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Architectural & Environmental Consultants

Noise | Vibration | Air Quality

Internal Noise Assessment

The Casting, Manchester

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Internal Noise Assessment

Project: THE CASTING, MANCHESTER

Report reference: RP04-20728-R0

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1. INTRODUCTION

1.1 Cass Allen has been instructed by Midgard to assess the acoustic design of a new development at The Casting, Manchester.

1.2 The assessment has been carried out in accordance with the requirements of noise-related Planning Condition 16 which has been imposed on the development (Planning Application Reference No. 127317/FO/2020). The conditions are:

> 16) Before the development commences a scheme for acoustically insulating and mechanically ventilating the residential accommodation against noise from adjacent roads and the adjacent tram and any mitigating vibration and reradiated noise levels associated with the operation of the adjacent tram line shall be submitted to and approved in writing by the City Council as local planning authority.
>
> The approved noise insulation scheme and vibration and reradiated noise mitigation measures shall be completed before any of the dwelling units are occupied.
>
> The following noise criteria will be required to be achieved:
> Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times)
> Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq
> Gardens and terraces (daytime) 55 dB LAeq
>
> 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) 47dB and 41dB, respectively
>
> Prior to occupation a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in the residential accommodation shall be submitted and agreed in writing by the City Council as local planning authority. Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme.
>
> Reason - To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy.

1.3 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

2. ON-SITE TESTS

2.1 On-site testing was carried out to measure day- and night-time noise levels within the development from 22-23 April 2024. The testing comprised both attended and unattended noise monitoring.

2.2 Four internal noise monitors were set up inside four separate residential units. The microphone was positioned towards the centre of each room at least 1.2 m away from any walls and at a height of 1.2m above floor level. All windows and doors (both internal and external) were kept closed during the measurements.

2.3 All four noise monitors were left unattended to continually measure noise levels, averaged over successive 5 minute time intervals, at these positions.

2.4 In addition to the four unattended noise monitors, additional attended measurements were carried out in other habitable rooms within the development. These attended measurements were synchronised in time with the unattended measurements and as such allowed the long-term noise levels to be calculated in these other habitable rooms.

2.5 A summary of the noise survey is shown below in Table 1. The full details of equipment and measurement positions are shown in Appendix 1

Table 1 Summary of Noise Survey Locations and Measurements

Unit	Location	Measurement Type	*Notes*
2.06	Living Room	Unattended	*Overlooking Longacre Street, Great Ancoats Street and Chapeltown Street*
	Bed Room	Attended	
2.10	Living Room	Unattended	*Overlooking Longarce Street and Chapeltown Street*
	Bed Room	Attended	
15.07	Living Room	Unattended	*Overlooking Adair Street*
	Bed Room	Attended	
18.04	Living Room	Attended	*Overlooking Longacre Street and Chapeltown Street*
	Bed Room	Unattended	
24.07	Living	Attended	*Overlooking Adair Street*
22.04	Bedroom	Attended	*Overlooking Adair Street and Great Ancoats Street*
14.07	Living Room	Attended	*Overlooking Adair Street and Great Ancoats Street*
12.07	Bedroom	Attended	*Overlooking Longacre Street and Chapeltown Street*
10.14	Living Room	Attended	*Overlooking Adair Street*
6.02	Living Room	Attended	*Overlooking Longacre Street*

4.09	Bedroom	Attended	*Overlooking Longacre Street and Chapeltown Street*
14.06	Bedroom	Attended	*Overlooking Great Ancoats Street, Longacre Street*
9.06	Living Room	Attended	*Overlooking Longacre Street and Chapeltown Street*
6.11	Bedroom	Attended	*Overlooking Adair Street and Great Ancoats Street*
5.08	Living Room	Attended	*Overlooking Longacre Street and Chapel town Street*
3.07	Bedroom	Attended	*Overlooking Longacre Street and Chapel town Street*
7.09	Bedroom	Attended	*Overlooking Great Adair Street*
3.03	Living Room	Attended	*Overlooking Longacre Street*

2.6 The full measurement data from the four unattended noise monitors are shown in a graphical representation in Appendix 1For each noise monitor, three plots are shown:

1. *LAeq: the A-weighted 5 minute equivalent sound pressure level.*
2. *LAmax: the A-weighted maximum sound pressure level within a 5 minute period.*
3. *LA90: the A-weighted sound pressure level that is exceed for 90% of the time.*

3. ANALYSIS

3.1 A detailed analysis of the measurement data showed that noise levels measured during construction hours were affected by noise from construction activities, and these affected periods have been excluded from further analysis.

