Lambton House, Sunderland

Noise impact assessment

11256.1

21st March 2024

Revision A

Lambton House, Sunderland

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1 Summary

1.1 This report has been prepared in response to Planning Condition no. 5 of Planning Application Ref: 23/01903/FUL for the change of use of Lambton House, Sunderland. The proposed development includes a new drinking establishment with associated beer garden, and adjoining pizza restaurant.

1.2 The condition requires the submission of a noise impact assessment report to determine any requirements for mitigation to minimise potential noise impacts on nearby noise sensitive receptors.

1.3 **Operational noise breakout**

1.4 Noise breakout measurements have been undertaken to determine the sound insulation performance of the existing façade elements.

1.5 Emissions of noise breakout from the proposed development have been modelled using proprietary noise modelling software CadnaA.

1.6 Operational noise levels have been reviewed that when adhered to, would result in compliance with the guideline limits in the World Health Organisation Guidelines for Community Noise and BS 8233 internally, where considering a 15 dB level difference through a partially open window.

1.7 The noise levels presented are representative of those found in a busy pub / bar, and such should not be prohibitive to the proposed use. Should the end user want to operate with higher noise limits, i.e. to allow for live or amplified music, then improvements are likely to be required to the façade sound insulation.

1.8 **Noise impact from use of beer garden**

1.9 A predictive exercise is undertaken to determine the potential noise emissions from the beer garden area.

1.10 Noise emissions from the beer garden are calculated based on raised voice noise levels and the assumptions detailed. Noise propagation to the nearest receptors has been modelled with proprietary software CadnaA.

1.11 Based on current proposals, the calculated average noise level at the façade of the nearest NSR when the beer garden is heavily occupied (worst case scenario) is calculated to be 50 dBA. Based on a 15 dB level difference through a partially open window, guideline internal noise levels of 35 dB $L_{Aeq,T}$ would be met.

1.12 For additional context, the residual noise environment during later hours of use (10pm-11pm) is identified to be in the region of 58 - 61 dBA, such that noise from the beer garden is likely to be predominantly masked by existing road traffic noise.

1.13 Based on the above, the results indicate the likelihood of a low impact, and such is considered to sufficiently meet the aims of the planning condition.

1.14 **Noise from fixed plant**

1.15 It is understood that no new building services plant is proposed as part of the development and so no detailed assessment is made of the potential impacts from this source.

1.16 Background sound levels have been measured at a position considered representative of the identified noise-sensitive receptors.

1.17 BS 4142 rated noise limits are presented for information purposes only, that would result in a low likelihood of adverse impact at the nearest receptors. Limits can be used to aid in unit selections should any fixed building services plant be installed at a later time, e.g. kitchen extraction system.

1.18 **Conclusions**

1.19 The potential noise impacts from the development have been determined and assessed in accordance with the guidance as advised within the condition wording. Where required, limitations are proposed, such demonstrating compliance with the condition requirements.

2 Introduction

2.1 A development consisting of the refurbishment of Lambton House, Sunderland has been proposed; the site location is shown in Figure 1. The development proposals includes a new drinking establishment with associated beer garden to the rear, and adjoining pizza restaurant

2.2 Apex Acoustics has been commissioned to undertake a noise survey and assessment of the noise from sources associated with the development to address the requirements of a Planning Condition.

2.3 The scope of our instruction includes:

- Measurement of the existing noise environment over a 24-hour period at two locations to the front and rear of the existing building;
- Undertake noise breakout tests to determine sound insulation performance of existing building envelope;
- Determine operational noise limits for use of the drinking establishment with existing façade elements retained, to ensure a low impact on the nearest receptors;
- Undertake a predictive modelling exercise of patrons using the proposed beer garden area, and calculate noise propagation to the nearest noise sensitive locations using proprietary noise modelling software;
- Determine rated noise limits for any potential future plant to be installed at a later time;
- An assessment of road traffic / other existing noise sources is not included.

2.4 This report presents the evaluation of the potential noise impact from operations associated with the proposed development on the identified nearest noise-sensitive receptors (NSRs), to address the requirements of a Planning Condition.

2.5 The NSR are identified as the residential premises on the upper floors of the properties on High Street West and Sunderland Street, to the south and west of the site respectively.

Figure 1: Proposed site, long term measurement positions and identified NSR

3 Planning condition

3.1 Planning Condition no. 5 associated with Application ref. 23/01903/FUL for this development is shown in Figure 2.

> 5. Prior to the development hereby permitted being brought into use, a noise assessment shall be submitted to and approved in writing by the Local Planning Authority, and any mitigation measures necessary to achieve a satisfactory noise climate shall be implemented in full. Mitigation measures within the approved noise assessment shall then retained for the lifetime of the development hereby permitted. The noise assessment shall determine whether the level of noise from all potential noise sources (including from any air conditioning, refrigeration or extract ventilation), is likely to impact occupiers of neighbouring properties. The noise assessment should be undertaken by a suitably qualified and experienced noise control consultant and should be in accordance with current relevant guidance and standards. Reference should also be made to the World Health Organisation Guideline Values for Community Noise and BS 8233:2014 Guidance on sound insulation and noise reduction for buildings and BS4142:2014 Methods for rating and assessing industrial and commercial sound. To safeguard the amenity of occupiers of neighbouring properties in relation to noise impacts, and to comply with Policy HS1; Policy HS2; and Policy BH1 of the adopted Core Strategy and Development Plan.

