



Reference: Hollywood Bowl Oracle Centre

Project No: 2422419

Date: 19th April 2024

Technical Note 1

Re: Hollywood Bowl, Oracle

1.0 Introduction

Sharps Redmore have been appointed to undertake a review of potential noise impact from operation of the Hollywood Bowl located at ground floor level of the existing Oracle Shopping Centre in Reading when in use during the proposed operational hours up until 00:30, and 02:30 New Years Day.

This note which will accompany the S73 application being developed by Turley and sets out information on the intended use of the space and likely operational internal activity noise levels, assessment of such activity is made at nearby noise sensitive buildings against the prevailing background noise levels previously determined by a third party.

2.0 Planning Permission and Requirements

Planning Permission for the scheme was granted by Reading Borough Council in November 2023 under consent document 230682 with a condition that restricts the operational hours of the facility in accordance with Condition 80.

80. No Class E(b) [sale of food and drink for consumption (mostly) on the premises] or Class E(d) [Indoor sport, recreation or fitness (not involving motorised vehicles or firearms or use as a swimming pool or skating rink)] unit hereby approved within the areas marked as 'application floor space' (as per approved plans B212392-01 Rev 00 – Riverside Level Existing GA, B212392-02 Rev 00 – Lower Mall Level Existing GA and B212392-03 Rev 00 – Upper Mall Level Existing GA, as all received on 28/07/2023) shall be used by members of the public outside the hours of 08:00 hours to 00:00 hours on Mondays to Saturdays and 08:00 hours to 23:00 hours on Sundays, Bank Holidays and other statutory holidays. Reason: In order to protect local residents and users of the area in general from unreasonable disturbance arising from the use(s) in accordance with Policies CC7, CC8, EN16 and CR6 of the Reading Borough Local Plan 2019.

To provide clarity, the Local Authority consented operational hours and those proposed under the 'extended use' application are given below:

Days of Week	Planning Consent: Ref 230682	Extended Licensing – Opening Hours
Monday to Saturday	0800 to 0000	0900 to 0030
Sundays	0800 to 2300	0900 to 0030
Bank Holidays/Statutory holidays	0800 to 2300	0900 to 0030
New Year's Eve into New Year's Day	Not stated	0900 (NYE) to 0230 (NYD)

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3.0 Background Information

A noise impact assessment carried out by Hoare Lea for the wider Oracle Shopping Centre has been previously submitted to the Local Authority reference: REP-1011201-05-BJ-20190911 - Noise Impact Assessment-Rev5 dated 2nd June 2020. This report provides details on operational noise from the use of the proposed change in tenancy within an area of the Oracle Centre which Hollywood Bowl are to take over.

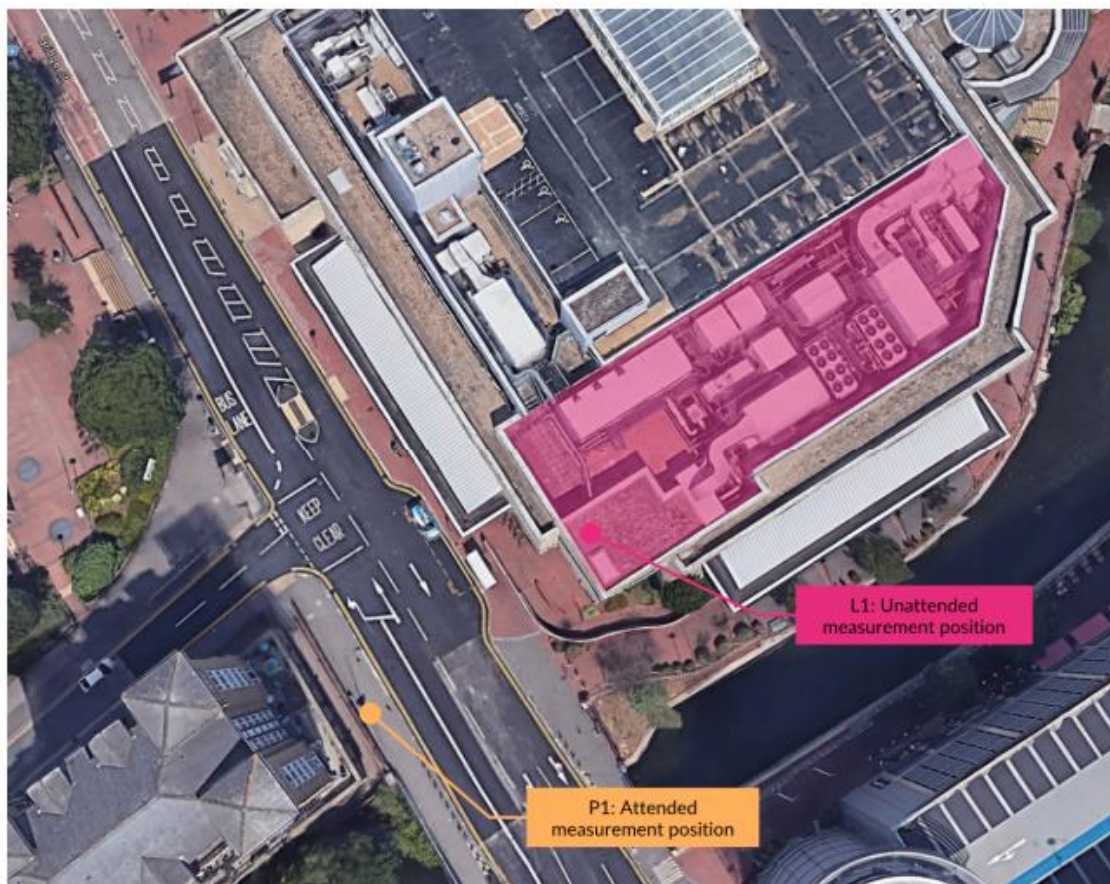
The background noise survey was carried in September 2019 as part of this assessment with the data obtained used to inform the proceeding assessment, the relevant measured noise levels are summarised below with the reader referred to the above referenced report for further information.

