



**The Bell Public House, 18 High Street, WD5 0QR**

**3<sup>rd</sup> June 2024**

**ISSUE 01**





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Author	Date	Checked	Date	Description
L. Jennings Tec. IOA	03/06/2024	M.Austin I.Eng. MIOA	06/06/2024	Information.
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## 1.0 INTRODUCTION

DAA Group has been appointed to carry out a Noise Impact Assessment at The Bell Public House, 18 High Street, WD5 0QR to support an Application to vary a Premises Licence Ref: 24/00261/LAPL04 for the Provision of live music.

The purpose of the survey is to ensure that the development does not prejudice the amenities of occupiers of nearby premises.

This report has been carried out in accordance with the provisions of:

- The National Planning Policy Framework, the Noise Policy Statement for England (NPSE)
- The World Health Organisation Guidelines for Community Noise 1999 (WHO)
- Three Rivers District Council Local Plan.

The technical content of this assessment has been provided by a Tech member of the Institute of Acoustics.

The Institute of Acoustics is the UK's professional body for those working in Acoustics, Noise and Vibration.

## 2.0 NOISE CRITERIA

### 2.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The Department for Communities and Local Government introduced the National Planning Policy Framework (NPPF) in March 2012. The latest revision of the NPPF is dated March 2021.

The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework where local Councils can produce their own local and neighbourhood plans which reflect the needs of their communities.

In conserving and enhancing the natural environment, the planning system should prevent both new and existing development from contributing to, or being put at, unacceptable risk from environmental factors including noise.

Planning policies and decisions should aim to avoid noise giving rise to significant adverse impacts on health and quality of life as a result of new development. Conditions may be used to mitigate and reduce noise to a minimum so that adverse impacts on health and quality of life are minimised. It must be recognised that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them. Reference is made within NPPF to the Noise Policy Statement for England (NPSE) as published by DEFRA in March 2010.

### 2.2 NOISE POLICY STATEMENT FOR ENGLAND (NPSE)

The long-term vision of the NPSE is stated within the documents scope, to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development'. The policy aims are stated to:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

The application of NPSE should mean that noise is properly taken into account at the appropriate time (for example in planning applications or appeals) where it must be considered alongside other relevant issues. The guiding principles of Government policy on sustainable development should be used to assist in the implementation of the NPSE.

The NPSE should apply to all types of noise apart from occupational noise in the workplace. The types of noises defined in the NPSE includes:

- Environmental noise from transportation sources;
- Neighbourhood noise which includes noise arising from within the community; industrial premises, trade and business premises, construction sites and noise in the street

The Noise Policy Statement England (NPSE) outlines observed effect levels relating to the above, as follows:

- **NOEL – No Observed Effect Level**

- o 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**

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

- **SOAEL – Significant Observed Adverse Effect Level**

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

As stated in The Noise Policy Statement England (NPSE), it is not currently possible to have a single objective based measure that defines SOAEL that is applicable to all sources of noise in all situations. Specific noise levels are not stated within the guidance for this reason, and allow flexibility in the policy until further guidance is available.

### 2.3 ProPG: PLANNING AND NOISE

As outlined above, the National Planning Policy Framework encourages improved standards of design, although it provides no specific noise levels which should be achieved on site for varying standards of acoustic acceptability, or a prescriptive method for the assessment of noise.

ProPG: Planning and Noise was published in May 2017 in order to encourage better acoustic design for new residential schemes in order to protect future residents from the harmful effects of noise. This guidance can be seen as the missing link between the current NPPF and its predecessor, PPG24 (Planning Policy Guidance 24: Planning and Noise), which provided a prescriptive method for assessing sites for residential development, but without the nuance of 'good acoustic design' as outlined in ProPG.

ProPG allows the assessor to take a holistic approach to consider the site's suitability, taking into consideration numerous design factors which previously may not have been considered alongside the noise level measured on site, for example the orientation of the building in relation to the main source of noise incident upon it.

It should be noted this document is not an official government code of practice, and neither replaces nor provides an authoritative interpretation of the law or government policy, and therefore should be seen as a good practice document only.

#### **2.4 BRITISH STANDARD 4142: 2014+A1:2019**

British Standard (BS) 4142:2014 "Methods for rating and assessing industrial and commercial sound" describes methods for assessing the likely effects of sound on premises used for residential purposes.

