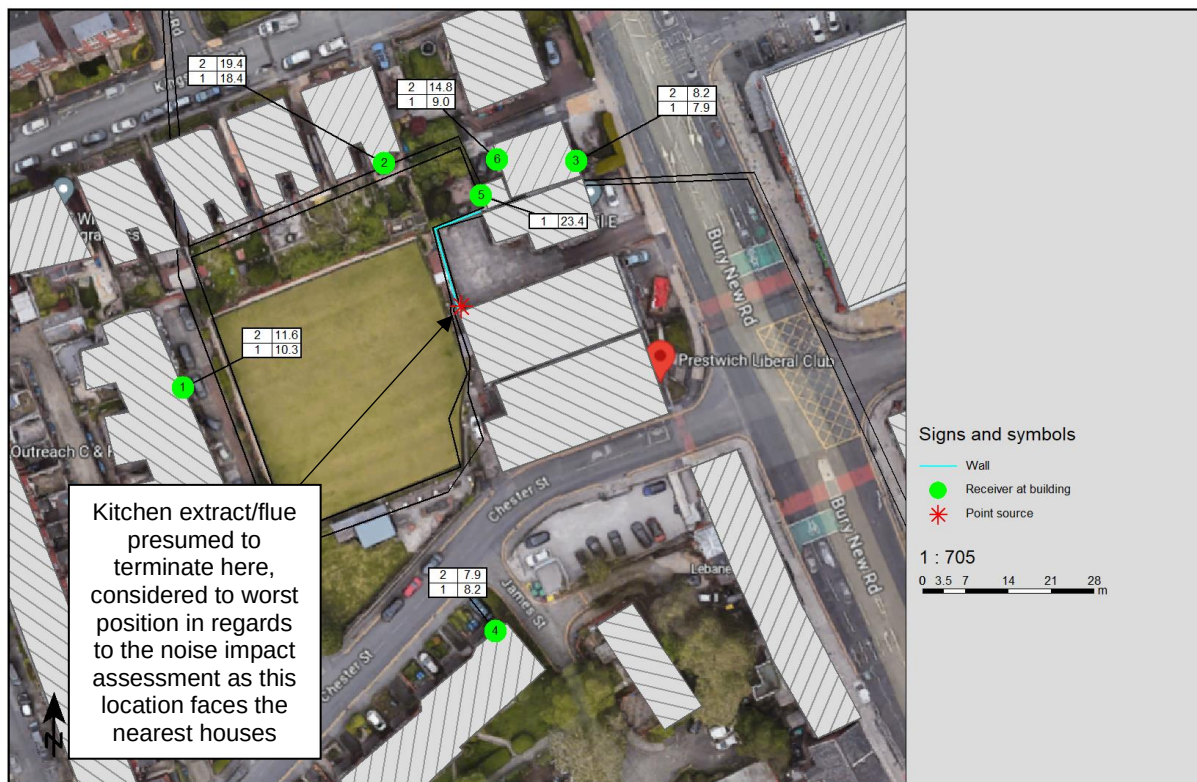


Figure 10. SP Model Overview, Noise Egress From Kitchen Extract

With reference to Figure 10, noise egress from the kitchen extract has been calculated as 23 dBA at the worst affected residential receiver.

It is understood that restaurant will close at 00:00 and it is assumed that the kitchen extract will not operate beyond this point.

We would consider the noise survey results at noise monitoring position N2 (Figure 4) to be representative of the background and ambient noise levels at nearest residential receivers to the kitchen extract. Based on the noise survey results at N2 (Figure 4) the typical background noise level has been taken as 45 dBA, which is the model L_{A90} noise level measured between 23:00-00:00 period on the 22/10/23 (it may be noted that the modal L_{A90} noise level measured between 23:00-00:00 on 20/10/23 was L_{A90} 55 dBA and 21/10/23 was L_{A90} 53 dB. The assessment may therefore be considered conservative).

The results of the BS 4142 assessment for the kitchen extract are presented below.

Table 12. Kitchen Extract, BS 4142 Assessment

Results	dBA	Comments
Background noise level L_{A90}	45	Evaluated from the results of noise survey (see above)
Specific Noise L_{Aeq}	19	Evaluated based on typical L_w 's for the extraction unit for this size of development and acoustic modelling to ISO 9613-2 within SP.
Feature Correction	0	The specific level has been evaluated as more 10 dB below the background noise level and is therefore predicted to be inaudible at the NSR. Therefore acoustic feature corrections in accordance with BS 4142 are not considered appropriate.
Rating Noise Level	19	Rating Level + Feature Correction
Rating Level Over Background	-26	Rating Level 26 dB below background

It is noted that BS4142 indicates the following:

- 10 dB(A) or more above the background is an indication of significant adverse impact, depending on the context.
- 5 dB(A) above the background is an indication of an adverse impact, depending on the context.
- Where the rating level does not exceed the background level, this is an indication of the specific sound source having a low impact, depending on the context.

The noise impact assessment has indicated that the Rating Level is 26 dB below the background level. Therefore in accordance with BS 4142 no adverse impact is indicated. It should be noted however that in accordance with BS4142:2014 this initial impact will need to be modified to account for the context of the site. In regards to context it should be noted that the absolute noise level from the kitchen is 'low' (19 dBA which is comfortably below BS 8233 and WHO 1999 guidelines, which recommended an external noise limit of 50-55dBA for external amenity spaces). It may also be noted that noise from the kitchen extract is also predicted to be below the BS 8233 and WHO 1999 recommended internal noise level criteria for bedrooms during the night time (30 dBA). Further as the predicted noise from the kitchen extract is below more than 10 dB below the existing background noise climate, noise from the kitchen station is predicted to be inaudible at the nearest NSR's. Therefore allowing for the context of the assessment in accordance with BS 4142, it is concluded that no adjustment is required to the result of the initial assessment and that a 'low' impact is indicated for the kitchen extract fan.

