Our ref: NIA/8232/18/8201/v1 The Londoner PH

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Dear Sir

NOISE IMPACT ASSESSMENT FOR PROPOSED ROOFTOP BAR
THE LONDONDER PUBLIC HOUSE, 16–18 SHAMBLES STREET, BARNSLEY

1.00 INTRODUCTION

1.01 Environmental Noise Solutions has been commissioned by Garry Greetham Associates, on behalf of its client Mr. D Clayton, to carry out a noise impact assessment for the proposed rooftop bar at The Londoner public house, 16–18 Shambles Street, Barnsley, S70 2SW (hereafter referred to as the 'application site').

1.02 The objectives of the noise impact assessment were to:

- Assess the potential impact of the proposed rooftop bar with reference to the National Planning Policy Framework and other pertinent guidelines.
- Provide recommendations for structural and management controls, as necessary, to protect the noise amenity of the nearest residential dwellings.

1.03 This report details the methodology and results of the assessment. It has been prepared to accompany a planning application to be submitted to Barnsley Metropolitan Borough Council (BMBC).

1.04 This report has been prepared for Mr. D Clayton for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Mr. D Clayton (applicant), Garry Greetham Associates (applicant's agent) and ENS as to the extent to which the findings may be appropriate for their use.

1.05 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.00 APPLICATION SITE SETTING AND PROPOSED DEVELOPMENT

2.01 The Londoner public house (PH) is located in a mixed-use urban setting in Barnsley town centre, and is bound by (see Appendix 2):

- Shambles Street to the north.
- No. 8 Shambles Street (an existing bar/restaurant) to the east.
- Nos. 20–30 Shambles Street (former offices) to the west.
- A surface car park to the south.

2.02 Proposals are to create a rooftop bar on the existing roof of The Londoner PH. The bar will accommodate circa 150 no. patrons and music within the rooftop bar will be kept to quiet 'conversational' levels.

2.03 It is understood that the opening hours of the rooftop bar will mirror those at the existing premises, as follows:

- 2000–2345 hours on Friday
- 1500–0100 hours on Saturday
- 1530–2100 hours on Sunday

2.04 In terms of relevant planning history in the vicinity of the application site, it is noted that Planning Permission ref: 2018/1189 was granted by BMBC in October 2018 for the change of use of former offices at Nos. 20–30 Shambles Street to form 19 no. apartments, subject to conditions. Condition 1 relates to noise as follows:

> *1. The development shall be carried out in accordance with the recommendations and mitigation measures set out the 'Assessment of Proposed Residential Conversion' by Sharps Gayler dated 5th July 2018. The measures shall be installed prior to occupation and retained as such thereafter.*

2.05 For reference, the mitigation measures set out in the accompanying Sharps Gayler report comprise acoustic double-glazing or secondary glazing rated at least **49 dB R_w**, in conjunction with mechanical ventilation.

2.06 The proposed apartments at Nos. 20–30 Shambles Street are adopted as the nearest noise sensitive receptor (see Appendix 2 for location).

2.07 It was noted during a walkover of the application site and its surrounding environs that the night time noise climate at the rear of the application site is due to entertainment noise (music and patron noise) from pubs and clubs in the locality, as well as distant road traffic.

2.08 Pubs and clubs in the immediate vicinity include Bar Bluu (a nightclub with opening hours until 0200 hours) and The Joseph Bramah (a pub with a beer garden fronting onto Graham's Orchard, with opening hours until 0100 hours).

2.09 The night time noise climate at the front of the application site (fronting onto Shambles Street) is dominated by road traffic noise.

3.00 NATIONAL PLANNING POLICY FRAMEWORK PLANNING PRACTICE GUIDELINES ON NOISE AND OTHER RELEVANT GUIDANCE

National Planning Policy Framework

3.01 The National Planning Policy Framework (NPPF) was updated in July 2018 and sets out the Government's planning policies for England and how these are expected to be applied.

3.02 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 170 where it states that 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…..noise pollution'.

3.03 Paragraph 180 advises that:

'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'.

3.04 The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

Noise Policy Statement for England

3.05 The Noise Policy Statement for England (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life.
- Mitigate and minimise adverse impacts on health and quality of life.
- Where possible, contribute to the improvement of health and quality of life.

3.06 NPSE describes the following levels at which noise impacts may be identified:

- 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.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

3.07 The following table summarises noise exposure hierarchy, based on likely average response.

Table 3.1 – Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Adverse Effect Level (NOAEL)			
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. 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 (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, 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 perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, 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
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Planning Practice Guidance – Noise

3.08 In December 2014, Planning Practice Guidance (PPG) was updated online which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur.
- Whether or not an adverse effect is occurring or likely to occur.
- Whether or not a good standard of amenity can be achieved.

3.09 In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

'…the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation'.

3.10 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

ProPG Planning and Noise: New Residential Development

3.11 ProPG Planning and Noise: New Residential Development (ProPG) was published in May 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

3.12 Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233) (see table below).

