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Yorkshire Green Energy Enablement (GREEN) Project

Volume 5

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Version history

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1. Acoustic Screening Strategy

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1. Introduction

1.1 Background

- 1.1.1 National Grid Electricity Transmission plc (“National Grid”) is in the process of submitting a Development Consent Order (DCO) application for the Yorkshire Green Energy Enablement (GREEN) Project (“the Project” or “Yorkshire GREEN”).
- 1.1.2 Yorkshire GREEN comprises the installation of new electricity infrastructure and works to existing infrastructure. A summary description of the Project is provided in **Section 14.1 of ES Chapter 14: Noise and Vibration (Volume 5, Document 5.2.14)**, which this appendix supports, and a more detailed description is provided in **ES Chapter 3: Description of the Project (Volume 5, Document 5.2.3)**.

1.2 Purpose of this Document

- 1.2.1 This document presents the assessment and results for required and recommended positioning of acoustic screening during the construction phase of the Project and should be read in conjunction with **ES Chapter 14: Noise and Vibration (Volume 5, Document 5.2.14)**, **Appendix 14C: Construction modelling results (Volume 5, Document 5.3.14C)**, and the **Noise and Vibration Management Plan (Volume 5, Document 5.3.3E)**.

2. Acoustic Screening Requirements

2.1 Introduction

- 2.1.1 The recommendations of the use of acoustic screening is based on the calculations made in **Appendix 14C (Volume 5, Document 5.3.14C)**, and the context of the duration of each construction activity discussed in the **ES Chapter 14: Noise and Vibration (Volume 5, Document 5.2.14)**.
- 2.1.2 Where construction noise levels are predicted to exceed noise limits but have a duration below the temporal criteria (i.e. a period of 10 or more days of working in any 15 consecutive days or for a total number of days exceeding 40 in any 6 consecutive months), screening may be recommended but is not required. As such should activities in the “Required screening” section be demonstrably below the temporal threshold, these activities would have screening recommended, not required, and this screening location document shall be updated accordingly.
- 2.1.3 The activity noise is based on worst-case levels assuming cumulative build-up from activities that overlap in the construction schedule, but may not actually give rise to accumulated noise. As such, should the Contractor determine that noise levels are likely to be below the criteria in paragraph 2.1.2, then screening will not be required.
- 2.1.4 The requirement for screening is based on the exceedance of threshold noise levels and are based on the information available at this time.
- 2.1.5 The Contractor may review the assumptions and determine whether the threshold levels are likely to be exceeded and prepare an alternative approach to screening in their updated **Noise and Vibration Management Plan (NVMP), Appendix 3H, Volume 5, Document 5.3.3H**.
- 2.1.6 Furthermore, the requirement for barriers may be offset by delivering in combination with noise monitoring at residential receptors, such that temporary screening can be erected between noisy activity and receptors at the point where construction activity is likely to trigger the threshold levels.
- 2.1.7 For avoidance of doubt, where “screening” is used, this can take many forms, such as acoustic shrouding of individual items of plant or activity, partial enclosures formed by temporary acoustic screens, or boundary fencing or bunding.
- 2.1.8 Screening will generally be provided by Heras-style wire fencing with high surface density pads cable-tied to the fence forming a contiguous barrier.
- 2.1.9 At selected locations detailed below, the screening will be formed by plywood site perimeter hoarding:
- The southern, western and eastern perimeters of Tadcaster Temporary Construction Compound (TCC),
 - The northern, western and eastern perimeter of Monk Fryston Substation Western TCC,
 - The northern perimeter of Overton Substation TCC,
 - The perimeter of the TCC west of Overton Road,

- The southern perimeter of Shipton Tee Substation Southern TCC.

2.1.10 In general:

- where predicted levels are above the threshold value, screening of equipment, or use of acoustic shrouding of the noisiest activities is required;
- where night time works are required and are within 350m of a residential receptor screening of equipment, or use of acoustic shrouding of the noisiest activities is required;
- where predicted levels are smaller than 10dB below the threshold value no screening is required or recommended for the activity.
- HDD areas are included on the basis that mud-pumps are required to be used overnight to prevent collapse of horizontal bores, however, if plant is not required at night, screening is not needed.
- It should be noted that although stringing is listed as an activity during the night time, the night time works will be drawing bonds over scaffold. This activity uses the same basic plant as stringing and so the noise from the activity has been assumed as such.

