

Havant Thicket Reservoir Project

Environmental Statement Volume 4 - Appendices

Appendix A12

Noise and Vibration

Portsmouth Water Ltd.

21/08/20

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Notice

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Appendix A12.1 Reservoir construction plant list

- A.1. The following table details the indicative construction plant list and associated source noise levels used in the noise model for the reservoir site. These are primarily based on data from BS 5228 Part 1 Annex C unless otherwise stated. These data have been used to give an indication of noise levels from construction activities, but actual noise levels will be dependent on the plant selected by the contractor.
- A.2. This list of plant for each activity and % on times have been agreed with the project engineer

Table 1-1 - Reservoir construction plant list used for noise modelling

Activity	Time Period	BS 5228 or Other Reference	Plant Name	Qty	Sound Power Level (dB L _{WA})	Height (m)	% On Time
Site Setup	2021 Q3	C.2.2	Tracked excavator	1	105	2	50%
		C.2.30	Dump truck (tipping fill)	2	107	2	25%
		C.8.20	Tipper lorry	3	107	1.5	40%
		C.2.38	Roller	1	101	1	50%
		C.5.5	Compressor for hand-held pneumatic breaker	1	93	0.5	50%
		C.6.28	Crawler mounted dozer	2	113	1.5	75%
		C.11.14	Lorry	2	107	1.5	15%
		C.4.76	Diesel generator	1	89	0.5	100%
Access route Construction	2021 Q3	C.6.28	Crawler mounted dozer	3	113	1.5	75%
		C.6.23	Rigid road lorry	1	110	1	25%
		C.2.2	Tracked excavator	1	105	2	50%
		C.5.19	Road roller	1	108	0.5	50%
		C.9.22	Articulated dump truck	6	117	2	25%
		C.5.30	Asphalt paver (+ tipper lorry)	2	103	1	50%
Haul Route Construction	2021 Q3	C.6.28	Crawler mounted dozer	2	113	1.5	75%
		C.2.2	Tracked excavator	2	105	2	50%
		C.2.38	Roller	2	101	1	50%
		C.9.22	Articulated dump truck	6	117	2	25%
Haul Route Construction	2022 Q1	C.6.28	Crawler mounted dozer	2	113	1.5	75%
		C.2.2	Tracked excavator	2	105	2	50%

Activity	Time Period	BS 5228 or Other Reference	Plant Name	Qty	Sound Power Level (dB L _{WA})	Height (m)	% On Time
		C.2.38	Roller	2	101	1	50%
		C.9.22	Articulated dump truck	6	117	2	25%
Tree Felling	2021 Q4, 2022 Q3 to 2022 Q4 and 2023 Q1	https://www.stihl.co.uk/STIHL-Products/Chainsaws-and-Telescopic-Pole-Pruners/Petrol-chainsaws-for-forestry-work/22284-130/c-m.aspx	Stihl MS661 C-M	4	118	0.5	25%
		RR618 Research Report (HSE)	Tracked Chipper	1	116	0.5	50%
Haul Route Movements	2021 Q4 and 2022 Q2 to 2026 Q2	C.9.22	Articulated dump truck	9	117	2	25%
Borrow pit excavation	2022 Q2 to 2022 Q4	C.2.2	Tracked excavator	3	105	2	75%
Earth Conveyor	2023 Q1 to 2026 Q2	C.10.20	Conveyor drive unit	4	105	1	40%
Embankment earthworks	2023 Q1 to 2026 Q2	C.6.28	Crawler mounted dozer	4	113	1.5	75%
		C.6.31	Grader	4	114	1.5	75%
		C.2.38	Roller	8	101	1	50%
		C.6.37	Water bowsers (discharging)	4	109	1.5	90%
		C.5.40	Electric water pump	4	96	0.5	70%
Borrow pit/Embankment topsoil Stripping	2022 Q2 and	C.6.28	Crawler mounted dozer	4	113	1.5	75%
		C.2.2	Tracked excavator	4	105	2	75%
		C.2.38	Roller	2	101	1	50%