Note regarding the assessment of the kitchen extract

We have based the noise impact assessment for the kitchen extract on a reference kitchen extract system as details regarding the extract system that will be installed are not available presently. Additionally we have assumed that kitchen extract duct/flue will terminate in what would be considered the worst position in regards to a noise impact assessment as this position faces onto the nearest residential receivers. Based on the results of the assessment it is concluded that the kitchen extract will have a low impact on the surrounding environment on the assumption that the installed kitchen extract/intake fan and silencer combination do not exceed the total sound power level/noise emission levels as detailed in Table 11. This should be confirmed for before installation, or else a re-evaluation of the proposed system should be undertaken to ensure that the overall noise impact of the proposed kitchen extract system is still 'low'.

APPENDIX I – NOISE SURVEY FULL RESULTS

All noise levels are of a 15-minute sampling period. Survey data is available in equivalent 1/3 octave bands upon request.

N1, Bury New Road

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
20/10/2023	11:17:46	73.5	66.2	91.5
20/10/2023	11:30:00	73.1	66.2	83.2
20/10/2023	11:45:00	73.5	66.3	91.4
20/10/2023	12:00:00	73.1	66.4	82.4
20/10/2023	12:15:00	73.0	66.0	83.1
20/10/2023	12:30:00	73.6	66.4	86.7
20/10/2023	12:45:00	73.7	66.4	91.9
20/10/2023	13:00:00	73.2	65.8	83.8
20/10/2023	13:15:00	72.6	65.1	83.6
20/10/2023	13:30:00	72.9	65.7	86.7
20/10/2023	13:45:00	73.2	66.2	93.8
20/10/2023	14:00:00	73.0	65.9	85.9
20/10/2023	14:15:00	72.7	65.7	81.9
20/10/2023	14:30:00	72.7	66.1	83.2
20/10/2023	14:45:00	72.7	65.3	85.7
20/10/2023	15:00:00	72.5	64.8	84.7
20/10/2023	15:15:00	72.9	65.5	87.2
20/10/2023	15:30:00	72.4	64.9	83.3
20/10/2023	15:45:00	71.8	65.1	82.8
20/10/2023	16:00:00	71.7	64.5	82.5
20/10/2023	16:15:00	73.3	65.3	90.1
20/10/2023	16:30:00	72.6	64.2	86.8
20/10/2023	16:45:00	72.9	63.8	84.5
20/10/2023	17:00:00	72.7	64.9	88.8
20/10/2023	17:15:00	72.2	64.3	86.9
20/10/2023	17:30:00	72.7	64.9	81.1
20/10/2023	17:45:00	72.5	64.2	85.0
20/10/2023	18:00:00	72.1	62.8	82.8
20/10/2023	18:15:00	72.4	63.4	84.0
20/10/2023	18:30:00	71.8	64.3	84.8
20/10/2023	18:45:00	72.4	63.6	90.4
20/10/2023	19:00:00	71.7	62.9	83.6
20/10/2023	19:15:00	72.0	63.5	87.2
20/10/2023	19:30:00	72.1	63.5	88.0
20/10/2023	19:45:00	71.8	63.9	83.9

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
20/10/2023	20:00:00	72.6	63.7	90.3
20/10/2023	20:15:00	71.5	62.8	83.3
20/10/2023	20:30:00	72.1	63.6	83.6
20/10/2023	20:45:00	71.2	63.0	84.1
20/10/2023	21:00:00	71.7	63.4	84.4
20/10/2023	21:15:00	71.0	61.4	83.3
20/10/2023	21:30:00	71.2	62.0	81.9
20/10/2023	21:45:00	71.2	62.9	83.8
20/10/2023	22:00:00	70.7	61.9	81.8
20/10/2023	22:15:00	71.2	61.7	85.8
20/10/2023	22:30:00	71.6	62.5	84.0
20/10/2023	22:45:00	71.2	60.8	82.3
20/10/2023	23:00:00	72.1	61.4	91.5
20/10/2023	23:15:00	71.1	59.1	83.9
20/10/2023	23:30:00	70.8	59.4	84.3
20/10/2023	23:45:00	69.4	58.4	83.2
21/10/2023	00:00:00	69.3	56.5	82.7
21/10/2023	00:15:00	68.7	58.1	83.7
21/10/2023	00:30:00	68.6	56.3	82.7
21/10/2023	00:45:00	68.7	54.9	85.6
21/10/2023	01:00:00	68.3	55.0	84.6
21/10/2023	01:15:00	68.7	55.8	85.9
21/10/2023	01:30:00	67.9	53.3	85.1
21/10/2023	01:45:00	68.3	54.6	82.8
21/10/2023	02:00:00	66.5	53.3	79.4
21/10/2023	02:15:00	66.2	52.6	82.8
21/10/2023	02:30:00	66.2	52.1	82.9
21/10/2023	02:45:00	64.5	52.4	82.3
21/10/2023	03:00:00	65.0	51.3	83.3
21/10/2023	03:15:00	64.4	52.2	85.0
21/10/2023	03:30:00	64.8	50.5	82.2
21/10/2023	03:45:00	63.8	51.2	80.9
21/10/2023	04:00:00	65.5	52.3	83.3
21/10/2023	04:15:00	66.9	51.9	84.7
21/10/2023	04:30:00	66.1	52.7	84.5
21/10/2023	04:45:00	65.0	52.7	80.7
21/10/2023	05:00:00	66.0	53.8	83.7
21/10/2023	05:15:00	66.1	54.6	81.0
21/10/2023	05:30:00	66.6	55.9	83.0
21/10/2023	05:45:00	65.3	54.0	81.0