Table 3.2 – Indoor Ambient Noise Levels in Dwellings

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700–2300)}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq\ (0700–2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700–2300)}$	30 dB $L_{Aeq\ (2300–0700)}$ 45 dB $L_{AFMax\ (2300–0700)}$

3.13 Note 4 to the above table states: *"A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed* ***45dB $L_{Amax,F}$*** *more than 10 times a night.'*

Noise from Pubs and Clubs – Phase 1

3.14 Where entertainment (i.e. music) noise is present, the DEFRA document *'Noise from Pubs and Clubs – Phase 1'* describes methods for assessing the acceptability of a noise spectrum for a given application through the use of Noise Rating (NR) curves. This is a graphical method for assigning a single-number rating to a noise spectrum, and many local authorities have a requirement to comply with **NR20** in bedrooms at night where entertainment noise is present.

3.15 On the basis of the above, it is considered appropriate that noise associated with the proposed rooftop bar does not exceed the following internal noise levels within the nearest noise sensitive receptor (proposed apartments at Nos. 20–30 Shambles Street):

- 30 dB $L_{Aeq,\ T}$ and 45 dB L_{AFMax} (patron noise)
- NR20 (music noise)

3.16 These levels are considered to represent good resting and sleeping conditions, and compliance with these levels, by definition, cannot represent a significant adverse impact.

4.00 NOISE IMPACT ASSESSMENT

4.01 The principal noise sources associated with the rooftop bar are considered to be:

- Noise associated with patrons (raised voices)
- Noise associated with amplified music

4.02 The mitigation measures required by Condition 1 of Planning Permission ref: 2018/1189 (for the proposed adjacent residential development) comprise a system of mechanical ventilation in conjunction with enhanced glazing with the following minimum performance specification:

Table 4.1 – Minimum Glazing Requirements in Adjacent Development

Octave Band L_{eq}							R_w
63 Hz	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	
28	33	40	46	48	56	65	**49**

Noise Associated with Patrons

4.03 Measurements of a comparable public house external area (with circa 60 patrons) have previously been undertaken by ENS, with noise levels associated with raised voices measured at circa **62 dB $L_{Aeq\ (1\ hour)}$** directly adjacent to/overlooking the external area.

4.04 This level is corrected by +4 dB to account for the additional maximum number of patrons (i.e. = 10 x log [150 / 60]). Worst case noise levels associated with patrons in the rooftop bar are therefore calculated at **66 dB $L_{Aeq\ (1\ hour)}$**.

4.05 For reference, maximum noise levels associated with raised voices were measured at up to **80 dB L_{AFMax}** directly adjacent to/overlooking the external area.

4.06 The minimum glazing performance at the proposed adjacent residential development is rated at **49 dB R_w** (note: no C_{tr} correction is adopted as speech frequencies typically range from 500 to 2500 hertz).

4.07 Worst case internal noise levels associated with patron noise from the rooftop bar are therefore calculated at **17 dB $L_{Aeq\ (1\ hour)}$** and up to **31 dB L_{AFMax}**, as follows:

External Noise Level	Façade Reduction	Internal Noise Level	Internal Criteria
≤ 66 dB $L_{Aeq,\ T}$ ≤ 80 dB L_{AFMax}	–49 dB R_w	≤ 17 dB $L_{Aeq,\ T}$ ≤ 31 dB L_{AFMax}	≤ 30 dB $L_{Aeq,\ T}$ ≤ 45 dB L_{AFMax}

4.08 Such levels are at least 13 decibels below the internal noise criteria outlined in Paragraph 3.14, and should not result in sleep disturbance. The noise impact associated with patron noise is therefore considered to be negligible.

4.09 In summary, it is considered that the mitigation measures required to control general noise ingress (including existing entertainment noise) at the adjacent development will readily mitigate noise associated with the proposed rooftop bar at the application site.

4.10 Noise associated with patrons is therefore considered to represent a No Observed Adverse Effect Level (NOAEL), as it does not significantly change the character of the area, or give rise to a change in behaviour.

Noise Associated with Amplified Music

4.11 Based on the minimum glazing performance required at the proposed adjacent residential development, and the NR 20 criteria described in Section 3.00, the following table establishes the maximum permissible music noise level (MNL) at the façade of the nearest noise sensitive receptor.

Table 4.2 – Maximum Permissible Music Noise Level at Adjacent Development

Parameter	Octave Band L_{eq}							dB L_{Aeq}
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
NR20 (a)	51	39	31	24	20	17	14	**≈ 26**
Façade reduction (b)	28	33	40	46	48	56	65	**≈ 49**
Permissible MNL at façade (a)+(b)	79	72	71	70	68	73	79	**82**

4.12 It is considered that compliance with the above MNL is amenable to a suitably worded planning condition, and that appropriate noise control can be achieved by the judicious selection and siting of amplification equipment. As stated, music is to be kept to quiet 'conversational' levels.

