



Wylfa Newydd Project

6.7.18 ES Volume G - A5025 Off-line Highway
Improvements App G6-1 - Construction noise
model inputs and outputs

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1 Construction noise model inputs and assessment

1.1 Plant octave band sound power levels

- 1.1.1 The octave band sound pressure levels associated with each plant item assumed in the A5025 Off-line Highway Improvements construction noise assessment are presented in table 1-1.
- 1.1.2 The sound power level, L_{WA} , has been derived from the sound pressure level at a distance of 10m from the source using point source hemispherical geometric spreading ($20 \log r + 8\text{dB}$).

Table 1- 1 Plant list octave band levels

Equipment	Reference	Linear Octave Band sound pressure level, $L_{Aeq,T}$ dB at 10m by 1/1 centre band frequency, Hz								A-weighted sound pressure level, $L_{Aeq,T}$ dB at 10m	L_{WA}
		63	125	250	500	1000	2000	4000	8000		
Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 Table C.2:3	80	83	76	73	72	70	69	66	78	106
Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 Table C.2:1	79	77	76	74	68	67	60	59	75	103
Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 Table C.2:12	85	74	76	73	72	78	62	56	81	109
Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 Table C.6:22	97	85	81	83	76	71	69	64	83	111
Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 Table C.2:37	72	75	81	78	74	70	63	55	80	108
Tipper lorry	BS 5228-1:2009+A1:2014 Table C.8:20	88	82	74	74	74	73	70	67	80	108
Road sweeper; 70kW	BS 5228-1:2009+A1:2014 Table C.4:90	80	75	69	75	71	67	61	58	76	104
Road lorry (full); 270kW; 39t	BS 5228-1:2009+A1:2014 Table C.6:21	96	82	74	73	77	72	71	64	81	109
Asphalt paver (+ tipper lorry); 112kW; 12t hopper	BS 5228-1:2009+A1:2014 Table C.5:30	78	77	72	72	71	69	62	56	76	104
Vibratory roller; 95kW; 12t	BS 5228-1:2009+A1:2014 Table C.5:21	90	84	77	81	73	68	65	61	80	108
Vibratory roller; 20kW; 3t	BS 5228-1:2009+A1:2014 Table C.2:40	82	78	67	71	67	64	60	57	73	101
Compressor for hand-held pneumatic breaker; 1t	BS 5228-1:2009+A1:2014 Table C.5:5	84	73	64	59	57	55	58	47	66	94
Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 Table C.5:7	81	87	79	77	77	74	70	67	82	110
Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 Table C.5:1	86	80	78	77	81	83	82	81	89	117

Table 1-1 cont: Plant list octave band levels

Equipment	Reference	Linear Octave Band sound pressure level, $L_{Aeq,T}$ dB at 10m by 1/1 centre band frequency, Hz								A-weighted sound pressure level, $L_{Aeq,T}$ dB at 10m	L_{WA}
		63	125	250	500	1000	2000	4000	8000		
Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 Table C.6:31	88	87	83	79	84	78	74	65	87	115
Crawler mounted rig; 126kW; 33t	BS 5228-1:2009+A1:2014 Table C.3:22	79	79	78	78	75	71	66	56	80	108
Tracked mobile crane; 184kW; 110t	BS 5228-1:2009+A1:2014 Table C.3:28	81	77	66	62	59	57	51	46	67	95
Concrete pump + cement mixer truck (discharging); 223kW; 8t / 350bar	BS 5228-1:2009+A1:2014 Table C.4:24	69	64	64	66	63	59	53	47	68	96
Diesel generator	BS 5228-1:2009+A1:2014 Table C.4:79	69	71	68	61	57	51	46	44	64	92
Tracked mobile crane; 132kW; 55t	BS 5228-1:2009+A1:2014 Table C.3:29	81	77	69	67	62	60	61	51	70	98
Lump hammer	BS 5228-1:2009+A1:2014 Table C.1:19	66	66	68	68	63	57	55	51	69	97
Hydraulic hammer rig; (1t) 2m length / 300mm diameter	BS 5228-1:2009+A1:2014 Table C.3:4	73	65	65	64	70	72	72	68	78	106
Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 Table C.4:17	81	72	68	68	66	64	60	55	71	99
Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 Table C.4:74	79	71	78	75	78	70	61	55	80	108
Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 Table C.2:33	85	87	77	75	76	73	69	62	81	109

1.2 Plant list and activity sound power levels used in noise assessment

- 1.2.1 The assumed plant list and calculated activity sound power levels used in assessment of monthly A5025 Off-line Highway Improvements construction scenarios are provided in table 1-2.
- 1.2.2 The plant sound power levels have been corrected for the quantity and % on-time of each plant item, which have been discussed with the project engineers. Further details on the derivation of activity assumptions are provided in section 4.2 of appendix B6-1 (baseline noise monitoring) (Application Reference Number: 6.2.20). The activity sound power levels have been calculated from the summation of the individual corrected plant sound power levels.
- 1.2.3 Activity IDs are split into two references, separated by a full stop. The first part refers to whether an activity is a Point Source (PS) or a Haul Route (HR). The second part defines the working section number (1, 3, 5, 7 or 9, with 9 being the power station access junction), followed by a unique activity letter.