Activity	Time Period	BS 5228 or Other Reference	Plant Name	Qty	Sound Power Level (dB L _{WA})	Height (m)	% On Time
	2022 Q3 to 2022 Q4						
Clay Blanket	2022 Q2 to 2022 Q3	C.6.28	Crawler mounted dozer	2	113	1.5	75%
		C.2.2	Tracked excavator	2	105	2	75%
		C.2.38	Roller	3	101	1	50%
Control house	2023 Q1 to 2023 Q2	C.4.26	Concrete pump + concrete mixer truck (idling)	1	103	1.5	40%
		C.4.34	Poker vibrator	3	97	0.5	40%
Visitor Centre	2028 Q2 to 2029 Q1	C.4.20	Concrete mixer truck	1	108	1.5	40%
		C.5.36	Hand-held circular saw (petrol)	8	115	0	20%
		C.11.14	Lorry	4	107	1.5	20%
Rip Rap	2026 Q2	C.8.20	Tipper lorry	4	107	1.5	10%
		C.2.2	Tracked excavator	4	105	2	10%
Culvert	2022 Q4 to 2023 Q1	C.4.26	Concrete pump + concrete mixer truck (idling)	1	103	1.5	35%
		C.4.34	Poker vibrator	3	97	0.5	35%
		C.4.20	Concrete mixer truck	1	108	1.5	35%
		C.2.2	Tracked excavator	1	105	2	35%
		C.2.9	Wheeled backhoe loader (idling)	1	83	1.5	35%
Wetland bund	2022 Q3 to 2022 Q4	C.2.2	Tracked excavator	1	105	2	50%
		C.2.38	Roller	1	101	1	50%
Site Compound	General	C.1.14	Tracked crusher	1	110	1.5	40%
		C.10.14	Screen stockpiler	1	109	1.5	40%

Activity	Time Period	BS 5228 or Other Reference	Plant Name	Qty	Sound Power Level (dB L _{WA})	Height (m)	% On Time
		C.10.16	Wheeled loader	2	113	1.5	65%
		C.8.20	Tipper lorry	4	107	1.5	65%
		C.4.76	Diesel generator	1	89	0.5	100%

Appendix A12.2 Noise modelling construction schedule

- A.3. The table below shows the construction schedule used in the noise modelling for the reservoir site.
- A.4. This construction schedule is indicative for the purpose of this assessment and is subject to change once a contractor is appointed.

Table 1-2 - Noise modelling construction schedule

Activity	2021				2022				2023				2024				2025				2026				2027				2028				2029				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Site Setup	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Access route Construction	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Haul Route Construction	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Haul Route Construction	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tree Felling	-	-	-	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Haul Route Movements	-	-	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wetland bund	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Borrow pit topsoil Stripping	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Borrow pit excavation	-	-	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Earth Conveyor	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clay Blanket	-	-	-	-	-	X	X		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Embankmen t topsoil stripping	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Embankmen t earthworks	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
Rip Rap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
Culvert	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Control house	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Visitor Centre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	
Site Compound	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix A12.3 Reservoir noise modelling results

- A.5. The table below shows the calculated noise level at each of the sample receptors during each period of construction. For each period, the active sources are as defined in the Construction Schedule above.
- A.6. Where noise levels exceed 65dB, this is an indication of a potentially significant effect subject to the overall duration of the activity.

