
Our Reference: NA/1035/21/043/v1.0/191 Burton Stone Lane – Commercial

27th August 2021

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Dear Sir

NOISE ASSESSMENT FOR PROPOSED EXTENSION AND ALTERATIONS TO GROUND FLOOR HOT FOOD TAKEAWAY AT HONG KONG HOUSE, 191 BURTON STONE LANE, YORK, YO30 6DG

1.00 SCOPE OF ACOUSTIC CONSULTANCY SERVICES

- 1.01 RP Acoustics Limited has been commissioned by Kabir Family Law to carry out a noise impact assessment for the proposed extension and alterations to ground floor hot food takeaway at Hong Kong House, 191 Burton Stone Lane, York, YO30 6DG (the application site). The assessment has been undertaken to accompany a planning application to be submitted to the City of York Council.
- 1.02 The scope of noise impact assessment for the proposed development is to determine the background noise levels at the application site in order to establish permissible noise limits for replacement / new plant (kitchen extraction and refrigeration chiller(s)).
- 1.03 This report sets out the methodology and findings of the noise assessment. It has been prepared on behalf of Kabir Family Law 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 Kabir Family Law (the applicant), MBO Architects (the applicant's agent) and RP Acoustics Limited as to the extent to which the findings may be appropriate for their use.
- 1.04 A glossary of acoustic terms is contained in Appendix 1 for reference.

2.00 APPLICATION SITE SETTING AND PROPOSED DEVELOPMENT

- 2.01 The application site is located at the corner of Burton Stone Lane and Garth Terrace in Clifton, to the north of York city centre (see Appendix 2 for reference). It is located in a mixed retail and residential setting (Burton Stone Lane is generally a mix of retail and food outlets at ground floor with residential use above, whilst Garth Terrace is a residential terraced street).
- 2.02 The proposed development consists of the extension and alterations to the existing ground floor hot food takeaway, including the removal of two existing flues and the provision of replacement kitchen extraction unit with a single flue and new refrigeration chiller(s). The proposed development floor plans are contained in Appendix 3 for reference. For reference, there is a residential unit on the upper floor, which does not have independent access.

3.00 PRE-APPLICATION CONSULTATION

- 3.01 Pre-application consultation with the Development Control Department at the City of York Council has been undertaken and the following noise-related comments have been received ... *Draft Publication Policy ENV2 states that where development proposals that would result in significant adverse environmental impacts without effective mitigation, such as noise, vibration, odour, fumes/emissions dust and light upon future occupiers and existing communities will not be permitted. Any proposals likely to have an environmental impact should be accompanied by evidence demonstrating that the environmental quality will be acceptable*
- 3.02 Pre-application consultation has not been undertaken with the Environmental Health Department at the City of York Council. Notwithstanding this, based on previous conversations with Mr Michael Golightly, Technical Officer, in respect of similar planning applications (namely, replacement plant and new residential receptors in urban areas), a 24-hour baseline noise survey is considered robust.

4.00 GOVERNMENT POLICY, ACOUSTIC STANDARDS AND GUIDANCE

National Planning Policy Framework – Planning Practice Guidance on Noise

- 4.01 The NPPF Planning Practice Guidance on Noise states 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. These factors include the source and the absolute level of noise together with the time of day it occurs, the spectral content of the noise and the general character of the noise. The guidance states that more specific factors to consider when relevant include whether any adverse internal effects can be completely removed by closing windows and a suitable alternative means of ventilation is likely to be necessary.

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

- 4.02 BS 8233 sets guideline indoor ambient noise levels for dwellings for steady external noise sources. These levels are reproduced in the following table.