Table 1: Measured Noise Levels at L1

Date	$L_{Aeq, T}$ dB		$L_{A90, T}$ dB	
	Day 07:00-23:00	Night 23:00-07:00	Day 07:00-23:00	Night 23:00-07:00
12.09.2019	59	53	50	44
13.09.2019	59	53	52	46
14.09.2019	58	54	53	45
15.09.2019	58	53	49	44
16.09.2019	59	53	50	45

An excerpt from the Hoare Lea report which shows the location of the measurement position is provided in Figure 1.

Figure 1: Site Plan showing Measurement Location



Whilst Sharps Redmore have not visited the site, it is understood from information presented in the noise impact assessment report that noise at the long term representative measurement position was comparable to the noise climate observed at the nearest noise sensitive receptors (Position P1), both of which were controlled by building services plant and road traffic on the A329.

Approved Consent: Noise Impact

Impact on properties to the east of the development site during use of the bowl was assessed previously by others as set out in the Hoare Lea report, and considered an operational internal noise level within the unit of L_{Aeq} 82 dB. The L_{Aeq} level used in the original assessment is equal to that measured within existing bowling tenancies by Sharps Redmore during typical everyday use, when noise was predominantly controlled by activity on the lanes and the use of amplified sound.

Sharps Redmore measurement data indicates that single event maxima in terms of the L_{AFmax} level arising from patrons, bowling activities or music can on occasions reach 96 dB.

4.0 Operational Noise Assessment

The typical spectral operational sound levels for the proposed activities are presented below.

Table 2 – Hollywood Bowl Operational Levels

Description	Parameter	Octave band sound pressure level, (dB) L_{eq}							Total (dBA)
		63	125	250	500	1K	2K	4K	
Lane/Music	L_{eq}	84	84	82	79	77	73	71	82
	L_{Fmax}	97	95	95	94	95	88	83	97

An assessment of noise break-out from the bowl to windows of adjacent noise sensitive receptors has been undertaken by Sharps Redmore with consideration given to both the L_{Aeq} and individual single event maxima. Noise from the bowl is considered against the ambient L_{Aeq} during the proposed period of extended operation.

The existing building envelope is to generally remain unmodified, formed of masonry with glazed curtain walling parts of which will be blanked off internally. A replacement window and two new entrance doors are to be installed at ground floor level, formed of double glazing which will provide a comparable if not greater sound reduction that that exists.

The new doors and window will be located on the Riverside elevations away from noise sensitive windows to dwellings on Bridge Street, with break-out noise via the new elements benefiting from greater distance loss and screening attenuation the resultant levels at the receiver will be lower.