3.2 The 16-hour day-time measurement, 8-hour night-time measurement and night-time maximum noise levels are summarised below in Table 2.

Table 2 Summary of Corrected Noise Survey Results

Measurement Position (Unit)	Average Noise Levels (LAeq)		Maximum Night Time Noise Levels (LAmax)
	Daytime (0700-2300hrs)	Night-time (2300-0700hrs)	
2.06	35 dB	30 dB *	45 dB *
2.10	35 dB *	30 dB *	45 dB *
15.07	34 dB	29 dB	43 dB
18.04	28 dB	23 dB	34 dB
24.07	28 dB	23 dB	<45 dB
22.04	23 dB	18 dB	<45 dB
14.07	34 dB	29 dB	<45 dB
12.07	30 dB	25 dB	<45 dB
10.14	26 dB	21 dB	<45 dB
6.02	20 dB	20 dB	<45 dB
4.09	27 dB	24 dB	<45 dB
14.06	34 dB	30 dB	<45 dB
9.06	26 dB	26 dB	<45 dB
6.11	33 dB	30 dB	<45 dB
5.08	33 dB	30 dB	<45 dB
3.07	<35 dB	<30 dB	<45 dB
7.09	32 dB	30 dB *	<45 dB
3.03	<35 dB	<30 dB	<45 dB

*Includes a correction of -3dB to account for the reduced reverberation level of the finished plot

3.3 Table 2 shows that all units comply with the criteria defined in Planning Condition 16.

4. CONCLUSIONS

4.1 Cass Allen Associates has been instructed by Midgard to assist in discharging Planning Condition 16 (Planning Application Reference No. 127317/FO/2020) at The Casting, Manchester.

4.2 Day- and night-time noise levels were measured inside 18 residential units.

4.3 Noise levels have been assessed against the requirements of Planning Condition 16 for the development. All units are compliant with this condition.

Appendix 1 Survey Results

Survey Summary:

The survey comprised short-term operator attended noise measurements and longer-term unattended noise monitoring at the site. Noise levels at the site were generally dictated by road traffic on surrounding roads and noise from tram passes on the adjacent tramline

Survey Period:

22/04/2024 to 23/04/2024

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise levels around the site over a typical day and night-time period.

Equipment Used:

Type	Manufacturer	Model	Serial Number
Sound level meter[1] (noise logger)	Rion	NL-32	00530374
Sound level meter[1] (noise logger)	Rion	NL-32	00903342
Sound level meter[1] (noise logger)	Rion	NL-32	00903343
Sound level meter[1] (noise logger)	Rion	NL-32	00251125
Calibrator	Rion	NC-74	34551703
Sound level meter[1]	Rion	NL-52	00965090

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmax, dB	LA90, dB	Observations
22/04/2024	N1: 18.04 Living	12:55	2 mins	31	36	30	Noise dictated by ventilation noise. Background noise from construction work (i.e. drilling and circular saw)
		12:58		31	37	30	
		13:01		31	44	30	
22/04/2024	N2: 24.07 Living	17:15		33	43	31	Noise dictated by background road noise from A665. Background construction noise and Smoke alarms.
		17:18		31	41	30	
		17:20		31	47	29	
22/04/2024	N3: 22.04 Bedroom 1	13:29		32	46	28	Noise dictated by background construction noise (i.e. Billing and circular Saw).
		13:34		30	41	26	
		13:37		30	40	26	
22/04/2024		13:48		32	47	31	

Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmax, dB	LA90, dB	Observations
	N4: 14.07 Living	13:51		34	46	30	Noise dictated by road noise from A665 and Adair Street. Background construction noise (i.e. Circular saw)
		13:57		32	38	29	
22/04/2024	N5: 12.07 Bedroom 1	17:43		29	50	25	Noise dictated by road noise from Chapel Town Street. Police sirens passing on A665.
		17:46		28	41	25	
		17:49		27	45	24	
22/04/2024	N6: 10.14 Living	14:13		31	44	29	Noise dictated by road traffic from Adair Street. Background construction noise (i.e. drilling and hammering)
		14:16		31	42	29	
		14:19		30	42	29	
22/04/2024	N7: 2.10 Bedroom 1	15:34		31	45	25	Noise dictated by construction noise, noise from trams passing and road noise from A665.
		15:37		31	45	25	
		15:39		32	55	24	
22/04/2024	N8: 2.06 Bedroom 2	15:43		32	48	26	Noise dictated by background construction noise (i.e. hammering noise)
		15:46		30	41	25	Similar to the previous measurement but there was less hammering noise.
		15:49		30	44	25	
22/04/2024	N9: 6.02 Living	16:07		34	41	32	Noise dictated by background construction noise (i.e. drilling and circular saw). Tonal reversing alarm was also heard.
		16:10		35	44	32	
		16:13		37	53	33	
22/04/2024	N10: 4.09 Bedroom 1	16:30		34	43	26	Noise dictated by a circular saw being operated. Background construction noise (i.e. hammering and drilling) can also be heard
		16:33		34	41	26	
		16:36		35	53	28	
22/04/2024	N11: 15.07 Bedroom 2	16:56		30	49	23	Noise dictated by background road traffic from Adair Street.
		17:02		25	40	23	
		17:05		30	49	23	
22/04/2024	N12: 14.06 Bedroom 2	17:30		31	55	26	Noise dictated by background road traffic from A665 and Chapel Town Street. Ventilation noise could also be heard.
		17:33		27	36	25	
		17:36		31	46	25	
22/04/2024	N13: 9.06 Living	17:55	3 mins	30	49	24	Noise dictated by background road noise from Chapel Twon Street and A665. Loudest level from Tram passing.
		17:59		26	36	24	
22/04/2024	N14: 6.11 Bedroom 2	18:11	2 mins	31	46	25	Noise dictated by the tramline and passing trams. Noise also from the A665 and motorbike passing.
		18:14		27	52	22	
		18:17		26	41	22	

Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmax, dB	LA90, dB	Observations
22/04/2024	N15: 5.08 Living	18:23		30	38	27	Noise dictated by road traffic on the A665.There was also noise from the ventilation and trams passing below.
		18:27		33	57	28	Similar to previous measurements but with the boiler turning on.
		18:30		33	53	30	
23/04/2024	N16: 3.07 Living	12:50		31	43	24	Noise dictated by trams passing below and background road noise from A665 and construction noise. Loudest level when a police siren passed on the A665
		13:31		30	43	26	Similar to previous measurement but saws and drilling can be heard in the background
		13:34		31	43	26	Similar to previous measurement. Car horn can be heard on A665. Tapping and thumping can be
23/04/2024	N17: 7.09 Bedroom 1	13:48		35	51	21	Noise dictated by road traffic and construction
		14:01		30	51	22	
		14:04		31	50	22	
23/04/2024	N18: 3.03 Living	14:32		33	48	28	
		14:36		31	43	28	
		14:39		30	45	28	

Unattended Noise Monitoring Results:

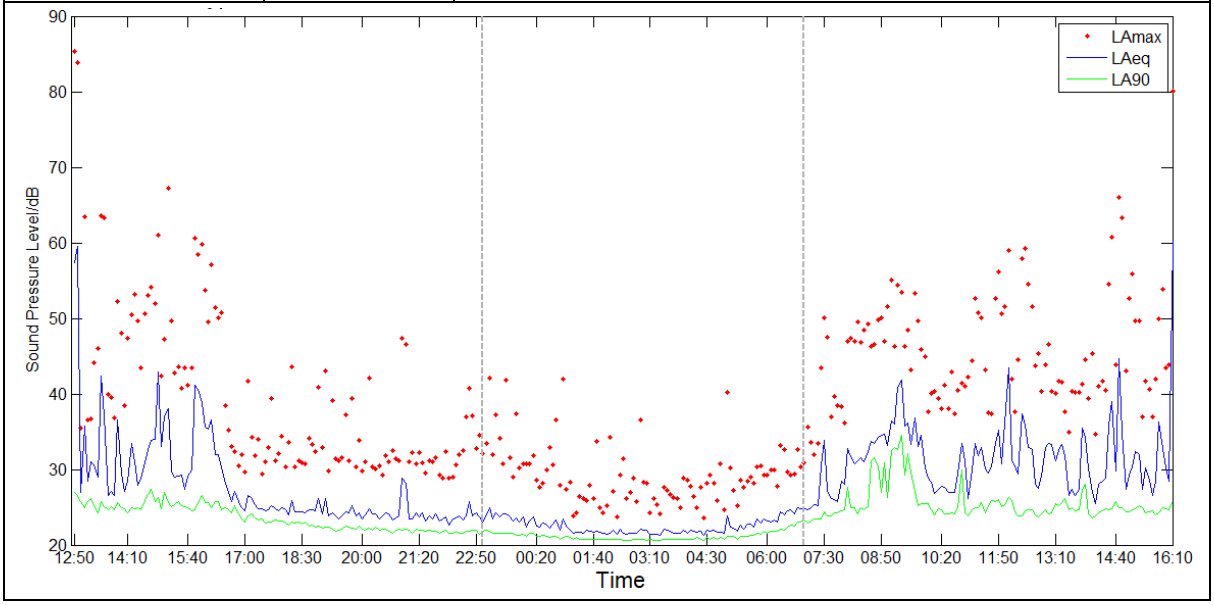
Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB[1]	LAeq,8hr, dB	LA90,5mins, dB[1]	LAmax, dB[2]
22/04/2024 to 23/04/2024	L1 – 18.04	32	25	23	21	34
22/04/2024 to 23/04/2024	L2 – 2.10	47	35	35	34	47
22/04/2024 to 23/04/2024	L3 – 2.06	50	36	35	34	46
22/04/2024 to 23/04/2024	L4 – 15.07	46	29	29	26	43