Table 4.1 – BS 8233 Indoor Ambient Noise Levels in Dwellings

Activity	Location	0700 – 2300 hours	2300 – 0700 hours
Resting	Living Room	35 dB L_{Aec}	–
Dining	Dining Room	40 dB L_{Aec}	–
Sleeping (daytime resting)	Bedroom	35 dB L_{Aec}	35 dB L_{Aec}

- 4.03 Note 4 to the above table states '*Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{AF,Max}$ depending on the character and number of events per night. Sporadic noise events could require separate values.*' It is now industry-wide good practice to recognise '*it is considered that if, in bedrooms at night, the $L_{AF,Max}$ from individual noise events (from all sources) would not normally exceed 45 dB more than 10 times a night, then this represents a reasonable threshold below which the effects of individual noise events on sleep can be regarded as negligible.*'
- 4.04 Note 5 to the above table states '*If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.*'
- 4.05 On the basis of the above, it is considered that the following criteria (with windows closed and trickle vents open) are appropriate for the **proposed new three-storey residential development**: a) 35 dB L_{Aec} (0700–2300) in habitable rooms; and b) 30 dB L_{Aec} (2300–0700) and 45 dB $L_{AF,Max}$ (2300–0700) not exceeded more than 10 times in bedrooms

BS 4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound

- 4.06 BS 4142 describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes sound from fixed installations, which comprise mechanical and electrical plant and equipment.
- 4.07 Paragraph 8.5 states '*Where a new noise-sensitive receptor is introduced and there is extant industrial and/or commercial sound, it ought to be recognised that the industrial and/or commercial sound forms a component of the acoustic environment. In such circumstances other guidance and criteria in addition to or alternative to this standard can also inform the appropriateness of both introducing a new noise-sensitive receptor and the extent of required noise mitigation.*'
- 4.08 Section 11 states '*Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, subject to context.*'

ProPG: Planning and Noise: New Residential Development

- 4.09 The ProPG has been produced to provide practitioners with guidance on the recommended approach to the management of noise within the planning system in England. The IOA, CIEH and the ANC have worked together to produce the guidance, which encourages better acoustic design for new residential development and aims protect people from the harmful effects of noise.

5.00 BASELINE NOISE SURVEY

- 5.01 A 24-hour baseline noise survey was undertaken from 1200 hours on Tuesday 13th July 2021. For the purpose of the baseline noise survey, a single noise monitoring position was adopted mid-point of the existing building on the Garth Terrace (Appendix 3) to ascertain the lowest background noise levels.
- 5.02 Noise measurements were undertaken using an NTi Audio XL2 Type 1 integrating sound level meter. A 90 mm windshield was fitted for all measurements. The measurement system calibration was verified immediately before and after measurement sessions with no drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring.
- 5.03 Measurements consisted of A-weighted broadband parameters, together with linear third octave band L_{Aeq} levels, with a logging interval of 1 second. Table 5.1 contains a summary of the relevant measurement data, rounded to the nearest decibel
- 5.05 As measurements were made at 1 metre from the existing building facade, a – 3 dB façade enhancement correction has been applied in order to establish the free field external noise levels.

Table 5.1 – Baseline Noise Measurement Data

Position	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	Comments
NMP1	0700–2300	53	46	56	Burton Stone Lane traffic dominant, underlying contribution from kitchen extract and refrigeration units at takeaway opposite
	2300–0700	46	39	50	
Daytime noise level 53 dB L_{Aeq} (0700–2300), night time noise level 46 dB L_{Aeq} (2300–0700) and 64 dB L_{AFMax} (10th highest)					

- 5.06 The baseline ambient noise levels of 53 dB L_{Aeq} (0700–2300) and 46 dB L_{Aeq} (2300–0700) on Garth Terrace are wholly consistent with subjective aural observations made during the course of the survey and representative of the application site being located on a relatively quiet residential street in an urban environment. The baseline ambient noise levels at the application site are relatively low. With respect to ProPG for example, these levels class the application site as having a low risk in terms of noise impact.
- 5.07 BS 4142 uses the most commonly occurring background noise level and were derived in accordance with the standard were determined to be 44 dB L_{A90} (1 hour daytime) and 39 dB L_{A90} (15 minutes, night time); see Appendix 4. The baseline background noise levels are wholly consistent with subjective aural observations made during the course of the survey.

