

Our ref: P15-407-L03v3
21 November 2018

By email only: [REDACTED]

Dear Michael,

Re: [REDACTED] - residential conversion
Measurements of External Noise Ingress re Planning Condition 3

Following on from our recent measurements of external noise ingress to the bedroom of the completed [REDACTED] elevation of the development, I'm writing with our findings.

The noise measurements were carried out in the bedroom of apartment 7 for several reasons:

- [REDACTED] was the first apartment to be completed and decorated, allowing the compliance noise measurements to be carried out; and
- The [REDACTED] elevation bedrooms have the most stringent sound insulation requirement due to the planning noise limits specifically relating to low frequency entertainment noise (from the nightclub nearby on Longworth Street).

We consider that if noise is adequately controlled within bedrooms on the [REDACTED] elevation, acceptable noise levels will also be achieved in other rooms within the development.

In addition to noise measurements within the bedroom of [REDACTED], we also carried out simultaneous external noise measurements outside the bedroom directly below (apartment 5).

Internal Acoustic Criteria

The required internal noise criteria for the development is set out in Condition 3 of planning consent ref. 111175/FO/2016/C1 as follows:

3) The development shall be implemented in accordance with the approved acoustic and window specification information so as to achieve the internal noise criterion as follows:

- *Bedrooms (night time - 23.00 - 07.00) 30 dB L_{Aeq} (individual noise events should not normally exceed 45 dB L_{Amax} by more than 15 times)*
- *Living Rooms (daytime - 07.00 - 23.00) 35 dB L_{Aeq} Additionally, where entertainment noise is a factor in the noise climate the sound insulation scheme shall be designed to achieve internal noise levels in the 63Hz and 125Hz octave centre frequency bands so as not to exceed (in habitable rooms) 42dB and 36dB, respectively.*

Upon completion of the development and before first occupation of the residential units, a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria has been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria.

It is important to note that the above noise limits of 42 dB and 36 dB in the 63 Hz and 125 Hz octave bands respectively are 5 dB lower (more stringent) than Manchester City Council's normal limits where entertainment noise is present (as is set out in section 3.6.1.2 of the council's *Planning & Noise Technical Guidance* dated December 2015).

Details of Noise Measurements

Noise measurements were taken as a series of consecutive five-minute values between 16:00 on the afternoon of Friday 9 October 2018 and the morning of Monday 12 November 2018. On-going construction/fit-out works were ceased prior to the start of the measurements on the Friday and commenced again first thing on Monday morning. As such, the levels measured during Monday morning have been discarded as they most likely include extraneous noise.

The internal noise measurements were taken using a Rion NL52 'Type 1' sound analyser (serial no. 0242747), with the microphone mounted at approximately 1.4m above floor level in the centre of the Longworth Street bedroom of [REDACTED]. As before, it was noted that the room was decorated and carpeted (although with a polythene carpet protector in place), but not furnished.

The external noise measurements were taken using a Rion NA28 'Type 1' sound analyser (serial no. 00960036) with the microphone mounted onto a pole protruding approximately 1m outside the façade of the Longworth Street bedroom of apartment 5.

During the survey it was overcast, cool and generally dry although there was some rain on Friday evening and also for short periods during the daytime on both Saturday and Sunday. Wind speeds were generally low and below around 3 ms⁻¹ at all times.

Results of Internal Noise Measurements

The results of the noise measurements are summarised in Charts 1 and 2 (enclosed). Table 1 sets out the measured internal noise levels, with the relevant planning noise criteria also shown for completeness:

Table 1: Planning noise criteria and measured noise levels (dB)

Period	Noise Levels (dB)			
	15 th highest L _{Amax}	L _{Aeq}	L _{eq} at 63 Hz	L _{eq} at 125 Hz
Planning criteria				
Daytime	-	35	-	-
Night-time (including entertainment noise)	45	30	42	36
Measured noise levels				
Friday up to 23:00	-	23	-	-
Friday/Saturday 23:00 – 07:00	44	29	45	37
Saturday 07:00 – 23:00		22		
Saturday/Sunday 23:00 – 07:00	46	30	46	39
Sunday 07:00 – 23:00	-	21	-	-
Sunday/Monday 23:00 – 07:00	36	24	38	31

Values shown in green were within the relevant criteria, with those shown in red in excess of the required criteria.

