



Jackson's Corner, Reading

Planning Condition 16 Report

7 July 2017

For

1-9 Kings Road LLP

11 Golden Square

London

W1F 9JB

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EXECUTIVE SUMMARY

A new development is proposed at Jacksons Corner in Reading. The development will include 33 residential apartments and three commercial units and will involve the refurbishment of an existing building and construction of a new building.

Planning condition 16 for the development requires a scheme for limiting noise transmission between the commercial and residential elements to be submitted.

auricl has undertaken noise measurements during a busy evening period at other locations that are representative of the proposed commercial tenants.

We have also liaised closely with Dexter Moren architects to determine a suitable scheme to limit sound transmission between the ground floor commercial units and the residential units above. This has involved analysis of the existing floor construction separating ground and first floor levels (to be retained) and incorporation of suitable upgrades to achieve a suitable airborne sound insulation performance.

Based on the typical activity noise levels and proposed separating floor construction, it has been predicted that noise break-out levels would not exceed the threshold previously agreed with Reading Borough Council.

As such, it is considered that a suitable scheme to limit noise transmission has been included in the design, in accordance with planning condition 16.

1.0 Introduction

A new development is proposed at Jacksons Corner in Reading. The development will include 33 residential apartments and three commercial units and will involve the refurbishment of an existing building and construction of a new building.

Planning condition 16 for the development requires a scheme for limiting noise transmission between the commercial and residential elements to be submitted.

This report presents our assessment of noise levels associated with the proposed commercial uses to address the planning condition 16 requirements.

2.0 Description of Site and Proposals

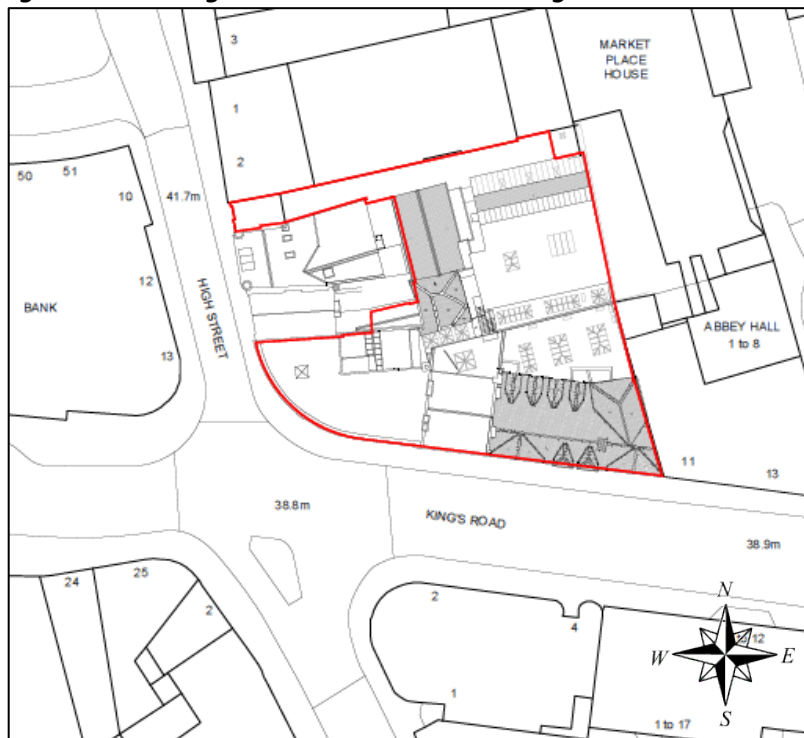
The proposed development site is at a location known as Jacksons Corner at 1-9 King's Road in the centre of Reading. The site is bounded by King's Road to the south and High Street to the west.

The majority of the site is currently occupied by a vacant retail property, with a small number of vacant residential units on the uppermost floors.

The area surrounding the site is made up of predominantly commercial uses (retail and office properties), although a residential dwelling was noted adjacent to the site within 11 King's Road to the east.

Figure 2.1 shows the existing site extent in red and the surrounding properties.

