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Volume 7E Proposed Development (Onshore) Appendices

Appendix 8-5 Evaluation of Construction Phase Noise Levels

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Acronyms and Abbreviations

AAWT	Annual Average Weekday Traffic
BNL	Basic Noise Level
dB	Decibels
dBA	A weighted decibel
dB_{L_{A10}}	A weighted 10th percentile background noise level in decibels
dB_{L_{Aeq,T}}	A weighted time-equivalent noise level in decibels
hr	Hour
ID	Identifier
m	Metre
NSR	Noise Sensitive Receptor

1 Introduction

- 1.1.1.1 This appendix provides the detail in regards the potential noise impacts arising from construction of the Proposed Development (Onshore) an assessment of these results is provided within the airborne noise and vibration assessment provided within Volume 5, Chapter 8: Airborne Noise and Vibration.

2 Predicted Noise Levels, Evaluation Against Criteria

2.1.1 Construction Noise – Onshore Substation Site

Table 2-1: Predicted Construction Noise Levels Due to Onshore Substation Site Works

Construction Period	Noise Sensitive Receptor (NSR) ID					
	NSR1	NSR2	NSR3	NSR4	NSR5	NSR6
Construction Period 1 - Site establishment – establishing contractor compound and securing site boundary Predicted noise level, dBL _{Aeq,T}	54	39	40	45	54	46
Comparison with daytime noise limit (65 dBA), dB	-11	-26	-25	-20	-11	-19
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	-1	-16	-15	-10	-1	-9
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	9	-6	-5	0	9	1
Night-time impact	Night-time working not proposed					
Construction Period 2 – Civil enabling works – topsoil stripping and formation of bunds, subsoil	51	37	38	43	52	44

Construction Period	Noise Sensitive Receptor (NSR) ID					
	NSR1	NSR2	NSR3	NSR4	NSR5	NSR6
excavation to form level platform Predicted noise level, dBL _{Aeq,T}						
Comparison with daytime noise limit (65 dBA), dB	-14	-28	-27	-22	-13	-21
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	-4	-18	-17	-12	-3	-11
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	6	-8	-7	-2	7	-1
Night-time impact	Night-time working not proposed					
Construction Period 3 - Civil construction works – breaking out rock, crushing and removal Predicted noise level, dBL _{Aeq,T}	64	50	51	57	65	57
Comparison with daytime noise limit (65 dBA), dB	-1	-15	-14	-8	0	-8
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant

Construction Period	Noise Sensitive Receptor (NSR) ID					
	NSR1	NSR2	NSR3	NSR4	NSR5	NSR6
Comparison with evenings and weekends noise limit (55 dBA), dB	9	-5	-4	2	10	2
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	19	5	6	12	20	12
Night-time impact	Night-time working not proposed					
Construction Period 4 - Substation construction works – construction and installation of building and plant foundations, infrastructure trenches, roads and hardstanding areas, building superstructures Predicted noise level, dBL _{Aeq,T}	58	44	45	50	59	51
Comparison with daytime noise limit (65 dBA), dB	-7	-21	-20	-15	-6	-14
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	3	-11	-10	-5	4	-4
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	13	-1	0	5	14	6

Construction Period	Noise Sensitive Receptor (NSR) ID					
	NSR1	NSR2	NSR3	NSR4	NSR5	NSR6
Night-time impact	Night-time working not proposed					
Construction Period 5 - Installation and commissioning - plant and equipment installation and commissioning Predicted noise level, dBL _{Aeq,T}	55	40	42	47	55	47
Comparison with daytime noise limit (65 dBA), dB	-10	-25	-23	-18	-10	-18
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	0	-15	-13	-8	0	-8
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	10	-5	-3	2	10	2
Night-time impact	Night-time working not proposed					
Construction Period 6 - Landscaping – remediation works and planting of trees and shrubs for visual mitigation Predicted noise level, dBL _{Aeq,T}	60	45	46	51	59	51
Comparison with daytime noise limit (65 dBA), dB	-5	-20	-19	-14	-6	-14

Construction Period	Noise Sensitive Receptor (NSR) ID					
	NSR1	NSR2	NSR3	NSR4	NSR5	NSR6
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	5	-10	-9	-4	4	-4
Evenings and weekends impact	Evening and weekend working not proposed					
Comparison with night-time noise limit (45 dBA), dB	15	0	1	6	14	6
Night-time impact	Night-time working not proposed					

2.1.2 Construction Noise – Onshore Export Cable Corridor

Table 2-2: Predicted Construction Noise Levels Due to Onshore Export Cable Corridor Works