Figure 2: Planning Condition no. 5

4 Existing acoustic environment

4.1 The existing acoustic environment was measured at two positions over a 24 hour period from 13:44 hours on the 13th February 2024.

4.2 The measurement positions are shown in Figure 1.

4.3 Proxy positions were selected to be representative of the existing acoustic environment at the NSR, due to access restrictions.

4.4 The microphones were both positioned protruding from the first floor windows, approximately 4.5 m above floor level, and away from other reflecting surfaces such that the measurements should be corrected for the reflections from one plane to be considered free-field.

4.5 Data was recorded in single-octave band frequencies at one-second intervals throughout the measurement period.

4.6 The most significant noise source was road traffic on the surrounding road networks. Other noise sources included seagulls, and occasional vocalisations from passing people.

4.7 The equipment used is listed in Table 1.

Equipment	Model	Serial no.
Sound Level Meter	NTi XL2	A2A-12479-E0
Calibrator	Larson Davis CAL 200	13405
Sound Level Meter	NTi XL2	A2A-14176-E0
Calibrator	Larson Davis CAL 200	15307

Table 1: Equipment used

4.8 Both meters and calibrators have current calibration certificates traceable to national standards. The sound level meters have been calibrated within the last two years and calibrators calibrated within the last year in accordance with the guidance of BS 4142; calibration certificates are available on request.

4.9 The equipment was field-calibrated before and after the measurements with no significant drift in sensitivity noted.

4.10 **Residual sound level, L_r**

4.11 As the specific sound source under assessment is not yet in operation and so the existing acoustic environment measured during the survey period is the residual sound level L_r.

4.12 A time history of the measured L_r is shown in Appendix B.

4.13 **Background sound level**

4.14 Statistical analysis is undertaken of the results of all the $L_{A90,\ 15min}$ data following the guidance of BS 4142, to determine a background sound level considered to be representative of the assessment period. Results of the analysis are shown in Figure 7 and Figure 8 in Appendix B.

4.15 Based on the statistical analysis results, the background sound level considered representative of the daytime and night time assessment periods are shown in Table 2.

Assessment period	Background sound level, L_{A90} (dB)	
	Sunderland St	***High St West & A1018***
Daytime (07:00 – 23:00 hrs)	48	54
Evening (19:00 – 23:00 hrs)	44	49
Night time (23:00 – 07:00 hrs)	34	38

Table 2: Background sound levels representative of the assessment periods

5 Noise breakout measurements

5.1 **Equipment**

5.2 The equipment used is listed in Table 1.

Equipment	Model	Serial no.
Sound Level Meter	NTi XL2	A2A-12479-E0
Calibrator	Larson Davis CAL 200	13405
Loudspeaker	QSC K10	GGG530776

Table 3: Equipment used

5.3 The sound level meter and calibrator used meet the technical specifications of BS 7445 and have current calibration certificates traceable to national standards. The equipment was field-calibrated before and after the measurement with no significant drift in sensitivity noted.

5.4 Weather conditions were dry with wind speeds below 5 m/s.

5.5 **Measurements**

5.6 Noise breakout measurements from the premises were undertaken using a powered loudspeaker and a pink noise source. High noise levels are generated for the purpose of determining building sound insulation; the sound levels during the test are not representative of the operation, which would result in much lower sound levels.

5.7 The loudspeaker was placed near an internal reflective element and measurements undertaken at 10 no. positions internally to determine a spatially averaged reverberant internal level.

5.8 With the source switched on, measurements were made externally at a distance of 1 m from the centre point of all façade elements that were noted to be significant transmission paths.

5.9 Measurements were also made over three concurrent 5 minute periods externally with the sound source switched off to enable a correction to be made for the residual sound environment if required.

5.10 As the pink sound source remains at a constant level, 30 second measurements were undertaken at each outdoor position.

5.11 The measured noise levels are shown in Table 4.

Description	dB	Octave band centre frequency, Hz A weighted sound pressure levels, dB							
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Internal measurement – restaurant area									
Internal reverberant sound level	107	78	93	99	100	102	97	97	76
External measurements – restaurant area									
Window A	**77**	54	69	74	68	67	62	59	41
Door A	**77**	56	67	71	69	69	68	65	45
Window B	**78**	56	70	76	68	66	61	58	37
Window C	**77**	56	69	75	68	68	60	59	38
Window D	**78**	59	67	76	68	69	62	62	40
Door B	**78**	54	70	71	69	69	70	70	49
Window E *(not to main room)*	73	54	67	67	65	65	62	58	47
Average	**77**	**56**	**68**	**74**	**68**	**68**	**65**	**64**	**45**
Internal measurement – pub area									
Internal reverberant sound level	103	76	91	95	96	99	94	94	73
External measurements – pub area									
Door C	**70**	51	61	59	61	64	64	61	39

Description	dB	Octave band centre frequency, Hz A weighted sound pressure levels, dB							
		63	125	250	500	1k	2k	4k	8k
Window F	**70**	48	66	61	59	64	59	53	37
Door D	**68**	50	63	59	60	63	58	51	41
Window G	**70**	52	67	61	61	63	58	51	39
Window H	**69**	52	62	63	61	63	59	52	37
Window I	**69**	52	62	61	60	64	60	53	37
Window J	**69**	52	64	62	61	62	57	52	40
Door E	**72**	58	65	66	62	65	62	56	37
Window K	**72**	55	62	65	64	67	63	56	47
Window L	**72**	50	63	61	62	69	65	54	41
Average	**72**	**55**	**66**	**64**	**63**	**67**	**63**	**57**	**43**
Outdoor residual measurements									
West elevation	62	40	44	50	54	59	55	48	39
South elevation	67	48	50	56	59	64	59	52	45
East elevation	64	42	46	51	55	61	57	48	39

Table 4: Breakout measured noise levels

5.12 Measurement position identifiers are shown on marked up images in Appendix C.

5.13 As there is little variance between the noise levels measured externally for each area, the averaged measured noise levels from all external positions shown **bold** for the respective areas are used to determine a composite apparent sound reduction for each areas façade as a whole.