Table 1-3 - Noise modelling results

Address S	Floor	Construction Noise Level per Period (dB L _{Aeq,T})																																					
		2021				2022				2023				2024				2025				2026				2027				2028				2029					
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Mulberry Cottage, 2, Manor Lodge Road, Rowland's Castle, PO9 6BA	0	-	-	46.2	48.4	56.5	51.9	51.2	51.2	53.9	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.3	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	47.8	49.7	57.3	52.9	51.9	51.9	54.4	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.8	-	-	-	-	-	-	-	-	-	-	-	-
The Former Rectory, 74, Manor Lodge Road, Rowland's Castle, PO9 6BA	0	-	-	44.5	45.4	53.6	46.1	55.3	55.3	58.9	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.9	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	46.1	46.9	54.5	47.2	56.2	56.2	59.7	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.7	-	-	-	-	-	-	-	-	-	-	-	-
1, Durrants Road, Rowland's Castle, PO9 6BE	0	-	-	43.8	45.3	52.1	46.1	51.8	51.8	55.3	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	45.4	46.8	53.3	47.4	53.0	53.0	56.4	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.2	-	-	-	-	-	-	-	-	-	-	-	-
50A, Durrants Road, Rowland's Castle, PO9 6BG	0	-	-	44.7	46.9	49.3	45.2	50.0	50.0	53.1	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.7	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	46.2	48.4	50.5	46.5	51.2	51.2	54.1	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.7	-	-	-	-	-	-	-	-	-	-	-	-
93, Winterslow Drive, Havant, PO9 5DZ	0	-	-	50.7	52.2	53.9	55.9	59.3	57.3	57.5	57.5	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.2	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	52.0	53.6	55.1	57.0	60.4	58.3	58.6	58.6	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	-	-	-	-	-	-	-	-	-	-	-	-
35, Well Meadow, Havant, PO9 4LW	0	-	-	53.6	55.1	54.0	56.0	59.6	57.7	58.1	58.1	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.9	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	54.5	56.5	55.0	57.0	60.7	58.8	59.1	59.1	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.9	-	-	-	-	-	-	-	-	-	-	-	-
1, Stratfield Gardens, Havant, PO9 4LS	0	-	-	49.1	49.1	53.5	57.2	58.7	53.7	57.8	57.8	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.8	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	51.4	52.5	54.5	58.1	59.7	55.1	58.7	58.7	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.7	-	-	-	-	-	-	-	-	-	-	-	-	-

Address s	Floor	Construction Noise Level per Period (dB L _{Aeq,T})																																			
		2021				2022				2023				2024				2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2, Abbas Green, Havant, PO9 4EP	0	-	-	52.0	47.4	59.2	63.4	63.9	55.1	63.5	63.5	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.5	-	-	-	-	-	-	42.6	42.6	42.6	42.6	-	-	-
	1	-	-	53.6	50.4	60.0	64.1	64.7	56.0	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.3	-	-	-	-	-	-	44.0	44.0	44.0	44.0	-	-	-
101, Swanmore Road, Havant, PO9 4EU	0	-	-	64.1	44.1	58.9	63.3	63.6	52.8	63.1	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.1	-	-	-	-	-	-	45.0	45.0	45.0	45.0	-	-	-
	1	-	-	64.7	45.7	59.7	63.9	64.2	53.9	63.8	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.8	-	-	-	-	-	-	45.8	45.8	45.8	45.8	-	-	-

Appendix A12.4 Pipeline route construction plant list

- A.7. The following table details the plant used in the calculations of noise levels from the construction of the pipeline. These are based on data from BS 5228 Part 1 Annex C. These data have been used to give an indication of noise levels from construction activities, but actual noise levels will be dependent on the plant selected by the contractor.
- A.8. The indicative list of plant and % on times has been agreed with the project engineers.

Table 1-4 - Pipeline construction plant

Construction Method	Activity	BS 5228 Reference (or other)	Plant	Noise level @10m dB L _{Aeq} for 1 item	Qty	% On Time	Total dB L _{Aeq} @ 10m	Correction for %on time	Corrected Noise Level dB L _{Aeq}
Open Trench	Trenching	C.5.36	Floor Saw	87	1	25%	87	-6.0	81
Open Trench	Trenching	C.2.21	360 degree excavator	71	2	50%	74	-3.0	71
Open Trench	Trenching	C.5.40	Electric water pump	68	1	80%	68	-1.0	67
Open Trench	Laying Pipe and infill	C.4.53	Hiab	77	1	30%	77	-5.2	72
Open Trench	Laying Pipe and infill	C.4.26	Concrete pump	75	1	10%	75	-10.0	65
Open Trench	Laying Pipe and infill	C.5.5	Compressor	65	1	50%	65	-3.0	62
Open Trench	Laying Pipe and infill	C.4.20	Concrete mixer truck	80	1	40%	80	-4.0	76
Open Trench	Laying Pipe and infill	C.4.34	Poker Vibrator	69	1	25%	69	-6.0	63
Open Trench	Laying Pipe and infill	C.11.14	Delivery lorry	79	2	10%	82	-10.0	72
Open Trench	Surfacing	C.5.19	Road roller	80	1	25%	80	-6.0	74
Open Trench	Surfacing	C.5.30	Asphalt paver (and tipper lorry) 12t hopper	75	1	25%	75	-6.0	69
Open Trench	Surfacing	C.5.7	17t road planer	82	1	25%	82	-6.0	76
Trenchless	Tunnelling	C.2.44	Horizontal Directional Drilling	77	1	30%	77	-5.2	72
Trenchless	Tunnelling	C.6.35	Micro Tunnelling	86	1	30%	86	-5.2	81
Trenchless	Tunnelling	C.12.40	Horizontal Augur Boring	81	1	30%	81	-5.2	76
Trenchless	Tunnelling	C.4.76	Silenced generators	61	3	100%	66	0.0	66
Trenchless	Tunnelling	C.5.40	Electric water pump	68	1	80%	68	-1.0	67