Construction Period / Separation distance, metres	Predicted noise level, dBL _{Aeq,T}						
	50	100	200	400	500	1,000	1,500
Construction Period 7 - Establish primary construction compounds and site access points, site preparation including fencing and haul road construction Predicted noise level, dBL _{Aeq,T}	64	59	52	48	46	43	36
Comparison with daytime noise limit (65 dBA), dB	-1	-6	-13	-17	-19	-22	-29
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	9	4	-3	-7	-9	-12	-19
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	19	14	7	3	1	-2	-9
Night-time impact	Night-time working not proposed						
Construction Period 8 – Horizontal Directional Drilling– large work site (2 drill rigs operating)	56	51	45	38	36	29	25

Construction Period / Separation distance, metres	Predicted noise level, dBL _{Aeq,T}						
	50	100	200	400	500	1,000	1,500
simultaneously) Predicted noise level, dBL _{Aeq,T}							
Comparison with daytime noise limit (65 dBA), dB	-9	-14	-20	-27	-29	-36	-40
Daytime impact	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	1	-4	-10	-17	-19	-26	-30
Evenings and weekends impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with night-time noise limit (45 dBA), dB	11	6	0	-7	-9	-16	-20
Night-time impact	Significant	Significant	Not significant	Not significant	Not significant	Not significant	Not significant
Construction Period 9 - Pulling cables Predicted noise level, dBL _{Aeq,T}	69	63	57	53	50	48	41
Comparison with daytime noise limit (65 dBA), dB	4	-2	-8	-12	-15	-17	-24
Daytime impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant

Construction Period / Separation distance, metres	Predicted noise level, dBL _{Aeq,T}						
	50	100	200	400	500	1,000	1,500
Comparison with evenings and weekends noise limit (55 dBA), dB	14	8	2	-2	-5	-7	-14
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	24	18	12	8	5	3	-4
Night-time impact	Night-time working not proposed						
Construction Period 10 - Jointing bay construction Predicted noise level, dBL _{Aeq,T}	69	63	57	53	50	48	41
Comparison with daytime noise limit (65 dBA), dB	4	-2	-8	-12	-15	-17	-24
Daytime impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	14	8	2	-2	-5	-7	-14
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	24	18	12	8	5	3	-4
Night-time impact	Night-time working not proposed						

Construction Period / Separation distance, metres	Predicted noise level, dBL _{Aeq,T}						
	50	100	200	400	500	1,000	1,500
Construction Period 11 - Open trenching Predicted noise level, dBL _{Aeq,T}	68	62	56	52	49	47	40
Comparison with daytime noise limit (65 dBA), dB	3	-3	-9	-13	-16	-18	-25
Daytime impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	13	7	1	-3	-6	-8	-15
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	23	17	11	7	4	2	-5
Night-time impact	Night-time working not proposed						
Construction Period 12 - Removal of haul road, reseeding Predicted noise level, dBL _{Aeq,T}	67	61	55	51	48	46	39
Comparison with daytime noise limit (65 dBA), dB	2	-4	-10	-14	-17	-19	-26
Daytime impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant

Construction Period / Separation distance, metres	Predicted noise level, dBL _{Aeq,T}						
	50	100	200	400	500	1,000	1,500
Comparison with evenings and weekends noise limit (55 dBA), dB	12	6	0	-4	-7	-9	-16
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	22	16	10	6	3	1	-6
Night-time impact	Night-time working not proposed						
Construction Period 13 - Testing and commissioning, demobilisation of construction compounds Predicted noise level, dBL _{Aeq,T}	67	61	55	51	48	46	39
Comparison with daytime noise limit (65 dBA), dB	2	-4	-10	-14	-17	-19	-26
Daytime impact	Significant	Not significant	Not significant	Not significant	Not significant	Not significant	Not significant
Comparison with evenings and weekends noise limit (55 dBA), dB	12	6	0	-4	-7	-9	-16
Evenings and weekends impact	Evening and weekend working not proposed						
Comparison with night-time noise limit (45 dBA), dB	22	16	10	6	3	1	-6
Night-time impact	Night-time working not proposed						

2.1.3 Construction Noise - Road Traffic

Table 2-3: Evaluation of Construction Road Traffic Noise

Link ID	Future baseline traffic flow (light vehicles + heavy vehicles), 18 Hour Annual Average Weekday Traffic (AAWT)	Future baseline percentage heavy vehicles	Construction Phase worst-case traffic flow (light vehicles + heavy vehicles), 18 Hour AAWT	Construction phase percentage heavy vehicles	Future Baseline Basic Noise Level (BNL), dBL _{A10,18hr}	Construction phase BNL, dBL _{A10,18hr}	Increase in BNL (construction phase minus future baseline), dB	Significant?
2039	1255	14	1,481	19	61	63	2	No
2379	1609	15	1,779	18	62	63	1	No
1743	285	31	539	37	57	60	3	Yes
7559	369	15	593	22	56	59	3	Yes
7922	285	31	539	37	57	60	3	Yes

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