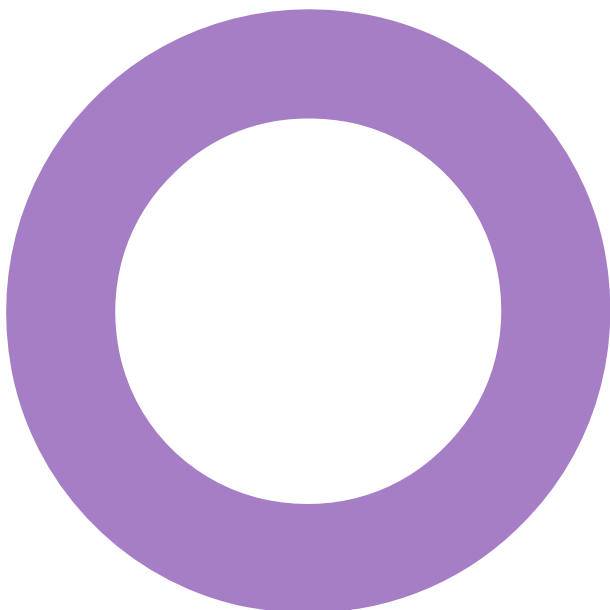


**Old Sessions House.
London.
Ennismore.**

ACOUSTICS

NOISE IMPACT ASSESSMENT
LICENSED PREMISES APPLICATION
REVISION 2 - 08 JUNE 2018



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
0	30/05/2018	Initial draft for internal review	KS	GV	
1	06/06/2018	Draft for client review	KS	GV	
2	08/06/2018	Client Issue	KS	GV	

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Project number: 10/10512

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Executive summary

An assessment of event noise has been conducted by Hoare Lea on behalf of Ennismore for the proposed licensable activities at Old Sessions House, Clerkenwell Green to assist in demonstrating that the licensed premises would create '*no negative cumulative impact on one or more of the licensing objectives*' by use of the '*operating schedule*'.

Two aspects of significance for assessment have been determined, guest arrivals and departures and noise breakout from events within Old Sessions House. All other activities will be conducted within the London Borough of Islington's guidelines.

Noise impact assessment criteria have been established based on the London Borough of Islington's requirements for noise associated with licensed premises to define 'no impact' and 'undue disturbance'.

If multiple guests arrive at or depart from the Main Entrance at the same time, there is a potential for noise from raised voices to be greater than the condition of 'no impact', but would still be unlikely to create an 'undue disturbance'. The '*operating schedule*' is to be used to provide protocols to minimise the noise from guest arrival and departures.

Internal noise from guests and amplified music has been found to be sufficiently contained within the building structure based on electronic noise limitation to Ennismore's preferred internal noise levels. However, noise could breakout from the opening of the Main Entrance doors. This has been assessed to show that it is unlikely to cause 'undue disturbance' based on the London Borough of Islington's requirements. It is, therefore, advised that management of the Main Entrance door is a priority in the '*operating schedule*'.

The impact assessment results indicate that the proposed licensed premises would operate in line with the cumulative 'no impact' requirements of London Borough of Islington in the Clerkenwell Green area with the '*operating schedule*' required to pay specific attention to the Main Entrance management.

1. Introduction.

Ennismore has appointed Hoare Lea to prepare a noise impact assessment of the proposed activities associated with spaces intended to be used as licenced premises at Old Sessions House, 22 Clerkenwell Green, London.

The proposed licenced premises is within the London Borough of Islington (LBI). Local policy for licenced premises applications has been used along with measurements of external noise levels and knowledge of the intended activities at Old Session House to form a noise impact assessment.

Significant activities have been assessed and where necessary enhancement works to the building envelope sound insulation have been determined or additional protocols for inclusion in management procedures proposed.

This document summarise the work undertaken and presents a summary of the noise impact assessment. Acoustic terminology used is described in Appendix A.

2. Local Authority policies.

The noise impact along with other aspects of the proposed licenced premises will be assessed against the policies set-out in the LBI document '*Statement of Licensing Policy 2018-2022, Licensing Act 2003*'. Four licensing objectives are to be satisfied for each application as below:

- the prevention of crime and disorder;
- public safety;
- the prevention of public nuisance;
- the protection of children from harm

Noise impact falls under '*the prevention of public nuisance*' licensing objective. Specific policies as summarised below apply to noise impact.

LP 2 – Example matters for consideration

Various considerations are given as examples, pertinent ones are listed below:

- Is development in an area of cumulative impact?
- Type of premises and impact on area.
- Proximity to residential properties.
- Hours of operation.
- The physical suitability of the building proposed for licensable activities, i.e. in terms of safety, access, noise control etc.

LP 3 – Cumulative impact policy areas

Defines 'Clerkenwell' as a cumulative impact area where; this special policy creates a rebuttable presumption that applications for the grant or variation of premises licences or club premises certificates which are likely to add to the existing cumulative impact will normally be refused following the receipt of representations, unless the applicant can demonstrate in the operation schedule that there will be no negative cumulative impact on one or more of the licensing objectives.

LP 7 – Operating Schedule

Policy requires the formation of an '*operating schedule*' to address the licensing objectives. The '*operating schedule*' should include procedures for management of events with regard to noise impact control.

LP 21 – Public nuisance

The policy includes the following aspect to be considered:

- noise
- deliveries and collections

- outside drinking, eating and smoking

LP 22 – Noise from activities

The policy sets out the specific requirements for noise as:

'The Licensing Authority expects that premises intended for the provision of noise-generating licensable activities are acoustically controlled and engineered to a degree whereby the noise from the premises when compared to the ambient noise level will not cause undue disturbance. The Licensing Authority recognises specific difficulties associated with other premises structurally linked to would-be licensed premises and the limit of sound insulation performance that can be achieved. In some circumstances licensed premises with amplified music above the volume level of acoustic musical instruments adjoining residential properties may not be appropriate.'

LP 23 – Noise from deliveries and collections

It is expected by LBI that there will be *'no collection of glass waste / bottles between 23:00 to 07:00 hours'*.

LP 24 – Smoking, drinking and eating outside

The policy requires comprehensive details of the use and methods of control of noise from external areas.

3. Outline of proposed uses of licensed spaces.

The primary use of the premises will be the applicant's head office. The first and second floors will be used as office accommodation only with no licensable activities provided on these floors. The basement and ground floors will be used as meeting rooms, office breakout areas, a staff cafeteria and multifunctional event spaces for private hire.