6.00 SCHEME OF SOUND INSULATION WORKS

- 6.01 The proposed development consists of the extension and alterations to the existing ground floor hot food takeaway, including the removal of two existing flues and the provision of new kitchen extraction unit with a single flue and new refrigeration chiller(s).
- 6.02 Detailed information regarding items of plant was not available at the time of writing (as the procurement of such items will only occur during the fit-out phase). Notwithstanding this, given the nature and location of such items, it is considered that this future part of the development proposals can be satisfactorily controlled by the following planning condition which is commonly adopted by the City of York Council.

Details of all machinery, plant and equipment to be installed in or located on the premises, which is audible outside of the premises, shall be submitted to the local planning authority for approval. These details shall include average sound levels (L_{Aeq}), octave band noise levels and any proposed noise mitigation measures. The machinery, plant or equipment, and any approved noise mitigation measures shall be fully implemented and operational before the use first opens and shall be appropriately maintained thereafter.

Note: At the nearest existing residential use, the combined rating level of any building services noise associated with plant or equipment at the application site should not exceed the representative L_{A90} 1 hour during the hours of 07:00 to 23:00 or representative L_{A90} 15 minutes during the hours of 23:00 to 07:00 at 1 metre from the nearest noise sensitive facades when assessed in accordance with BS 4142:2014, inclusive of any acoustic feature corrections associated with tonal, impulsive or distinctive or intermittent characteristics. Reason: To protect the amenity of nearby properties and the environmental qualities of the area.

6.03 It is considered that the above plant condition should be readily achievable with judicious siting, selection and attenuation of plant and equipment. In a residential area to minimize noise emissions, an extraction system for a commercial kitchen would typically include:

- Extract fan located internally or externally but installed on anti-vibration mounts to minimize structural transmission
- If located externally, extract fan fitted with acoustic fan jacket (e.g. Wilhams AFJ-1080) to control casing breakout noise
- Extract fan connected to ductwork with flexible couplings
- In-duct silencer fitted on canopy side of extract fan to control noise breakout to the kitchen area (this is normally 1D, but will depend on fan noise levels)
- In-duct silencer fitted to discharge side of the extract fan to control noise breakout along the discharge ductwork and to the external environment (this is normally 2D pod, but will depend on fan noise levels)
- Ductwork secured with anti-vibration (e.g. neoprene) brackets


6.04 For reference, the background noise levels have been determined in accordance with BS 4142 as 44 dB L_{A90} (1 hour, daytime) and 39 dB L_{A90} (15 minutes, night time). Based on these background noise levels, it is considered that compliance with the aforementioned noise-related planning condition should be readily achievable.

7.00 SUMMARY

7.01 A scheme of sound insulation works and appropriately worded planning conditions have been established in order protect noise amenity for the proposed extension and alterations to ground floor hot food takeaway at Hong Kong House, 191 Burton Stone Lane, Clifton, York, YO30 6DG. As a consequence, noise should not pose a material constraint to the granting of planning permission.

If we can be of any further assistance, please do not hesitate to contact us.

Yours sincerely


Richard Pennell
For RP Acoustics Ltd

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:

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

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. $L_{Aeq, 16}$ (07:00 to 23:00 hours) and $L_{Aeq, 8}$ (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 . $L_{A10, 18}$ 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.

$L_{AF \text{ max}}$

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 that occur over different lengths of time.

Building Regulations ADE 2003 Standard ($D_{nT,w} + C_{tr}$)

A single-number quantity which characterises the airborne sound insulation between rooms using noise spectrum No. 2 as defined in BS EN ISO 717-1:1997.