Figure 2.1 Existing Site Extent and Surroundings

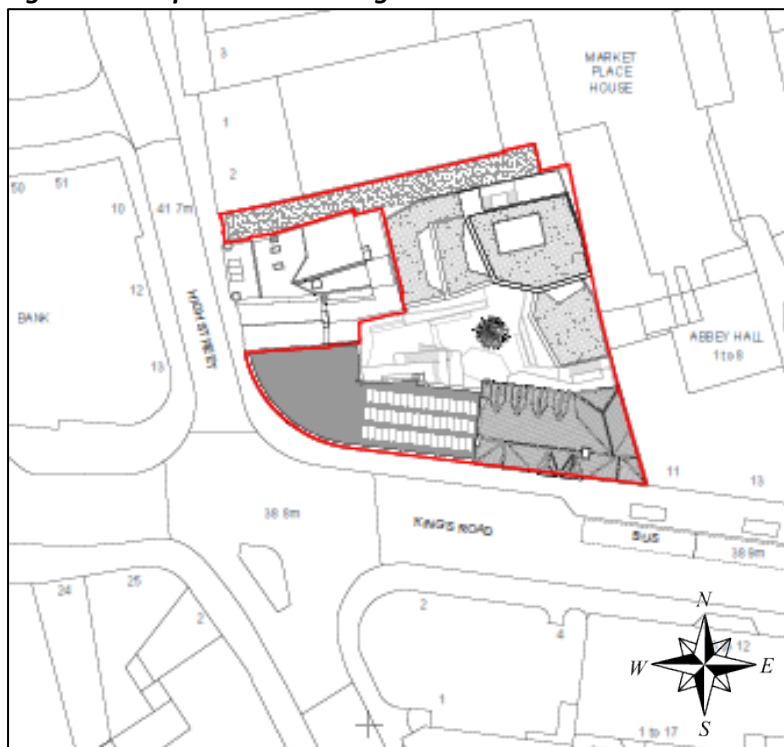


It is proposed to refurbish the main southern corner building fronting onto King's Road to provide 18 apartments at first, second and third floor levels, with three food & beverage units at ground floor level. A new building is to be constructed to the north/rear of the site, involving 15 apartments

arranged from ground to sixth floor level. A communal courtyard will occupy the centre of the site and the newly-built apartments will be equipped with balconies.

Figure 2.2 shows the proposed site arrangement in red.

Figure 2.2 Proposed Site Arrangement



3.0 Planning Condition 16 Requirements

Condition 16 of the planning permission for the development (application number 160849) states:

"16. Before any works of conversion or development commence a scheme for limiting the transmission of noise between each residential unit on the first floor and commercial units on the ground floor shall be submitted to and approved in writing by the local authority."

In relation to limits for noise break-out from the commercial units, Reading Borough Council has confirmed a limiting level that is 10 dB less than the internal noise limits specified by BS 8233 and the WHO.

British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings" recommends acceptable internal noise limits for residential dwellings, as presented in Table 3.1.

Table 3.1 BS 8233: 2014 Internal Noise Limits

Activity	Location	07:00 – 23:00 hours	23:00 – 07:00 hours
Resting	Living room	35 dB $L_{Aeq, 16 \text{ hr}}$	-
Dining	Dining room/area	40 dB $L_{Aeq, 16 \text{ hr}}$	-
Sleeping / daytime resting	Bedroom	35 dB $L_{Aeq, 16 \text{ hr}}$	30 dB $L_{Aeq, 8 \text{ hr}}$

In addition, the World Health Organisation (WHO) document “*Guidelines for Community Noise*” (1999) advises the following:

“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991)”

During daytime periods (07:00 – 23:00 hours), when the food & beverage units will be operational, this therefore equates to a noise break-out limit of **25 dB L_{Aeq}** .

4.0 Commercial Unit Noise Break-Out Assessment

4.1 Activity Noise Levels

The proposed tenants for the commercial units are understood to be as follows:

- Byron (burger restaurant)
- Busaba (modern Thai restaurant)
- Franco Manca (pizza restaurant)

auricl has undertaken noise measurements during a busy evening period on Thursday 6 April 2017 in other representative locations for Byron and Busaba, which are as follows:

- Byron – 1a St Giles High Street, London WC2H 8AG
- Busaba – 52-53 Eastcastle Street, London W1W 8ED

The above locations are understood to be acoustically representative of the proposed Reading location, in terms of both format and size. It has not been possible to take noise measurements in a similar Franco Manca location, hence noise levels measured previously at a typical pizza restaurant have been used in our assessment.

The measured/adopted noise levels used in our assessment are presented in Table 4.1.