Licensable activities will only be provided on the basement and ground floors to employees of the applicant, bona fide guests of the applicant's employees and/or persons attending a pre-booked function or event. The premises will not otherwise be accessible to general members of the public.

The intended proposed licensable activities are:

- Plays
- Exhibition of Film
- Live Music
- Recorded Music
- Performance of Dance
- Anything of Similar Description
- Late Night Refreshment
- Alcohol (on sales only)

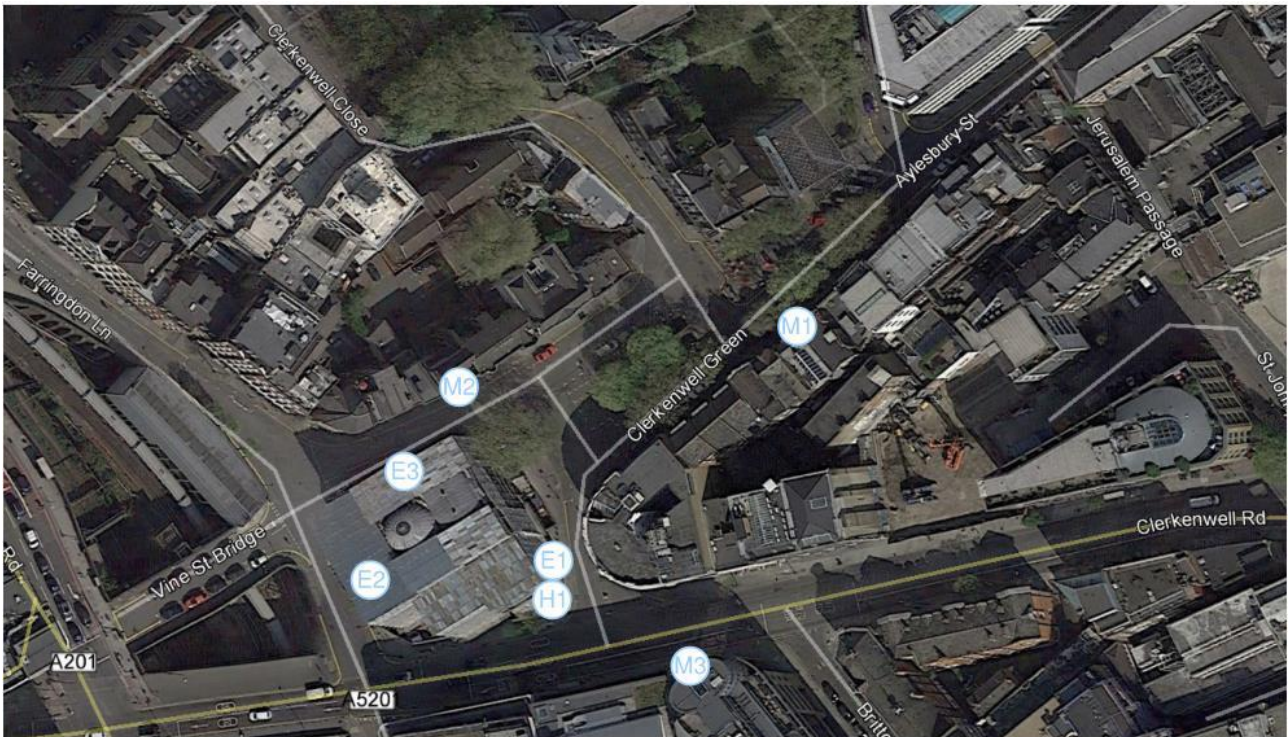
Hours of operation of the activities are sought for, Sunday 10:00 to 23:00 hours, Mondays to Saturdays 10:00 to 02:00 hours. The applicable hours of opening will extend to 30 minutes past the activity hours.

The supply of alcohol is intended to be ancillary to the use of the premises which is primarily offices with event space.

4. Summary of external noise environment.

Various planning history exists for Old Sessions House which has included external noise measurement surveys. The measured noise levels from the more recent planning applications are provided below along with the survey undertaken by Hoare Lea to support the noise impact assessment. Figure 1 below presents the measurement locations used.

Figure 1: Noise measurement locations



Key:

E1, E2 and E3 are positions used by Equus Partnership Ltd
M1, M2 and M3 are positions used by Mayer Brown Limited
H1 is the Hoare Lea position

4.1 July 2014.

The Equus Partnership Ltd conducted noise measurements in July 2014 at three positions (see E1, E2 and E3 on Figure 1). A summary of the established noise levels in 2014 is provided in Table 1 below.

Table 1: 2014 measured noise levels

Acoustic Parameter	E1	E2	E3
Daytime background (07:00 to 23:00)	LA90,15mins 54 dB	LA90,15mins 58 dB	LA90,15mins 54 dB
Night background (23:00 to 07:00)	LA90,15mins 46 dB	LA90,15mins 50 dB	LA90,15mins 46 dB
Daytime ambient (07:00 to 23:00)	LAeq,15mins 64 dB	LAeq,15mins 67 dB	LAeq,15mins 62 dB
Night ambient (23:00 to 07:00)	LAeq,15mins 62 dB	LAeq,15mins 62 dB	LAeq,15mins 56 dB
Daytime maximum events (07:00 to 23:00)	LAmx,15mins 75 – 90 dB	LAmx,15mins 75 – 90 dB	LAmx,15mins 70 – 85 dB
Night maximum events (23:00 to 07:00)	LAmx,15mins 72 – 82 dB	LAmx,15mins 68 – 85 dB	LAmx,15mins 65 – 77 dB

The full survey details are contained in the Equus Partnership Ltd report '*Old Sessions House, Clerkenwell Green, London EC1 – Noise Impact Statement*' submitted with the Planning Application.

4.2 July 2016.

Mayer Brown Limited conducted noise measurements in July 2016 at four locations, three of which are more relevant to the Clerkenwell Green area (see M1, M2 and M3 on Figure 1). A summary of the established noise levels in 2016 is provided in Table 2 below. The noise measurements covered the late night period (22:00 to 01:00 hours) on a Thursday and a Friday.