5.14 The measured residual sound levels are sufficiently below the averaged values in each octave band, such that no correction has been made to determine the specific sound levels from noise breaking out of the building.

6 Assessment of operation noise breakout, and operation limits

6.1 **Noise transmission and propagation**

6.2 Noise transmission and propagation to the NSR is modelled using proprietary software, Cadna/A, Reference 6. This models noise propagation outdoors according to ISO 9613, Reference 7.

6.3 The modelling parameters are described in Appendix D.

6.4 **Sound reduction indices of existing elements**

6.5 The sound reduction indices of the existing elements are calculated using the following equation:

$$R = L_{in} - L_{out} - 6 \quad (1)$$

where,

L_{out} is the breakout noise; and

L_{in} is the internal reverberant sound pressure level.

6.6 The calculated sound reduction indices for each area of the existing façade are presented in Table 5.

Façade	Octave band centre frequency, Hz Composite sound reduction indices, dB							
	63	125	250	500	1k	2k	4k	8k
Restaurant area façade	16	19	19	26	28	26	27	25
Pub area façade	15	20	24	27	26	25	31	24

Table 5: Calculated apparent sound reduction indices for existing elements based on breakout test

6.7 Noise breakout through other aspects of the façade, such as the masonry portion, were noted to be insignificant and such are not included within the noise model.

6.8 The calculated sound reduction indices have been attributed to area sources modelled at the location of the building façade.

6.9 **Model calibration**

6.10 To aid in reducing the calculation and modelling method uncertainty, an additional measurement was made on the western side of Sunderland Street when the breakout tests were being undertaken. The measured and modelled results are presented in Table 2.

Parameter	Sound level, dBA
Measured ambient sound level (inclusive of test breakout and residual noise environment) at calibration position	67
Specific sound level of noise breakout only at calibration position, corrected for residual sound	65
Modelled specific sound level of noise breakout	65

Table 6: Model calibration measurement and modelling check

6.11 The results indicate no discrepancy between the measured and modelled results using the above calculation methods, such that the uncertainty is considered to be minimised as far as feasible.

6.12 **Source noise levels**

6.13 To determine an upper internal ambient noise limit for the premises based on the existing building façade elements, a source noise spectrum for a busy pub / bar is used in the calculations, taken from the Little Red Book of Acoustics, Reference 8.

6.14 The sources noise spectrum and levels used are shown in Table 7.

Description	dB	Octave band centre frequency, Hz Linear sound pressure levels, dB						
		63	125	250	500	1k	2k	4k
Busy Pub / Bar noise, $L_{Aeq,T}$	88	80	85	85	85	85	80	70

Table 7: Source noise spectrum adopted for Busy Pub / Bar

6.15 **Results and discussion**

6.16 Based on the above assumptions, the modelled noise contours at the worst affected NSR are shown in Figure 3.

6.17 The results of the assessment indicate that where the premises is operating with noise levels representative of a busy bar / pub, specific noise levels of up to 45 dBA may be experienced at the façade of the nearest noise sensitive receptor.

6.18 Based on a 15 dB level difference through a partially open window, calculated internal noise levels internally are anticipated to be no higher than 30 dBA, and such comply with the guideline values stated in the WHO Guidelines for Community Noise and BS 8233 as specified in the planning condition.

6.19 For additional context, measured residual noise levels during later operational hours (10pm-11pm) are in the region of 52 - 55 dBA, such that this is anticipated to provide some masking to the noise breakout from the operation of the premises. At earlier hours, the residual sound environment is higher and such will result in more dominant masking.

6.20 Should higher internal noise limits be sought for the proposed operation, i.e. should the applicant wish the premise to operate with live and amplified music, then improvements may be required to the façade sound insulation to minimise the likelihood of future potential adverse impacts and complaints.