Table 1- 2 Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.1A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	107.8
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109.0	103.8	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:1	40	1	103.0	99.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.1B	Bulk earthworks cut and fill	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109.0	103.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
		Tipper lorry	BS 5228-1:2009+A1:2014 table C.8:20	20	1	108.0	101.0	
		Road sweeper; 70kW	BS 5228-1:2009+A1:2014 table C.4:90	50	1	104.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.1C	Bulk earthworks formation works	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109.0	106.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.1D	Road surfacing	Asphalt paver (+ tipper lorry); 112kW; 12t hopper	BS 5228-1:2009+A1:2014 table C.5:30	50	1	104.0	101.0	110.6
		Vibratory Roller; 95kW; 12t	BS 5228-1:2009+A1:2014 table C.5:21	50	1	108.0	105.0	
		Vibratory Roller; 20kW; 3t	BS 5228-1:2009+A1:2014 table C.2:40	50	1	100.7	97.7	
		Compressor for hand-held pneumatic breaker ; 1t	BS 5228-1:2009+A1:2014 table C.5:5	85	1	94.0	93.3	
		Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 table C.5:7	50	1	110.0	107.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.1E	Break up and remove existing road surface	Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 table C.5:1	60	1	117.0	104.8	107.7
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.1F	Boundary fence	Lump hammer	BS 5228-1:2009+A1:2014 table C.1:19	50	5	97.0	101.0	107.8
		Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 table C.4:74	40	1	108.0	104.0	
		Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 table C.4:17	40	1	99.0	95.0	
		Hydraulic hammer rig; (1t) 2m length/300mm diameter	BS 5228-1:2009+A1:2014 table C.3:4	50	1	106.0	103.0	
PS.3A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	109.3
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109.0	106.8	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:1	40	1	103.0	99.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.3B	Bulk earthworks cut and fill	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109.0	103.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
		Tipper lorry	BS 5228-1:2009+A1:2014 table C.8:20	20	1	108.0	101.0	
		Road sweeper; 70kW	BS 5228-1:2009+A1:2014 table C.4:90	50	1	104.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.3C	Bulk earthworks formation works	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109	106.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108	105	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109	105	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.3D	Bored piling	Crawler mounted rig; 126kW; 33t	BS 5228-1:2009+A1:2014 table C.3:22	50	1	108	105	108.1
		Tracked mobile crane; 184kW; 110t	BS 5228-1:2009+A1:2014 table C.3:28	50	1	95	92	
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	
		Concrete pump + cement mixer truck (discharging); 223kW; 8t/350 bar	BS 5228-1:2009+A1:2014 table C.4:24	50	1	96	93	
		Diesel generator	BS 5228-1:2009+A1:2014 table C.4:79	100	1	92	92	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.3E	Road surfacing	Asphalt paver (+ tipper lorry); 112kW; 12t hopper	BS 5228-1:2009+A1:2014 table C.5:30	50	1	104	101	110.6
		Vibratory Roller; 95kW; 12t	BS 5228-1:2009+A1:2014 table C.5:21	50	1	108	105	
		Vibratory Roller; 20kW; 3t	BS 5228-1:2009+A1:2014 table C.2:40	50	1	100.7	97.7	
		Compressor for hand-held pneumatic breaker; 1t	BS 5228-1:2009+A1:2014 table C.5:5	85	1	94	93.3	
		Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 table C.5:7	50	1	110	107	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA1} dB
PS.3F	Break up and remove existing road surface	Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 table C.5:1	60	1	117	104.8	106.6
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.3G	Erecting bridge beams	Tracked mobile crane; 184kW; 110t	BS 5228-1:2009+A1:2014 table C.3:28	50	1	95	92	102.4
		Tracked mobile crane; 132kW; 55t	BS 5228-1:2009+A1:2014 table C.3:29	50	1	98	95	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.3H	Boundary fence	Lump hammer	BS 5228-1:2009+A1:2014 table C.1:19	50	5	97	101	107.8
		Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 table C.4:74	40	1	108	104	
		Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 table C.4:17	40	1	99	95	
		Hydraulic hammer rig; (1t) 2m length/300mm diameter	BS 5228-1:2009+A1:2014 table C.3:4	50	1	106	103	
PS.5A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	109.3
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109	106.8	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:1	40	1	103	99	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.5B	Bulk earthworks cut and fill	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109.0	103.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
		Tipper lorry	BS 5228-1:2009+A1:2014 table C.8:20	20	1	108.0	101.0	
		Road sweeper; 70kW	BS 5228-1:2009+A1:2014 table C.4:90	50	1	104.0	101.0	
PS.5C	Bulk earthworks formation works	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109.0	106.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1 2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} dB
PS.5D	Road surfacing	Asphalt paver (+ tipper lorry); 112kW; 12 t hopper	BS 5228-1:2009+A1:2014 table C.5:30	50	1	104	101	110.6
		Vibratory Roller; 95kW; 12t	BS 5228-1:2009+A1:2014 table C.5:21	50	1	108	105	
		Vibratory Roller; 20kW; 3t	BS 5228-1:2009+A1:2014 table C.2:40	50	1	100.7	97.7	
		Compressor for hand-held pneumatic breaker; 1t	BS 5228-1:2009+A1:2014 table C.5:5	85	1	94	93.3	
		Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 table C.5:7	50	1	110	107	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.5E	Break up and remove existing road surface	Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 table C.5:1	60	1	117	104.8	107.7
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.5F	Boundary fence	Lump hammer	BS 5228-1:2009+A1:2014 table C.1:19	50	5	97	101	107.8
		Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 table C.4:74	40	1	108	104	
		Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 table C.4:17	40	1	99	95	
		Hydraulic hammer rig; (1t) 2m length/300mm diameter	BS 5228-1:2009+A1:2014 table C.3:4	50	1	106	103	
PS.7A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	109.3
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109	106.8	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:1	40	1	103	99	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1 2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.7B	Bulk earthworks cut and fill	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109	103.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108	105	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109	105	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
		Tipper lorry	BS 5228-1:2009+A1:2014 table C.8:20	20	1	108	101	
		Road sweeper; 70kW	BS 5228-1:2009+A1:2014 table C.4:90	50	1	104	101	
PS.7C	Bulk earthworks formation works	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109	106.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108	105	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109	105	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.7D	Bored piling	Crawler mounted rig; 126kW; 33t	BS 5228-1:2009+A1:2014 table C.3:22	50	1	108	105	108.1
		Tracked mobile crane; 184kW; 110t	BS 5228-1:2009+A1:2014 table C.3:28	50	1	95	92	
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	
		Concrete pump + cement mixer truck (discharging); 223kW; 8t/350 bar	BS 5228-1:2009+A1:2014 table C.4:24	50	1	96	93	
		Diesel generator	BS 5228-1:2009+A1:2014 table C.4:79	100	1	92	92	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.7E	Road surfacing	Asphalt paver (+ tipper lorry); 112kW; 12t hopper	BS 5228-1:2009+A1:2014 table C.5:30	50	1	104	101	110.6
		Vibratory Roller; 95kW; 12t	BS 5228-1:2009+A1:2014 table C.5:21	50	1	108	105	
		Vibratory Roller; 20kW; 3t	BS 5228-1:2009+A1:2014 table C.2:40	50	1	100.7	97.7	
		Compressor for hand-held pneumatic breaker; 1t	BS 5228-1:2009+A1:2014 table C.5:5	85	1	94	93.3	
		Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 table C.5:7	50	1	110	107	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	
PS.7F	Break up and remove existing road surface	Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 table C.5:1	60	1	117	104.8	107.7
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106	102	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111	101	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA1} dB
PS.7G	Erecting bridge beams	Tracked mobile crane; 132kW; 55t	BS 5228-1:2009+A1:2014 table C.3:29	50	1	98.0	95.0	102.0
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.7H	Boundary fence	Lump hammer	BS 5228-1:2009+A1:2014 table C.1:19	50	5	97.0	101.0	107.8
		Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 table C.4:74	40	1	108.0	104.0	
		Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 table C.4:17	40	1	99.0	95.0	
		Hydraulic hammer rig; (1t) 2m length/300mm diameter	BS 5228-1:2009+A1:2014 table C.3:4	50	1	106.0	103.0	
PS.9A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	109.3
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109.0	106.8	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:1	40	1	103.0	99.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA} , dB
PS.9B	Bulk earthworks cut and fill	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	1	109.0	103.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
		Tipper lorry	BS 5228-1:2009+A1:2014 table C.8:20	20	1	108.0	101.0	
		Road sweeper; 70kW	BS 5228-1:2009+A1:2014 table C.4:90	50	1	104.0	101.0	
PS.9C	Bulk earthworks formation works	Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	113.7
		Articulated dump truck; 187kW; 23t	BS 5228-1:2009+A1:2014 table C.2:33	30	2	109.0	106.8	
		Grader; 205kW; 25t	BS 5228-1:2009+A1:2014 table C.6:31	30	1	115.0	109.8	
		Roller (rolling fill); 145kW; 18t	BS 5228-1:2009+A1:2014 table C.2:37	50	1	108.0	105.0	
		Dozer; 142kW; 20t	BS 5228-1:2009+A1:2014 table C.2:12	40	1	109.0	105.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	Plant and machinery	BS 5228-1:2009+A1:2014 Ref	% On-time	No. Plant	dB L _{WA}	Corrected dB L _{WA}	Activity L _{WA1} dB
PS.9D	Road surfacing	Asphalt paver (+ tipper lorry); 112kW; 12t hopper	BS 5228-1:2009+A1:2014 table C.5:30	50	1	104.0	101.0	110.6
		Vibratory Roller; 95kW; 12t	BS 5228-1:2009+A1:2014 table C.5:21	50	1	108.0	105.0	
		Vibratory Roller; 20kW; 3t	BS 5228-1:2009+A1:2014 table C.2:40	50	1	100.7	97.7	
		Compressor for hand-held pneumatic breaker; 1t	BS 5228-1:2009+A1:2014 table C.5:5	85	1	94.0	93.3	
		Road planer; 185kW; 17t	BS 5228-1:2009+A1:2014 table C.5:7	50	1	110.0	107.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.9E	Break up and remove existing road surface	Backhoe mounted hydraulic breaker; 67kW	BS 5228-1:2009+A1:2014 table C.5:1	60	1	117.0	104.8	107.7
		Tracked excavator; 102kW; 22t	BS 5228-1:2009+A1:2014 table C.2:3	40	1	106.0	102.0	
		Road lorry (empty); 260kW; 39t	BS 5228-1:2009+A1:2014 table C.6:22	10	1	111.0	101.0	
PS.9F	Boundary fence	Lump hammer	BS 5228-1:2009+A1:2014 table C.1:19	50	5	97.0	101.0	107.8
		Tractor (towing equipment); 100kW	BS 5228-1:2009+A1:2014 table C.4:74	40	1	108.0	104.0	
		Tracked excavator; 41kW; 8t	BS 5228-1:2009+A1:2014 table C.4:17	40	1	99.0	95.0	
		Hydraulic hammer rig; (1t) 2m length/300mm diameter	BS 5228-1:2009+A1:2014 table C.3:4	50	1	106.0	103.0	