Table 2: 2016 measured noise levels

Acoustic Parameter	M1	M2	M3
Night background (before midnight)	L _{A90,15mins} 51 – 58 dB	L _{A90,15mins} 54 – 58 dB	L _{A90,15mins} 60 – 62 dB
Night background (after midnight)	L _{A90,15mins} 47 dB	L _{A90,15mins} 56 dB	L _{A90,15mins} 60 – 63 dB
Night ambient (before midnight)	L _{Aeq,15mins} 56 – 61 dB	L _{Aeq,15mins} 60 – 62 dB	L _{Aeq,15mins} 69 – 72 dB
Night ambient (after midnight)	L _{Aeq,15mins} 52 dB	L _{Aeq,15mins} 61 dB	L _{Aeq,15mins} 69 – 71 dB
Night maximum events (before midnight)	L _{Amax,15mins} 69 – 79 dB	L _{Amax,15mins} 73 – 82 dB	L _{Amax,15mins} 76 - 90dB
Night maximum events (after midnight)	L _{Amax,15mins} 67 dB	L _{Amax,15mins} 73 dB	L _{Amax,15mins} 82 – 90 dB

The full survey details are contained in the Mayer Brown Limited report '*Satila Studios, The Old Sessions House, Clerkenwell Green, London EC1 – Revised Noise Assessment, March 2017*' submitted with an application to vary the Planning Consent Conditions.

4.3 May 2018.

Measurements have been undertaken to gather additional long-term data for a Bank Holiday Weekend period, between Thursday 24th May 2018 and Thursday 31st May 2018. The survey details are provided in Appendix B. There were a couple of intense storms during the measurement period, for which noise levels should be disregarded from any observations as highlighted in Appendix B. The measurement position used is shown in Figure 1 as label H1.

Façade measured noise levels at H1 during the operational hours are typically as presented in Table 3 below.

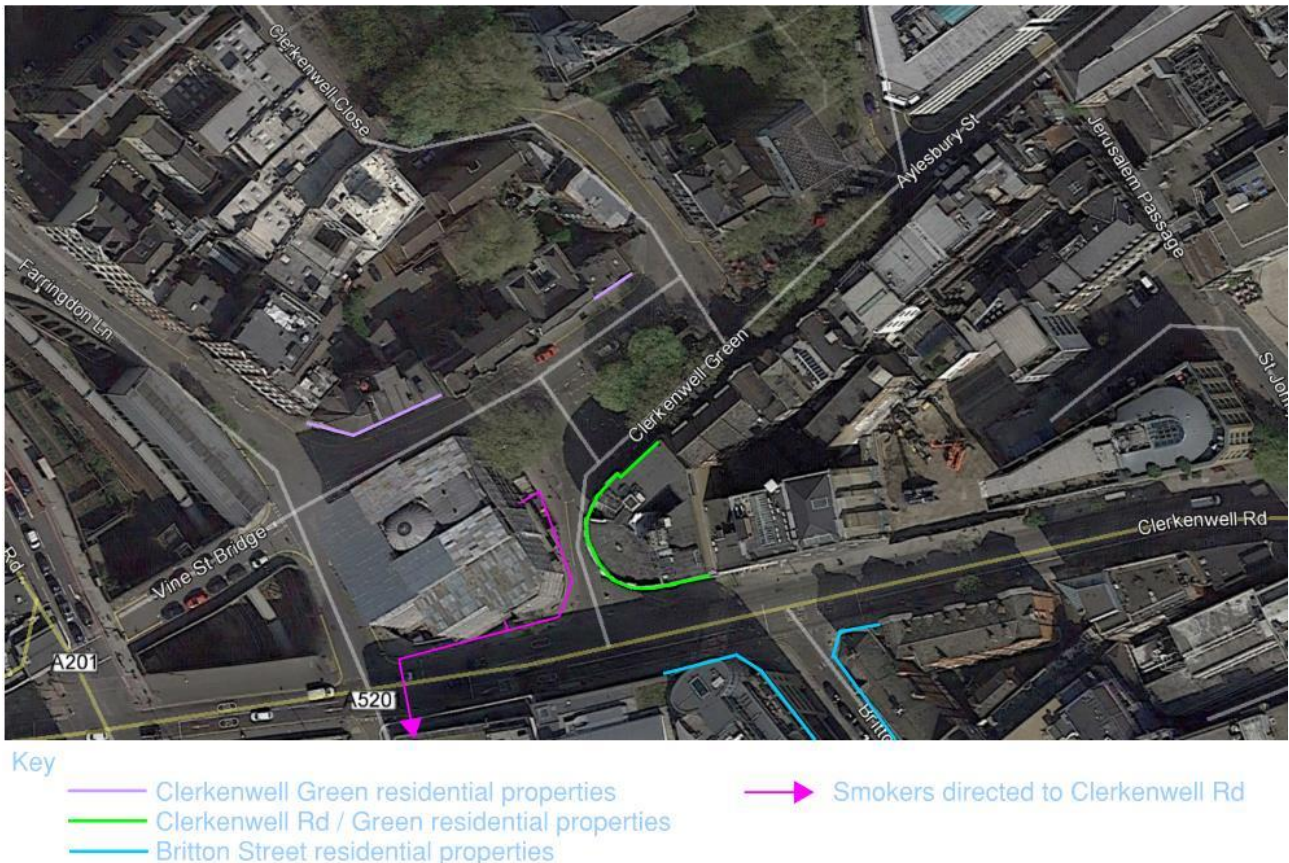
Table 3: 2018 measured noise levels

Acoustic Parameter	H1
Night background (before midnight)	L _{A90,15mins} 56 dB (approximate lowest)
Night background (after midnight)	L _{A90,15mins} 53 dB (approximate lowest)
Night ambient (before 01:00 hours)	L _{Aeq,15mins} 67 dB (approximate lowest)
Night ambient (after 01:00 hours)	L _{Aeq,15mins} 65 dB (approximate lowest)
Night maximum events (before 23:00 hours)	L _{Amax,15mins} 77 - 95 dB
Night maximum events (after 23:00 hours)	L _{Amax,15mins} 76 - 90 dB

5. Impact criteria.

To satisfy the licensing objective of 'the prevention of public nuisance', an assessment location and threshold noise level must be identified at the nearest affected residential property (following the relevant policies LP2, LP21 and LP22). The noise impact can then be assessed against the criterion. Figure 2 below shows the assumed location of residential properties in close proximity to Old Sessions House.