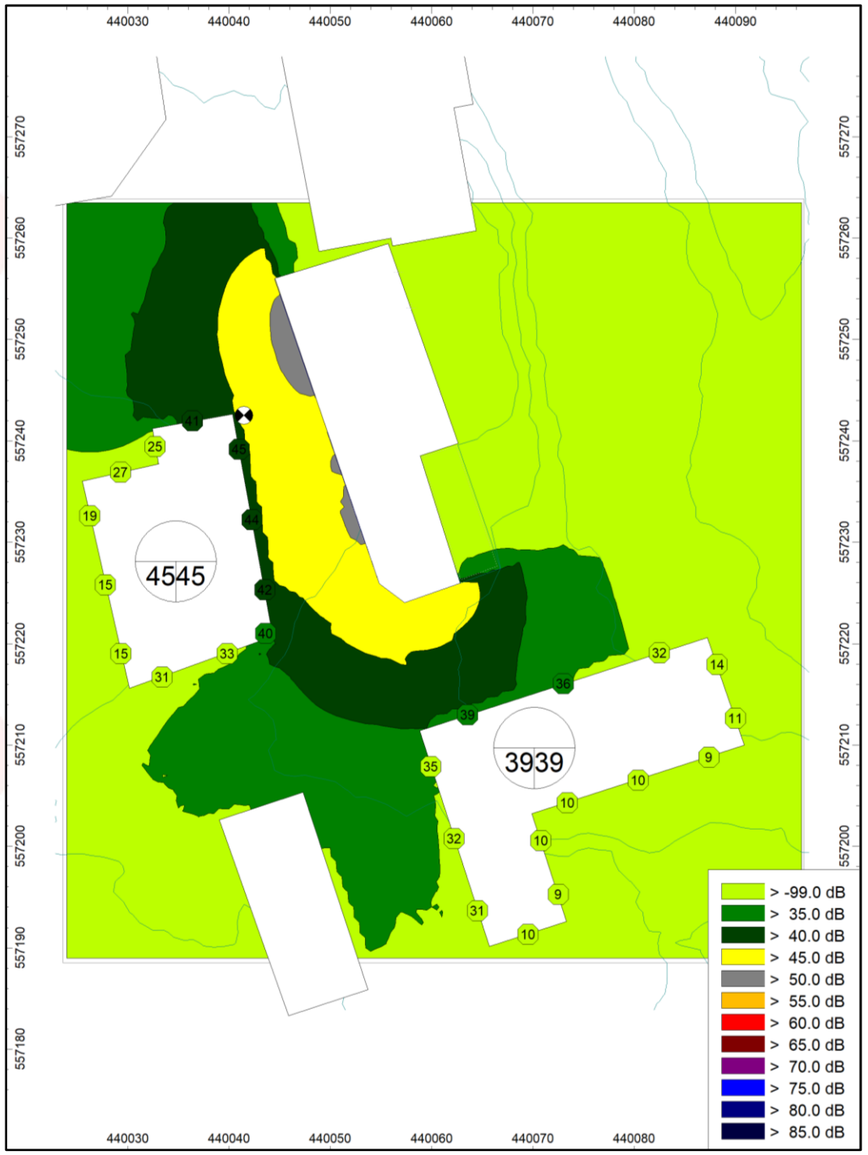


Figure 3: Modelled noise contours at 4.5 m height, representative of first floor window height. Operational noise breakout based on busy pub bar noise levels.

7 Assessment of noise from beer garden

7.1 Source levels and assumptions

7.2 The potential noise emissions have been calculated based on source noise levels for 'raised voices' from BS EN ISO 9921, with spectral information taken from ANSI 3.5. The source levels adopted for use in the assessment are shown in Table 8.

Parameter	dB(A)	Octave band centre frequency, Hz A-weighted noise levels, dB						
		63	125	250	500	1k	2k	4k
Raised voice noise levels from 1 person at 1 m distance	**66**	36	47	58	63	60	52	46

Table 8: Source noise levels of vocalisations with 'raised voice' effort

7.3 The following prudent assumptions are made regarding the use of the outdoor area:

- Up to 20 people may be using the beer garden at any one time;
- 1/4 of the total no. of people using the outdoor area may be speaking with raised voices simultaneously.

7.4 It is assumed the 'raised voice' levels would be most representative of the continuous equivalent noise from the beer garden, $L_{eq,T}$. This is considered to be a prudent assumption.

7.5 The total sound power to be used for the beer garden is calculated using the following equation:

$$L_w = L_{pA} + 20Log(r) + 10Log(n) + 8$$

Where *r* is the distance between source and receiver (1m as per standard); and

n is the number of people speaking simultaneously.

7.6 The total calculated sound power level is applied as an area source across the beer garden, and propagation to the NSR modelled using proprietary software, Cadna/A.

7.7 Results and discussion

7.8 The modelled $L_{Aeq,T}$ noise contours at 4.5 m height, representative of first floor window height, are shown in Figure 4.

7.9 The resulting noise level at the nearest noise sensitive location is calculated to be 50 dBA at the façade of the nearest receptor.

7.10 Based on a 15 dB level difference through a partially open window, calculated internal noise levels internally are anticipated to be no higher than 35 dBA, and such comply with the guideline values stated in the WHO Guidelines for Community Noise and BS 8233 as specified in the planning condition.

7.11 For further context, the measured residual noise levels during later operational hours to the rear of the building (10pm-11pm) are in the region of 58 - 61 dBA, such that road traffic noise is likely to provide sufficient levels of masking to noise from patrons using the beer garden area.