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
21/10/2023	06:00:00	66.9	56.2	83.4
21/10/2023	06:15:00	68.4	58.0	85.8
21/10/2023	06:30:00	68.1	57.3	82.6
21/10/2023	06:45:00	68.5	57.2	84.3
21/10/2023	07:00:00	68.9	58.8	82.2
21/10/2023	07:15:00	69.7	59.6	84.5
21/10/2023	07:30:00	69.9	59.2	83.4
21/10/2023	07:45:00	70.9	61.0	91.1
21/10/2023	08:00:00	75.6	59.7	102.1
21/10/2023	08:15:00	70.5	59.7	87.0
21/10/2023	08:30:00	70.9	61.1	81.8
21/10/2023	08:45:00	70.8	60.6	89.5
21/10/2023	09:00:00	71.2	61.7	90.1
21/10/2023	09:15:00	70.6	61.2	81.2
21/10/2023	09:30:00	71.6	61.7	84.3
21/10/2023	09:45:00	71.8	61.3	92.6
21/10/2023	10:00:00	71.4	61.0	83.9
21/10/2023	10:15:00	71.5	61.2	84.0
21/10/2023	10:30:00	71.4	60.1	91.3
21/10/2023	10:45:00	70.9	60.9	82.2
21/10/2023	11:00:00	71.7	61.4	85.4
21/10/2023	11:15:00	71.0	61.6	82.8
21/10/2023	11:30:00	71.0	61.4	86.9
21/10/2023	11:45:00	70.9	61.5	91.7
21/10/2023	12:00:00	70.1	60.1	82.2
21/10/2023	12:15:00	73.2	60.8	96.8
21/10/2023	12:30:00	70.7	61.4	80.6
21/10/2023	12:45:00	72.7	60.5	94.6
21/10/2023	13:00:00	70.5	61.1	85.1
21/10/2023	13:15:00	71.2	60.0	83.6
21/10/2023	13:30:00	70.1	60.5	83.6
21/10/2023	13:45:00	70.5	61.6	84.6
21/10/2023	14:00:00	70.2	59.6	82.4
21/10/2023	14:15:00	70.4	60.0	90.2
21/10/2023	14:30:00	69.3	58.8	81.9
21/10/2023	14:45:00	70.5	60.9	84.7
21/10/2023	15:00:00	70.3	60.3	83.1
21/10/2023	15:15:00	70.6	61.0	82.3
21/10/2023	15:30:00	70.5	59.1	93.1
21/10/2023	15:45:00	71.6	62.2	90.1

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
21/10/2023	16:00:00	70.5	61.6	80.4
21/10/2023	16:15:00	69.7	60.2	80.2
21/10/2023	16:30:00	70.2	60.9	83.2
21/10/2023	16:45:00	70.6	62.5	82.1
21/10/2023	17:00:00	71.2	61.3	91.7
21/10/2023	17:15:00	71.1	61.5	81.8
21/10/2023	17:30:00	71.6	61.4	87.1
21/10/2023	17:45:00	71.4	61.9	87.3
21/10/2023	18:00:00	71.0	61.0	82.9
21/10/2023	18:15:00	70.8	60.4	87.3
21/10/2023	18:30:00	70.7	60.6	85.1
21/10/2023	18:45:00	71.1	60.1	87.3
21/10/2023	19:00:00	71.0	62.6	82.6
21/10/2023	19:15:00	70.5	59.8	82.4
21/10/2023	19:30:00	72.3	62.0	92.0
21/10/2023	19:45:00	74.2	60.1	97.3
21/10/2023	20:00:00	70.8	60.9	82.6
21/10/2023	20:15:00	70.1	59.4	83.7
21/10/2023	20:30:00	69.8	58.9	85.3
21/10/2023	20:45:00	69.2	57.5	81.8
21/10/2023	21:00:00	70.0	58.0	87.2
21/10/2023	21:15:00	69.0	55.1	86.9
21/10/2023	21:30:00	70.2	58.1	86.1
21/10/2023	21:45:00	69.6	58.1	82.3
21/10/2023	22:00:00	69.7	57.5	81.2
21/10/2023	22:15:00	70.3	60.0	86.2
21/10/2023	22:30:00	71.1	60.4	83.8
21/10/2023	22:45:00	72.0	61.0	86.3
21/10/2023	23:00:00	72.1	59.2	85.8
21/10/2023	23:15:00	71.7	59.0	84.6
21/10/2023	23:30:00	70.4	55.7	84.2
21/10/2023	23:45:00	70.5	56.6	84.8
22/10/2023	00:00:00	71.8	56.2	92.3
22/10/2023	00:15:00	72.5	55.6	95.0
22/10/2023	00:30:00	70.3	55.8	85.8
22/10/2023	00:45:00	69.0	53.3	82.3
22/10/2023	01:00:00	68.5	52.0	82.6
22/10/2023	01:15:00	68.5	52.7	83.0
22/10/2023	01:30:00	68.2	52.6	82.5
22/10/2023	01:45:00	71.1	53.2	98.2