Figure 2: Nearest residential properties and guest advisory smoking zone



LP22 states that a comparison is to be made to the 'ambient noise level' to demonstrate whether there will be undue disturbance or not. Table 4 sets out the criteria on this basis using the lowest encountered noise level of the three surveys undertaken in the area. The established criteria assume a level of prevailing ambient noise minus 10 dB(A) will demonstrate 'no impact' and that a level of equal to prevailing ambient would be 'undue disturbance' as it would raise the prevailing ambient noise by 3 dB(A) resulting in activities being clearly audible.

Table 4: Assessment criteria

Location	Daytime Ambient L _{Aeq,15mins} dB	Daytime Criterion 'No Impact' L _{Aeq,15mins} dB	Ambient at Night L _{Aeq,15mins} dB	Night Criterion 'No Impact' L _{Aeq,15mins} dB
Clerkenwell Green	62	52	56	46
Clerkenwell Rd / Green	64	54	62	52
Britton Street	67	57	65	55

6. Identification of significant activities for assessment.

The proposed activities of the licensed premises spaces have been reviewed and each has been allocated a measure of significance taking into account the context with other non-noise aspects. Table 5 summarises the significance for assessment of the noise contribution.

Table 5: Establishment of significance for assessment

Noise Producing Activity	Significance	Context
Office use	Not significant	Low levels of noise would result from normal office activities. There are many other office premises in the area.
Deliveries / collection for office supplies and waste	Not significant	Will occur during daytime working hours and will be infrequent.
Events	Significant	Could involve both live music or amplified music and groups of people using raised voices.
Deliveries / collection for event supplies and waste	Not significant	Will be limited to LBI advised delivery / collection time periods only and will be infrequent.
Smoking in external areas	Not significant	Guests wishing to smoke will be directed towards Clerkenwell Rd and Farringdon Station area away from the premises.
Arrivals and departures during events	Significant	Could involve people using raised voices.
Mechanical services	Not significant	The operation of mechanical services is controlled under the Planning Consent and limited in noise emissions.

In addition to Table 5, there are other points that should be noted as listed below:

- There will be no on premises external smoking area, smokers will be directed by door staff towards Clerkenwell Road and the Farringdon Station area.
- There will be no external live music.
- There will be no external amplified music or loudspeakers.
- Guest will be pre-booked, no ad-hoc admittance to members of the Public.
- Entrances and exits will be managed by staff during all events.
- Windows to all spaces will be in a closed position and ventilation / comfort cooling / heating will be provided mechanically.
- Entrance and exit doors will remain closed when not in use and will be managed by staff during events.
- Hard-wired electronic noise limiters will be incorporated into the building for all amplified music events to be routed through. (See Table 8 for the proposed operational amplified music noise limits to each space).

7. Impact assessment.

The two aspects of significance identified have been assessed to determine whether the noise levels from the licensable activities meet the LBI criteria.

7.1 Guest arrivals and departures.

To provide an assessment of guests arriving or leaving for an event at the Main Entrance, it has been assumed that guests will arrive and leave in small groups as a worst case. In each group, it has been assumed that one person would be using a loud voice level and dominating the conversations. For this purpose the male loud voice sound power level spectrum of Table 6 has been used to represent a male voice as loud as possible but without strain.

Table 6: Male voice sound power levels

Octave Band Centre Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Male Voice L_w dB 'as loud as possible, no strain'	68	72	75	80	80	75	65	55

Noise propagation calculations have been undertaken taking into account distance to nearest residential properties (33m to Clerkenwell Green, 15m to Clerkenwell Rd / Green and 51m to Britton Street) along with directivity. Table 7 provides the summary of the results compared to the LBI impact criteria (of Table 4).

Table 7: Impact assessment results for arrivals and departures, LBI requirements

Location	Period	LBI Criterion 'No Impact' / 'Undue Disturbance'	Predicted Noise Level $L_{Aeq,15mins}$ dB	Comments
Clerkenwell Green	Daytime (10:00 to 23:00 hours)	52 / 62	47	No impact
Clerkenwell Green	Night (23:00 to 02:30)	46 / 56	47	No impact
Clerkenwell Rd / Green	Daytime (10:00 to 23:00 hours)	54 / 64	53	No impact
Clerkenwell Rd / Green	Night (23:00 to 02:30)	52 / 62	53	No impact
Britton Street	Daytime (10:00 to 23:00 hours)	57 / 67	43	No impact
Britton Street	Night (23:00 to 02:30)	55 / 65	43	No impact

7.2 Entertainment noise breakout.

Ennismore have their own in-house preferred amplified music noise levels for events as provided in Table 8.

Table 8: Amplified music reverberant sound pressure level spectrum

Octave Band Centre Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Amplified music noise $L_{p(rev)}$ dB	90	80	80	83	81	78	72	67

Table 9: Raised male voice sound power level spectrum

Octave Band Centre Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Raised male voice L_w dB	63	66	70	74	75	70	60	50

The amplified music systems both in-house and visiting mobile units will be routed through a head-wired in-house electronic noise limiter as standard practice.

In addition to the amplified music noise, there will be people enjoying themselves in each space, with the potential for raised voices. To account for this it has been assumed as a worst case that 20 people in each space of the licensed premises could be using raised voices simultaneously. Taking the basic sound power level of Table 9 and adding a correction for 20 people in a reverberant room (mid-frequency reverberation time of 1.0 s), the noise spectrum of Table 10 has been established.

Table 10: People noise inside, reverberant sound pressure level

Octave Band Centre Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Internal raised voices $L_{p(rev)}$ dB	68	71	75	79	80	75	65	55

The noise impact assessment has been conducted on the summation of the reverberant sound pressure levels of Table 8 and Table 10, as provided in Table 11.

Table 11: Internal reverberant sound pressure level spectrum

Octave Band Centre Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Internal source $L_{p(rev)}$ dB	90	81	81	84	84	80	73	67

Noise propagation calculations have been undertaken, a summary of which is provided in Appendix C. Table 12 provides the summary of the results compared to the LBI impact criteria (of Table 4). A contribution has been calculated from each internal space separately (see Figure 3) and then combined at the nearest noise sensitive receptor location. The single glazing solid brickwork facades have been used as a composite sound reduction element and the Main Entrance door considered to be both open and closed as separate cases.