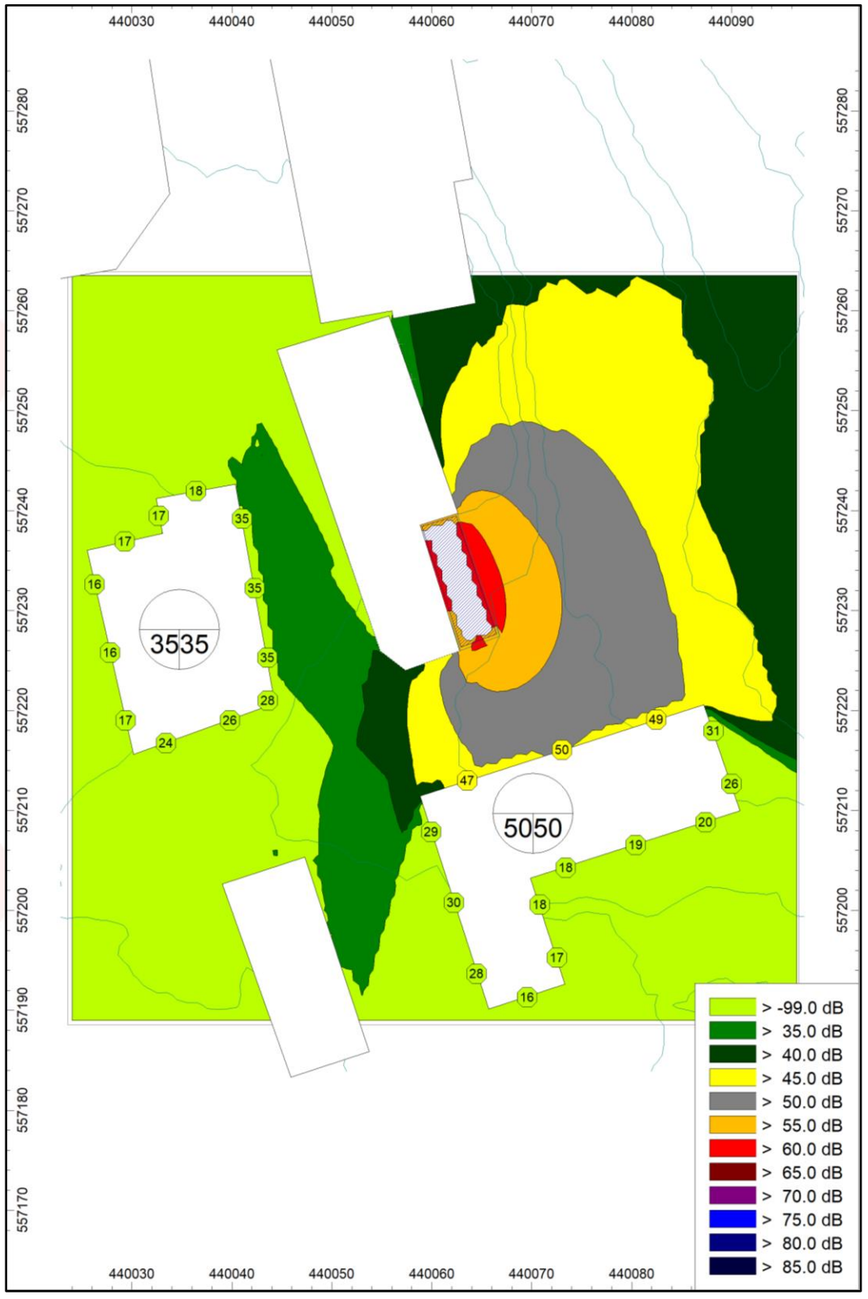


Figure 4: Modelled noise contours at 4.5 m height, representative of first floor window height. Patrons using beer garden (scenario showing assumed maximum occupancy).

8 Noise limits for future potential fixed plant (kitchen extraction)

8.1 It is understood that no fixed building services plant is proposed as part of the development, and such no formal assessment of this source is made.

8.2 For information purposes only, rated BS 4142 noise limits are presented to allow for the selection of a suitable unit should any plant be installed at a later date, e.g. kitchen extraction system.

8.3 Rated limits have been determined such that when adhered to, will result in a noise level no higher than the background sound level at the nearest receptors and such results in a low likelihood of adverse impact. Limits are presented subject to the operational times of fixed plant.

8.4 To achieve these limits, sound power limits and sound pressure level at 1 m limits are outlined, to aid in the selection of plant, if required in the future. These calculations are carried out assuming point source propagation, at a distance of no closer than 40 m to NSR 2 (nearest receptor and with line of sight to likely location of plant to rear of building). A 5 dB penalty is applied to the limits, to account for potential acoustic characters considering the rated BS 4142 limit requirements.

Location	BS 4142 rated sound pressure level limit at NSR position, dB(A)		Calculated total noise limit to inform any future plant selections	
	Daytime and evening use only (7am – 11pm)	24 hour use	Daytime and evening use only (7am – 11pm)	24 hour use
NSR 1 *Sunderland Street*	44	34	77 dB LwA / 69 dB LpA @ 1 m	66 dB LwA / 58 dB LpA @ 1 m
NSR 2 *High St West & A1018*	49	38		

Table 9: BS 4142 rated sound pressure level limits at nearby NSR, and respective sound power / sound pressure level at 1m limits to aid with plant selections

9 Conclusion

9.1 This report has been prepared in response to Planning Condition no. 5 of Planning Application Ref: 23/01903/FUL for the change of use of Lambton House, Sunderland.

9.2 An assessment is presented of the potential noise impacts from operational noise breakout and from patron use of the proposed beer garden.

9.3 It is understood that no building services plant is proposed as part of the development, and such limits are presented for information purposes only to be used if any fixed plant is to be installed at a later date.

9.4 On the basis of the assessment and assumptions in this report, the requirements of the Condition are considered to be satisfied.