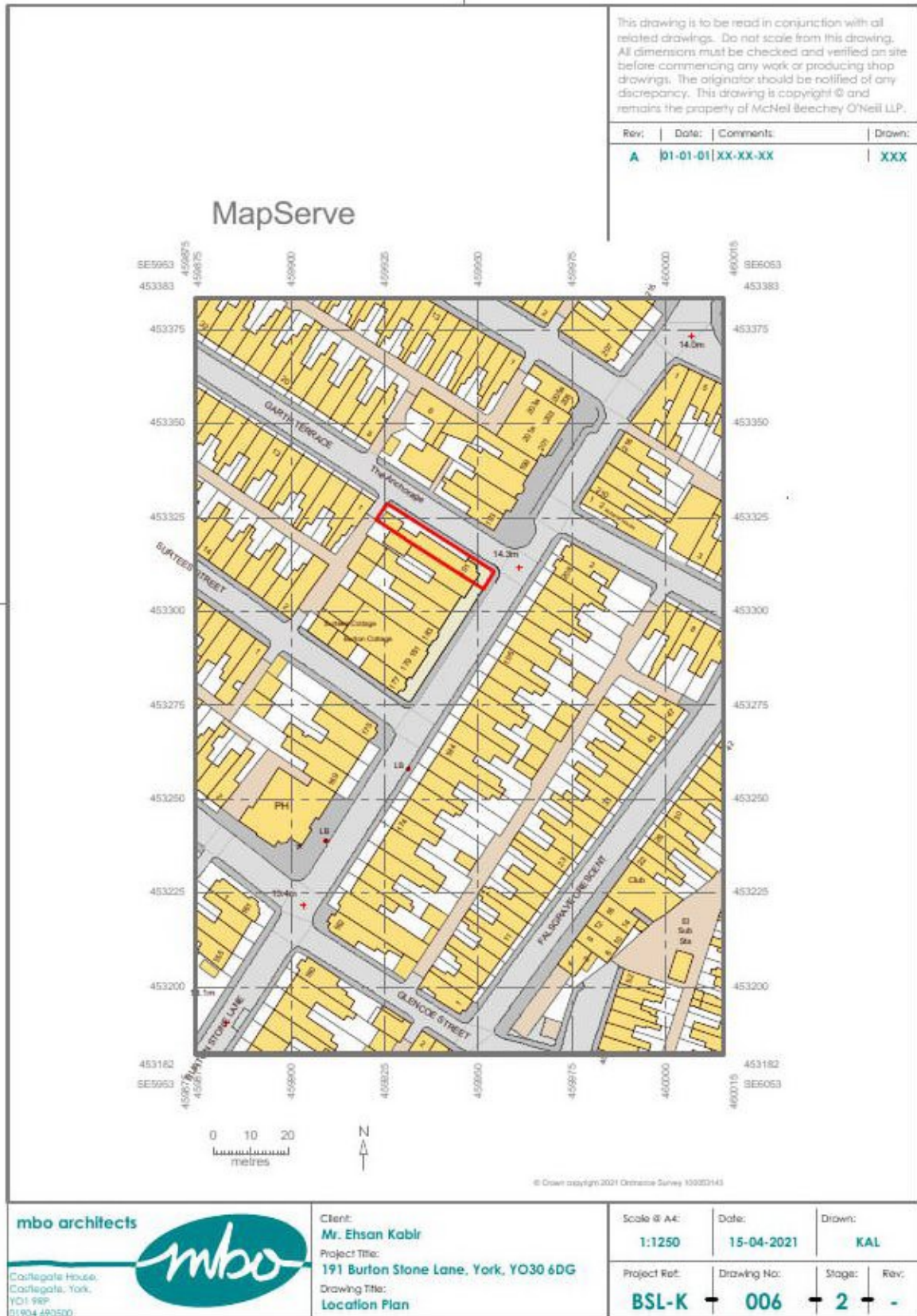
Flanking Element

Any building element that contributes to sound transmission between rooms in a building that is not a separating floor or separating wall.