2.2 Required acoustic screening

Locations

2.2.1 Based on the modelled results presented in **Appendix 14C (Volume 5, Document 5.3.14C)**, a screening strategy of noise contributing equipment is required in the following locations:

- proposed Overton Substation area;
- proposed Monk Fryston Substation area;
- proposed Overton Substation temporary construction compound areas;
- proposed Monk Fryston Substation temporary construction compound areas;
- Shipton Cable Sealing End Compounds (CSEC) temporary construction compound areas;
- Tadcaster CSECs temporary construction compound area;
- Horizontal Directional Drilling (HDD) working area in vicinity of Tadcaster TCC;
- construction of pylon ID XC424 working area;
- construction / dismantling of temporary pylon ID XC005T working area; and
- construction / dismantling of temporary pylon ID XC481T working area.

Results

2.2.2 As locations for construction equipment are not finalised and are worst case, for the purpose of determining mitigation efficacy, screening has been modelled assuming a 2m barrier surrounding the locations listed in paragraph 2.2.1. However, similar, if not more effective reductions in noise can be achieved by more localised screening, or

shrouding the plant and equipment of the highest noise contributors. The modelled results are presented in **Table 2.1**.

Table 2.1 – Predicted construction noise levels with required acoustic screening

Receiver	Daytime (core hours) level	Monday – Friday 07:00 – 19:00 Saturday 07:00 – 13:00 threshold limit difference	Monday – Friday 19:00 – 23:00 Saturday 13:00 – 23:00 Sunday 07:00 – 23:00 threshold limit difference	Night-time (outside of core hours) level	Monday – Sunday 23:00 – 07:00 threshold limit difference
HAM01	47	-18	-8	43	-2
HAM02	46	-19	-9	43	-3
HAM03	49	-16	-6	46	1
HAM04	51	-14	-4	46	1
HAM05	53	-12	-2	47	2
HAM06	51	-14	-4	36	-9
HAM07	51	-14	-4	45	0
HAM08	54	-11	-1	46	1
HAM09	53	-12	-2	44	-1
HAM10	48	-17	-7	44	-1
HAM11	53	-12	-2	46	1

Receiver	Daytime (core hours) level	Monday – Friday 07:00 – 19:00 Saturday 07:00 – 13:00 threshold limit difference	Monday – Friday 19:00 – 23:00 Saturday 13:00 – 23:00 Sunday 07:00 – 23:00 threshold limit difference	Night-time (outside of core hours) level	Monday – Sunday 23:00 – 07:00 threshold limit difference
HAR01	58	-7	3	54	9
HAR02	51	-14	-4	45	0
HAR03	57	-8	2	49	4
HAR04	52	-13	-3	52	7
HAR05	55	-10	0	56	11
HAR06	56	-9	1	32	-13
HAR07	50	-15	-5	31	-14
HAR08	53	-12	-2	54	9
SEL01	51	-14	-4	52	7
SEL02	46	-20	-10	41	-4
SEL03	54	-11	-1	38	-7
SEL04	48	-17	-7	42	-3

Receiver	Daytime (core hours) level	Monday – Friday 07:00 – 19:00 Saturday 07:00 – 13:00 threshold limit difference	Monday – Friday 19:00 – 23:00 Saturday 13:00 – 23:00 Sunday 07:00 – 23:00 threshold limit difference	Night-time (outside of core hours) level	Monday – Sunday 23:00 – 07:00 threshold limit difference
SEL05	50	-15	-5	47	2
SEL06	51	-14	-4	43	-2
SEL07	45	-20	-10	41	-4
SEL08	51	-14	-4	47	2
SEL09	62	-3	7	61	16
SEL10	52	-13	-3	52	7
SEL11	53	-12	-2	53	8
SEL12	45	-20	-10	47	2
SEL13	45	-21	-11	48	3
SEL14	37	-28	-18	37	-8
SEL15	48	-17	-7	37	-8
SEL16	81	16	26	49	4