10 References

1 National Planning Policy Framework, Ministry of Housing, Communities & Local Government, December 2023.

2 Noise Policy Statement for England, Department for Environment, Food and Rural Affairs, March 2010.

3 BS 4142 2014: A1+2019, Method for rating and assessing industrial and commercial sound.

4 World Health Organisation Guidelines for Community Noise, 1999

5 BS 8233: 2014, Guidance on sound insulation and noise reduction for buildings.

6 CadnaA environmental noise modelling software, version 2024, Datakustik GmbH.

7 ISO 9613: Acoustics - Attenuation of sound during propagation outdoors.

8 Little Red Book of Acoustics: A Practical Guide (Third Edition), 2012.

Appendix A Noise exposure hierarchy

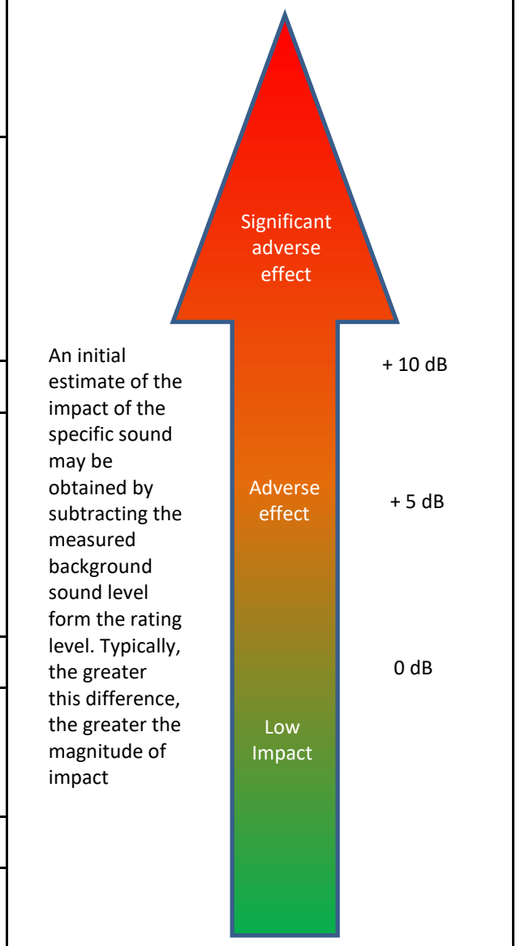
Planning Practice Guidance - Noise				BS 4142: Initial estimate of external noise risk significance
Noise	***Example of outcomes***	***Increasing effect level***	***Action***	
Present and very distributive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an 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**	
Present and distributive	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**	
Significant Observed Adverse Effect Level (SOAEL)				
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**	
Lowest Observed Adverse Effect Level (LOAEL)				
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 change in the quality of life.	No Observed Adverse Effect	**No specific measures required**	
No Observed Adverse Effect Level (NOAEL)				
Not present	No effect	No Observed Effect	**No specific measures required**	
No Observed Effect Level (NOEL)				

Table 10: PPG-N Noise Exposure Hierarchy and BS 4142 initial estimate of impact

Appendix B Residual and background sound levels

B.1 Residual sound level time history, $L_{Aeq, 5min}$

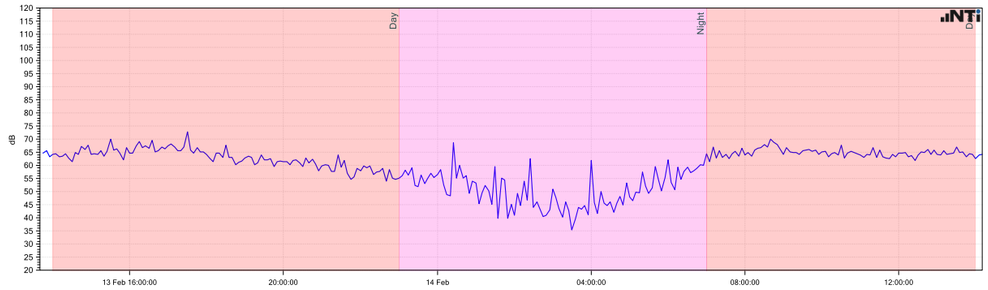


Figure 5: P1, Residual sound level time history, $L_{Aeq, 5min}$ (dB)

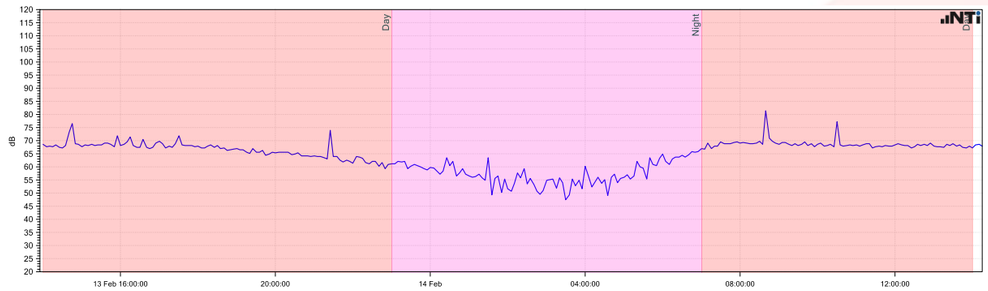


Figure 6: P2, Residual sound level time history, $L_{Aeq, 5min}$ (dB)

B.2 Background sound level analysis, $L_{A90, 5min}$

B.3 Analysis to determine the typical background sound levels representative of the daytime and night-time periods is undertaken following the guidance of BS 4142, with results shown in Figure 7 and Figure 8 respectively for NSR 1 (Sunderland Street), and Figure 9 and Figure 10 respectively for day and night at NSR 2 (High Street West and the A1018).