Appendix A12.5 Pipeline route daytime construction noise calculations

- A.9. The tables below takes the corrected noise levels for each item of plant above and applies a distance correction to obtain an overall activity noise level. For the purpose of this assessment, the distance to achieve a daytime activity level of 65 dB L_{Aeq} has been used as this is the threshold for potentially significant daytime effects at noise sensitive receptors.

Table 1-5 - Pipeline construction noise calculations - daytime

Construction Method	Plant	Activity	Corrected Noise Level dB L _{Aeq}	Distance for Potentially Significant Effects (m)	Distance correction (dB)	Resultant Free Field dB L _{Aeq}	Activity Noise Level dB L _{Aeq}
Open Trench	Floor Saw	Trenching	81	55	16.5	64.5	65
Open Trench	360 degree excavator	Trenching	71	55	16.5	54.5	
Open Trench	Electric water pump	Trenching	67	55	16.5	50.5	
Open Trench	Hiab	Laying Pipe and infill	72	55	16.5	55.3	62
Open Trench	Concrete pump	Laying Pipe and infill	65	55	16.5	48.5	
Open Trench	Compressor	Laying Pipe and infill	62	55	16.5	45.5	
Open Trench	Concrete mixer truck	Laying Pipe and infill	76	55	16.5	59.5	
Open Trench	Poker Vibrator	Laying Pipe and infill	63	55	16.5	46.5	
Open Trench	Delivery lorry	Laying Pipe and infill	72	55	16.5	55.5	62
Open Trench	Road roller	Surfacing	74	55	16.5	57.5	
Open Trench	Asphalt paver (and tipper lorry) 12t hopper	Surfacing	69	55	16.5	52.5	
Open Trench	17t road planer	Surfacing	76	55	16.5	59.5	65
Trenchless	Horizontal Directional Drilling	Tunnelling	72	60	17.5	54.3	
Trenchless	Micro Tunnelling	Tunnelling	81	60	17.5	63.3	
Trenchless	Horizontal Augur Boring	Tunnelling	76	60	17.5	58.3	
Trenchless	Silenced generators	Tunnelling	66	60	17.5	48.3	
Trenchless	Electric water pump	Tunnelling	67	60	17.5	49.6	
Trenchless	Ground-borne noise*	Tunnelling	-	60		31	

Appendix A12.6 Pipeline route night time construction noise calculations

- A.10. The tables below takes the corrected noise levels for each item of plant above and applies a distance correction to obtain an overall activity noise level. For the purpose of this assessment, the distance to achieve a night time activity level of 50 dB L_{Aeq} has been used as this is the thresholds for potentially significant night time effects at noise sensitive receptors.

