Appendix 5.8

Derivation of background sound levels for SRFI operational noise assessment

Appendix 5.8

Derivation of background sound levels

Measured Background Sound Levels

Table 1 Background sound levels – Daytime (07:00 – 23:00)

Monitoring Location	Background Sound Level ($L_{A90,15min}$ dB) - Day							
	Broadly Westerly Winds				Broadly Easterly Winds			
	Modal Value	Lower Quartile	Difference	Sens Test Required?	Modal Value	Lower Quartile	Difference	Sens Test Required?
N1	33	31	-2	NO	39	37	-2	NO
N2	34	32	-2	NO	41	41	0	NO
N3	36	36	0	NO	48	39	-9	YES
N4	43	41	-2	NO	41	40	-1	NO
N5	52	47	-5	YES	42	41	-1	NO
N6	48	44	-4	YES	51	48	-3	YES
N7	48	45	-3	YES	58	51	-7	YES
N8	60	59	-1	NO	66	62	-4	YES
N10	43	40	-3	YES	46	43	-3	YES
N11	41	38	-3	YES	43	41	-2	NO
N12	37	37	0	NO	42	39	-3	YES
N13	38	33	-5	YES	35	34	-1	NO
N14	31	31	0	NO	35	33	-2	NO
N15	46	42	-4	YES	48	45	-3	YES

Table 2 Background sound levels – Night-time (23:00 – 07:00)

Monitoring Location	Background Sound Level ($L_{A90,15min}$ dB) - Night							
	Broadly Westerly Winds				Broadly Easterly Winds			
	Modal Value	Lower Quartile	Difference	Sens Test Required?	Modal Value	Lower Quartile	Difference	Sens Test Required?
N1	30	28	-2	NO	30	31	-1	NO
N2	31	27	-4	YES	38	35	-3	YES
N3	35	31	-4	YES	39	37	-2	NO
N4	41	36	-5	YES	37	37	0	NO
N5	45	41	-4	YES	47	34	-13	YES
N6	38	35	-3	YES	41	38	-3	YES
N7	46	42	-4	YES	47	45	-2	NO
N8	53	50	-3	YES	54	50	-4	YES
N10	37	34	-3	YES	41	38	-3	YES
N11	32	29	-3	YES	37	36	-1	NO
N12	32	31	-1	NO	38	37	-1	NO
N13	28	23	-5	YES	28	28	0	NO
N14	28	26	-2	NO	33	31	-2	NO
N15	39	34	-5	YES	39	38	-1	NO

Table 3 Representative Monitoring Positions for Receptor Locations

Survey Location	Representative of Receptors	Notes
N1	R5	Survey position at receptor location.
N2	R6	Survey position at receptor location.
N3	R12	Survey position representative of receptor location.
N4	R00, R13, R14, R15,	Representative of rear facades of these buildings which is the façade that would be most exposed to operational noise from the SRFI.
N5	R25, R26, R27	Survey position at receptor R27. Position also considered representative of R25 and R26.
N11	R37, R39	Survey location at receptor R39. Very similar distances back from B430 – background sound level exposure likely to be similar.
N12	R36	Survey position at receptor location.
N13	R31, R32, R33, R34, R35	Monitoring position close to receptor R32 and is representative of R31, R32 and R33 and R34. R35 likely to have higher current exposure (in terms of LAeq) owing to its closer proximity to Camp Road.
N14	R30	Survey position at receptor location.
N15	R28, R29	Survey position is close to receptor R29 and representative of the western façade. It was approx. 50m back from centre of the carriageway. R28 is 20m from the centre of the carriageway and therefore more exposed to road traffic noise from the B430. Proposed correction +4 dB to the LAeq but no correction to the LA90 as this reflects distant road traffic noise.