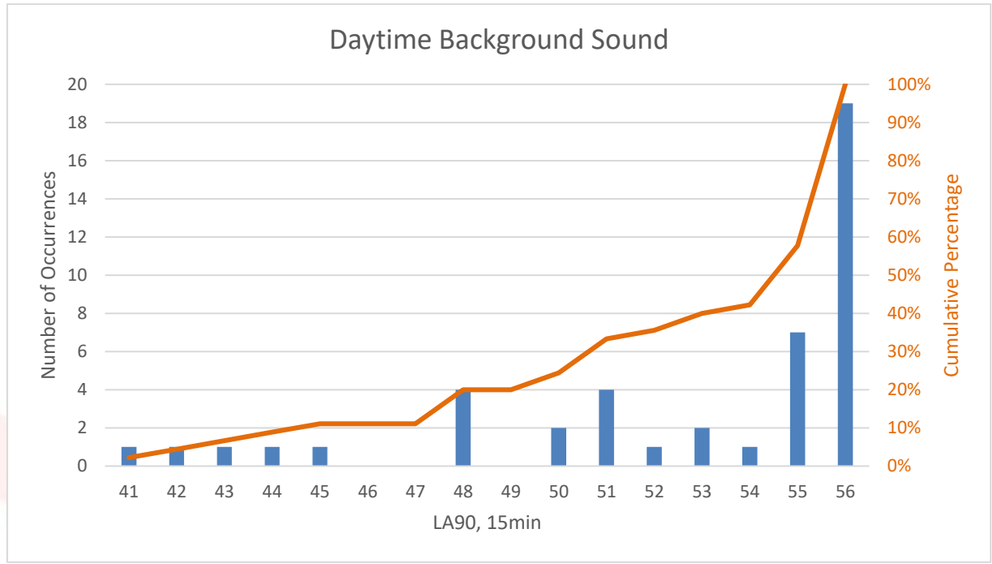


Figure 7: P1, Analysis of daytime background levels, $L_{A90, 15min}$

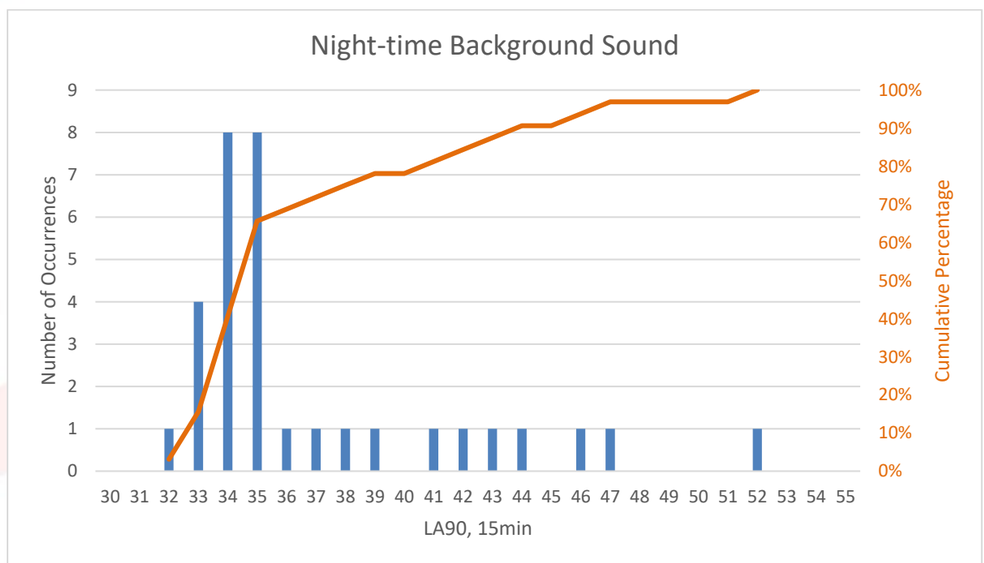


Figure 8: P1, Analysis of night-time background levels, $L_{A90,15min}$

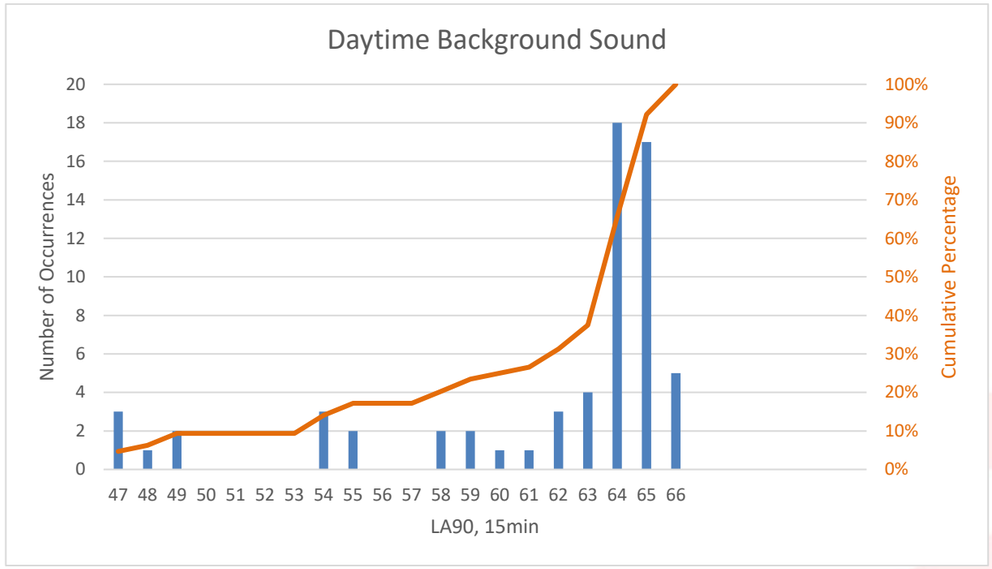


Figure 9: P2, Analysis of daytime background levels, $L_{A90,\ 15min}$

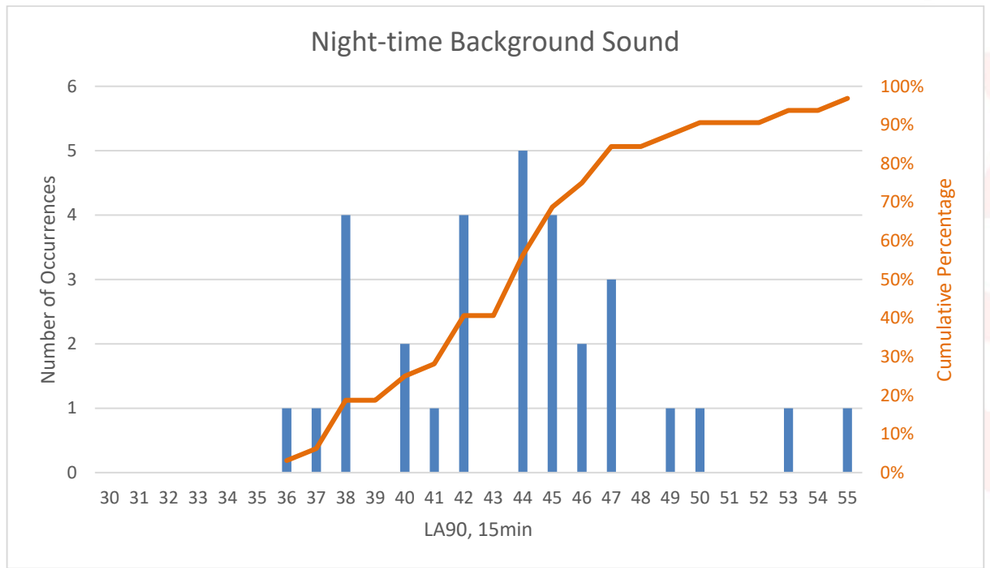


Figure 10: P2, Analysis of night-time background levels, $L_{A90,15min}$

Appendix C Noise breakout measurement location markup

Appendix D Noise transmission and propagation

D.1 Noise transmission and propagation is modelled using proprietary software, CadnaA. This models noise propagation outdoors according to ISO 9613. The parameters used, source of data and details are described in Table 11.

Parameter	Source	Details
Model dimensions	Google Earth	British Transverse Mercator coordinate.
Site location and layout	Architects' drawings	Architects' drawings.
Topography	Environment agency height data	LIDAR Digital Terrain Model, DTM. 1m resolution.
Building heights	Site observations and Google Street view	3 m per storey + 3 m roof (residential properties).
Receptor positions	Site observations and Google Street view	On the NSR façade closest to the source at a height of 4.5 m to represent first floor window height.