Table 1-6 - Pipeline construction noise calculations - night time

Construction Method	Plant	Activity	Corrected Noise Level dB L _{Aeq}	Distance for Potentially Significant Effects (m)	Distance correction (dB)	Resultant Free Field dB L _{Aeq}	Activity Noise Level dB L _{Aeq}
Open Trench	Floor Saw	Trenching	81	220	31.6	49.4	50
Open Trench	360 degree excavator	Trenching	71	220	31.6	39.4	
Open Trench	Electric water pump	Trenching	67	220	31.6	35.5	
Open Trench	Hiab	Laying Pipe and infill	72	220	31.6	40.2	47
Open Trench	Concrete pump	Laying Pipe and infill	65	220	31.6	33.4	
Open Trench	Compressor	Laying Pipe and infill	62	220	31.6	30.4	
Open Trench	Concrete mixer truck	Laying Pipe and infill	76	220	31.6	44.5	
Open Trench	Poker Vibrator	Laying Pipe and infill	63	220	31.6	31.4	
Open Trench	Delivery lorry	Laying Pipe and infill	72	220	31.6	40.4	47
Open Trench	Road roller	Surfacing	74	220	31.6	42.4	
Open Trench	Asphalt paver (and tipper lorry) 12t hopper	Surfacing	69	220	31.6	37.4	
Open Trench	17t road planer	Surfacing	76	220	31.6	44.4	

Appendix A12.7 Road traffic noise assessment

Traffic data

- A.11. The following table details the traffic data used in the assessment of traffic related impacts.
- A.12. The Basic Noise Levels (BNLs) presented are based on formulae set out in the Calculation of Road Traffic Noise CRTN and are based on the Average Annual Weekday Traffic (AAWT), % of heavy vehicles and average speed on the road. For this assessment, speeds have been derived using the road classification according to CRTN.
- A.13. The BNLs do not take account of road gradient or surfacing correction. This does not affect the comparisons, since no changes are expected in the road gradient or surfacing as part of the project.

Table 1-7 - Traffic data

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})
1	Catherington Lane Arm of Jct with A3	50	8352	1.3	66	8910	1.3	66.3	8352	1.3	66	8910	1.3	66.3
2	A3 North arm of junction with Catherington Lane	50	9383	2.4	66.9	10010	2.4	67.2	9383	2.4	66.9	10010	2.4	67.2
3	A3 Portsmouth Road	50	19239	1.9	69.9	20525	1.9	70.2	19239	1.9	69.9	20525	1.9	70.2
4	B2149, west of rbt with Lakesmere Road	50	19322	1.3	69.7	20613	1.3	70	19322	1.3	69.7	20613	1.3	70
5	Lakesmere Road	50	10320	1.2	66.9	11009	1.2	67.2	10320	1.2	66.9	11009	1.2	67.2
6	B2149, west of A3(M) to rbt with Lakesmere Road	81	23017	1.4	73.7	24555	1.4	74	23017	1.4	73.7	24555	1.4	74
7	A3(M) Junction 2 north slips	108	11628	2.5	73.5	12405	2.5	73.8	11828	4.2	73.9	12463	2.5	73.8
8	Dell Piece East between A3(M) and roundabout with B2149	81	22733	2.0	73.8	24252	2.0	74.1	23233	2.9	74.1	24453	2.0	74.1

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)
9	B2149, north of roundabout with Dell Piece East	50	9557	1.9	66.8	10195	1.9	67.1	9557	1.9	66.8	10195	1.9	67.1
10	Waterlooville, east of roundabout with roundabout of Dell Piece East	50	139	0.0	47.7	148	0.0	48	139	0.0	47.7	148	0.0	48
11	B2149, south of roundabout with Dell Piece East	50	16362	1.9	69.2	17455	1.9	69.5	16362	1.9	69.2	17463	1.9	69.5
12	Castle Road arm of Jct with B2149	50	1428	2.3	58.8	1523	2.3	59	1428	2.3	58.8	1523	2.3	59
13	B2149 South of Jct with Castle Road to Jct with Whichers Gate Road	50	15662	1.9	69	16708	1.9	69.3	15662	1.9	69	16716	1.9	69.3
14	Redhill Road Arm of the B2149/Whichers Gate Road Double Mini	50	3605	2.3	62.8	3846	2.3	63	3605	2.3	62.8	3846	2.3	63
15	Whichers Gate Road Arm of the B2149/Whichers	50	10160	1.7	67	10839	1.7	67.3	10160	1.7	67	10839	1.7	67.3