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	02:00:00	68.3	49.9	86.0
22/10/2023	02:15:00	67.8	49.2	83.9
22/10/2023	02:30:00	76.8	50.3	103.7
22/10/2023	02:45:00	67.1	51.4	85.8
22/10/2023	03:00:00	67.2	50.5	80.8
22/10/2023	03:15:00	66.7	49.2	85.3
22/10/2023	03:30:00	67.1	47.4	82.4
22/10/2023	03:45:00	67.5	45.8	87.5
22/10/2023	04:00:00	65.3	47.3	80.7
22/10/2023	04:15:00	67.0	47.6	81.1
22/10/2023	04:30:00	65.1	47.4	80.4
22/10/2023	04:45:00	62.7	46.4	80.1
22/10/2023	05:00:00	64.4	47.7	79.6
22/10/2023	05:15:00	66.3	50.1	83.4
22/10/2023	05:30:00	65.5	47.1	81.7
22/10/2023	05:45:00	65.5	48.5	81.1
22/10/2023	06:00:00	65.5	47.5	84.6
22/10/2023	06:15:00	66.1	51.4	82.4
22/10/2023	06:30:00	66.3	52.3	81.6
22/10/2023	06:45:00	67.6	53.0	82.5
22/10/2023	07:00:00	67.8	53.0	81.7
22/10/2023	07:15:00	68.7	55.0	84.7
22/10/2023	07:30:00	68.1	54.2	82.7
22/10/2023	07:45:00	69.0	54.5	82.4
22/10/2023	08:00:00	69.6	55.2	84.5
22/10/2023	08:15:00	70.3	56.9	85.6
22/10/2023	08:30:00	70.4	57.0	85.4
22/10/2023	08:45:00	70.3	58.0	83.9
22/10/2023	09:00:00	69.6	56.1	82.9
22/10/2023	09:15:00	73.1	59.9	95.6
22/10/2023	09:30:00	71.5	61.2	83.4
22/10/2023	09:45:00	72.1	62.0	84.4
22/10/2023	10:00:00	72.3	62.0	84.4
22/10/2023	10:15:00	71.5	61.3	80.3
22/10/2023	10:30:00	72.0	61.3	82.5
22/10/2023	10:45:00	71.4	62.0	82.7
22/10/2023	11:00:00	71.9	62.1	83.2
22/10/2023	11:15:00	71.9	61.4	86.3
22/10/2023	11:30:00	71.5	61.2	82.5
22/10/2023	11:45:00	71.4	61.4	82.6

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	12:00:00	71.2	60.0	84.3
22/10/2023	12:15:00	71.5	61.2	86.5
22/10/2023	12:30:00	71.1	60.7	83.7
22/10/2023	12:45:00	71.6	61.4	90.7
22/10/2023	13:00:00	70.9	60.6	85.8
22/10/2023	13:15:00	70.8	60.7	81.6
22/10/2023	13:30:00	70.2	60.3	82.8
22/10/2023	13:45:00	70.8	61.7	83.8
22/10/2023	14:00:00	71.0	61.6	84.1
22/10/2023	14:15:00	70.8	60.3	82.5
22/10/2023	14:30:00	70.9	59.7	80.6
22/10/2023	14:45:00	70.7	59.8	81.1
22/10/2023	15:00:00	73.0	60.5	95.6
22/10/2023	15:15:00	71.0	60.1	84.3
22/10/2023	15:30:00	72.7	60.5	96.0
22/10/2023	15:45:00	70.2	59.7	82.9
22/10/2023	16:00:00	71.6	60.9	84.6
22/10/2023	16:15:00	71.3	60.0	84.7
22/10/2023	16:30:00	70.9	59.0	84.2
22/10/2023	16:45:00	70.9	60.1	84.8
22/10/2023	17:00:00	71.4	60.1	82.8
22/10/2023	17:15:00	71.2	60.1	81.7
22/10/2023	17:30:00	71.3	60.6	90.6
22/10/2023	17:45:00	71.2	59.8	80.4
22/10/2023	18:00:00	71.0	58.8	88.2
22/10/2023	18:15:00	70.7	59.5	83.5
22/10/2023	18:30:00	70.0	57.7	79.4
22/10/2023	18:45:00	70.8	59.5	86.3
22/10/2023	19:00:00	71.5	61.0	83.7
22/10/2023	19:15:00	71.0	60.3	88.8
22/10/2023	19:30:00	69.9	58.1	81.7
22/10/2023	19:45:00	69.4	58.1	82.0
22/10/2023	20:00:00	70.0	57.9	82.2
22/10/2023	20:15:00	70.6	58.8	90.6
22/10/2023	20:30:00	69.5	57.0	84.9
22/10/2023	20:45:00	69.5	56.0	86.2
22/10/2023	21:00:00	69.4	56.5	85.8
22/10/2023	21:15:00	69.8	57.0	82.7
22/10/2023	21:30:00	69.4	55.2	87.0
22/10/2023	21:45:00	69.3	56.0	83.9

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	22:00:00	68.9	56.3	83.5
22/10/2023	22:15:00	70.2	56.4	88.3
22/10/2023	22:30:00	68.5	54.4	79.8
22/10/2023	22:45:00	68.5	53.1	84.9
22/10/2023	23:00:00	67.6	51.8	81.7
22/10/2023	23:15:00	66.7	50.3	81.6
22/10/2023	23:30:00	66.5	51.9	84.0
22/10/2023	23:45:00	66.7	48.7	85.2
23/10/2023	00:00:00	64.7	43.9	83.4
23/10/2023	00:15:00	64.2	46.1	82.8
23/10/2023	00:30:00	65.9	48.4	80.8
23/10/2023	00:45:00	64.3	44.5	81.2
23/10/2023	01:00:00	65.3	45.4	83.7
23/10/2023	01:15:00	62.2	41.8	80.7
23/10/2023	01:30:00	61.6	38.3	80.8
23/10/2023	01:45:00	61.9	40.3	77.1
23/10/2023	02:00:00	62.7	42.3	78.6
23/10/2023	02:15:00	61.3	42.1	81.3
23/10/2023	02:30:00	61.3	45.5	79.9
23/10/2023	02:45:00	64.2	42.6	90.4
23/10/2023	03:00:00	60.3	44.0	77.7
23/10/2023	03:15:00	62.6	45.0	81.5
23/10/2023	03:30:00	61.7	44.5	80.1
23/10/2023	03:45:00	63.5	45.4	85.4
23/10/2023	04:00:00	62.7	47.3	86.5
23/10/2023	04:15:00	64.3	47.3	81.2
23/10/2023	04:30:00	63.4	50.4	82.0
23/10/2023	04:45:00	64.7	49.4	80.7
23/10/2023	05:00:00	64.8	51.3	83.6
23/10/2023	05:15:00	67.0	53.5	80.9
23/10/2023	05:30:00	68.5	56.6	83.1
23/10/2023	05:45:00	69.1	58.1	82.1
23/10/2023	06:00:00	69.8	59.3	85.0
23/10/2023	06:15:00	70.6	60.4	83.1
23/10/2023	06:30:00	72.2	60.9	89.3
23/10/2023	06:45:00	71.5	62.4	86.6
23/10/2023	07:00:00	71.8	61.5	90.4
23/10/2023	07:15:00	71.0	62.4	84.6
23/10/2023	07:30:00	72.6	62.7	92.5
23/10/2023	07:45:00	71.8	64.4	83.2

