

Appendix 11.4

Noise and Vibration Survey

Methodology

Date & Time of Survey:	8 th December 2017 to 10 th December 2017 & 27 th November 2018					
Personnel:	Chris Clayden (dBx Acoustics)					
Equipment Used:	Casella CEL 63-X Serial no 1711050 Norsonic NOR 140 serial no 1405619, Vibrock V9001 Serial No 2177					
Calibration:	Noise measurements were undertaken in accordance with British Standard (BS) 7445-1:2003 <i>Description and Measurement of Environmental Noise</i>. Weather conditions throughout the survey were in accordance with good measurement practice. On site calibration checks were performed on the meter before and after the measurements and were found to be within the permitted tolerance of BS EN 61672-1:2013. All equipment had a valid calibration certificate at the time of the survey and all microphones were fitted with a windshield to prevent wind noise from affecting the measurements. Vibration measurements were undertaken in accordance with British Standard (BS) 6472:2008 <i>Guide to evaluation of human exposure to vibration in buildings</i>. The vibration meter and accelerometer were laboratory calibrated within the past 12 months.					
Weather Conditions:	Day	Period	Wet/Dry	Temp°C	Wind Speed & Direction	Cloud Cover
	Friday	Day	Dry	3°C	9 mph W	25%
	Saturday	Night	Dry	-2°C	5 mph SW	0%
	Saturday	Day	Dry	2°C	6 mph S	50%
	Sunday	Night	Dry	0°C	11 mph ESE	50%
Measurement Locations:	Noise measurements were undertaken at 7 locations around the development site. These are identified on the site plan and are described below. MP1 – 2m from Station Hill Road					

	MP2 – 2m from Caversham Road west of site by existing network rail building MP3 – 3m from roundabout on Caversham Road and Vastern Road Junction MP4 – 3m from Vastern Road North of site, in line with the Aldi on the other side of the road MP5 – Corner of Car Park next to Mothercare MP6 – 5m from Bagnall way taxi rank MP7 – 4th floor of Multistorey car park overlooking Reading train station and railway next to Bagnall Way. Additional measurements were made on-site at A and B on Vastern Road. Vibration measurements were made on the southern site boundary adjacent to railway, marked V on site map.
Measurement Details:	Noise measurements were undertaken over various periods in terms of and L_{eq}, L_{90}, L_{max}. Vibration measurements encompassed a day and night time period and considered peak particle velocity and vibration dose value.
Façade / Free-Field:	All measurements free-field
	Full results for the attended measurements are provided below
Measured Data:	Full octave band frequency data was obtained for all measurements.

Measured Noise Levels

Daytime

Location	Date	Period, h	Noise Level, dB				Comments
			L_{Aeq}	L_{A10}	L_{A90}	$L_{Amax, F}$	
1	8 th December 2017	1130 – 1145	62	65	57	74	Rail & road
		1702 – 1717	67	69	59	85	
		1921 – 1936	65	67	61	75	
	9 th December 2017	1414 – 1429	60	63	55	74	
		1940 - 1955	63	65	60	82	
	27 November 2018	13:11-13:26	76	77	69	98	
		14:25-14:40	74	77	66	87	

		15:43-15:58	74	76	69	81	
2	8 th December 2017	1152 – 0015	77	80	69	91	road
		1753 -1808	71	75	63	87	
		1945 – 2000	77	81	67	88	
	9 th December 2017	1433 - 1448	77	81	69	86	
		1959 – 2014	76	80	65	89	
	27 November 2018	13:52-14:07	72	75	64	81	
		14:53-15:08	74	77	67	80	
		16:06-16:21	74	78	67	82	
3	8 th December 2017	1210 – 1225	76	77	68	104	
		1741 – 1756	69	71	65	94	
		2004 – 2019	73	76	67	83	
	9 th December 2017	1451 – 1506	74	76	69	90	
		2017 – 2032	73	76	64	91	
4	8 th December 2017	1232 – 1247	73	77	63	88	
		1832 – 1847	73	77	65	88	
		2042 -2057	73	77	63	86	
	9 th December 2017	1526 – 1541	74	77	65	87	
		2053 - 2108	71	75	59	83	
5	8 th December 2017	1333 – 1348	59	61	58	70	
		1803 – 1818	58	60	55	71	
		2025 – 2040	58	59	55	67	
	9 th December 2017	1509 – 1524	56	58	54	71	
		2026 – 2041	57	58	52	77	

6	8 th December 2017	1252 – 1307	62	65	57	78	
		1840 – 1855	64	66	61	74	Taxi rank rail and road
		2101 – 2116	64	66	62	71	
	9 th December 2017	1544 – 1559	62	63	59	77	
		2111 – 2126	61	63	59	70	
7	8 th December 2017	1312 – 1327	66	68	63	79	
		1900 – 1915	69	71	66	78	
		2119 – 2134	71	72	70	75	
	9 th December 2017	1601 - 1616	68	69	66	88	
		2128 - 2143	65	67	63	78	

Night Time

Location	Date	Period, h	Noise Level, dB			Comments
			L _{Aeq}	L _{A90}	L _{Amax, F}	
1	9 th December 2017	0415 – 0420	46	44	54	Sources of noise, background and max.
		0420 - 0425	53	45	68	
		0425 - 0430	53	44	69	
	10 th December 2017	0057 – 0102	59	51	70	
		0102 - 0107	58	49	68	
2	9 th December 2017	0435 – 0440	73	47	85	
		0440 – 0445	69	50	84	
		0445 - 0450	73	51	92	
	10 th December 2017	0114 -0119	74	60	87	
		0119 - 0124	73	53	86	
3	9 th December 2017	0455 - 0500	67	52	79	

		0500 – 0505	69	55	84	
		0505 – 0510	67	53	81	
	10 th December 2017	0126 - 0131	69	61	81	
		0131 - 0136	69	59	80	
4	9 th December 2017	0530 – 0535	67	51	83	
		0535 - 0540	68	50	83	
		0540 - 0545	66	48	81	
	10 th December 2017	0158 - 0203	68	50	86	
		0203 - 0208	67	49	82	
5	9 th December 2017	0513 – 0518	52	43	62	
		0518 – 0523	52	46	61	
		0523 - 0528	51	46	62	
	10 th December 2017	0142 - 0147	58	56	65	
		0147 - 0152	57	54	63	
6	9 th December 2017	0548 – 0553	59	51	70	
		0553 – 0558	60	60	70	
		0558 – 0603	60	60	70	
	10 th December 2017	0217 - 0222	60	51	80	
		0222 - 0227	55	51	67	
7	9 th December 2017	0605 – 0610	57	51	71	4 th floor car park rail
		0610 – 0615	62	61	73	Direct line of sight to track
		0615 – 0620	64	61	74	
	10 th December 2017	0233 – 0238	57	50	71	
		0238 - 0243	55	50	63	

Measured Vibration Levels

Date	Period	VDV, $\text{mms}^{-1.75}$	PPV, mms^{-1}
26th November 2018	15:20h-23:00h	0.051	0.275
26th-27th November 2018	23:00h-07:00h	0.045	0.300
27th November 2018	07:00h-16:00h	0.051	0.275