Note 1: Typical lowest measured during the period shown.

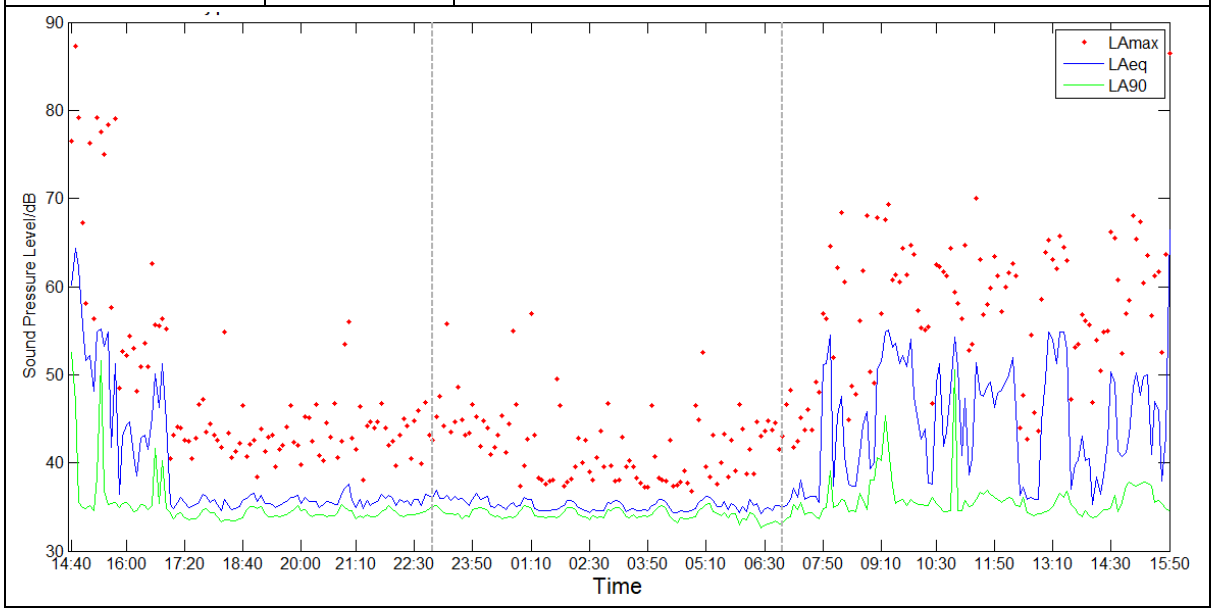
Note 2: Highest typical maximum noise level during the night-time (not exceeded more than 10-15 times per night).

Unattended Noise Monitoring Results:

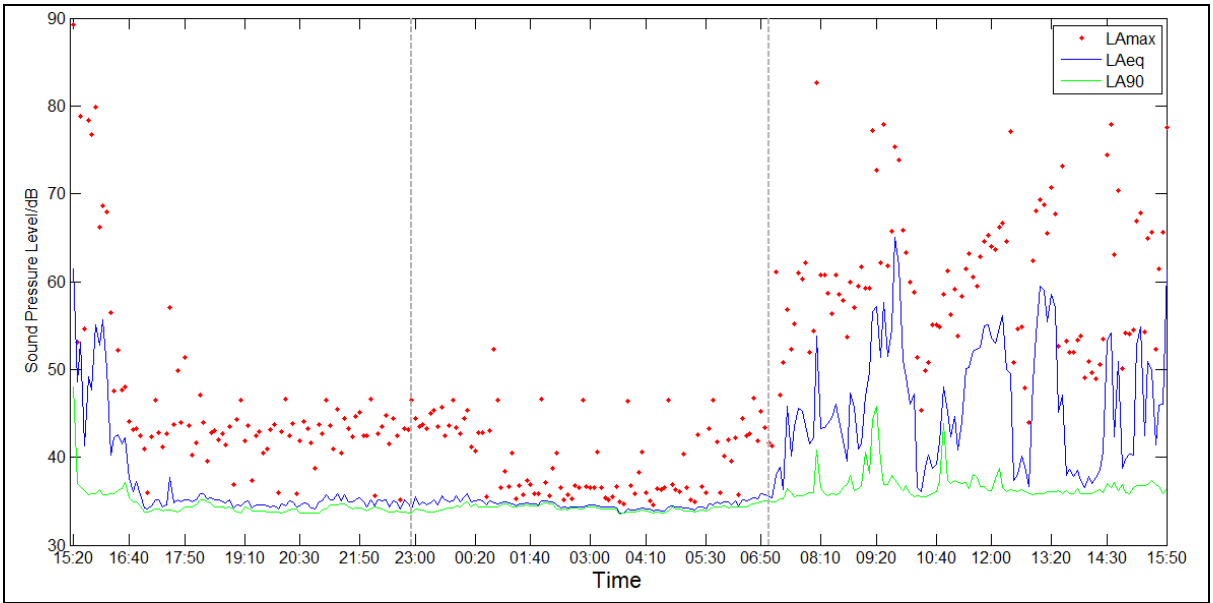
Meas. Period	Position
22/04/2024 to 23/04/2024	L1



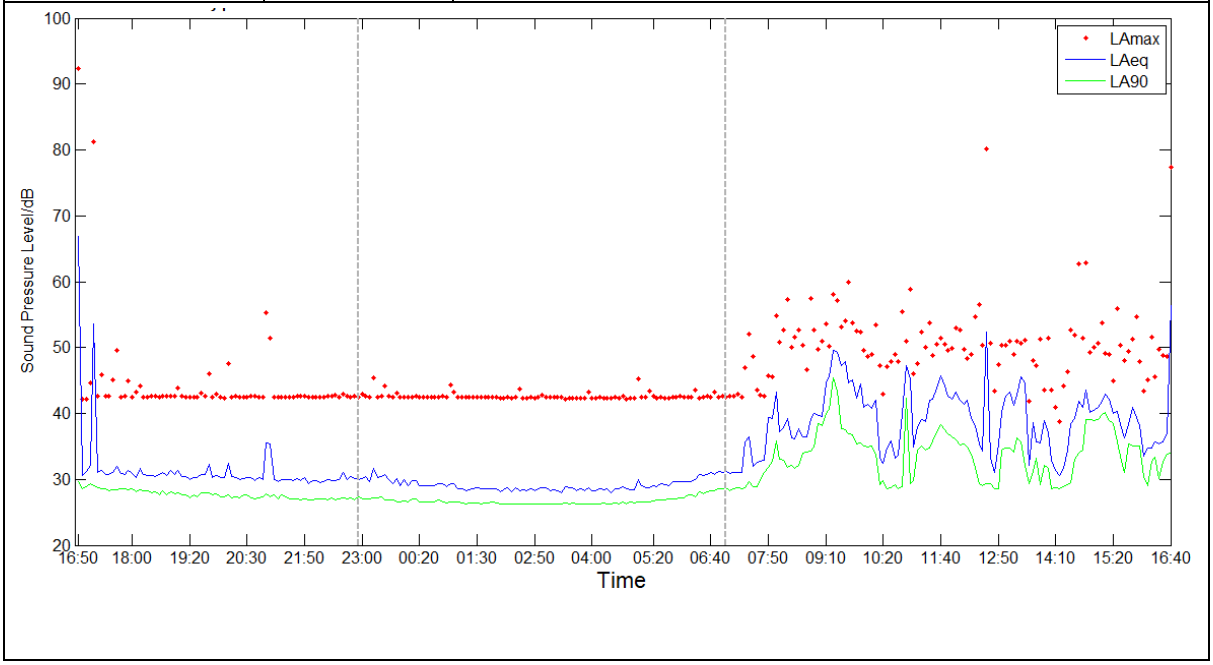
Meas. Period	Position
22/04/2024 to 23/04/2024	L2



Meas. Period	Position
22/04/2024 to 23/04/2024	L3



Meas. Period	Position
22/04/2024 to 23/04/2024	L4



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