It includes the assessment of sound from industrial and manufacturing processes, M&E plant and equipment, loading and unloading of goods and materials, and mobile plant/vehicles on the site. It can be used to assess sound from proposed, new, modified or additional industrial/commercial sources, at existing or new premises used for residential purposes.

The method described in BS4142: 2014 use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The standard describes methods to measure and determine ambient, background and residual sound levels, and the rating levels of industrial/commercial sound. BS 4142: 2014 requires consideration of the level of uncertainty in the data and associated calculations.

BS 4142 is not intended to be used for the derivation or assessment of internal sound levels, or for the assessment of non-industrial / commercial sources such as recreational activities, motorsport, music and entertainment, shooting grounds, construction and demolition, domestic animals, people, and public address systems for speech.

The Reference Time Interval, T, is defined in the standard as the "specified interval over which the specific sound level is determined", which is 1 hour during the daytime (07:00 to 23:00 hours) and 15 minutes during the night (23:00 to 07:00 hours).

Ambient sound is defined in BS 4142: 2014 as "totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far". It comprises the residual sound and the specific sound when present.

Residual sound is defined in BS 4142: 2014 as "ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound".

The background sound level is the LA90, T of the residual sound level, and is the underlying level of sound. Measurements of background sound level should be undertaken at the assessment location where possible or at a comparable location.

The measurement time interval should be sufficient to obtain a representative value (normally not less than 15 minutes) and the monitoring duration should reflect the range of background sound levels across the assessment period. The background sound level used for the assessment should be representative of the period being assessed.

The specific sound level is the LAeq,T of the sound source being assessed over the reference time interval, Tr. BS 4142: 2014 advises that Tr should be 1 hour during the day and 15 minutes at night.

The rating level is the specific sound level plus any adjustment for the characteristics of the sound (tone, impulse, intermittent or other acoustic feature). The standard describes subjective and objective methods to establish the appropriate adjustment. The adjustments for the different features and assessment methods are summarised in the table below.

#### Acoustic Feature Corrections in BS4142: 2014

Acoustic Feature	Adjustment for Acoustic Feature		
	Subjective Methods	Objective Methods	
Tonality	+2 dB if just perceptible +4 dB if clearly perceptible +6 dB if highly perceptible	Third Octave Analysis	Narrow Band Analysis
		+6 dB if tones identified	Sliding scale of 0 to +6 dB depending on audibility of tone
Impulsivity	+3 dB if just perceptible +6 dB if clearly perceptible +9 dB if highly perceptible	Sliding scale of 0 to +9 dB depending on prominence of impulsive sound	
Intermittency	+ 3 dB if intermittency is readily distinctive	n/a	
Other	+ 3 dB if neither tonal nor impulsive, but otherwise readily distinctive	n/a	

Where tonal and impulsive characters are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant, it might be appropriate to apply a single correction. The rating level is equal to the specific sound level if there are no features present.

The level of impact is assessed by comparing the rating level of the specific sound source with the background sound level. Typically the greater the difference the greater the magnitude of the impact, depending on the context.

Other factors that may require consideration include the absolute level of sound, the character and level of the residual sound compared to the specific sound, and the sensitivity of the receptor and scope for mitigation.

When the rating level is above the background sound level, a difference of around +5 dB is likely to indicate an adverse impact and a difference of around +10 dB or more is likely to indicate a significant adverse impact, depending on the context.

The lower the rating level with respect to the background sound level, the less likely it is that the specific sound source will have an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

### 3.0 SITE SURVEYS

#### 3.1 SITE DESCRIPTION

The application site is located on Bedmond High Street. The application site is situated in an area of predominately residential properties, typical of an urban cityscape environment, with the dominant source being road traffic noise from the surrounding roads. (See Figure 3.1)



Figure 3.1 – Site Location

#### 3.2 ENVIRONMENTAL SITE SURVEY PROCEDURE

In order to characterise the sound profile of the area at the closest sensitive receptor (NSR), an environmental sound survey has been carried out from 28 /05/2024 to 30/05/2024. The monitoring position was chosen in order to collect representative sound levels at the NSR and the location of the proposed live music area.

Noise Measurements were carried out free field at the rear of the site nearest the NSR. The monitoring location is shown in Figure 5.2.