It can therefore be seen that in terms of the overall L_{Aeq} values, the criteria were met for all daytime and night-time periods. The L_{Amax} criterion was met on both the Friday/Saturday and Sunday/Monday night-time periods, and the L_{eq} criteria in the 63 Hz and 125 Hz octave bands were also met during the Sunday/Monday night-time period.

Under normal circumstances, a change in noise of less than 3 dB is not perceptible. As such, the 1 dB exceedances of the 15th highest L_{Amax} and the corresponding L_{eq} at 125 Hz during the Friday/Saturday night-time are not significant.

The 3 - 4 dB exceedances in the measured L_{eq} in the 63 Hz octave band during Friday/Saturday and Saturday/Sunday night-times, and the corresponding value at 125 Hz during the Saturday/Sunday night-time would be just perceptible.

The measured noise levels in the 63 Hz and 125 Hz octave bands are within Manchester City Council's normal criteria.

There is no indication of any structure borne noise transmission from the nearby nightclub - we consider that the measured noise levels are due to external noise ingress only.

Results of External Noise Measurements

The night-time noise levels measured on Friday/Saturday 9/10 and Saturday/Sunday 10/11 November 2018 have been compared to the those measured over comparable periods between 7 – 10 August 2015 and which were used as part of the planning noise assessment.

Table 2: Comparison of measured external night-time noise levels (dB)

Elevation	Parameter	Octave band centre frequency (Hz)							A
		63	125	250	500	1k	2k	4k	
Adopted noise measurements for planning noise assessment									
August 2015	L _{max} *	87	86	80	78	82	78	71	85
	L _{eq,8hour}	73	65	64	63	64	60	52	67
Measured noise levels on 10 – 12 November 2018									
Friday/Saturday 9/10 November 2018	L _{max} *	87	78	77	81	82	77	71	85
	L _{eq,8hour}	75	62	61	65	65	59	52	68
Saturday/Sunday 10/11 November 2018	L _{max} *	91	81	80	84	85	79	73	88
	L _{eq,8hour}	78	65	63	67	66	61	59	70
Comparison of 2015 and 2018 noise levels									
Friday/Saturday 9/10 November 2018	L _{max} *	0	-8	-3	3	0	-1	0	0
	L _{eq,8hour}	2	-3	-3	2	1	-1	0	1
Saturday/Sunday 10/11 November 2018	L _{max} *	4	-5	0	6	3	1	2	3
	L _{eq,8hour}	5	0	-1	4	2	1	7	3

*- Typical L_{max} values based upon 15th highest L_{Amax}

Values shown in green indicate where the 2018 noise levels were the same as or below the 2015 values, with values shown in red indicating that 2018 levels were higher than in 2015.

As can be seen, the measured noise levels during the Friday/Saturday night-time period were very similar to, or slightly lower than, the 2015 values, with measured levels ranging from 8 dB below to 3 dB above the 2015 values. In overall A-weighted terms, the levels were the same or only marginally/imperceptibly higher.

During the Saturday/Sunday night-time period however, external noise levels were higher than in 2015, with individual octave band levels being up to 7 dB higher and overall A-weighted levels being 3 dB higher.

Summary & Conclusion

The recent internal noise measurements within the [REDACTED] have shown:

- Overall A-weighted L_{Aeq} noise levels during daytime and night-time periods are within the noise criteria set out in the planning consent;
- Typical L_{Amax} noise levels (i.e. the 15th highest over the whole of the night-time) are either within or only marginally (and imperceptibly) in excess of the planning noise criteria; and
- Average noise levels in the 63 Hz and 125 Hz octave bands during night-time periods when the History nightclub operates are 3 – 4 dB above the noise criteria set out in the relevant planning condition, but within Manchester City Council's normal limits where entertainment noise is present.

In addition to the above, the external noise measurements have shown that noise levels measured in November 2018 are generally similar to, or higher than, the corresponding levels measured as part of the planning noise assessment in August 2015.