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
23/10/2023	08:00:00	72.3	64.3	84.8
23/10/2023	08:15:00	72.7	64.5	84.3
23/10/2023	08:30:00	71.8	64.4	81.9
23/10/2023	08:45:00	72.3	64.5	84.1
23/10/2023	09:00:00	74.6	65.2	86.6
23/10/2023	09:15:00	72.9	65.0	87.5
23/10/2023	09:30:00	71.4	64.4	86.5
23/10/2023	09:45:00	71.9	64.7	83.4
23/10/2023	10:00:00	72.1	63.8	86.7
23/10/2023	10:15:00	73.2	64.1	105.2
23/10/2023	10:30:00	71.3	63.8	88.3
23/10/2023	10:45:00	71.2	64.1	84.7
23/10/2023	11:00:00	71.9	64.4	84.6
23/10/2023	11:15:00	71.8	63.8	90.7
23/10/2023	11:30:00	71.7	63.6	89.1
23/10/2023	11:45:00	71.2	64.1	85.0
23/10/2023	12:00:00	70.7	64.6	80.8

N2, Rear of Development

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
20/10/2023	11:20:16	65.0	59.7	84.1
20/10/2023	11:30:00	63.4	59.8	77.6
20/10/2023	11:45:00	62.9	59.4	78.1
20/10/2023	12:00:00	63.4	59.6	78.0
20/10/2023	12:15:00	63.5	59.4	73.2
20/10/2023	12:30:00	63.1	58.8	74.7
20/10/2023	12:45:00	63.7	59.5	81.5
20/10/2023	13:00:00	63.3	59.8	74.1
20/10/2023	13:15:00	62.3	57.9	77.8
20/10/2023	13:30:00	62.5	58.3	75.8
20/10/2023	13:45:00	62.9	58.8	78.1
20/10/2023	14:00:00	62.9	58.6	78.0
20/10/2023	14:15:00	63.5	58.8	76.2
20/10/2023	14:30:00	63.0	58.7	74.4
20/10/2023	14:45:00	62.8	58.2	75.1
20/10/2023	15:00:00	62.2	57.5	73.7
20/10/2023	15:15:00	62.6	58.3	75.5
20/10/2023	15:30:00	62.0	57.1	76.9
20/10/2023	15:45:00	62.0	57.4	82.8
20/10/2023	16:00:00	61.9	57.4	77.2
20/10/2023	16:15:00	62.3	57.6	76.3
20/10/2023	16:30:00	63.8	56.9	89.2
20/10/2023	16:45:00	62.6	57.7	73.1
20/10/2023	17:00:00	62.5	58.2	75.5
20/10/2023	17:15:00	62.1	58.7	72.8
20/10/2023	17:30:00	62.7	58.6	73.1
20/10/2023	17:45:00	62.5	58.6	71.8
20/10/2023	18:00:00	61.7	57.4	70.8
20/10/2023	18:15:00	62.0	58.5	72.4
20/10/2023	18:30:00	62.9	59.1	75.8
20/10/2023	18:45:00	62.7	58.7	79.7
20/10/2023	19:00:00	62.0	58.2	72.6
20/10/2023	19:15:00	62.3	58.4	74.8
20/10/2023	19:30:00	62.3	58.3	78.2
20/10/2023	19:45:00	62.3	58.5	73.6
20/10/2023	20:00:00	62.6	58.4	79.1
20/10/2023	20:15:00	61.6	57.4	68.5
20/10/2023	20:30:00	61.8	57.5	70.0
20/10/2023	20:45:00	61.2	57.2	70.3

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
20/10/2023	21:00:00	61.4	57.2	72.8
20/10/2023	21:15:00	60.7	56.7	70.0
20/10/2023	21:30:00	61.2	57.2	74.3
20/10/2023	21:45:00	61.1	57.2	71.6
20/10/2023	22:00:00	61.1	57.2	70.5
20/10/2023	22:15:00	61.1	56.9	74.9
20/10/2023	22:30:00	61.4	57.1	71.6
20/10/2023	22:45:00	60.8	56.3	69.2
20/10/2023	23:00:00	61.6	56.0	83.2
20/10/2023	23:15:00	60.3	55.0	69.6
20/10/2023	23:30:00	59.9	54.7	70.4
20/10/2023	23:45:00	59.1	54.3	69.0
21/10/2023	00:00:00	59.4	53.2	71.5
21/10/2023	00:15:00	58.4	53.6	69.3
21/10/2023	00:30:00	58.1	52.1	70.3
21/10/2023	00:45:00	58.7	51.2	82.4
21/10/2023	01:00:00	57.3	51.1	70.7
21/10/2023	01:15:00	57.5	51.2	71.7
21/10/2023	01:30:00	56.7	49.7	73.9
21/10/2023	01:45:00	57.8	50.3	71.6
21/10/2023	02:00:00	55.8	49.7	68.5
21/10/2023	02:15:00	56.0	49.1	72.7
21/10/2023	02:30:00	55.8	49.4	71.7
21/10/2023	02:45:00	54.2	48.9	68.6
21/10/2023	03:00:00	54.7	48.7	68.8
21/10/2023	03:15:00	54.6	49.0	72.1
21/10/2023	03:30:00	53.9	47.4	69.9
21/10/2023	03:45:00	54.0	48.3	67.6
21/10/2023	04:00:00	55.0	48.9	68.7
21/10/2023	04:15:00	55.7	48.8	71.4
21/10/2023	04:30:00	55.5	49.0	70.9
21/10/2023	04:45:00	54.6	49.3	68.2
21/10/2023	05:00:00	55.7	50.2	68.8
21/10/2023	05:15:00	56.0	50.8	69.8
21/10/2023	05:30:00	56.3	51.8	70.4
21/10/2023	05:45:00	55.3	50.5	67.4
21/10/2023	06:00:00	56.8	52.1	70.4
21/10/2023	06:15:00	57.9	53.1	72.0
21/10/2023	06:30:00	57.7	53.4	70.0
21/10/2023	06:45:00	58.2	53.5	71.3