### 3.3 EQUIPMENT

<b>Instrument manufacturer</b>	<b>Rion</b>
<b>Model</b>	<b>NA-28</b>
<b>Serial Number</b>	<b>00501390</b>
<b>Microphone Type</b>	<b>UC-59</b>
<b>Serial Number</b>	<b>14934</b>
<b>Calibrator</b>	<b>NC-74</b>
<b>Serial Number</b>	<b>34504747</b>
<b>Cirrus CK: 675 Outdoor Kit</b>	

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of  $\leq 0.5$  dB. All sound level meters are calibrated every 24 months and all calibrators are calibrated every 12 months, by a third-party calibration laboratory. All microphones were fitted with a protective windshield for the entire measurements period.

Copies of Calibration certificates are available on request.

### 3.4 METEOROLOGICAL CONDITIONS

As the environmental noise survey was carried out over a long un-manned period no localized records of weather conditions were taken. However, during the set up and collection of the monitoring equipment, the weather conditions have been documented in the following table. All measurements have been compared with met office weather data of the area, specifically the closest weather station, the data from the weather station is outlined in the table below. When reviewing the time history of the noise measurements, any scenarios that were considered potentially to be affected by the local weather conditions have been omitted. The analysis of the noise data includes statistical and percentile analysis and review of minimum and maximum values, which aids in the preclusion of any periods of undesirable weather conditions. The weather conditions were deemed suitable for the measurement of environmental noise in accordance with BS7445 Description and Measurement of Environmental Noise. The table below presents the average temperature, wind speed and rainfall range for each 24-hour period during the entire measurement.

Weather Conditions – Northolt Weather station				
Time Period	Air Temp ( °C)	Rainfall mm/h	Prevailing Wind Direction	Wind Speed (m/s)
28/05/2024 – 00:00 – 23:59	12 - 18	0.0	SW	4 - 8
29/05/2024 – 00:00 – 23:59	13- 19	0.0	WNW	4- 10
30/05/2024 – 00:00 – 23:59	13 - 18	0.0	NNW	7 - 11

Table 3.4 – Weather Summary

#### 4.0 NOISE SURVEY

A summary of the recorded noise measurements are shown below:

	LAeq,15	LAMAX,15	LA90, 15
07:00 – 23.00	50dB	72dB	48dB
23:00 – 07:00	47dB	64dB	42dB

Table 4.1 Background Sound Level Summary Results



## 5.0 NOISE IMPACT ASSESSMENT

### 5.1 PROPOSED PLANS

The proposal is to hold small bands (duos or trios) outside that will be amplified. This will mainly consist of a singer and 1-2 musicians (guitars / keyboard/ violin).

The live music will be held during summer afternoons (July/ August/ September).

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The proposed live music hours are as follows:

Saturdays 14:00 – 17:00

Sundays 14:00 – 17:00

We have used the noise level of 90dB for the typical noise level for a robust assessment. This has been derived from measured noise levels of similar applications.

**5.2 CLOSEST NOISE SENSITIVE RECEIVER**

The closest noise sensitive receiver has been identified as being a residential window located approximately 15metres from the proposed live music area as shown in Figure 5.2.



Figure 5.2 –Nearest Sensitive Receptor

	Measurement Location
	Nearest Sensitive receiver
	Live Music Area

### 5.3 TYPICAL TARGET NOISE LEVELS

A raft of standards and guideline values for noise are available, however, ultimately each Local Authority sets out its own target noise levels and can vary these according to local circumstances. The text below outlines some common issues and target values for protecting residents from excessive noise impact. However, all guidance documents must be seen in context of how they were developed and what they are trying to achieve.

The World Health Organisation set a series of community noise guidelines 1999 (re-visited and conformed 2018) advising that, during the daytime a guidance level to prevent annoyance is set at  $L_{Aeq,16hr}$  55dB for outdoor living areas,  $L_{Aeq,16hr}$  35dB for indoor living areas during the day/evening, and  $L_{Aeq,16hr}$  30dB for bedrooms at night. It should also be noted that they are only guidance levels and Court decisions have already made clear that noise levels above the WHO guideline values do not mean that a nuisance exists.