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	dB LwA	No. Plant	No. Vehicles per hour (2 way movement = 2)	Corrected dB LwA
HR.1A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	106	1	2	109.0
HR.1B	Bulk earthworks cut and fill - haul route	106	1	2	109.0
HR.1C	Bulk earthworks formation works - haul route	109	1	4	115.0
HR.1D	Road surfacing - haul route	104	1	2	107.0
HR.1E	Break up and remove existing road surface - haul route	117	1	2	120.0
HR.3A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	106	1	2	109.0
HR.3B	Bulk earthworks cut and fill - haul route	106	1	2	109.0
HR.3C	Bulk earthworks formation works - haul route	109	1	4	115.0
HR.3D	Bored piling - haul route	108	1	2	111.0
HR.3E	Road surfacing - haul route	104	1	2	107.0
HR.3F	Break up and remove existing road surface - haul route	117	1	2	120.0
HR.3G	Erecting bridge beams - haul route	95	1	1	95.0
HR.5A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	106	1	2	109.0
HR.5B	Bulk earthworks cut and fill - haul route	106	1	2	109.0

Table 1-2 cont. Plant list and activity sound power levels

Activity ID	Activity name	dB LwA	No. Plant	No. Vehicles per hour (2 way movement = 2)	Corrected dB LwA
HR.5C	Bulk earthworks formation works - haul route	109	1	4	115.0
HR.5D	Road surfacing - haul route	104	1	2	107.0
HR.5E	Break up and remove existing road surface - haul route	117	1	2	120.0
HR.7A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	106	1	2	109.0
HR.7B	Bulk earthworks cut and fill - haul route	106	1	2	109.0
HR.7C	Bulk earthworks formation works - haul route	109	1	4	115.0
HR.7D	Bored piling - haul route	108	1	2	111.0
HR.7E	Road surfacing - haul route	104	1	2	107.0
HR.7F	Break up and remove existing road surface - haul route	117	1	2	120.0
HR.7G	Erecting bridge beams - haul route	98	1	1	98.0
HR.9A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	106	1	2	109.0
HR.9B	Bulk earthworks cut and fill - haul route	106	1	2	109.0
HR.9C	Bulk earthworks formation works - haul route	109	1	4	115.0
HR.9D	Road surfacing - haul route	104	1	2	107.0
HR.9E	Break up and remove existing road surface - haul route	117	1	2	120.0

1.3 Octave band sound power levels used in noise assessment

- 1.3.1 Octave band sound pressure levels for each plant item have been normalised such that the summation of levels across all bands gives an A-weighted broadband sound pressure level at 10m that is equal to those presented in table 1-1. The normalised values for each plant item have then been grouped and used to derive octave band activity sound power levels in the same way as the broadband sound power levels.
- 1.3.2 The resulting octave band activity sound power levels associated with each activity assumed in the A5025 Off-line Highway Improvements noise assessment are presented in table 1-3.

Table 1- 3 Octave band sound power levels for each activity

Activity ID	Activity name	Linear Octave Band Sound Power Levels, dB by 1/1 Centre Band Frequency, Hz								dB (A)
		63	125	250	500	1000	2000	4000	8000	
PS.A1	Bulk earthworks topsoil strip (main site compounds/enabling activities)	116	113	106	105	102	99	96	92	108
PS.A2	Bulk earthworks cut and fill	119	115	111	109	109	107	101	95	114
PS.A3	Bulk earthworks formation works	118	116	111	109	110	107	101	94	114
PS.A4	Road surfacing	119	115	108	109	105	102	98	94	111
PS.A5	Break up and remove existing road surface	116	109	103	103	101	101	100	98	108
PS.A6	Boundary fence	108	102	105	103	104	100	98	94	108
PS.B1	Bulk earthworks topsoil strip (main site compounds/enabling activities)	117	115	107	106	104	101	98	93	109
PS.B2	Bulk earthworks cut and fill	119	115	111	109	109	107	101	95	114
PS.B3	Bulk earthworks formation works	118	116	111	109	110	107	101	94	114
PS.B4	Bored piling	116	111	107	106	103	99	96	91	108
PS.B5	Road surfacing	119	115	108	109	105	102	98	94	111
PS.B6	Break up and remove existing road surface	106	107	101	99	100	100	99	98	107
PS.B7	Erecting bridge beams	116	107	101	102	95	91	90	83	102
PS.B8	Boundary fence	108	102	105	103	104	100	98	94	108

Table 1-3 cont. Octave band sound power levels for each activity

Activity ID	Activity name	Linear Octave Band Sound Power Levels, dB by 1/1 Centre Band Frequency, Hz								dB (A)
		63	125	250	500	1000	2000	4000	8000	
PS.C1	Bulk earthworks topsoil strip (main site compounds/enabling activities)	117	115	107	106	104	101	98	93	109
PS.C2	Bulk earthworks cut and fill	119	115	111	109	109	107	101	95	114
PS.C3	Bulk earthworks formation works	118	116	111	109	110	107	101	94	114
PS.C4	Road surfacing	119	115	108	109	105	102	98	94	111
PS.C5	Break up and remove existing road surface	116	109	103	103	101	101	100	98	108
PS.C6	Boundary fence	108	102	105	103	104	100	98	94	108
PS.D1	Bulk earthworks topsoil strip (main site compounds/enabling activities)	117	115	107	106	104	101	98	93	109
PS.D2	Bulk earthworks cut and fill	119	115	111	109	109	107	101	95	114
PS.D3	Bulk earthworks formation works	118	116	111	109	110	107	101	94	114
PS.D4	Bored piling	116	111	107	106	103	99	96	91	108
PS.D5	Road surfacing	119	115	108	109	105	102	98	94	111
PS.D6	Break up and remove existing road surface	116	109	103	103	101	101	100	98	108
PS.D7	Erecting bridge beams	116	106	100	102	95	90	90	83	102
PS.D8	Boundary fence	108	102	105	103	104	100	98	94	108

Table 1-3 cont. Octave band sound power levels for each activity

Activity ID	Activity name	Linear Octave Band Sound Power Levels, dB by 1/1 Centre Band Frequency, Hz								dB (A)
		63	125	250	500	1000	2000	4000	8000	
PS.E1	Bulk earthworks topsoil strip (main site compounds/enabling activities)	117	115	107	106	104	101	98	93	109
PS.E2	Bulk earthworks cut and fill	119	115	111	109	109	107	101	95	114
PS.E3	Bulk earthworks formation works	118	116	111	109	110	107	101	94	114
PS.E4	Road surfacing	119	115	108	109	105	102	98	94	111
PS.E5	Break up and remove existing road surface	116	109	103	103	101	101	100	98	108
PS.E6	Boundary fence	108	102	105	103	104	100	98	94	108