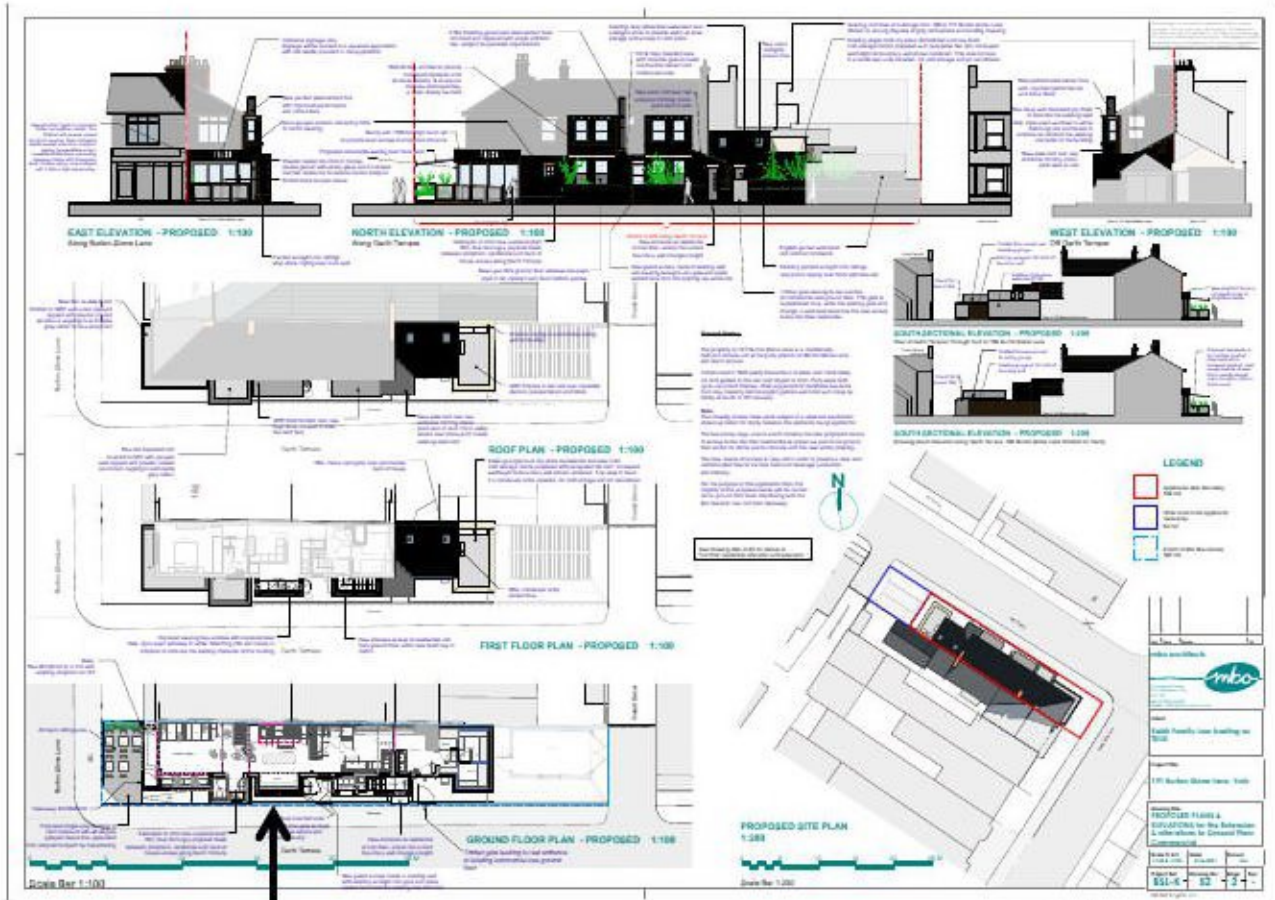
Flanking Sound

Sound transmitted between rooms via flanking elements instead of directly through separating elements or along any path other than the direct path.

APPENDIX 2 APPLICATION SITE LOCATION PLAN



APPENDIX 3 PROPOSED DEVELOPMENT LAYOUTS



NMP1

**APPENDIX 4
DETERMINATION OF BACKGROUND NOISE LEVELS**

Daytime Background Noise Level (dB LA90, 1 hour)	Number of Occurrences	Night Time Background Noise Level (dB LA90, 15 minutes)	Number of Occurrences
60		55	
59		54	
58		53	1
57		52	2
56	3	51	1
55	2	50	
54		49	
53		48	
52		47	
51		46	
50		45	
49	2	44	
48		43	3
47	1	42	
46	2	41	3
45	1	40	1
44	4	39	15
43	1	38	
42		37	
41		36	
40		35	
39		34	
38		33	
37		32	
36		31	
35		30	
Most Commonly Occurring	44 dB LA90	Most Commonly Occurring	39 dB LA90