5.00 CONCLUSIONS

5.01 A noise impact assessment has been undertaken for a proposed rooftop bar at The Londoner public house, 16–18 Shambles Street, Barnsley.

5.02 The night time noise climate at the application site is due to local and distant road traffic, and music and patron noise associated with existing pubs and clubs in the locality.

5.03 An assessment of the noise impact of the proposed rooftop bar has been undertaken, in accordance with the NPPF and other pertinent guidance.

5.04 Noise associated with patrons (raised voices) at the rooftop bar is considered to represent a No Observed Adverse Effect Level (NOAEL) under the NPPF, as it does not significantly change the character of the area, or give rise to a change in behaviour, and sleep disturbance will be avoided.

5.05 A maximum permissible music noise level at the façade of the nearest noise sensitive receptor has been established. It is considered that this is amenable to a suitably worded planning condition, and that appropriate noise control can be achieved by the judicious selection and siting of any amplification equipment.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

T. Crabb

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Appendix 1
Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 µPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

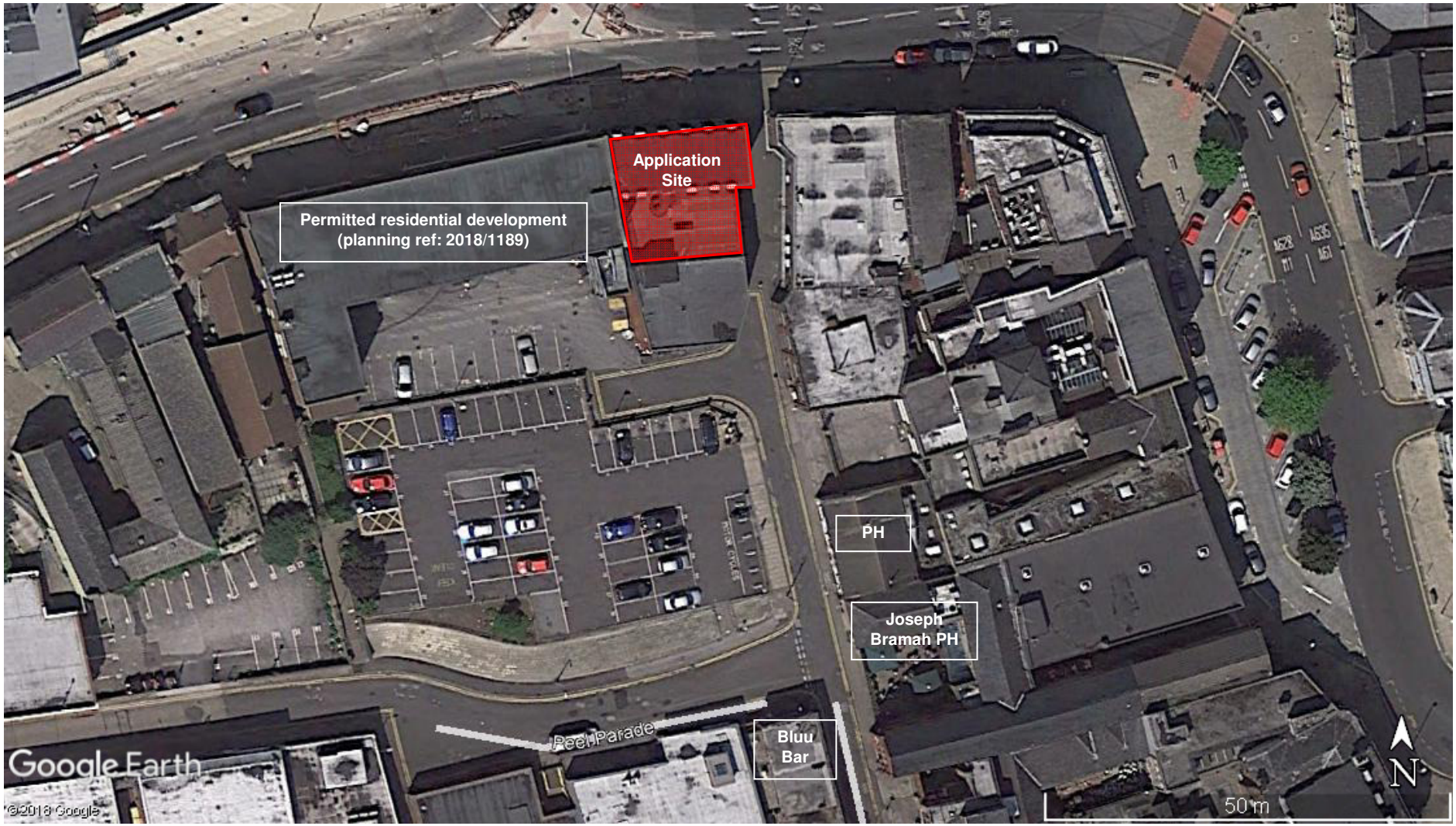
$L_{AF\ max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2
Drawings (Site Plan)