Some regulatory authorities employ NR Curves (which rate noise over an octave frequency spectrum) as a benchmark of acceptability. Typically NR25-30 may be used for bedrooms at night, NR Curves are an internal standard and incorporate noise levels over a range of frequencies. In practice ( provided there is no strong tonal component) an NR Curve roughly equates to the  $L_{Aeq}$  -6dB (ie. NR25-30 =  $L_{Aeq}$  31-36dB). Assuming 15dB attenuation across an open window this equates to an external noise level of  $L_{Aeq}$  46-51dB.

BS8233 recommends a reasonable level of amenity to be provided by internal noise levels of  $L_{Aeq, 16h}$  35-40 within living rooms, and  $L_{Aeq, 16h}$  35dB (daytime) or  $L_{Aeq,8h}$  30dB (night-time) for sleeping in bedrooms. An internal bedroom  $L_{Aeq}$  of 30-35dB equates to an external façade level of 45-50dB(A), assuming a transmission loss of 15dB across an open window.

Note: BS8233 states that levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events.

BS4142 relates the sound under consideration to the prevailing background noise level (measured as the  $L_{A90}$  of the residual noise) and includes character correction penalties to “rate” the level of noise impact. However, BS4142 specifically excludes the assessment of entertainment noise and people; it is therefore not an appropriate standard for this type of assessment.

It is recognised that many of the above target noise levels relate to the impact of steady state sound and not music or voices (which have a character that can make them more intrusive). It is sometimes argued that a character correction penalty (similar to a BS4142) should be applied in these types of situation. However, the scope of most standards are clearly defined; and any amendments to the application of those standards) would need to be fully justified.

The IOA Annex expresses numerical limits as shown in Table 5.3.

Venue Where...	Suggested Regulations	Outcome if Criteria Met
Entertainment < 30 times/year*	$L_{Aeq,15mins}$ (EN) should not exceed $L_{A90}$ (WEN) by more than 5dB.	EN will generally be audible but not overly obtrusive inside the noise sensitive property
Entertainment > 30 times/year*	$L_{Aeq}$ (EN) should not exceed $L_{A90}$ (WEN) by more than 5dB And the $L_{10}$ (EN) should not exceed $L_{90}$ (WEN) by more than 5dB in any 1/3 octave band between 40 and 160Hz.	EN will generally be audible but not overly obtrusive inside the noise sensitive property
Entertainment > once/week or continues beyond 2300hrs	$L_{Aeq}$ (EN) should not exceed $L_{A90}$ (WEN) And $L_{10}$ (EN) should not exceed $L_{90}$ (WEN) in any 1/3 octave band between 40 and 160Hz.	EN will be virtually inaudible inside noise sensitive property.

EN = Entertainment noise level, WEN = Representative background noise level without the entertainment noise, both measured 1m from the façade of the noise-sensitive premises.

\* Not more than once a week and ends by 2300hrs.

Table 5.3 – Limits suggested in the IOA Annex.

The noise control shall be designed so that the background noise level ( $L_{90,15min}$  Linear for the one third octave band levels of 50 to 160 Hz and the overall linear noise level), as measured at one metre outside the nearest affected façade of the nearest affected premises with the amplified music and/or vocals switched off, shall not be increased when the music or vocals are played at the typically highest level and a measurement is repeated in  $L_{90}$  Linear at the same position over any 5minute period, with the music, vocals and current background noise measured together.



#### 5.4 NOISE EMISSION CRITERIA

Summarized below is the calculated noise level to the NSR compared to the noise criteria of BS8233:2014 and BS4142:2014.

Noise Criteria	Time Period	Noise Criterion at Nearest Residential Receiver (dB)	Calculated Noise Level Residential Receiver (dB)
IOA Annex	14:00 – 17:00	<53dB	66dB
Absolute Criteria	14:00 – 17:00	NR35	NR55

Table 5.4 – Calculated Noise Levels

## 6.0 MITIGATION MEASURES

To reduce the noise emission from the proposed live music an acoustic barrier should be installed. DAA Group recommends a temporary barrier similar to Echo Barrier H10. This type of barrier can achieve up to 42dB noise reduction. See Appendix C for details.