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})
	Gate Road Double Mini													
16	B2149 Arm of the B2149/Whichers Gate Road Double Mini	50	9873	2.1	67.1	10533	2.1	67.3	9873	2.1	67.1	10541	2.1	67.3
17	Middle Park Way Arm of the B2149 Jct	50	7055	3.1	66	7527	3.1	66.2	7105	3.5	66.1	7527	3.1	66.2
18	B2149 Arm of the Middle Park Way Jct	60	10599	3.9	68.9	11307	3.9	69.2	10599	3.9	68.9	11307	3.9	69.2
19	Dunsbury Way	50	7073	6.5	67	7545	6.5	67.2	7073	6.5	67	7545	6.5	67.2
20	Middle Park Way North of Jct with Purbrook Way	50	4681	5.4	64.9	4993	5.4	65.2	4681	5.4	64.9	5045	5.3	65.2
21	Purbrook Way, east of rbt with Middle Park Way / Park Lane	50	17547	1.7	69.4	18719	1.7	69.7	17547	1.7	69.4	18719	1.7	69.7
22	Purbrook Way, west of rbt with Middle Park Way / Park Lane	50	18308	1.9	69.7	19531	1.9	70	18358	2.1	69.7	19635	1.9	70

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)
23	Purbrook Way, west of rbt with Hulbert Road	60	19879	2.3	71.2	21207	2.3	71.5	19879	2.3	71.2	21296	2.3	71.5
24	Services arm of Purbrook Way / Hulbert Road rbt	50	12442	0.5	67.5	13274	0.5	67.8	12442	0.5	67.5	13274	0.5	67.8
25	B2150, south of rbt with Purbrook Way / Hulbert Road	50	13958	1.5	68.4	14891	1.5	68.7	14008	1.7	68.5	14935	1.5	68.7
26	Park Lane, south of rbt with Purbrook / Way	50	7056	1.4	65.4	7528	1.4	65.6	7056	1.4	65.4	7528	1.4	65.6
27	Stockheath Lane	50	2326	0.7	60.3	2482	0.7	60.5	2326	0.7	60.3	2482	0.7	60.5
28	Bedhampton Way	50	4267	3.7	64	4552	3.7	64.3	4267	3.7	64	4552	3.7	64.3
29	Hulbert Way, south of junction with Fitzwygram Way	50	18677	1.2	69.5	19925	1.2	69.8	18727	1.3	69.6	19941	1.2	69.8
30	A3(M) Jct 3 south slips	108	26540	2.1	77	28496	2.1	77.3	26540	2.1	77	28496	2.1	77.3
31	Hulbert Way , north of junction with Fitzwygram Way	81	20195	1.3	73.1	21718	1.3	73.4	20245	1.4	73.2	21733	1.3	73.4

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB L _{A10,18h})
32	Hulbert Way, west of A3(M)	80	46313	2.0	76.8	49590	1.9	77.1	46313	2.0	76.8	49603	1.9	77.1
33	Freely Road	50	894	0.0	55.8	953	0.0	56.1	894	0.0	55.8	953	0.0	56.1
34	Woolston Road	50	4838	2.0	63.9	5162	2.0	64.2	4838	2.0	63.9	5162	2.0	64.2
35	Calshot Road	50	996	6.1	58.3	1062	6.1	58.6	996	6.1	58.3	1062	6.1	58.6
36	Woolston Road	50	1432	1.6	58.5	1768	1.4	59.3	1432	1.6	58.5	1768	1.4	59.3
37	Dunsbury Park development site south	50	199	0.0	49.3	199	0.0	49.3	199	0.0	49.3	199	0.0	49.3
38	Fitzwygram Way, east of A3(M) Jct 3	50	2993	1.6	61.7	3740	1.3	62.6	2993	1.6	61.7	3740	1.3	62.6
39	Dunsbury Park development site north	50	822	0.0	55.5	1158	0.0	56.9	822	0.0	55.5	1158	0.0	56.9
40	A3(M) Jct 3 north slips	108	16947	2.2	75.1	18262	2.1	75.4	16997	2.3	75.1	18262	2.1	75.4
41	A3(M) Jct 2 south slips	108	20338	1.6	75.8	21697	1.6	76	20388	1.7	75.8	21840	1.6	76.1
42	Northern Site Access Road	50	-	-	-	-	-	-	500	46.0	60.8	210	0.0	49.5