Receiver	Daytime (core hours) level	Monday – Friday 07:00 – 19:00 Saturday 07:00 – 13:00 threshold limit difference	Monday – Friday 19:00 – 23:00 Saturday 13:00 – 23:00 Sunday 07:00 – 23:00 threshold limit difference	Night-time (outside of core hours) level	Monday – Sunday 23:00 – 07:00 threshold limit difference
SEL17	75	10	20	50	5
SEL18	47	-18	-8	34	-11
SEL19	58	-7	3	47	2
SEL20	53	-12	-2	38	-7
SEL21	51	-14	-4	36	-9
SEL22	52	-13	-3	36	-10
SEL23	45	-20	-10	33	-12
YOR01	51	-15	-5	38	-7
YOR02	49	-17	-7	37	-8
YOR03	57	-8	2	50	5
YOR04	53	-12	-2	49	4
YOR05	56	-9	1	54	9

Receiver	Daytime (core hours) level	Monday – Friday 07:00 – 19:00 Saturday 07:00 – 13:00 threshold limit difference	Monday – Friday 19:00 – 23:00 Saturday 13:00 – 23:00 Sunday 07:00 – 23:00 threshold limit difference	Night-time (outside of core hours) level	Monday – Sunday 23:00 – 07:00 threshold limit difference
YOR06	51	-14	-4	49	4
YOR07	54	-11	-1	54	9
YOR08	55	-10	0	50	5
YOR09	45	-20	-10	9	-36
YOR10	48	-17	-7	8	-37
YOR11	46	-19	-9	12	-33
YOR12	46	-19	-9	12	-33

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- 2.2.3 **Table 2.1** shows the majority of receptors, with the exception of SEL16, and SEL17, are below the Monday – Friday 07:00 – 19:00 and Saturday 07:00 – 13:00 threshold once screening is applied. As the receptors are of medium sensitivity, the residual effects are **not significant**.
- 2.2.4 SEL16 and SEL17 experience construction levels much higher than the daytime 65dB threshold level (**Table 14.17, ES Chapter 14, Volume 5, Document 5.2.14**), even with screening. The screening will be required because of this high magnitude, but this is considered **not significant** in EIA terms, as the temporal threshold will be unlikely to be triggered by the worst-case activities.
- 2.2.5 **Table 2.1** shows that the majority of receptors, with the exception of HAR01, HAR03, HAR06, SEL03, SEL09, SEL16, SEL17, SEL19, SEL20, YOR03 and YOR05 are below the Monday – Friday 19:00 – 23:00, Saturday 13:00 – 23:00 and Sunday 07:00 – 23:00 threshold.
- 2.2.6 HAR01, HAR03, HAR06, SEL19, YOR03 and YOR05 experience small (less than 5dB) exceedances of the 55dB threshold, which equals a low magnitude of impact. It is therefore determined that for these receptors, the effects are **not significant**.
- 2.2.7 SEL09 will experience a moderate (7dB) exceedance of the 55dB threshold, which is a medium magnitude of impact. For these receptors, effects are **potentially significant**, though is considered **not significant** in EIA terms as the temporal threshold will be unlikely to be triggered by the worst-case activities. Paragraph 14.11.10 of the ES noise and vibration chapter (**ES Chapter 14, Volume 5, Document 5.2.14**) considers this in detail.
- 2.2.8 SEL16, and SEL17 experience construction levels much higher than the threshold level (more than 10dB), which equals a high magnitude of impact, but this is considered **not significant** in EIA terms, as the temporal threshold will be unlikely to be triggered by the worst-case activities
- 2.2.9 **Table 2.1** shows that approximately half of receptors are predicted to experience exceedances of the 45dB threshold during the night-time (23:00 – 07:00 Monday – Sunday). Fourteen receptors experience small (less than 5dB) exceedances, and 11 receptors experience medium (5 – 10dB) exceedances, whilst 2 receptors experience high (greater than 10dB) exceedances. Those that experience small exceedances are deemed **not significant**, those that experience medium or high exceedances are deemed **potentially significant** but the duration of such activities will not exceed the temporal threshold and such are **not significant**.

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