Table 12: Entertainment noise breakout assessment, LBI requirements

Location	Period	LBI Criterion 'No Impact' / 'Undue Disturbance'	Predicted Noise Level $L_{Aeq,15mins}$ dB	Comments
Clerkenwell Green	Daytime (10:00 to 23:00 hours)	52 / 62	38 (50*)	No impact
Clerkenwell Green	Night (23:00 to 02:30)	46 / 56	38 (50*)	Generally no impact
Clerkenwell Rd / Green	Daytime (10:00 to 23:00 hours)	54 / 64	40 (55*)	No impact
Clerkenwell Rd / Green	Night (23:00 to 02:30)	52 / 62	40 (55*)	Generally no impact
Britton Street	Daytime (10:00 to 23:00 hours)	57 / 67	33 (43*)	No impact
Britton Street	Night (23:00 to 02:30)	55 / 65	33 (43*)	No impact

* Note that the noise level shown in () is predicted when the Main Entrance door is open. This will only occur for a short period of time as guests arrive or depart and the doors will be closed generally during the events.

7.3 Cumulative assessment

To provide a cumulative assessment of the proposed licensed premises, the results of Table 7 and Table 12 have been combined with the resultant impact assessment summarised in Table 13.

Table 13: Cumulative assessment

Location	Period	LBI Criterion 'No Impact' / 'Undue Disturbance'	Predicted Noise Level L _{Aeq,15mins} dB	Comments
Clerkenwell Green	Daytime (10:00 to 23:00 hours)	52 / 62	48 (52*)	No impact
Clerkenwell Green	Night (23:00 to 02:30)	46 / 56	48 (52*)	Generally no impact
Clerkenwell Rd / Green	Daytime (10:00 to 23:00 hours)	54 / 64	53 (57*)	No impact
Clerkenwell Rd / Green	Night (23:00 to 02:30)	52 / 62	53 (57*)	Generally no impact
Britton Street	Daytime (10:00 to 23:00 hours)	57 / 67	43 (46*)	No impact
Britton Street	Night (23:00 to 02:30)	55 / 65	43 (46*)	No impact

* Note that the noise level shown in () is predicted when the Main Entrance door is open. This will only occur for a short period of time as guests arrive or depart and the doors will be closed generally during the events.

8. Mitigation.

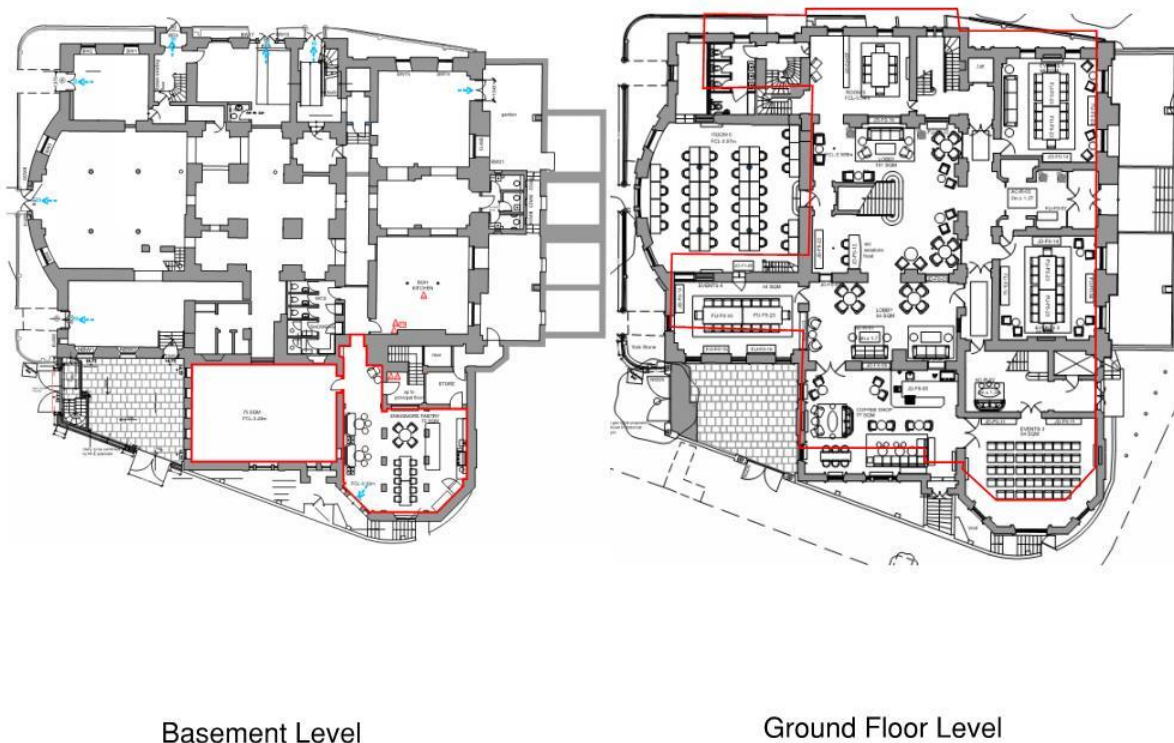
The impact assessment against LBI requirements has demonstrated that arrivals and departures or periods of time when the Main Entrance doors are open require consideration, but are not of undue disturbance. It is advised that the '*operating schedule*' developed by the licensed premises management should contain protocols that apply best practice to the Main Entrance activities. For noise management these could include:

- Training of door staff to develop an awareness of noise disturbance.
- Signage and instruction from door staff requesting guests to be quiet and respect the neighbouring residential properties.
- Signage and instruction from door staff to guide guest leaving in the direction of Clerkenwell Road to avoid passing closer to Clerkenwell Green residential properties when departing.
- Not having doors on automatic movement opening sensors.
- Not holding doors open un-necessarily.

There is an option to reduce further the late night / early morning noise levels by restricting departing guests from the Basement areas only to use the side entrance door located off Clerkenwell Road. For flexibility purpose this is not a preferred option considering that the preferred use is satisfactory (see Table 13).

With regard to live music events which could fall outside the music noise assessed at times due to some instruments not being electrically amplified, it is advised that the location be restricted internally within the licensed premises to the Ground Floor Coffee Shop and associated Lobby area, Ground Floor Events 4, Basement Function Room or Basement Ennismore Pantry all in the south west corner to minimise noise breakout (see Figure 3).

Figure 3: Internal spaces



9. Summary and conclusions.

An assessment of event noise has been conducted by Hoare Lea on behalf of Ennismore for the proposed licensable activities at Old Sessions House, Clerkenwell Green to support the licensed premises application.