Table 1-3 cont. Octave band sound power levels for each activity

Activity ID	Activity name	Linear Octave Band Sound Power Levels, dB by 1/1 Centre Band Frequency, Hz								dB (A)
		63	125	250	500	1000	2000	4000	8000	
HR.1A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	108	111	104	101	100	98	97	94	106
HR.1B	Bulk earthworks cut and fill - haul route	108	111	104	101	100	98	97	94	106
HR.1C	Bulk earthworks formation works - haul route	124	110	102	101	105	100	99	92	109
HR.1D	Road surfacing - haul route	106	105	100	100	99	97	90	84	104
HR.1E	Break up and remove existing road surface - haul route	114	108	106	105	109	111	110	109	117
HR.2A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	108	111	104	101	100	98	97	94	106
HR.2B	Bulk earthworks cut and fill - haul route	108	111	104	101	100	98	97	94	106
HR.2C	Bulk earthworks formation works - haul route	124	110	102	101	105	100	99	92	109
HR.2D	Bored piling - haul route	107	107	106	106	103	99	94	84	108
HR.2E	Road surfacing - haul route	106	105	100	100	99	97	90	84	104
HR.2F	Break up and remove existing road surface - haul route	114	108	106	105	109	111	110	109	117
HR.2G	Erecting bridge beams - haul route	109	105	94	90	87	85	79	74	95
HR.3A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	108	111	104	101	100	98	97	94	106
HR.3B	Bulk earthworks cut and fill - haul route	108	111	104	101	100	98	97	94	106

Table 1-3 cont. Octave band sound power levels for each activity

Activity ID	Activity name	Linear Octave Band Sound Power Levels, dB by 1/1 Centre Band Frequency, Hz								dB (A)
		63	125	250	500	1000	2000	4000	8000	
HR.3C	Bulk earthworks formation works - haul route	124	110	102	101	105	100	99	92	109
HR.3D	Road surfacing - haul route	106	105	100	100	99	97	90	84	104
HR.3E	Break up and remove existing road surface - haul route	114	108	106	105	109	111	110	109	117
HR.4A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	108	111	104	101	100	98	97	94	106
HR.4B	Bulk earthworks cut and fill - haul route	108	111	104	101	100	98	97	94	106
HR.4C	Bulk earthworks formation works - haul route	124	110	102	101	105	100	99	92	109
HR.4D	Bored piling - haul route	107	107	106	106	103	99	94	84	108
HR.4E	Road surfacing - haul route	106	105	100	100	99	97	90	84	104
HR.4F	Break up and remove existing road surface - haul route	114	108	106	105	109	111	110	109	117
HR.4G	Erecting bridge beams - haul route	109	105	97	95	90	88	89	79	98
HR.5A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	108	111	104	101	100	98	97	94	106
HR.5B	Bulk earthworks cut and fill - haul route	108	111	104	101	100	98	97	94	106
HR.5C	Bulk earthworks formation works - haul route	124	110	102	101	105	100	99	92	109
HR.5D	Road surfacing - haul route	106	105	100	100	99	97	90	84	104
HR.5E	Break up and remove existing road surface - haul route	114	108	106	105	109	111	110	109	117

1.4 Assumed construction noise model input activities during indicative programme

1.4.1 The programmed works activities associated with group sources and location are presented in table 1-4.

Table 1- 4 Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PS.1A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.1B	Bulk earthworks cut and fill	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.1C	Bulk earthworks formation works	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
PS.1D	Road surfacing	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-
PS.1E	Break up and remove existing road surface	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
PS.1F	Boundary fence	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.3A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.3B	Bulk earthworks cut and fill	01/08/2019	31/01/2020	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
PS.3C	Bulk earthworks formation works	01/02/2020	30/06/2020	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-
PS.3D	Bored piling	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
PS.3E	Road surfacing	01/05/2020	31/12/2020	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X

Table 1-4 cont. Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PS.3F	Break up and remove existing road surface	01/03/2020	30/04/2020	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
PS.3G	Erecting bridge beams	01/05/2020	31/05/2020	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
PS.3H	Boundary fence	01/07/2019	31/08/2019	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.5A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.5B	Bulk earthworks cut and fill	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.5C	Bulk earthworks formation works	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
PS.5D	Road surfacing	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	x	X	-	-	-	-	-	-	-
PS.5E	Break up and remove existing road surface	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
PS.5F	Boundary fence	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.7A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.7B	Bulk earthworks cut and fill	01/08/2019	31/01/2020	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-

Table 1-4 cont. Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PS.7C	Bulk earthworks formation works	01/02/2020	30/06/2020	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-
PS.7D	Bored piling	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
PS.7E	Road surfacing	01/05/2020	31/12/2020	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
PS.7F	Break up and remove existing road surface	01/03/2020	30/04/2020	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
PS.7G	Erecting bridge beams	01/05/2020	31/05/2020	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
PS.7H	Boundary fence	01/07/2019	31/08/2019	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.9A	Bulk earthworks topsoil strip (main site compounds/enabling activities)	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.9B	Bulk earthworks cut and fill	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
PS.9C	Bulk earthworks formation works	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
PS.9D	Road surfacing	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	x	X	-	-	-	-	-	-	-
PS.9E	Break up and remove existing road surface	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
PS.9F	Boundary fence	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1-4 cont. Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HR.1A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.1B	Bulk earthworks cut and fill - haul route	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.1C	Bulk earthworks formation works - haul route	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
HR.1D	Road surfacing - haul route	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	x	X	-	-	-	-	-	-	-
HR.1E	Break up and remove existing road surface - haul route	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
HR.3A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.3B	Bulk earthworks cut and fill - haul route	01/08/2019	31/01/2020	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
HR.3C	Bulk earthworks formation works - haul route	01/02/2020	30/06/2020	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-
HR.3D	Bored piling - haul route	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
HR.3E	Road surfacing - haul route	01/05/2020	31/12/2020	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
HR.3F	Break up and remove existing road surface - haul route	01/03/2020	30/04/2020	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-

