

APPENDIX 13.2

Appendix 13.2: Baseline Noise and Vibration Survey

Baseline Noise Survey

A baseline noise survey was undertaken over a typical weekday and weekend period, from Tuesday 9th May to Wednesday 10th May 2017. An unattended sound level meters were installed at various locations around the Site. Attended short-term measurements were conducted across the Site to discern the spatial variation in noise level. All monitoring locations are shown in **Figure 13.1**.

The parameters logged throughout the survey period were L_{Aeq} , L_{AFmax} , L_{A90} and L_{A10} . The L_{Aeq} level is the equivalent continuous sound pressure level over the measurement period; L_{Amax} is an indicator of the highest sound level during the measurement period; L_{A90} is used as a descriptor of background noise levels and L_{A10} is the noise level which is achieved for 10% of the monitoring period and is often used to describe road traffic noise.

The monitoring equipment used during the survey period is described in **Table 13.2.1**. The sound level meters were calibrated both before and after each monitoring period; no drift from the reference level of 94dB was recorded.

Weather conditions were observed as being ideal for the measurement of noise, being fine and dry, with just a light north westerly prevailing breeze (<5ms⁻¹). A wind shield was fitted to the monitoring equipment at all times.

Monitoring was undertaken by trained and competent staff holding an IOA Certificate of Competence in Environmental Noise Measurement.

Table 13.2.1: Noise Monitoring Equipment

Location	Type	Model	Serial Number
LT1	Sound Level Meter	NA-28	1170649
ST1	Sound Level Meter	NL-52	932322
ST2	Sound Level Meter	NL-52	932322
ST3	Sound Level Meter	NL-52	932322
All	Acoustic Calibrator	NC-74	35173533

A summary of the measured daytime (07:00 to 19:00), evening (19:00 to 23:00) and night-time (23:00 to 07:00) noise levels are presented in **Table 13.1.2**, with full results displayed graphically in time-history format below. A summary of attended short-term daytime measurement results are presented in **Table 13.1.3** out of completeness.

Table 13.2.2: Summary of Unattended (Long Term) Baseline Noise Measurements (Façade Measurements)

Monitoring Location (Figure 1)	Period	Duration	L _{Aeq,T} dB		L _{A10,T} dB		L _{A90,T} dB		L _{AFmax,5min} dB	
			Range	Ave ¹	Range	Ave ²	Range	Ave ²	Range	90 th percentile ³
LT1	Day	12hr	47 - 81	67	48 - 85	65	44 - 60	50	57 - 96	84
	Evening	4hr	38 - 64	56	39 - 69	50	36 - 46	39	42 - 82	77
	Night	8hr	36 - 60	48	38 - 59	45	33 - 56	39	41 - 77	66

Notes: ¹ Logarithmic average over the day/evening/night survey periods; ² Arithmetic average over the day/evening/night survey periods; ³ The 90th percentile L_{AFmax} value is presented and considered representative of typical L_{AFmax} levels experienced. All figures rounded to nearest integer.

