

Volume 4: Appendix 10.3 – Construction Noise Impact Assessment

Emmock and Tealing 400 kV Overhead Line Tie-Ins

Environmental Impact Assessment (EIA)

Volume 4 | Appendix 10.3

Construction Noise Impact Assessment

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1. CONSTRUCTION NOISE IMPACT ASSESSMENT

1.1 Introduction

The purpose of this appendix is to provide the results of the Construction Noise Impact Assessment (CNIA). A table is provided with the predicted noise levels for each construction phase and distance to either proposed works or worst case works location given the Limit Of Deviation (LOD). In addition, a total equivalent noise level 10 m from the works is given, this is based on the predicted equipment needed by each contractor for a phase of work. The results are also compared to the construction noise limits of 55dB or 65dB depending on the time period as defined in BS5228-1. These calculations are based on the assumed equipment in **Volume 4, Appendix 15.2: Construction Activities**. The assessment follows *British Standard 5228-1:2009 +A1:2014 (BS5228), Code of Practice for Noise and Vibration Control on Construction and Open Sites*, and the results are discussed in **Volume 2, Chapter 10: Noise and Vibration** of the Environmental Impact Assessment.

2. CONSTRUCTION NOISE ASSESSMENT RESULTS

2.1 Calculation Assumptions

- Ground absorption factor 0.5 for mixed soft and hard ground
- Free-field
- No change in elevation or screening between source and receiver

2.2 Assessment Results

Table 10.3.1: BS 5228-1 Assessment – Fellinging

NSR	Shortest distance to felling buffer boundary (m)	Total Equivalent Noise Level at 10 m from Felling (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	452	95	62	7	7
2	355	95	64	9	-1
3	350	95	64	9	-1
4	733	95	58	3	-7
5	1321	95	53	-2	-12
6	923	95	56	1	-9
7	535	95	61	6	-4
8	460	95	62	7	-3
9	202	95	69	14	4
10	1280	95	53	-2	-12
11	525	95	61	6	-4
12	636	95	60	5	-5
13	334	95	65	10	0
14	722	95	58	3	-7
15	1283	95	53	-2	-12
16	654	95	59	4	-6
17	1070	95	55	0	-10
18	735	95	58	3	-7
19	570	95	60	5	-5
20	700	95	59	4	-6
21	639	95	60	5	-5
22	764	95	58	3	-7
23	390	95	64	9	-1
24	1047	95	55	0	-10
25	141	95	72	17	7
26	1103	95	55	0	-10
27	1020	95	55	0	-10
28	1143	95	54	-1	-11
29	488	95	62	7	-3
30	1033	95	55	0	-10
31	657	95	59	4	-6
32	522	95	61	6	-4

Table 10.3.2: BS 5228-1 Assessment – Access and Enabling

NSR	Shortest Distance to Nearest Access Track (as Designed) (m)	Total Equivalent Noise Level at 10 m from Access and Enabling (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	29	87	77	22	12
2	235	87	57	2	-8
3	349	87	53	-2	-12
4	324	87	54	-1	-11
5	109	87	64	9	-1
6	376	87	52	-3	-13
7	407	87	52	-3	-13
8	289	87	55	0	-10
9	69	87	69	14	4
10	193	87	59	4	-6
11	396	87	52	-3	-13
12	16	87	83	28	18
13	224	87	57	2	-8
14	230	87	57	2	-8
15	607	87	48	-7	-17
16	114	87	64	9	-1
17	96	87	66	11	1
18	335	87	54	-1	-11
19	178	87	60	5	-5
20	23	87	80	25	15
21	27	87	78	23	13
22	99	87	65	10	0
23	50	87	72	17	7
24	139	87	62	7	-3
25	10	87	87	32	22
26	576	87	48	-7	-17
27	171	87	60	5	-5
28	135	87	62	7	-3
29	416	87	52	-3	-13
30	153	87	61	6	-4
31	72	87	68	13	3
32	398	87	52	-3	-13

Table 10.3.3: BS 5228-1 Assessment – Piling

NSR	Shortest Distance to Nearest Tower (as Designed) (m)	Total Equivalent Noise Level at 10 m from Piling (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	353	89	57	2	-8
2	274	89	58	3	-7
3	1560	89	43	-12	-2
4	447	89	53	-2	-6
5	217	89	60	5	-7
6	495	89	52	-3	-8
7	494	89	52	-3	-8
8	1366	89	44	-11	-10
9	982	89	49	-6	-10
10	411	89	54	-1	-10
11	1327	89	44	-11	-10
12	404	89	57	2	-10
13	390	89	55	0	-5
14	477	89	53	-2	-9
15	405	89	54	-1	-8
16	451	89	54	-1	-11
17	581	89	52	-3	-11
18	458	89	53	-2	-7
19	291	89	58	3	-6
20	698	89	53	-2	-10
21	409	89	56	1	-12
22	491	89	53	-2	-4
23	556	89	53	-2	-7
24	623	89	51	-4	-10
25	1167	89	55	0	-6
26	482	89	53	-2	-5
27	660	89	50	-5	-6
28	549	89	52	-3	-6
29	1282	89	44	-11	-7
30	641	89	51	-4	-7
31	427	89	54	-1	-7
32	1324	89	44	-11	-10