Building and barrier absorption coefficient	ISO 9613-2	0.21 to represent a reflection loss of 1 dB.
G, Ground factor	ISO 9613-2	Hard ground, G = 0.
Max. order of reflections	Apex Acoustics	Three.

Table 11: Modelling parameters and assumptions

D.2 A plan view and a 3D perspective of the CadnaA model are shown in Figure 11 and Figure 12 respectively.

Figure 11: Plan view of the CadnaA model

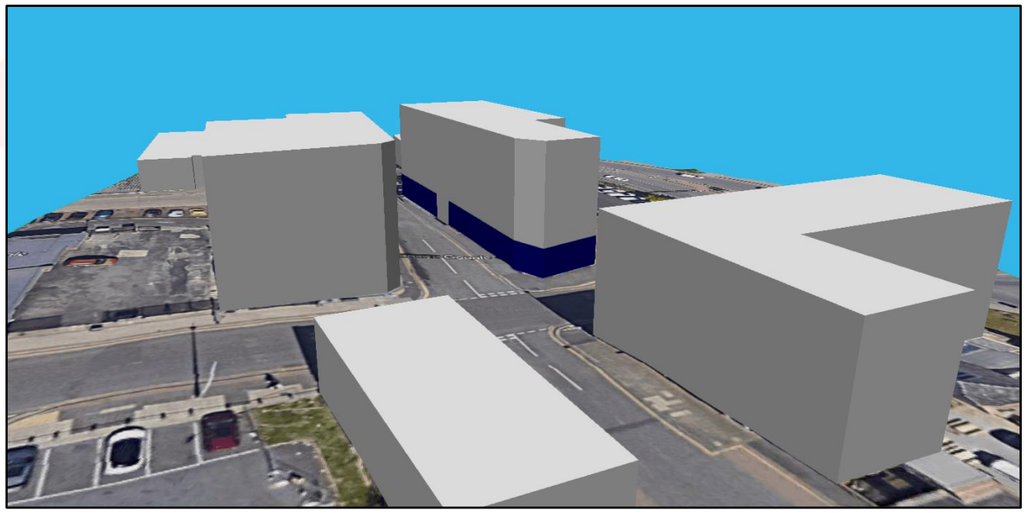


Figure 12: 3D view of the CadnaA model

Appendix E Professional qualifications and competence

E.1 All Apex Acoustics consultants work under the close supervision of a member who holds qualification in acoustics and is a member of the IOA.

E.2 This can be verified by searching the Institute of Acoustics' list of Members, available here, with the surname of the consultant.

http://www.ioa.org.uk/membership-check

E.3 Apex Acoustics is a member of the Association of Noise Consultants (ANC). The ANC is a trade organisation which seeks to raise the standards of acoustic consultancy and as such there are barriers to entry to ensure member's competency.

E.4 This report has been completed and checked by appropriately qualified and experienced acoustic consultants.