Yours sincerely,



Enc.

Chart 1: Measured internal noise levels

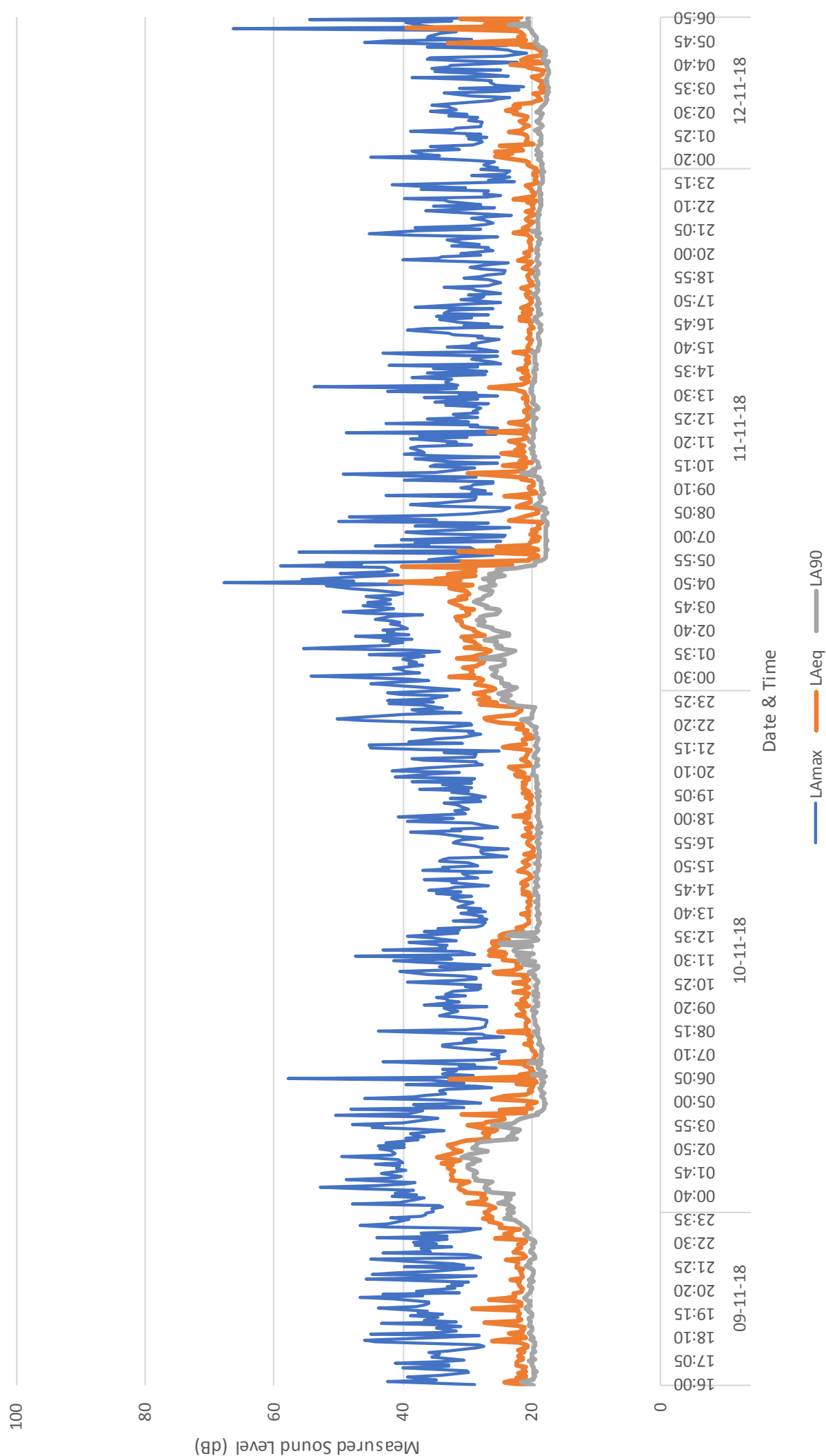


Chart 2: Measured external noise levels