Table 4.1 Measured/Adopted Restaurant Activity Noise Levels

Element	Octave Band Centre Frequency (Hz)								L _{Aeq} (dB)
	63	125	250	500	1k	2k	4k	8k	
Byron	61	62	68	73	72	68	62	52	76
Busaba	67	68	72	77	76	72	66	59	79
Pizza Restaurant	63	63	65	65	64	61	57	51	68

4.2 Separating Floor Construction

auricl has liaised closely with Dexter Moren architects to determine a suitable scheme to limit sound transmission between the ground floor commercial units and the residential units above. This has involved analysis of the existing floor construction separating ground and first floor levels (to be retained) and incorporation of suitable upgrades to achieve a suitable airborne sound insulation performance.

The proposed separating floor construction (top-to-bottom) is as follows:

- 20mm floor finish
- 28mm Collecta Screedboard
- 20mm existing floor boards
- 250mm existing timber joists, containing 250mm mineral wool insulation (density 30-50kg/m³)
- Existing ceiling made good (12.5mm plasterboard assumed) or replaced with 12.5mm Wallboard (or equal approved)
- Resilient bars (e.g. British Gypsum RB1 or equal approved)
- Acoustic suspended ceiling suspended from resilient bars, consisting of 2 x 15mm Soundbloc (or equal approved) and 19mm plank
- 200mm (min) cavity containing 100mm (min) mineral wool insulation (density 30-50kg/m³)
- Additional acoustic ceiling consisting of 2 x 15mm Soundbloc (or equal approved), suspended from resilient bars (f) by typical lightweight steel grid

The final ceiling shall not be penetrated (e.g. by services) and shall be imperforate. Each commercial unit tenant will therefore suspend their high-level services (lighting, ducting, etc.) below the final ceiling. A visual ceiling may also then be suspended below this.

From recent acoustic measurements on similar separating floors, combined with our calculations, the predicted sound insulation performance for the floor construction is shown in Table 4.2.

Table 4.2 Predicted Sound Reduction Performance of Separating Floor

Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
35	40	51	56	60	62	62	62

In addition to the above, independent acoustic linings will be fitted to the perimeter walls in the commercial units to prevent flanking sound transmission. These are to consist of 2 x 15mm Soundbloc (or equal approved) on suitable supporting studwork (70mm assumed) containing 50mm (min) mineral wool (density 30-50kg/m³) all spaced off the existing wall by a clear 10mm (min) cavity.

4.3 Noise Break-Out Assessment

Based on Sections 4.1 and 4.2, we have undertaken noise break-out calculations for the proposed food & beverage units. Our calculations are shown in Tables 4.3 to 4.5.

Table 4.3 Noise Break-Out Calculations – Byron

Element	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Restaurant Noise Level (L_{eq} , dB)	61	62	68	73	72	68	62	52	
Sound Reduction of Separating Floor Construction (dB)	-35	-40	-51	-56	-60	-62	-62	-62	
Correction for Floor Area and Receive Room Absorption (dB)	+4	+3	+4	+4	+2	+1	+1	+1	L_{Aeq}
Predicted Noise Break-Out Level (dB)	30	25	21	21	15	7	1	<0	21

Table 4.4 Noise Break-Out Calculations – Busaba

Element	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Typical Restaurant Noise Level (L _{eq} , dB)	67	68	72	77	76	72	66	59	
Sound Reduction of Separating Floor Construction (dB)	-35	-40	-51	-56	-60	-62	-62	-62	
Correction for Floor Area and Receive Room Absorption (dB)	+4	+3	+4	+4	+2	+1	+1	+1	
Predicted Noise Break-Out Level (dB)	36	31	25	25	19	11	5	<0	
									L _{Aeq} 25

Table 4.5 Noise Break-Out Calculations – Pizza Restaurant

Element	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Typical Restaurant Noise Level (L _{eq} , dB)	63	63	65	65	64	61	57	51	
Sound Reduction of Separating Floor Construction (dB)	-35	-40	-51	-56	-60	-62	-62	-62	
Correction for Floor Area and Receive Room Absorption (dB)	+4	+3	+4	+4	+2	+1	+1	+1	
Predicted Noise Break-Out Level (dB)	32	26	18	13	7	0	<0	<0	
									L _{Aeq} 16

It can be seen that the predicted noise break-out levels do not exceed the proposed noise limit. As such, we would consider that a suitable scheme to limit noise transmission has been included in the design.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
$L_{Amax, F}$	The A-weighted maximum noise level measured during the measurement period, measured using 'fast' time weighting.