Two aspects of significance for assessment have been determined, guest arrivals and departures and noise breakout from events within Old Sessions House. All other activities will be conducted within the London Borough of Islington's guidelines.

Noise impact assessment criteria have been established based on the London Borough of Islington's requirements for noise associated with licensed premises to define 'no impact' and 'undue disturbance'.

If multiple guests arrive at or depart from the Main Entrance at the same time, there is a potential for noise from raised / loud voices to be greater than the condition of 'no impact', however, the noise level would still be unlikely to create an 'undue disturbance'. The '*operating schedule*' is to be used to provide protocols to minimise the noise from guest arrival and departures.

Internal noise from guests and amplified music has been found to be sufficiently contained within the building structure based on electronic noise limitation to Ennismore's preferred internal noise levels. However, noise could breakout from the opening of the Main Entrance doors. This has been assessed to show that it is unlikely to cause 'undue disturbance' based on the London Borough of Islington's requirements. It is, therefore, advised that management of the Main Entrance door is a priority in the '*operating schedule*'. There is also an option to use the side entrance door for guests departing which is not Ennismore's preference as it would limit the flexibility of the use of internal spaces.

The impact assessment results indicate that the proposed licensed premises would operate in line with the cumulative 'no impact' requirements of London Borough of Islington in the Clerkenwell Green area with the '*operating schedule*' required to pay specific attention to the Main Entrance management.

Appendix A: Acoustics terminology.

Decibel (dB)

The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequencies than to low frequencies within the range. There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example two adjacent octave bands are 250 Hz and 500 Hz. Third octave bands provide a fine resolution by dividing each octave band into three bands.

A-Weighting

The 'A' weighting is a correction term applied to the frequency range in order to mimic the sensitivity of the human ear to noise. It is generally used to obtain an overall noise level from octave or third octave band frequencies. An 'A' weighted value would be written as dB (A).

Equivalent Continuous Sound Level L_{eq}

The L_{eq} is a parameter defined as the equivalent continuous sound pressure level. Over a defined time period 'T', it is the sound pressure level equivalent to the acoustic energy of the fluctuating sound signal. The $L_{eq,T}$ can be seen to be an "average" sound pressure level over a given time period (although it is not an arithmetic average). Typically the $L_{eq,T}$ will be an 'A' weighted noise level in dB(A). It is commonly used to describe all types of environmental noise sources.

Background Noise Level L_{90}

The $L_{90,T}$ is a parameter defined as the sound pressure level exceeded for 90% of the measurement period 'T'. It is a statistical parameter and cannot be directly combined to other acoustic parameters. It is generally used to describe the prevailing background noise level or underlying noise level.

Maximum Event Noise Level L_{max}

The $L_{max,T}$ is a parameter defined as the maximum noise level measured during the specified period 'T'. It is used to represent individual noise events.

Appendix B: Noise survey of May 2018.

Hoare Lea conducted an unattended automated long-term noise measurement exercise at Old Session House between Thursday 24th May 2018 and Thursday 31st May 2018. The equipment used is listed below and the weather conditions during the survey period were overall conducive to the acquisition of noise levels, except some periods had stronger winds when thunderstorms occurred, Table 14 below summarises key observations. Figure 1 shows the measurement position location on the Clerkenwell Road side of Old Sessions House. The microphone was located at 1.5m above local ground level and at 1m from the nearest façade (indicating measured levels are façade incident values).

Equipment

The measurement equipment used is listed below:

- Sound level meter RION NL-52 with serial number 00331821, calibration certificate number UCRT17/1533
- Microphone Rion UC-59 with serial number 04887, calibration certificate number UCRT17/1533
- Pre-amp Rion NH-25 with serial number 21772, calibration certificate number UCRT17/1533
- Acoustic Calibrator Rion NC - 74 with serial number 34557134, calibration certificate number UCRT17/1880

Weather

Table 14: General weather conditions (central London)

Day and Date	Mean Temperature Degree Celsius	Mean Wind Speed mph (km/hr)	Comments
Thursday 24 th May 2018	17	5.6 (9)	Dry
Friday 25 th May 2018	17	5.0 (8)	Dry
Saturday 26 th May 2018	20	9.3 (15)	Occasional storms ^[1]
Sunday 27 th May 2018	20	6.2 (10)	Occasional stormy
Monday 28 th May 2018	21	5.0 (8)	Occasional stormy
Tuesday 29 th May 2018	16	6.8 (11)	Occasional storms ^[2]
Wednesday 30 th May 2018	18	5.0 (8)	Light rain at night
Thursday 31 st May 2018	18	7.5 (12)	Dry

Note [1], between approximately 12:00 hours and 16:00 hours there was an intense storm.

Note [2], between approximately 22:30 hours and 01:00 hours there was an intense storm.

Measured noise levels

Table 15 below provides a summary of the prevailing background noise levels measured, with the values derived by a statistical distribution approach and looking at the value occurring more than 5% of the time.

Table 15: Measured background noise levels

Day and Date	Daytime L _{A90,15mins} dB	Night L _{A90,15mins} dB
Thursday 24 th May 2018	-	53
Friday 25 th May 2018	60	53
Saturday 26 th May 2018	57	53
Sunday 27 th May 2018	54	53
Monday 28 th May 2018	56	52

Day and Date	Daytime LA90,15mins dB	Night LA90,15mins dB
Tuesday 29 th May 2018	58	54
Wednesday 30 th May 2018	59	53

A noise level time history for each of LAeq,15mins dB (ambient), LA90,15mins dB (background) and LAmax,15mins dB (maximum event) is provided in Figure 4, Figure 5 and Figure 6 respectively below overlaying the individual 10:00 hours to 02:30 hours period for each day recorded.