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
21/10/2023	07:00:00	58.5	54.3	68.2
21/10/2023	07:15:00	59.1	54.9	70.9
21/10/2023	07:30:00	59.4	54.8	74.7
21/10/2023	07:45:00	59.7	54.9	79.2
21/10/2023	08:00:00	63.0	52.5	89.0
21/10/2023	08:15:00	58.2	51.7	72.0
21/10/2023	08:30:00	59.2	53.3	72.3
21/10/2023	08:45:00	59.8	54.2	78.1
21/10/2023	09:00:00	60.0	55.1	75.5
21/10/2023	09:15:00	58.9	53.0	68.6
21/10/2023	09:30:00	59.4	53.2	72.6
21/10/2023	09:45:00	60.1	53.6	82.8
21/10/2023	10:00:00	59.4	53.4	73.3
21/10/2023	10:15:00	59.6	53.6	72.3
21/10/2023	10:30:00	59.5	53.4	78.3
21/10/2023	10:45:00	59.3	53.1	71.6
21/10/2023	11:00:00	59.5	53.1	75.8
21/10/2023	11:15:00	59.6	53.8	70.0
21/10/2023	11:30:00	59.1	52.6	68.9
21/10/2023	11:45:00	58.8	52.6	75.2
21/10/2023	12:00:00	60.3	52.2	83.0
21/10/2023	12:15:00	59.0	52.5	73.7
21/10/2023	12:30:00	59.0	53.3	73.8
21/10/2023	12:45:00	60.8	52.9	82.7
21/10/2023	13:00:00	59.1	53.0	75.3
21/10/2023	13:15:00	60.0	54.1	77.2
21/10/2023	13:30:00	59.1	54.9	70.1
21/10/2023	13:45:00	59.2	55.0	70.3
21/10/2023	14:00:00	58.6	53.5	71.8
21/10/2023	14:15:00	58.4	53.1	76.7
21/10/2023	14:30:00	58.6	54.2	69.0
21/10/2023	14:45:00	59.5	54.9	73.2
21/10/2023	15:00:00	58.8	54.4	71.5
21/10/2023	15:15:00	59.6	55.4	70.7
21/10/2023	15:30:00	60.0	55.3	77.2
21/10/2023	15:45:00	61.4	56.4	86.7
21/10/2023	16:00:00	60.1	56.0	73.4
21/10/2023	16:15:00	59.3	55.4	69.3
21/10/2023	16:30:00	60.2	56.5	79.9
21/10/2023	16:45:00	62.7	57.0	82.6

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
21/10/2023	17:00:00	60.4	55.9	78.8
21/10/2023	17:15:00	60.4	55.7	78.2
21/10/2023	17:30:00	61.5	55.2	84.5
21/10/2023	17:45:00	61.6	55.1	84.1
21/10/2023	18:00:00	59.6	54.6	68.7
21/10/2023	18:15:00	59.5	54.2	73.1
21/10/2023	18:30:00	59.0	53.9	72.1
21/10/2023	18:45:00	59.7	53.6	79.5
21/10/2023	19:00:00	59.5	54.8	70.5
21/10/2023	19:15:00	59.2	54.0	69.1
21/10/2023	19:30:00	60.7	55.1	80.2
21/10/2023	19:45:00	62.5	54.5	83.7
21/10/2023	20:00:00	59.6	54.4	72.0
21/10/2023	20:15:00	58.8	53.2	72.3
21/10/2023	20:30:00	58.9	53.8	73.9
21/10/2023	20:45:00	58.0	53.2	66.7
21/10/2023	21:00:00	58.1	51.5	75.4
21/10/2023	21:15:00	57.5	49.7	75.3
21/10/2023	21:30:00	58.1	51.1	72.3
21/10/2023	21:45:00	57.8	51.3	69.3
21/10/2023	22:00:00	58.1	51.4	69.2
21/10/2023	22:15:00	58.9	53.8	72.3
21/10/2023	22:30:00	59.7	54.7	69.9
21/10/2023	22:45:00	59.9	53.6	73.6
21/10/2023	23:00:00	60.1	53.2	71.4
21/10/2023	23:15:00	59.5	53.0	70.6
21/10/2023	23:30:00	58.8	50.7	77.1
21/10/2023	23:45:00	58.4	50.6	71.1
22/10/2023	00:00:00	59.8	50.9	80.7
22/10/2023	00:15:00	60.6	51.3	83.2
22/10/2023	00:30:00	58.3	49.2	75.5
22/10/2023	00:45:00	57.2	48.7	68.6
22/10/2023	01:00:00	56.6	47.6	68.9
22/10/2023	01:15:00	56.5	47.6	71.8
22/10/2023	01:30:00	56.7	47.4	68.1
22/10/2023	01:45:00	58.8	48.0	85.0
22/10/2023	02:00:00	56.3	46.0	70.9
22/10/2023	02:15:00	55.9	45.1	74.7
22/10/2023	02:30:00	62.8	46.2	88.0
22/10/2023	02:45:00	55.3	46.7	70.4