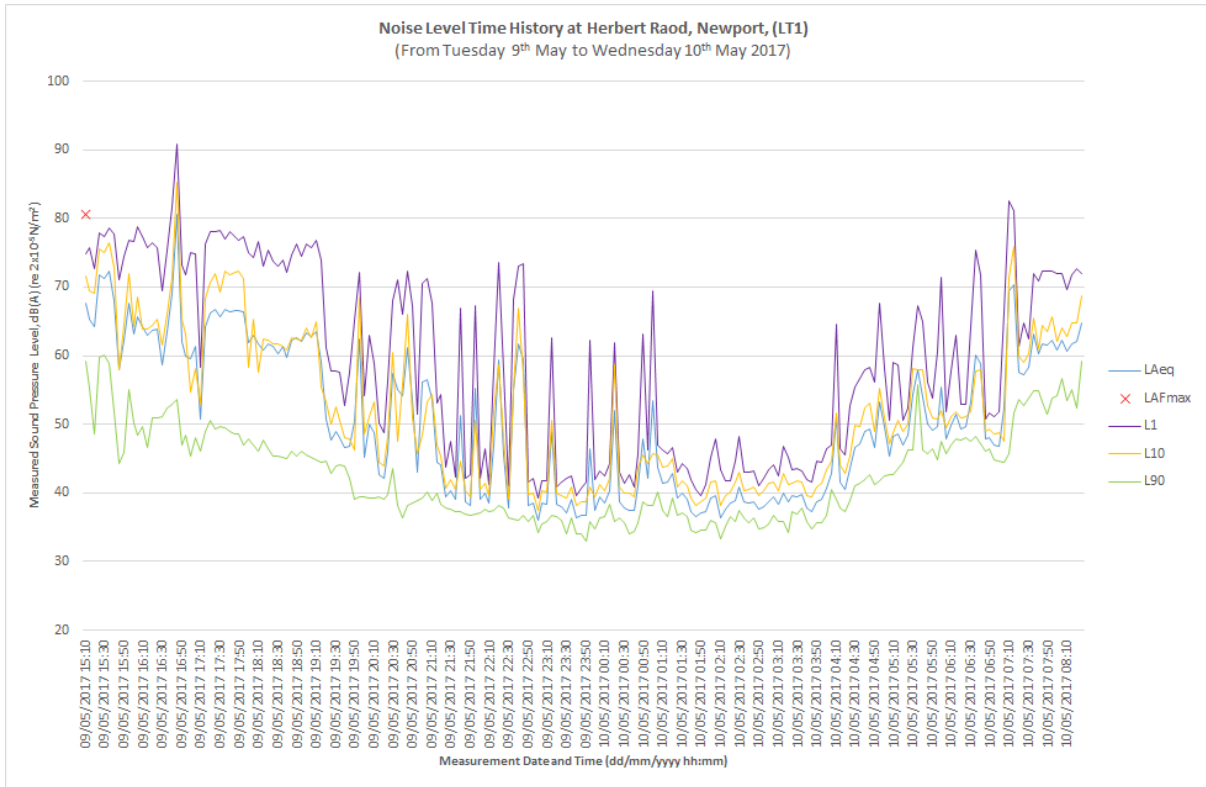
Table 13.2.3: Summary of Attended (Short Term) Baseline Noise Measurements (Free-field) – Across the Site

Monitoring Location (Figure 1)	Period	Duration	L _{Aeq,T} dB	L _{A10,T} dB	L _{A90,T} dB	L _{AFmax,5min} dB
			Ave ¹	Ave ²	Ave ²	Ave ²
ST1	Day	30mins	60	61	53	76
ST2	Day	30mins	59	62	52	83
ST3	Day	30mins	54	56	50	63

Notes: ¹ Logarithmic average over the daytime survey periods; ² Arithmetic average over the daytime survey periods. All figures rounded to nearest whole decibel.

Figures 13.1.1 present the time history plots of the long-term noise monitoring locations LT1.

Figure 13.2.1: Time History Plot (LT1)



Baseline Vibration Survey

On 22nd February 2013, short-term attended vibration measurements were taken across the Site to determine the magnitude of existing vibration from train passes on the mainline to the north of the Site for a representative sample of train events.

The subjective assessment of vibration during the survey (*including at the closest passing point of the rail head to the site boundary*) did not reveal any perceptible levels of vibration along the eastern boundary during both passenger and freight train passes.

Additionally, vibration measurements were undertaken for a residential development approximately 400m south of the site that also lies adjacent to the rail line located on Turner Street (planning application number 11/0843). This site has been granted planning permission and is understood to be complete. The vibration measurements were undertaken at approximately 30m from the rail head and are detailed in **Table 13.2.3**.

Table 13.2.3: Vibration Measurements and Corresponding Semantic Rating

Monitoring Location	Maximum Vibration Dose Value (m/s ^{1.75})					
	x-axis		y-axis		z-axis	
	VDVd _{,16hr} day	VDVd _{,8hr} night	VDVd _{,16hr} day	VDVd _{,8hr} night	VDVb _{,16hr} day	VDVb _{,8hr} night
1 Measurement	0.020	0.018	0.030	0.026	0.033	0.029
Semantic	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected

The vibration survey indicates levels that are well below those that would result in a low probability of adverse comment and are significantly under the minimum NCC criteria of 0.26m/s^{-1.75}. Given the similarities of the Turner Street site to the proposed development on Herbert Road, these measurements are deemed representative of the development.