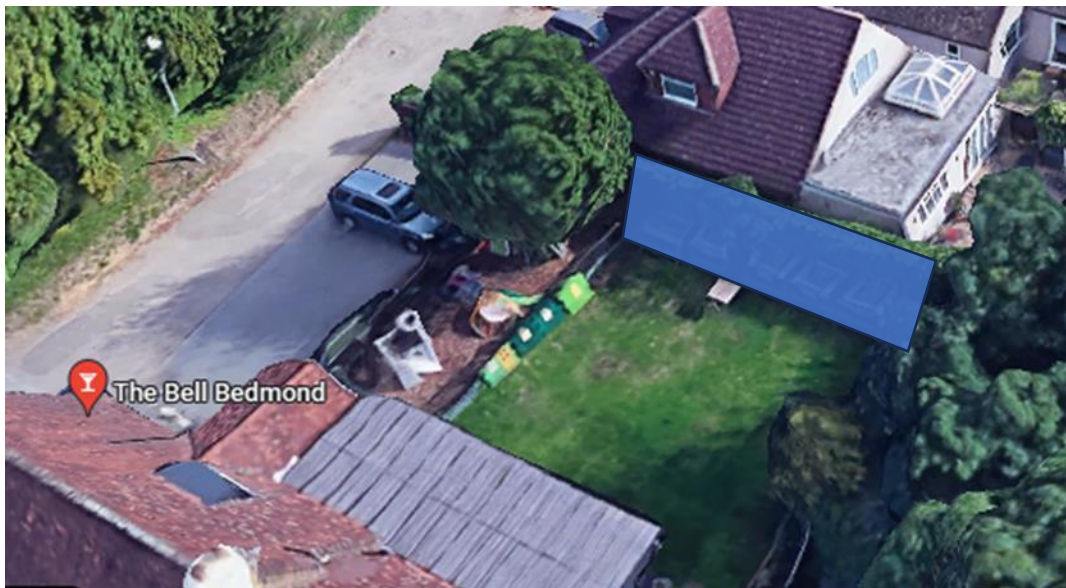


Figure 6.0 – Mitigation Measures – Acoustic Barrier

Noise Criteria	Time Period	Noise Criterion at Nearest Residential Receiver (dB)	Calculated Noise Level Residential Receiver (dB)
IOA Annex	14:00 – 17:00	<53dB	48dB
Absolute Criteria	14:00 – 17:00	NR35	NR33

Table 6.0.1 - Calculated Noise Levels with mitigation

### 6.1 LOUDSPEAKER LOCATION

The speakers should not be placed in the direction of the Nearest Sensitive receptor. Low frequency sound levels should be controlled. A noise limiter is advised.





## **7.0 NOISE MANAGEMENT PLAN**

A noise management plan should be adhered to, see appendix D for details.

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## **8.0 SUMMARY AND CONCLUSIONS**

DAA Group has been appointed to carry out a Noise Impact Assessment at The Bell Public House, 18 High Street, WD5 0QR. The purpose of the survey was to assess the level of noise emanating from the proposed live music to the nearest residential units and to advise on the level and type of mitigation that will be required.

DAA recommend installing an acoustic barrier in order to minimise any adverse effects to the nearest residential receptor.



## APPENDIX A ACOUSTIC TERMINOLOGY

### B.1 WEIGHTED DECIBEL, dB(A)

The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dB(A). The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. An increase or decrease of approximately 10 dB corresponds to a subjective doubling or halving of the loudness of a noise, and a change of 2 to 3 dB is subjectively barely perceptible.

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### B.2 EQUIVALENT CONTINUOUS SOUND LEVEL, LAeq

Another index for assessment for overall noise exposure is the equivalent continuous sound level, LAeq. This is a notional steady level which would, over a given period, deliver the same sound energy as the actual time-varying sound over the same period.

### B.3 MAXIMUM NOISE LEVEL, LAmx

The maximum noise level identified during a measurement period. Experimental data has shown that the human ear does not generally register the full loudness of transient sound events of less than 125 ms in duration.

### B.4 NOISE RATING, NR

Noise ratings are used as a single figure criterion for specifying services noise in buildings. Each noise rating value has an associated spectrum of defined values in each third or octave frequency band. To determine the noise rating of a room the measured spectrum is compared to a set of noise rating curves. The highest NR curve that crosses any single frequency band of the measurement determines the noise rating for the room.

The single figure noise rating is read at the 1 kHz band.

### B.5 SOUND LEVEL DIFFERENCE (D)

The sound insulation required between two spaces may be determined by the sound level difference needed between them. A single figure descriptor which characterises a range of frequencies, the weighted sound level difference, D, is sometimes used (BS EN ISO 717-1). This parameter is not adjusted to reference conditions.