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	03:00:00	55.6	46.4	68.7
22/10/2023	03:15:00	54.6	45.7	70.7
22/10/2023	03:30:00	55.4	44.4	72.8
22/10/2023	03:45:00	55.0	44.4	75.1
22/10/2023	04:00:00	53.6	44.6	69.0
22/10/2023	04:15:00	54.8	45.4	69.2
22/10/2023	04:30:00	53.8	45.9	67.6
22/10/2023	04:45:00	52.0	45.7	68.7
22/10/2023	05:00:00	53.3	46.3	68.6
22/10/2023	05:15:00	54.6	47.4	70.9
22/10/2023	05:30:00	53.7	45.3	68.7
22/10/2023	05:45:00	53.7	46.7	68.8
22/10/2023	06:00:00	54.0	45.9	69.5
22/10/2023	06:15:00	54.7	47.4	69.1
22/10/2023	06:30:00	55.0	49.1	69.4
22/10/2023	06:45:00	56.2	49.6	72.0
22/10/2023	07:00:00	56.3	49.8	70.2
22/10/2023	07:15:00	57.3	51.2	70.2
22/10/2023	07:30:00	56.6	50.6	68.5
22/10/2023	07:45:00	57.6	51.2	69.2
22/10/2023	08:00:00	57.8	51.2	70.8
22/10/2023	08:15:00	58.8	52.4	72.0
22/10/2023	08:30:00	58.9	52.1	74.8
22/10/2023	08:45:00	58.6	51.9	72.1
22/10/2023	09:00:00	57.9	50.1	70.3
22/10/2023	09:15:00	61.4	52.3	84.7
22/10/2023	09:30:00	59.4	53.1	69.3
22/10/2023	09:45:00	60.3	53.8	73.8
22/10/2023	10:00:00	60.1	53.5	73.9
22/10/2023	10:15:00	59.4	52.9	69.7
22/10/2023	10:30:00	59.9	53.0	69.5
22/10/2023	10:45:00	59.4	53.4	69.8
22/10/2023	11:00:00	59.6	52.8	71.7
22/10/2023	11:15:00	59.7	52.6	71.3
22/10/2023	11:30:00	59.4	52.1	69.3
22/10/2023	11:45:00	59.5	52.4	70.4
22/10/2023	12:00:00	59.4	51.4	74.8
22/10/2023	12:15:00	59.7	52.6	72.5
22/10/2023	12:30:00	59.1	52.2	71.7
22/10/2023	12:45:00	59.9	53.5	79.1

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	13:00:00	58.9	53.2	71.5
22/10/2023	13:15:00	59.1	52.5	69.8
22/10/2023	13:30:00	58.8	52.2	71.0
22/10/2023	13:45:00	58.9	52.5	76.4
22/10/2023	14:00:00	59.0	52.1	73.5
22/10/2023	14:15:00	58.9	51.8	70.6
22/10/2023	14:30:00	58.4	51.4	68.9
22/10/2023	14:45:00	58.4	51.1	68.4
22/10/2023	15:00:00	61.1	51.9	83.1
22/10/2023	15:15:00	59.0	51.7	75.1
22/10/2023	15:30:00	61.1	51.6	88.2
22/10/2023	15:45:00	58.1	51.1	72.5
22/10/2023	16:00:00	59.2	50.6	71.6
22/10/2023	16:15:00	59.1	50.8	71.7
22/10/2023	16:30:00	58.5	50.2	74.7
22/10/2023	16:45:00	58.6	51.1	73.9
22/10/2023	17:00:00	59.1	51.4	69.7
22/10/2023	17:15:00	59.0	51.1	68.8
22/10/2023	17:30:00	59.5	51.6	81.8
22/10/2023	17:45:00	59.2	51.0	75.3
22/10/2023	18:00:00	58.9	49.9	75.2
22/10/2023	18:15:00	58.4	50.2	70.5
22/10/2023	18:30:00	58.2	49.6	68.9
22/10/2023	18:45:00	59.0	50.7	74.4
22/10/2023	19:00:00	59.8	52.0	70.0
22/10/2023	19:15:00	59.5	51.5	81.4
22/10/2023	19:30:00	57.9	50.2	68.8
22/10/2023	19:45:00	57.7	50.0	69.4
22/10/2023	20:00:00	58.3	50.6	67.7
22/10/2023	20:15:00	58.9	50.9	78.2
22/10/2023	20:30:00	58.0	50.6	71.6
22/10/2023	20:45:00	57.9	49.7	76.2
22/10/2023	21:00:00	58.2	49.5	77.5
22/10/2023	21:15:00	58.3	49.3	75.7
22/10/2023	21:30:00	57.7	49.2	68.5
22/10/2023	21:45:00	57.3	49.6	71.3
22/10/2023	22:00:00	57.3	50.1	69.0
22/10/2023	22:15:00	59.3	50.4	82.3
22/10/2023	22:30:00	57.0	48.6	67.6
22/10/2023	22:45:00	56.5	47.2	70.7