Link ID	Road Name	Speed (kph)	2023 Base			2029 Base			Construction			2029 Operational		
			AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)	AAWT (vehicles)	% of Heavy Vehicles	BNL (dB LA10,18h)
43	North of Northern Access B2149	81	14364	2.8	72	15323	2.8	72.3	14864	4.2	72.5	15525	2.7	72.3
44	Southern Site Access Road	50	-	-	-	-	-	-	50	60.0	51.7	110	0.0	46.7
45	Swanmore Lane	50	2112	0.0	59.5	2253	0.0	59.8	2162	1.4	60.2	2361	0.0	60
46	Middle Park Way West of Swanmore Road	50	7055	3.1	66	7527	3.1	66.2	7105	3.5	66.1	7631	3.1	66.3
47	Ellisfield Road	50	2112	0.0	59.5	2253	0.0	59.8	2162	1.4	60.2	2361	0.0	60
48	Botley Drive	50	7073	6.5	67	7545	6.5	67.2	7123	6.8	67.1	7545	6.5	67.2
49	Barncroft Way	50	4267	3.7	64	4552	3.7	64.3	4317	4.4	64.2	4552	3.7	64.3
50	High Lawn Way	50	4681	5.4	64.9	4993	5.4	65.2	4731	6.0	65.1	5045	5.3	65.2
51	Fraser Road	50	2112	0.0	59.5	2253	0.0	59.8	2162	1.4	60.2	2361	0.0	60
52	Highclere Avenue	50	2112	0.0	59.5	2253	0.0	59.8	2162	1.4	60.2	2361	0.0	60
53	Bedhampton Road	50	18308	1.9	69.7	19531	1.9	70	18358	2.1	69.7	19635	1.9	70

2023 Base to 2029 Base

- A.14. Assessment of the impact between these scenarios shows there is one road where an impact greater than 1dB LA10,18h is predicted. This road is part of the development of Dunsbury Park, north of Fitzwygram Way. There are currently no noise sensitive receptors within 50m of this road.

2023 Base to Construction

- A.15. Assessment of the impact between these scenarios shows only the two reservoir access roads have a perceptible impact. There are currently 16 noise sensitive receptors within 50m of the access roads.

2023 Base to 2029 Combined Operational and Traffic Growth

- A.16. Assessment of the impact between these scenarios shows there are three road links where an impact greater than 1dB LA10,18h is predicted.
- A.17. One road is part of the development of Dunsbury Park, north of Fitzwygram Way. This is the same road with an impact in the 2023 Base to 2029 Base comparison.
- A.18. The other two roads with perceptible impacts are the reservoir access roads, and this is because they do not exist in the 2023 Base scenario. There are currently 16 noise sensitive receptors within 50m of these access roads.

2023 Base to 2029 Operational – reservoir only

- A.19. Assessment of the impact between these scenarios shows only the two reservoir access roads have a perceptible impact. There are currently 16 noise sensitive receptors within 50m of the access roads.

Table 1-8 - Traffic impacts

Link ID	Road Name	2029 Base - 2023 Base (dB L _{A10,18h})	Construction – 2023 Base (dB L _{A10,18h})	2029 Operational - 2023 Base (dB L _{A10,18h})	2029 Operational - 2029 Base (dB L _{A10,18h})
1	Catherington Lane Arm of Jct with A3	0.3	0.0	0.3	0.0
2	A3 North arm of junction with Catherington Lane	0.3	0.0	0.3	0.0
3	A3 Portsmouth Road	0.3	0.0	0.3	0.0
4	B2149, west of rbt with Lakesmere Road	0.3	0.0	0.3	0.0
5	Lakesmere Road	0.3	0.0	0.3	0.0
6	B2149, west of A3(M) to rbt with Lakesmere Road	0.3	0.0	0.3	0.0
7	A3(M) Junction 2 north slips	0.3	0.4	0.3	0.0
8	Dell Piece East between A3(M) and roundabout with B2149	0.3	0.3	0.3	0.0
9	B2149, north of roundabout with Dell Piece East	0.3	0.0	0.3	0.0
10	Waterlooville, east of roundabout with roundabout of Dell Piece East	0.3	0.0	0.3	0.0
11	B2149, south of roundabout with Dell Piece East	0.3	0.0	0.3	0.0
12	Castle Road arm of Jct with B2149	0.2	0.0	0.2	0.0
13	B2149 South of Jct with Castle Road to Jct with Whichers Gate Road	0.3	0.0	0.3	0.0
14	Redhill Road Arm of the B2149/Whichers Gate Road Double Mini	0.2	0.0	0.2	0.0
15	Whichers Gate Road Arm of the B2149/Whichers Gate Road Double Mini	0.3	0.0	0.3	0.0
16	B2149 Arm of the B2149/Whichers Gate Road Double Mini rdbt	0.2	0.0	0.2	0.0
17	Middle Park Way Arm of the B2149 Jct	0.2	0.1	0.2	0.0
18	B2149 Arm of the Middle Park Way Jct	0.3	0.0	0.3	0.0
19	Dunsbury Way	0.2	0.0	0.2	0.0
20	Middle Park Way North of Jct with Purbrook Way	0.3	0.0	0.3	0.0