Table 10.3.4: BS 5228-1 Assessment – Foundations

NSR	Shortest Distance to Nearest Tower (as Designed) (m)	Total Equivalent Noise Level at 10 m from Foundations (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	353	90	57	2	-8
2	274	90	59	4	-6
3	1560	90	43	-12	-22
4	447	90	54	-1	-11
5	217	90	61	6	-4
6	495	90	53	-2	-12
7	494	90	53	-2	-12
8	1366	90	45	-10	-20
9	982	90	49	-6	-16
10	411	90	55	0	-10
11	1327	90	44	-11	-21
12	404	90	57	2	-8
13	390	90	56	1	-9
14	477	90	54	-1	-11
15	405	90	55	0	-10
16	451	90	54	-1	-11
17	581	90	52	-3	-13
18	458	90	54	-1	-11
19	291	90	58	3	-7
20	698	90	54	-1	-11
21	409	90	56	1	-9
22	491	90	54	-1	-11
23	556	90	53	-2	-12
24	623	90	51	-4	-14
25	1167	90	55	0	-10
26	482	90	53	-2	-12
27	660	90	51	-4	-14
28	549	90	53	-2	-12
29	1282	90	45	-10	-20
30	641	90	51	-4	-14
31	427	90	55	0	-10
32	1324	90	44	-11	-21

Table 10.3.2: BS 5228-1 Assessment – Tower Erection

NSR	Shortest Distance to Nearest Tower (as Designed) (m)	Total Equivalent Noise Level at 10 m from Tower Erection (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	353	81	52	-3	-13
2	274	81	51	-4	-14
3	1560	81	40	-15	-25
4	447	81	46	-9	-19
5	217	81	53	-2	-12
6	495	81	45	-10	-20
7	494	81	45	-10	-20
8	1366	81	41	-14	-24
9	982	81	47	-8	-18
10	411	81	47	-8	-18
11	1327	81	40	-15	-25
12	404	81	54	-1	-11
13	390	81	48	-7	-17
14	477	81	46	-9	-19
15	405	81	47	-8	-18
16	451	81	48	-7	-17
17	581	81	47	-8	-18
18	458	81	46	-9	-19
19	291	81	50	-5	-15
20	698	81	52	-3	-13
21	409	81	52	-3	-13
22	491	81	48	-7	-17
23	556	81	49	-6	-16
24	623	81	46	-9	-19
25	1167	81	55	0	-10
26	482	81	45	-10	-20
27	660	81	45	-10	-20
28	549	81	46	-9	-19
29	1282	81	39	-16	-26
30	641	81	45	-10	-20
31	427	81	49	-6	-16
32	1324	81	40	-15	-25

Table 10.3.3: BS 5228-1 Assessment – Stringing

NSR	Shortest Distance to Nearest Tower (as Designed) (m)	Total Equivalent Noise Level at 10 m from Stringing (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	353	83	53	-2	-12
2	274	83	52	-3	-13
3	1560	83	40	-15	-25
4	447	83	48	-7	-17
5	217	83	54	-1	-11
6	495	83	47	-8	-18
7	494	83	47	-8	-18
8	1366	83	41	-14	-24
9	982	83	47	-8	-18
10	411	83	49	-6	-16
11	1327	83	40	-15	-25
12	404	83	54	-1	-11
13	390	83	49	-6	-16
14	477	83	47	-8	-18
15	405	83	48	-7	-17
16	451	83	49	-6	-16
17	581	83	48	-7	-17
18	458	83	47	-8	-18
19	291	83	52	-3	-13
20	698	83	52	-3	-13
21	409	83	53	-2	-12
22	491	83	48	-7	-17
23	556	83	50	-5	-15
24	623	83	46	-9	-19
25	1167	83	55	0	-10
26	482	83	47	-8	-18
27	660	83	46	-9	-19
28	549	83	47	-8	-18
29	1282	83	40	-15	-25
30	641	83	46	-9	-19
31	427	83	50	-5	-15
32	1324	83	40	-15	-25

Table 10.3.7: BS 5228-1 Assessment – Dismantling

NSR	Shortest Distance to Nearest Tower (as Designed) (m)	Total Equivalent Noise Level at 10 m from Dismantling (dB)	Sound Pressure Level at Receptor (dB)	Construction Noise Limit = 55 dB	Construction Noise Limit = 65 dB
				Construction Noise Limit Exceedance	Construction Noise Limit Exceedance
1	353	89	56	1	-9
2	274	89	54	-1	-11
3	1560	89	51	-4	-14
4	447	89	46	-9	-19
5	217	89	64	9	-1
6	495	89	43	-12	-22
7	494	89	48	-7	-17
8	1366	89	51	-4	-14
9	982	89	59	4	-6
10	411	89	57	2	-8
11	1327	89	49	-6	-16
12	404	89	54	-1	-11
13	390	89	52	-3	-13
14	477	89	48	-7	-17
15	405	89	45	-10	-20
16	451	89	48	-7	-17
17	581	89	67	12	2
18	458	89	46	-9	-19
19	291	89	47	-8	-18
20	698	89	72	17	7
21	409	89	52	-3	-13
22	491	89	51	-4	-14
23	556	89	52	-3	-13
24	623	89	63	8	-2
25	1167	89	66	11	1
26	482	89	45	-10	-20
27	660	89	60	5	-5
28	549	89	63	8	-2
29	1282	89	49	-6	-16
30	641	89	62	7	-3
31	427	89	49	-6	-16
32	1324	89	49	-6	-16