The standardized level difference, Dn, T is a measure of the difference in sound level between two rooms, in each frequency band, where the reverberation time in the receiving room has been normalised to 0.5 s. This parameter measures all transmission paths, including flanking paths.

The weighted standardized level difference, DnTw, is a measure of the difference in sound level between two rooms, which characterises a range of frequencies and is normalised to a reference reverberation time

### B.6 SOUND REDUCTION INDEX (R)

The sound reduction index (or transmission loss) of a building element is a measure of the loss of sound through the material, i.e. its attenuation properties. It is a property of the component, unlike the sound level difference which is affected by the common area between the rooms and the acoustic of the receiving room. The weighted sound reduction index, Rw, is a single figure description of sound reduction index characterising a range of frequencies, which is defined in BS EN ISO 717-1: 1997. The Rw is calculated from measurements in an acoustic laboratory

**B.7 STATISTICAL NOISE LEVELS (LA90, (T) LA1, (T) LA10, (T) etc.)**

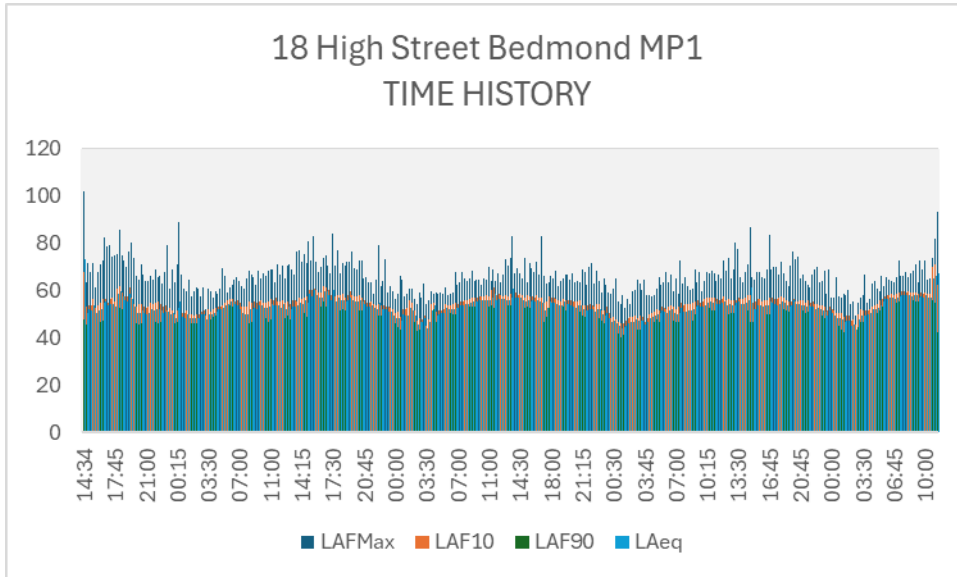
For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation. The LA10 is the level exceeded for ten per cent of the time under consideration, has historically been adopted in the UK for the assessment of road traffic noise. The LA90 is the level exceeded for ninety per cent of the time, has been adopted to represent the background noise level. The LA1 the level exceeded for one per cent of the time, is representative of the maximum levels recorded during the sample period. A weighted statistical noise levels are denoted LA10, dB LA90, dB. etc. The reference time (T) is normally included, e.g. LA10, (5min), & LA90, (8hr).

**B.8 TYPICAL NOISE LEVELS**

Typical noise levels are given in the following table.

Noise Level dB(A)	Example
130	Threshold of pain
120	Jet aircraft take-offs at 100 m
110	Chain saw at 1 m
100	Inside disco
90	Heavy lorries at 5 m
80	Kerbside of busy street
70	Loud radio (in typical domestic room)
60	Office or restaurant
50	Domestic fan heaters at 1m
40	Living room
30	Ventilation Noise in Theatre
20	Remote countryside on still night
10	Sound insulated test chamber
0	Threshold of hearing.

**APPENDIX B MEASUREMENTS**





## **APPENDIX C – NOISE MANAGEMENT PLAN**

### **1. SITE DESCRIPTION**

The site is located at the rear of The Bell Public House.