Figure 4: Ambient noise level time history

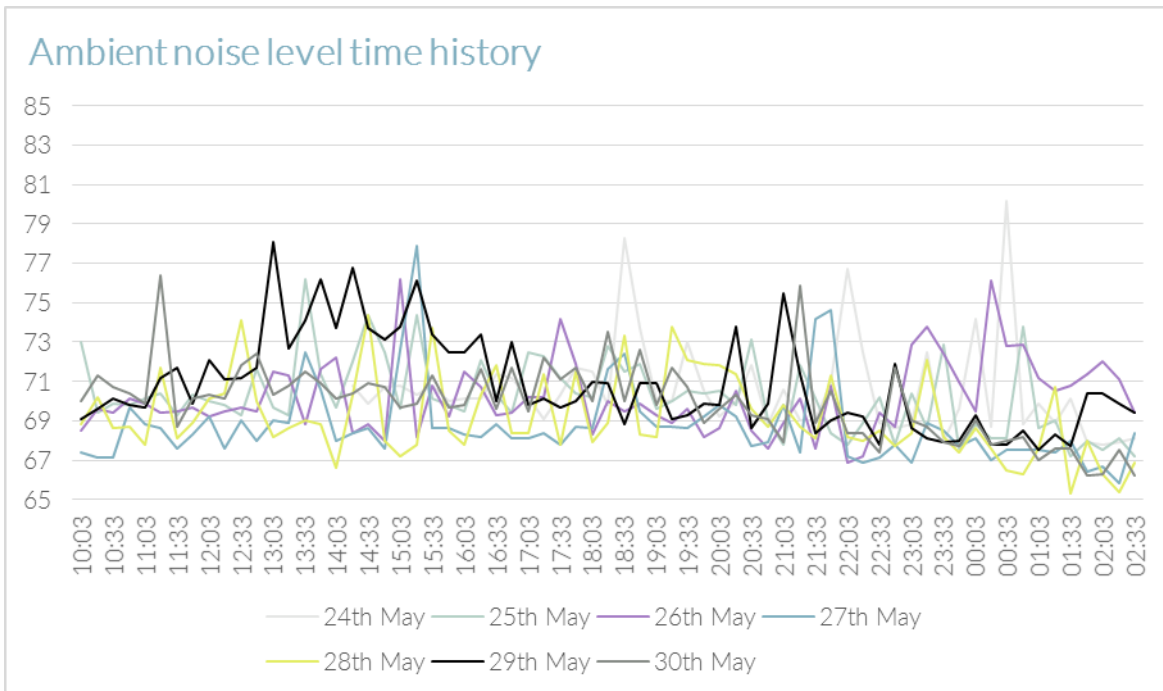


Figure 5: Background noise level time history

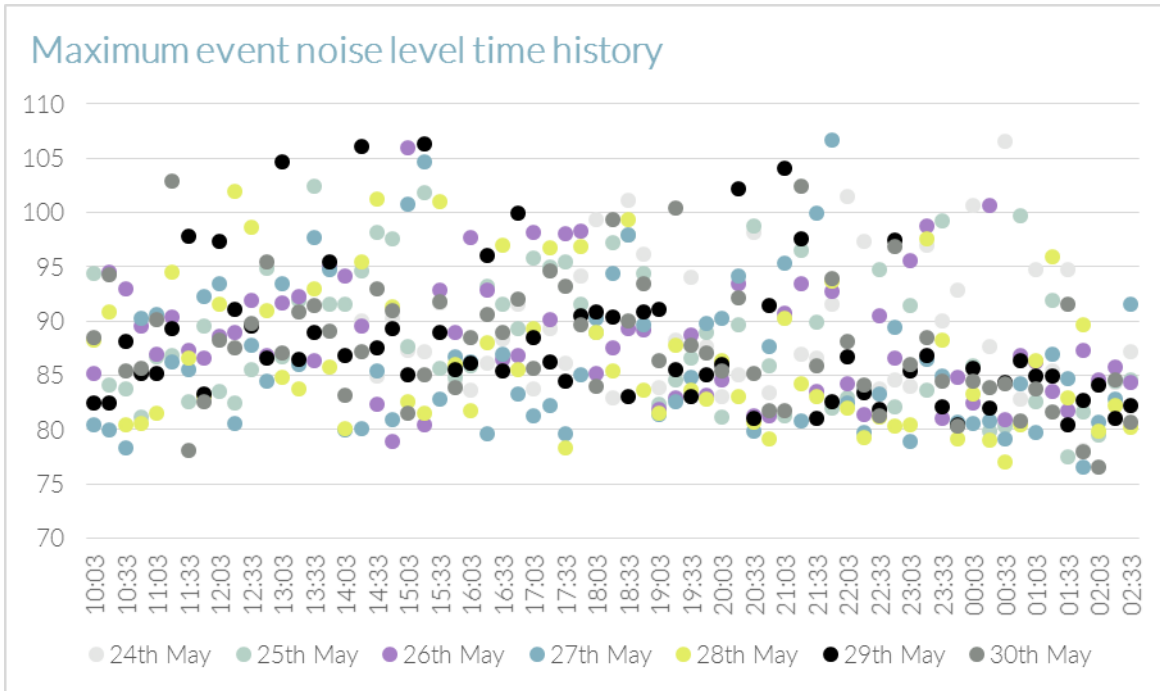
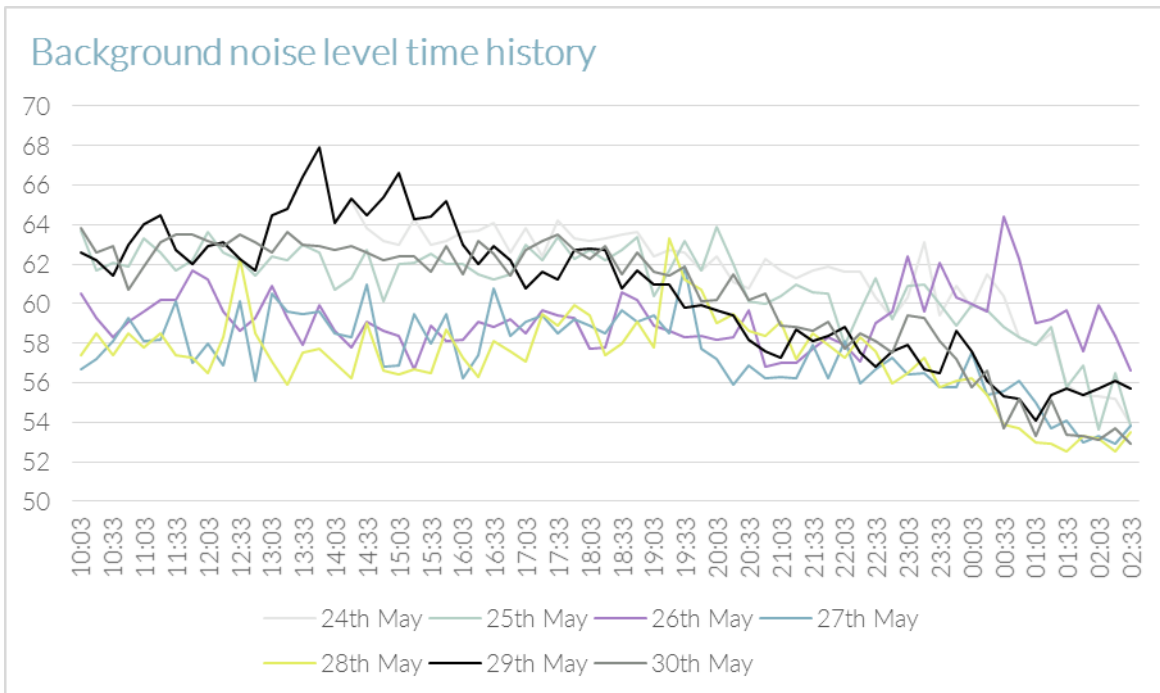