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
22/10/2023	23:00:00	55.9	46.4	70.1
22/10/2023	23:15:00	55.1	45.1	67.5
22/10/2023	23:30:00	54.9	45.4	71.4
22/10/2023	23:45:00	55.0	42.7	71.6
23/10/2023	00:00:00	53.1	40.8	70.9
23/10/2023	00:15:00	52.9	42.3	69.2
23/10/2023	00:30:00	54.5	43.1	69.0
23/10/2023	00:45:00	52.8	40.3	67.7
23/10/2023	01:00:00	53.7	41.0	71.5
23/10/2023	01:15:00	50.8	39.3	70.1
23/10/2023	01:30:00	50.5	38.4	69.9
23/10/2023	01:45:00	51.0	39.4	65.0
23/10/2023	02:00:00	51.5	41.3	66.0
23/10/2023	02:15:00	50.6	40.7	70.2
23/10/2023	02:30:00	50.2	41.9	66.3
23/10/2023	02:45:00	54.5	40.4	83.6
23/10/2023	03:00:00	49.8	41.3	65.1
23/10/2023	03:15:00	51.2	41.6	68.2
23/10/2023	03:30:00	51.0	42.0	67.6
23/10/2023	03:45:00	52.1	43.1	74.8
23/10/2023	04:00:00	53.3	44.6	76.7
23/10/2023	04:15:00	53.5	43.8	68.6
23/10/2023	04:30:00	52.9	46.5	68.2
23/10/2023	04:45:00	53.5	46.3	68.6
23/10/2023	05:00:00	53.9	47.0	70.2
23/10/2023	05:15:00	56.2	49.4	68.2
23/10/2023	05:30:00	58.2	51.9	71.6
23/10/2023	05:45:00	58.0	52.4	68.6
23/10/2023	06:00:00	59.1	53.9	73.8
23/10/2023	06:15:00	59.9	54.4	71.8
23/10/2023	06:30:00	60.9	54.2	72.6
23/10/2023	06:45:00	60.7	54.5	76.0
23/10/2023	07:00:00	60.8	54.7	78.3
23/10/2023	07:15:00	60.4	54.8	79.8
23/10/2023	07:30:00	62.0	55.7	82.6
23/10/2023	07:45:00	61.5	56.8	78.1
23/10/2023	08:00:00	64.6	57.3	91.0
23/10/2023	08:15:00	62.9	56.8	78.6
23/10/2023	08:30:00	64.1	57.7	82.9
23/10/2023	08:45:00	79.6	57.3	93.4

Date	Time	L _{Aeq} dBA	L _{A90} dBA	L _{Amax} dBA
23/10/2023	09:00:00	64.4	57.1	82.6
23/10/2023	09:15:00	61.8	56.4	78.1
23/10/2023	09:30:00	60.8	55.9	77.1
23/10/2023	09:45:00	66.0	56.5	100.7
23/10/2023	10:00:00	69.8	55.7	96.0
23/10/2023	10:15:00	65.3	55.7	88.5
23/10/2023	10:30:00	65.3	55.6	88.4
23/10/2023	10:45:00	61.7	55.2	86.7
23/10/2023	11:00:00	62.3	54.8	90.4
23/10/2023	11:15:00	61.7	54.0	79.9
23/10/2023	11:30:00	73.1	54.2	92.6
23/10/2023	11:45:00	64.4	54.3	93.5
23/10/2023	12:00:00	63.3	54.4	91.1

APPENDIX II – DEFINITION OF ACOUSTIC TERMS

The decibel

This is the basic unit of noise, denoted dB.

A Weighting

This is a weighting process which simulates the human ear's different sensitivity at different frequencies. A weighting can be shown two typical ways, 50 dB(A) L_{eq} or 50 dB L_{Aeq} . Both mean the same thing. (See below for a definition of L_{eq}). The dB(A) level can be regarded as the overall level perceived by human beings.

L_{eq} and $L_{eq(s)}$

This is the equivalent continuous noise level which contains the same acoustic energy as the actual time-varying sound. In other words it is a kind of average noise level. It is denoted dB L_{eq} or, for A-weighted figures dB(A) L_{eq} or dB L_{Aeq} . It can also be expressed in terms of frequency analysis (see later). $L_{eq(s)}$ is the sample L_{eq} level.

L_n

This is the level exceeded for n% of the time. It is denoted dB L_n or, for A-weighted figures dB(A) L_n or dB L_{An} . It can be expressed in terms of frequency analysis (see later). L_{90} is the level exceeded for 90% of the time and is a measure of the lowest level typically reached. L_{10} is the level exceeded for 10% of the time and is the highest level typically reached. L_{50} is the level exceeded for 50% of the time and, mathematically, it is the median.

L_{max}

This is the maximum level reached during a measurement period. The "time constant", or the ability of the equipment to respond to impulses is usually expressed along with it, e.g. "Fast", "Slow", etc. It is denoted dB L_{max} or, for A-weighted figures dB(A) L_{max} , dB L_{Amax} , etc. It can also be expressed in terms of frequency analysis.

Frequency Analysis

Whereas dB(A) gives a very useful overall figure, it has its limitations in that it cannot be used to model or predict the effect of noise control and mitigation as this nearly always has radically different performance at different frequencies.

Frequency analysis expresses an overall noise level at each frequency or band of frequencies in the audible range. Octave band analysis divides the audible range into 10 bands from 31.5 Hz to 16 kHz and the noise level in each band can be expressed in any form e.g. L_{eq} , L_{90} , L_{max} etc. One third octave band analysis uses 30 bands.

Narrow band analysis takes the process to resolutions of less than 1 Hz. This is useful for identifying the existence of tones (whines, hums, etc.) and in pin-pointing the sources.

APPENDIX III – NOISE BREAKIN TO SNOOKER HALL FULL CALCULATION

	1/3 Octave Bands (Hz)																				D _{nw} /L _{Aeq,T} dB	
	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000		5000
(A) L _{Aeq,T} Noise Levels From Live Band)	85	93	86.3	99.1	102.6	102.7	100.2	100.7	97.1	94.8	93.4	90.7	87.6	87.4	86.2	85.1	86.1	88.6	87.4	82.2	79.1	na/101
(B) D _n 's Measured from SI test	12.3	32.8	40.8	46.8	50.3	51.6	52.9	53.2	51.1	51.1	55.4	57.3	59.6	60.7	60.5	59.2	60.5	58.5	62	64.3	64.2	58/na
(A) - (B) L _{Aeq,T} Noise in Snooker room	72.7	60.2	45.5	52.3	52.3	51.1	47.3	47.5	46	43.7	38	33.4	28	26.7	25.7	25.9	25.6	30.1	25.4	17.9	14.9	na/48

-Shaded areas are indicative that the measured D_n's were limited due to background noise in the receiver room. Therefore the sound insulation performance of the separating wall may be higher than indicated.