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The nearest affected residential unit is located approximately 15 metres away. This is considered to be most at risk of noise disturbance from the operations of the premises.

### **2. INTENDED USE OF THE PREMISES**

The proposal is for the introduction of small bands/ live music.

#### **AGREED POLICIES TO CONTROL NOISE**

##### **A) INTRODUCTION**

The venue is committed to develop and maintain good relations with local residents, neighbours and local authority. The objective of this policy is to minimise disturbance to local residents and to ensure that any licensing objectives or other controls at the venue are being upheld. This policy sets out the measures which have been considered and will be adopted.

##### **B) GENERAL**

Live music is only permitted during Saturday and Sundays in the summer months during the hours of 14:00 – 17:00.

The management shall make available and regularly promote a contact number for local residents to contact the premises to discuss any specific incidents or concerns either during or after events. The contact number will be posted to all nearby residents, and displayed in the window at the front of the premises. The number will be manned at all times and any action taken as a result of the complaint should be recorded and kept.

##### **C) MONITORING**

Routine monitoring will be regularly conducted around the perimeter of the premises during opening hours. Details of checks, observations and any actions taken as a result of such shall be recorded. Live music should not be more than 90dB. A noise log book kept on the premises and maintained by management and be available for inspection by the Local Authority upon request.

##### **D) TRAINING**

All staff will be fully trained to be aware of the requirements to reduce external impact from noise. All staff will be made fully aware and conversant with the noise management policy and procedures.

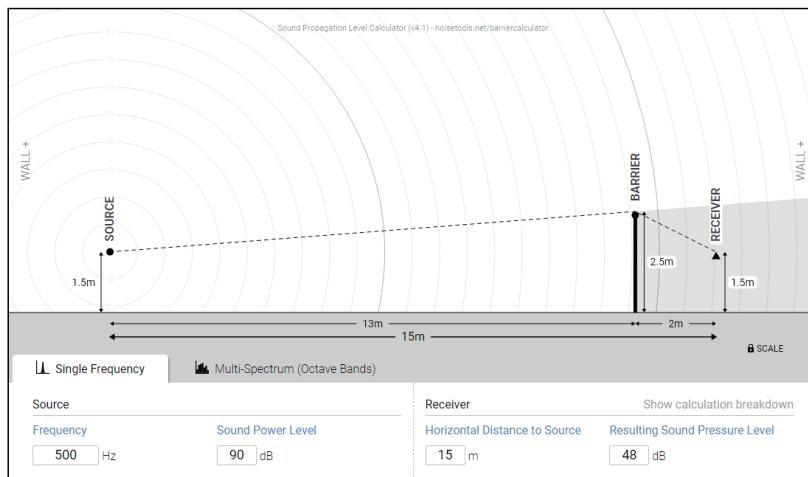
##### **E) PROVISION OF INFORMATION**

Notices will inform customers of our commitment to local concerns.

##### **L) PROCEDURAL**

The noise management plan will be reviewed at least annually or as agreed appropriate to ensure that it is streamlined and effective. New and innovative approaches to problem solving or incidents and any lessons learnt will be incorporated accordingly. We should consider this a live document which evolves by experience in agreement with the Authority