Figure 6: Maximum event noise level time history



The measured noise dataset is too large to include in its entirety in this appendix, but is available on request.

Appendix C: Summary of noise breakout calculations.

Clerkenwell Green residential receptor

Old Sessions House cumulative predictions (Main Entrance Door Closed)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	12	29	13	11	11	5	-2	-4	-10
Basement Function Room	8	25	9	7	7	1	-6	-8	-14
Ground Floor Room 6	32	49	33	31	31	25	18	16	10
Ground Floor Events 1	36	53	37	35	35	29	22	20	14
Mani Entrance & Lobby	22	39	23	21	21	15	8	6	0
Ground Floor Events 2	22	39	23	21	21	15	8	5	-1
Ground Floor Events 3 & Fire Lobby	24	41	25	23	23	17	10	8	2
Ground Floor Coffee Shop	7	24	8	6	6	0	-7	-9	-15
Ground Floor Events 4	4	21	5	3	3	-3	-10	-12	-18
Overall received noise level (Clerkenwell Green)	38	55	39	37	37	31	24	22	16
Old Sessions House cumulative predictions (Main Entrance Door Open)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	12	29	13	11	11	5	-2	-4	-10
Basement Function Room	8	25	9	7	7	1	-6	-8	-14
Ground Floor Room 6	32	49	33	31	31	25	18	16	10
Ground Floor Events 1	36	53	37	35	35	29	22	20	14
Mani Entrance & Lobby	49	52	43	43	46	46	42	35	29
Ground Floor Events 2	22	39	23	21	21	15	8	5	-1
Ground Floor Events 3 & Fire Lobby	24	41	25	23	23	17	10	8	2
Ground Floor Coffee Shop	7	24	8	6	6	0	-7	-9	-15
Ground Floor Events 4	4	21	5	3	3	-3	-10	-12	-18
Overall received noise level (Clerkenwell Green)	50	57	44	44	46	46	42	35	29

Clerkenwell Rd / Green residential receptor

Old Sessions House cumulative predictions (Main Entrance Door Closed)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	35	52	36	34	34	28	21	19	13
Basement Function Room	20	37	21	19	19	13	6	4	-2
Ground Floor Room 6	9	26	10	8	8	2	-5	-7	-13
Ground Floor Events 1	28	45	29	27	27	21	14	12	6
Mani Entrance & Lobby	28	45	29	27	27	21	14	12	6
Ground Floor Events 2	32	49	33	31	31	25	18	15	9
Ground Floor Events 3 & Fire Lobby	36	53	37	35	35	29	22	20	14
Ground Floor Coffee Shop	19	36	20	18	18	12	5	3	-3
Ground Floor Events 4	13	30	14	12	12	6	-1	-3	-9
Overall received noise level (Clerkenwell Rd / Green)	40	57	41	39	39	33	26	24	18
Old Sessions House cumulative predictions (Main Entrance Door Open)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	35	52	36	34	34	28	21	19	13
Basement Function Room	20	37	21	19	19	13	6	4	-2
Ground Floor Room 6	9	26	10	8	8	2	-5	-7	-13
Ground Floor Events 1	28	45	29	27	27	21	14	12	6
Mani Entrance & Lobby	55	58	49	49	52	52	48	41	35
Ground Floor Events 2	32	49	33	31	31	25	18	15	9
Ground Floor Events 3 & Fire Lobby	36	53	37	35	35	29	22	20	14
Ground Floor Coffee Shop	19	36	20	18	18	12	5	3	-3
Ground Floor Events 4	13	30	14	12	12	6	-1	-3	-9
Overall received noise level (Clerkenwell Rd / Green)	55	60	50	49	52	52	48	41	35

Britton Street residential receptor

Old Sessions House cumulative predictions (Main Entrance Door Closed)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	26	43	27	25	25	19	12	10	4
Basement Function Room	26	43	27	25	25	19	12	10	4
Ground Floor Room 6	2	19	3	1	1	-5	-12	-14	-20
Ground Floor Events 1	18	35	19	17	17	11	4	2	-4
Mani Entrance & Lobby	15	32	16	14	14	8	1	-1	-7
Ground Floor Events 2	19	36	20	18	18	12	5	2	-4
Ground Floor Events 3 & Fire Lobby	27	44	28	26	26	20	13	11	5
Ground Floor Coffee Shop	25	42	26	24	24	18	11	9	3
Ground Floor Events 4	15	32	16	14	14	8	1	-1	-7
Overall received noise level (Britton Street)	33	50	34	32	32	26	19	17	11
Old Sessions House cumulative predictions (Main Entrance Door Open)									
Contribution from	Overall	Octave Band Values dB							
	dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Basement Pantry	26	43	27	25	25	19	12	10	4
Basement Function Room	26	43	27	25	25	19	12	10	4
Ground Floor Room 6	2	19	3	1	1	-5	-12	-14	-20
Ground Floor Events 1	18	35	19	17	17	11	4	2	-4
Mani Entrance & Lobby	42	45	36	36	39	39	35	28	22
Ground Floor Events 2	19	36	20	18	18	12	5	2	-4
Ground Floor Events 3 & Fire Lobby	27	44	28	26	26	20	13	11	5
Ground Floor Coffee Shop	25	42	26	24	24	18	11	9	3
Ground Floor Events 4	15	32	16	14	14	8	1	-1	-7
Overall received noise level (Britton Street)	43	51	38	37	40	39	35	28	22



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