Table 1-4 cont. Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HR.3G	Erecting bridge beams - haul route	01/05/2020	31/05/2020	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
HR.5A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.5B	Bulk earthworks cut and fill - haul route	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.5C	Bulk earthworks formation works - haul route	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
HR.5D	Road surfacing - haul route	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-
HR.5E	Break up and remove existing road surface - haul route	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
HR.7A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.7B	Bulk earthworks cut and fill - haul route	01/08/2019	31/01/2020	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
HR.7C	Bulk earthworks formation works - haul route	01/02/2020	30/06/2020	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-
HR.7D	Bored piling - haul route	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
HR.7E	Road surfacing - haul route	01/05/2020	31/12/2020	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X

Table 1-4 cont. Assumed construction noise model inputs activities during indicative programme

Activity ID	Activity name	Start	Finish	Assumed Works Location by Month																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HR.7F	Break up and remove existing road surface - haul route	01/03/2020	30/04/2020	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
HR.7G	Erecting bridge beams - haul route	01/05/2020	31/05/2020	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
HR.9A	Bulk earthworks topsoil strip (main site compounds/enabling activities) - haul route	01/07/2019	31/07/2019	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.9B	Bulk earthworks cut and fill - haul route	01/08/2019	30/11/2019	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
HR.9C	Bulk earthworks formation works - haul route	01/12/2019	31/01/2020	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
HR.9D	Road surfacing - haul route	01/02/2020	31/05/2020	-	-	-	-	-	-	-	X	X	x	X	-	-	-	-	-	-	-
HR.9E	Break up and remove existing road surface - haul route	01/04/2020	30/04/2020	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-

2 Construction noise level outputs and assessment

2.1 Assessment of effects at residential receptors

Section 1: Valley

2.1.1 The summary of magnitudes of change and assessment of significance for each month of the programme at residential properties (high sensitivity) within the Valley study area due to the A5025 Off-line Highway Improvements are presented in table 2-1. The extents of Section 1 are shown in figure G6-1 (Application Reference Number: 6.7.48).

Table 2- 1 Summary of effects and assessment of significance at residential properties - Valley

Magnit- ude of change	Noise level from plant and machinery, dB L _{Aeq,T}	Significan- ce of effect at residential receptor	Total number of effects at residential properties by programme month																	
			Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6	Mnth 7	Mnth 8	Mnth 9	Mnth 10	Mnth 11	Mnth 12	Mnth 13	Mnth 14	Mnth 15	Mnth 16	Mnth 17	Mnth 18
Large	≥75.0	Major significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium	70.0 – 74.9	Major significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small	65.0 – 69.9	Moderate significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Negligible	<65.0*	Minor (not significant)	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552

*or less than a 3.0dB increase in the pre-existing ambient noise level

Section 3: Llanfachraeth

2.1.2 The summary of magnitudes of change and assessment of significance for each month of the programme at residential properties (high sensitivity) within the Llanfachraeth study area due to the A5025 Off-line Highway Improvements are presented in table 2-2. The extents of Section 3 are shown in figure G6-1 (Application Reference Number: 6.7.48).

Table 2-2 Summary of effects and assessment of significance at residential properties - Llanfachraeth

Magnit- ude of change	Noise level from plant and machinery, dB L _{Aeq,T}	Significan- ce of effect at residential receptor	Total number of effects at residential properties by programme month																	
			Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6	Mnth 7	Mnth 8	Mnth 9	Mnth 10	Mnth 11	Mnth 12	Mnth 13	Mnth 14	Mnth 15	Mnth 16	Mnth 17	Mnth 18
Large	≥75.0	Major significance	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0
Medium	70.0 – 74.9	Major significance	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1
Small	65.0 – 69.9	Moderate significance	2	3	2	2	2	2	2	0	3	6	5	3	1	1	1	1	1	1
Negligible	<65.0*	Minor (not significant)	231	229	231	231	231	231	231	233	230	227	228	230	232	232	232	232	232	232

*or less than a 3.0dB increase in the pre-existing ambient noise level

Section 5: Llanfaethlu

2.1.3 The summary of magnitudes of change and assessment of significance for each month of the programme at residential properties (high sensitivity) within the Llanfaethlu study area due to the A5025 Off-line Highway Improvements are presented in table 2-3. The extents of Section 5 are shown in figure G6-2 (Application Reference Number: 6.7.48).

Table 2-3 Summary of effects and assessment of significance at residential properties - Llanfaethlu

Magnit- ude of change	Noise level from plant and machinery, dB L _{Aeq,T}	Significan- ce of effect at residential receptor	Total number of effects at residential properties by programme month																	
			Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6	Mnth 7	Mnth 8	Mnth 9	Mnth 10	Mnth 11	Mnth 12	Mnth 13	Mnth 14	Mnth 15	Mnth 16	Mnth 17	Mnth 18
Large	≥75.0	Major significance	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Medium	70.0 – 74.9	Major significance	2	4	4	4	4	2	2	2	2	2	2	0	0	0	0	0	0	0
Small	65.0 – 69.9	Moderate significance	5	4	4	4	4	5	5	2	2	2	2	0	0	0	0	0	0	0
Negligible	<65.0*	Minor (not significant)	149	147	147	147	147	148	148	152	152	152	152	156	156	156	156	156	156	156

*or less than a 3.0dB increase in the pre-existing ambient noise level

Section 7: Cefn Coch

2.1.4 The summary of magnitudes of change and assessment of significance for each month of the programme at residential properties (high sensitivity) within the Cefn Coch study area due to the A5025 Off-line Highway Improvements are presented in table 2-4. The extents of Section 7 are shown in figure G6-2 (Application Reference Number: 6.7.48).