### APPENDIX D - CALCULATIONS



APPENDIX E – ACOUSTIC FENCING



# ECHO BARRIER<sup>®</sup>

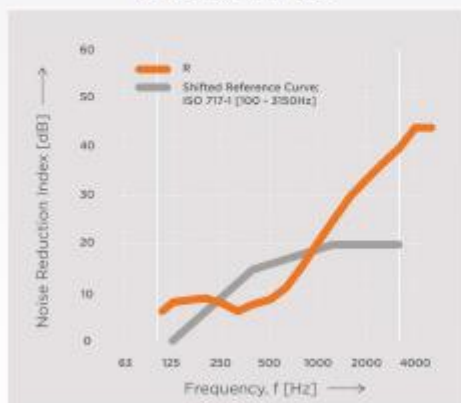
Environmentally Sound

## H10™ Acoustic Barrier

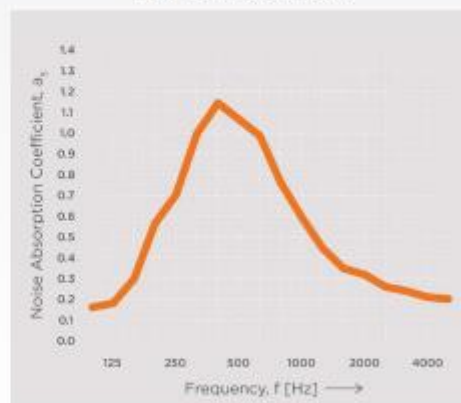
The Echo Barrier H10™ offers the ultimate in all-round performance, complementing exceptional noise absorption (100%) and unrivalled noise reduction (43.4dB) with portability, durability, and versatility. Impressively resistant to water and to extremes of temperature, the Echo Barrier H10™ rises to a multitude of challenges, such as those posed by rugged or humid environments. ASTM E84 tests for flame spread and smoke development indicate its suitability for projects subject to highly stringent fire regulations.



NOISE REDUCTION



NOISE ABSORPTION



[echobarrier.com](http://echobarrier.com) | [info@echobarrier.com](mailto:info@echobarrier.com)



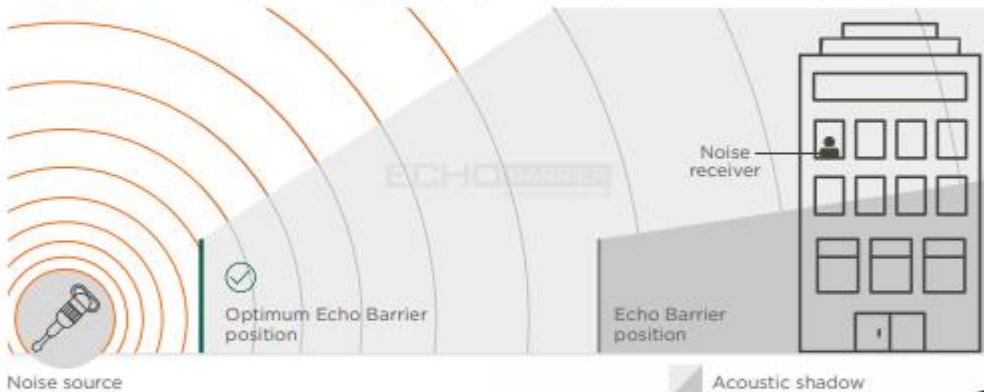
### H10™ Acoustic Barrier

Max Noise Reduction (Lab Tested)*	43.4 dB
Max Noise Absorption (Lab Tested)*	100%
Height	2050 mm (6 ft 9 in)
Width	1335 mm (4 ft 5 in)
Rolled dimensions	400 mm (1 ft 4 in) diameter, 1335 mm (4 ft 5 in) wide
Weight	6.3 kg (14 lb)
Water resistant test standard*	BSEN 60529:1992 IPX6 / IPX9
Fire resistant test standard*	BS 7837-1996, ASTM E84
Dust resistant test standard*	BSEN 60529-1992
Cold resistant test standard (result)*	BSEN 60068/2/1:2007 (-40 °C/F)
Tensile test standard (result)*	ISO 17025 (5.52 kN vertical, 1.34 kN horizontal)
UV resistant	3 years (USA + Canada), 5 years (rest of the world)
Safety features	Two night-time reflective strips, hazard icons
Quick install	1 person in 30 seconds with installation kits, rollable
Installation kits	Yes
Anti-theft	Security cable, Data tag
Cleaning	Power wash
Identification code part number	Unique RFID number per each unit
Manufacturer's warranty	2 years
Colour options	On request

\* Full independent laboratory results can be obtained on request to [info@echobarrier.com](mailto:info@echobarrier.com)

### Effective installation

The lightweight Echo Barriers enable placement versatility along a jobsite's perimeter or directly in front of the noise source for optimum mitigation.



### What makes our acoustic barriers so effective?



#### Front outer layer

Extremely durable, high-quality waterproof PVC, of optimum mass to achieve maximum noise mitigation, also offering an impressive visual finish.



#### Noise-absorbent composite

The heart of the panel: Echo Barrier's lightweight, but highly noise-absorbent composite. At certain frequencies it absorbs 100% of noise.



#### Waterproof breathable membrane

The membrane lets in sound, so that it can be absorbed by the composite, but keeps water out.



#### Durable reinforced mesh

The mesh protects the panel in tough working environments without compromising its acoustic performance.