Link ID	Road Name	2029 Base - 2023 Base (dB LA10,18h)	Construction – 2023 Base (dB LA10,18h)	2029 Operational - 2023 Base (dB LA10,18h)	2029 Operational - 2029 Base (dB LA10,18h)
21	Purbrook Way, east of rbt with Middle Park Way / Park Lane	0.3	0.0	0.3	0.0
22	Purbrook Way, west of rbt with Middle Park Way / Park Lane	0.3	0.0	0.3	0.0
23	Purbrook Way, west of rbt with Hulbert Road	0.3	0.0	0.3	0.0
24	Services arm of Purbrook Way / Hulbert Road rbt	0.3	0.0	0.3	0.0
25	B2150, south of rbt with Purbrook Way / Hulbert Road	0.3	0.1	0.3	0.0
26	Park Lane, south of rbt with Purbrook / Way	0.2	0.0	0.2	0.0
27	Stockheath Lane	0.2	0.0	0.2	0.0
28	Bedhampton Way	0.3	0.0	0.3	0.0
29	Hulbert Way, south of junction with Fitzwygram Way	0.3	0.1	0.3	0.0
30	A3(M) Jct 3 south slips	0.3	0.0	0.3	0.0
31	Hulbert Way , north of junction with Fitzwygram Way	0.3	0.1	0.3	0.0
32	Hulbert Way, west of A3(M)	0.3	0.0	0.3	0.0
33	Freely Road	0.3	0.0	0.3	0.0
34	Woolston Road	0.3	0.0	0.3	0.0
35	Calshot Road	0.3	0.0	0.3	0.0
36	Woolston Road	0.8	0.0	0.8	0.0
37	Dunsbury Park development site south	0.0	0.0	0.0	0.0
38	Fitzwygram Way, east of A3(M) Jct 3	0.9	0.0	0.9	0.0
39	Dunsbury Park development site north	1.4	0.0	1.4	0.0
40	A3(M) Jct 3 north slips	0.3	0.0	0.3	0.0
41	A3(M) Jct 2 south slips	0.2	0.0	0.3	0.1

Link ID	Road Name	2029 Base - 2023 Base (dB L _{A10,18h})	Construction – 2023 Base (dB L _{A10,18h})	2029 Operational - 2023 Base (dB L _{A10,18h})	2029 Operational - 2029 Base (dB L _{A10,18h})
42	Northern Site Access Road	-	60.8	49.5	49.5
43	North of Northern Access B2149	0.3	0.5	0.3	0.0
44	Southern Site Access Road	-	51.7	46.7	46.7
45	Swanmore Lane	0.3	0.7	0.5	0.2
46	Middle Park Way West of Swanmore Road	0.2	0.1	0.3	0.1
47	Ellisfield Road	0.3	0.7	0.5	0.2
48	Botley Drive	0.2	0.1	0.2	0.0
49	Barncroft Way	0.3	0.2	0.3	0.0
50	High Lawn Way	0.3	0.2	0.3	0.0
51	Fraser Road	0.3	0.7	0.5	0.2
52	Highclere Avenue	0.3	0.7	0.5	0.2
53	Bedhampton Road	0.3	0.0	0.3	0.0



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