Table 2- 4 Summary of effects and assessment of significance at residential properties - Cefn Coch

Magnit-ude of change	Noise level from plant and machinery, dB L _{Aeq,T}	Significan-ce of effect at residential receptor	Total number of effects at residential properties by programme month																	
			Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6	Mnth 7	Mnth 8	Mnth 9	Mnth 10	Mnth 11	Mnth 12	Mnth 13	Mnth 14	Mnth 15	Mnth 16	Mnth 17	Mnth 18
Large	≥75.0	Major significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium	70.0 – 74.9	Major significance	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Small	65.0 – 69.9	Moderate significance	4	10	10	10	10	9	9	7	7	7	7	4	0	0	0	0	0	0
Negligible	<65.0*	Minor (not significant)	27	20	20	20	20	21	21	24	24	24	24	27	31	31	31	31	31	31

*or less than a 3.0dB increase in the pre-existing ambient noise level

Power Station access road junction

2.1.5 The summary of magnitudes of change and assessment of significance for each month of the programme at residential properties (high sensitivity) within the Power Station access road junction study area due to the A5025 Off-line Highway Improvements are presented in table 2-5.

Table 2- 5 Summary of effects and assessment of significance at residential properties - Power Station access road junction

Magnit- ude of change	Noise level from plant and machinery, dB L _{Aeq,T}	Significan- ce of effect at residential receptor	Total number of effects at residential properties by programme month																	
			Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6	Mnth 7	Mnth 8	Mnth 9	Mnth 10	Mnth 11	Mnth 12	Mnth 13	Mnth 14	Mnth 15	Mnth 16	Mnth 17	Mnth 18
Large	≥75.0	Major significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium	70.0 – 74.9	Major significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small	65.0 – 69.9	Moderate significance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Negligible	<65.0*	Minor (not significant)	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

2.2 Assessment of effects at non-residential receptors

Section 1: Valley

- 2.2.1 The summary of non-residential receptors within the Section 1: Valley area and the highest, or range, of predicted noise levels over the duration of the A5025 Off-line Highway Improvements programme are presented in table 2-6. The significance of effect is based upon the assessment methodology provided in section 4.5 of chapter B6 (introduction to the topics - noise and vibration) (Application Reference Number: 6.2.6).

Table 2- 6 Summary of effects and assessment of significance at non-residential receptors – Valley

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB $L_{Aeq,T}$	Magnitude of change	Significance of effect at non-residential receptor
Valley Precinct, Station Road, Valley	Commercial	Low	52	Negligible	Negligible
Valley Precinct, Valley Holyhead	Commercial	Low	55	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	55	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	54	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	53	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	52	Negligible	Negligible
Holyhead Kitchen and Bathroom Centre	Commercial	Low	52	Negligible	Negligible
Auction Market Site, Valley, Holyhead	Industrial	Negligible	46	Negligible	Negligible
The Square, London Road, Valley	Commercial	Low	52	Negligible	Negligible
Vehicle Repair Workshop, Dyffryn Service	Commercial	Low	47	Negligible	Negligible
A5 Barbers, Station Road, Valley, Holyhead	Commercial	Low	55	Negligible	Negligible
Coal Yard, Valley, Holyhead, LL65 3EB	Commercial	Low	45	Negligible	Negligible

Table 2-6 cont: Summary of effects and assessment of significance at non-residential receptors – Valley

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB $L_{Aeq,T}$	Magnitude of change	Significance of effect at non-residential receptor
Derwen Garage, London Road, Holyhead	Commercial	Low	57	Negligible	Negligible
Pavilion Shorney, Valley, Holyhead	Commercial	Low	50	Negligible	Negligible
Sunney Valley, London Road, Holyhead	Commercial	Low	48	Negligible	Negligible
Old Church Hall, Valley, Holyhead	Place of worship	Medium	50	Negligible	Negligible
Hall, Valley, Holyhead, LL65 3DP	Place of worship	Medium	50	Negligible	Negligible
Rosies Kebabs, Neuadd Tabor, Station Road	Commercial	Low	42	Negligible	Negligible
Store, Valley, Holyhead, LL65 3FB	Industrial	Negligible	48	Negligible	Negligible
All Around The Globe, Rowlands	Commercial	Low	44	Negligible	Negligible
Amazon Exotics, Dyffryn Service Station	Commercial	Low	47	Negligible	Negligible
Valley Surgery, London Road, Valley	Office	Medium	50	Negligible	Negligible
Ann Evans Antiques, Valley, Holyhead	Commercial	Low	46	Negligible	Negligible
Sukothai Restaurant, Valley, Holyhead	Commercial	Low	55	Negligible	Negligible
Bistro, Valley, Holyhead, LL65 3EB	Commercial	Low	51	Negligible	Negligible
Competitive Streak, Neuadd Tabor, Valley	Commercial	Low	43	Negligible	Negligible
Atm, Valley Precinct, Valley, Holyhead	Commercial	Low	52	Negligible	Negligible
The Square, London Road, Valley, Holyhead	Commercial	Low	52	Negligible	Negligible

Table 2-6 cont: Summary of effects and assessment of significance at non-residential receptors – Valley