Noise egress via the envelope on Bridge Street which is located 20 metres from Riverside House is therefore predicted based on the weakest element of the façade (windows) which has been assumed to provide a sound reduction R_w of 34 dB. The results are set out in the Table below with detailed calculation provided in the Appendix.

Table 3: Hollywood Bowl extended use Noise Impact

Receptor	Operational Noise $L_{Aeq, T}$ dB	Prevailing $L_{Aeq, T}$ dB	Cumulative Noise Level $L_{Aeq, T}$ dB	Change dB	Impact
Riverside House	31	47	47	0	None

Noise at windows of Riverside House from single even maxima (L_{AFmax}) is reported as being 47 dB in line with the existing ambient L_{Aeq} noise level of 47 dB during the intended operational period and also considered to be lower than that arising from vehicle passbys on the surrounding road network, as a result such noise is unlikely to prove problematic. Ingress via an open window from single event maxima is predicted to be in the region of 35 dB some 10 dB below generally approved acceptable levels of L_{AFmax} 45 dB in bedrooms to limit 'sleep disturbance'.

There will be no change in the existing L_{Aeq} façade levels either internally in bedrooms or externally at windows from operation of the demise during the intended extended hours, with prediction indicating noise levels being more than 15 dB lower than those measured previously during the period of extended operation.

New Year's Day

Background noise survey data for the intended New Year's Day operation is not available, neither is it practical to carry out measurement during such occasion. During the hours of operation (00:00-02:30) the noise climate at the existing noise sensitive receptors is expected to either be elevated i.e. from New Year's Celebrations or, of a level similar to that measured at the site between the hours of 00:00-03:00 in September 2019.

The lowest background $L_{A90, 5minutes}$ measured at any time over a consecutive 5 day period during the night-time period of 23:00-07:00 was 44 dB, in considering the predicted L_{Aeq} noise level at the window will be in the region of 30 dB, noise impact from operation of the facility during this one of yearly event is unlikely to give rise to resident dissatisfaction and is expected to be acceptable based on noise grounds.

5.0 Conclusion

An assessment of operational noise from the proposed extended hours of the Hollywood Bowl unit which is to be located within the existing Oracle Shopping Centre has been undertaken by Sharps Redmore.

Prediction of noise break-out is made based on typical operational sound levels inside the bowl using measurement data obtained previously within in-use bowling spaces operating at typical capacity with amplified sound in operation. Noise inside Hollywood Bowl tenancies has been observed previously to be dominated by music and typical bowling activity, the levels used in this assessment are therefore considered to be reasonable for prediction of noise during use of the intended tenancy extended hours.

Assessment indicates operation of the bowl will result in no change in the existing noise climate at the nearest noise sensitive windows which belong to Riverside House to the west. Noise in terms of the L_{Aeq} parameter is predicted to be more than 15 dB below the existing ambient noise level in and also line with operational noise levels previously approved by Reading Borough Council.

Noise is also predicted to fall below the measured existing lowest background L_{A90} dB with single event maxima expected to be of a similar level to the existing L_{Aeq} but some 10 dB below guideline limits to prevent 'sleep disturbance' when windows are open, thereby presenting a worst case assessment.

In considering all of the above, Sharps Redmore would not anticipate the Local Authority refusing use of the space up until the hours of 00:30 and 02:30 on New Year's Day on noise grounds.

We trust this is of assistance, please distribute further as required.

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Appendix A: Noise Prediction

Internal L_{eq}

Description	Octave band sound pressure level, (dB) L_{eq}							Total (dBA)
	63	125	250	500	1K	2K	4K	
Bar/Music L_{eq}	84	84	82	79	77	73	71	82
SRI of glazing	23	25	29	33	32	33	42	
Inside to outside	-6	-6	-6	-6	-6	-6	-6	
Distance loss	-16	16	-16	-16	-16	-16	-16	
Façade reflection	3	3	3	3	3	3	3	
Resultant Level	42	40	34	27	26	21	10	31

Internal L_{fmax}

Description	Octave band sound pressure level, (dB) L_{fmax}							Total (dBA)
	63	125	250	500	1K	2K	4K	
Bar/Music L_{fmax}	97	95	95	94	95	88	83	97
SRI of glazing	23	25	29	33	32	33	42	
Inside to outside	-6	-6	-6	-6	-6	-6	-6	
Distance loss	-16	16	-16	-16	-16	-16	-16	
Façade reflection	3	3	3	3	3	3	3	
Resultant Level	55	51	47	42	44	36	22	47