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB $L_{Aeq,T}$	Magnitude of change	Significance of effect at non-residential receptor
Valley Railway Station, Valley, Holyhead	Industrial	Negligible	48	Negligible	Negligible
Hermon Chapel, Valley, Holyhead LL65 3EG	Place of worship	Medium	46	Negligible	Negligible
Pure Beauty, Station Road, Valley Holyhead	Commercial	Low	55	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	55	Negligible	Negligible
Hsbc, Valley, Holyhead LL65 3EB	Commercial	Low	50	Negligible	Negligible
Boston Terrace, London Road, Valley	Commercial	Low	51	Negligible	Negligible
Old Smithy, Field Street, Valley Holyhead	Industrial	Negligible	46	Negligible	Negligible
Post Office, Station Road, Valley Holyhead	Office	Medium	52	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	53	Negligible	Negligible
Valley Hotel, London Road, Valley Holyhead	Commercial	Low	53	Negligible	Negligible
Nyth Henryd, Station Road, Valley, Holyhead	Commercial	Low	47	Negligible	Negligible
Old Magistrates Court, Station Road	Office	Medium	48	Negligible	Negligible
The Square, London Road, Valley Holyhead	Commercial	Low	50	Negligible	Negligible
The Square, Valley, Holyhead, LL65 3DP	Commercial	Low	52	Negligible	Negligible
Stermat Hardware Ltd, London Road, Valley	Commercial	Low	54	Negligible	Negligible

Table 2-6 cont: Summary of effects and assessment of significance at non-residential receptors – Valley

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB $L_{Aeq,T}$	Magnitude of change	Significance of effect at non-residential receptor
Oriental Express, Holyhead, LL65 3DP.	Commercial	Low	48	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	50	Negligible	Negligible
Ty Capel Tabor, Station Road, Valley	Place of worship	Medium	47	Negligible	Negligible
Bryn Eglwys, London Road, Valley, Holyhead	Commercial	Low	50	Negligible	Negligible
Home and Farm Supplies, London Road, Valley	Commercial	Low	42	Negligible	Negligible
Valley Pharmacy, London Road, Valley	Commercial	Low	49	Negligible	Negligible
Fish and Chip Shop, London Road, Valley	Commercial	Low	44	Negligible	Negligible
Bull Hotel, London Road, Valley, Holyhead	Commercial	Low	49	Negligible	Negligible
Dyffryn Service Station, London Road	Commercial	Low	47	Negligible	Negligible
Melita, London Road, Valley, Holyhead	Commercial	Low	45	Negligible	Negligible
T R Jones and Sons, Field Street, Valley	Commercial	Low	44	Negligible	Negligible
Rock House, London Road, Valley, Holyhead	Commercial	Low	49	Negligible	Negligible
Valley Precinct, Station Road, Valley	Commercial	Low	55	Negligible	Negligible
Gwalia Service Station, London Road	Commercial	Low	55	Negligible	Negligible

Section 3: Llanfachraeth

2.2.2 The summary of non-residential receptors within the Section 3: Llanfachraeth area and the highest, or range, of predicted noise levels over the duration of the A5025 Off-line Highway Improvements programme are presented in table 2-7. The significance of effect is based upon the assessment methodology provided in section 4.5 of chapter B6 (Application Reference Number: 6.2.6).

Table 2- 7 Summary of effects and assessment of significance at non-residential receptors - Llanfachraeth

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB L _{Aeq,T}	Magnitude of change	Significance of effect at non-residential receptor
Church	Place of worship	Medium	57	Negligible	Negligible
Church	Place of worship	Medium	55	Negligible	Negligible
Llanfachraeth Primary School	School	High	55	Negligible	Minor
Holland Hotel, Llanfachraeth, Holyhead	Commercial	Low	53	Negligible	Negligible
Lloyds Blindselim Stores, Llanfachraeth	Commercial	Low	50	Negligible	Negligible
Wynnstay Group, Elim Stores, Llanfachraeth	Commercial	Low	50	Negligible	Negligible
Elim Stores, Llanfachraeth, Holyhead	Commercial	Low	50	Negligible	Negligible
Llanfachraeth Post Office, Llanfachraeth	Commercial	Low	58	Negligible	Negligible
Village Hall, Llanfachraeth, Holyhead	Community	Medium	54	Negligible	Negligible
Pump House One, Llanfachraeth, Holyhead	Industrial	Negligible	46	Negligible	Negligible
Pump House, Llanfachraeth, Holyhead	Industrial	Negligible	50	Negligible	Negligible
Pump, Llanfachraeth, Holyhead, LL65 4DH	Industrial	Negligible	53	Negligible	Negligible
Caravan Park, Dronwy, Holyhead, LL65 4YB	Commercial	Low	49	Negligible	Negligible

Section 5: Llanfaethlu

- 2.2.3 The summary of non-residential receptors within the Section 5: Llanfaethlu area and the highest, or range, of predicted noise levels over the duration of the A5025 Off-line Highway Improvements programme are presented in table 2-8. The significance of effect is based upon the assessment methodology provided in section 4.5 of chapter B6 (Application Reference Number: 6.2.6).

Table 2- 8 Summary of effects and assessment of significance at non-residential receptors - Llanfaethlu

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB L _{Aeq,T}	Magnitude of change	Significance of effect at non-residential receptor
Shop, Griffith Reade House, Llanfaethlu	Commercial	Low	55	Negligible	Negligible
Village Hall, Llanfaethlu, Holyhead	Community	Medium	57	Negligible	Negligible
Ysgol, Rhyd Y Llan, Llanfaethlu, Holyhead	School	High	53	Negligible	Minor

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- 2.2.4 There are no non-residential sensitive receptors within this area.

Power Station access road junction

- 2.2.5 The summary of non-residential receptors within the Power Station access road junction area and the highest, or range, of predicted noise levels over the duration of the A5025 Off-line Highway Improvements programme are presented in table 2-9. The significance of effect is based upon the assessment methodology provided in section 4.5 of chapter B6 (Application Reference Number: 6.2.6).

Table 2- 9 Summary of effects and assessment of significance at non-residential receptors – Power Station

Name	Receptor Type	Sensitivity	Highest predicted daytime (07:00 – 19:00) noise level from plant and machinery, dB L_{Aeq,T}	Magnitude of change	Significance of effect at non-residential receptor
Tregele Service Station, Anglesey, LL67 0DT	Commercial	Low	48	Negligible	Negligible