

Annex A

Noise and Vibration Management Plan



NGED

UPPER OGMORE GRID CONNECTION

Annex A: Noise and Vibration Management Plan





Report for

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1.1 Introduction

- 1.1.1 A full description of the Project is provided in **Chapter 4: Description of the Project, Volume 1 of the EIA Report**.
- 1.1.2 This Noise and Vibration Management Plan (NVMP) is included as Annex A to the Outline Construction Environmental Management Plan (CEMP) (**Appendix 4A**). This NVMP sets out the noise and vibration management measures and procedures that will be implemented by the Applicant, NGED and its appointed contractors during construction. This NVMP should be read in conjunction with the CEMP and its supporting appendices (e.g. Outline Construction Traffic Management Plan (CTMP)).
- 1.1.3 The NVMP details the noise and vibration control measures for work activities associated with the above and below ground construction activities within the Site boundary.
- 1.1.4 The NVMP is part of a set of management plans provided, securing the delivery of measures committed to in the Application to manage the impacts arising during the construction phase of the Project.
- 1.1.5 The CEMP sets out the embedded environmental measures to be applied during the construction phase which is accompanied by topic specific plans including this NVMP providing further detail. The outline NVMP applies to the construction works for the Project where noise and vibration effects will arise including:
- installation of H-poles and overhead line (OHL) ;
 - trenching and laying of underground cables (UGC) and joint bays; and
 - one temporary construction compound to be located within the northern section of the Site.
- 1.1.6 The spans between H-poles for OHL are between 90 and 130m subject to local features and topography.
- 1.1.7 A portable welfare facility will temporarily be located along the route as appropriate (i.e. where works are being completed, and when the temporary construction compound is not within a practical distance).
- 1.1.8 No significant sources of vibration are currently planned for use on the Project, so vibration control measures detailed within the NVMP are general.
- 1.1.9 This NVMP will be reviewed by the Contractor(s) ahead of construction works commencing, and a final NVMP produced and circulated to the relevant Local Planning Authorities (LPA) for their comment. The final NVMP will apply throughout construction and will detail the objectives for managing and minimising construction noise and vibration on site and at the nearest sensitive receptors.

1.2 Legislation, policy and guidance

- 1.2.1 The Contractor(s) will be required to control and limit noise and vibration levels, so far as is reasonably practicable and to minimise disturbance to sensitive receptors.
- 1.2.2 The following legislation and standards are applicable to the control of noise and vibration during construction:
- Environmental Protection Act 1990 (as amended);
 - Control of Pollution Act 1974 (CoPA 1974); and

- British Standard (BS) 5228 ‘Code of practice for noise and vibration control on construction and open sites’, Part 1: Noise (+A1:2014), and Part 2: Vibration (+A1:2014).

1.2.3 The main objectives with regard to managing construction noise and vibration are to:

- comply with relevant legislation and standards relating to construction noise and vibration and the requirements of the planning consent; and
- to control and limit noise and vibration levels, so far as is reasonably practicable and to minimise disturbance to residents and sensitive receptors.

1.2.4 For the purposes of assessing impacts associated with construction induced vibration, the guidance within BS 5228 has been used to derive reasonable limits. Where vibration levels are predicted to exceed ‘just perceptible’ levels, appropriate mitigation measures would need to be introduced to control the effects.

1.3 Noise Management Measures

1.3.1 This section outlines required management measures and mitigation to ensure construction works are conducted in a way that removes or reduces effects in respect to noise receptors.

General site management

1.3.2 The Contractor(s) will ensure that all construction work areas will be arranged to reduce, as far as practicable, the environmental impacts having due regard to the constraints for each site, for example:

- storage sites, offices/welfare cabins, fixed plant and machinery will be positioned appropriately (e.g. away from sensitive receptors);
- appropriate speed limits will be imposed across Project areas (i.e. not on the public highway); and
- noise generating activities will be sited away from noise-sensitive receptors where practicable.

Noise and Vibration Management

1.3.3 The NVMP will detail the approach to minimising noise and vibration in the construction of onshore assets and will incorporate Best Practicable Means (BPM) (as defined by CoPA 1974) to minimise any associated noise and vibration impacts.

1.3.4 The NVMP will be developed on the basis of the confirmed list of plant and equipment proposed by the Contractor(s) prior to construction. Development of the NVMP will include a review of specific construction activities proposed by the Contractor(s) and the identification of the pertinent sensitive receptors.

Good Practice Measures

1.3.5 The embedded mitigation and engineered construction measures that the Contractor(s) will adopt (as appropriate to the planned works) to minimise noise during construction include:

- locating noisy temporary plant so that it is screened where possible from receptors by on-site structures, such as site cabins;
- applying enclosures to particularly noisy equipment / plant;

- screening of generation plant supporting office/welfare cabins;
- designing the traffic routes within construction areas in order to minimise heavy vehicle, or plant, reversing, where practicable;
- fitting of low-noise reversing warnings to heavy vehicles and items of plant; and
- using modern, quiet equipment and ensuring equipment is properly maintained and operated by trained staff.

1.3.6 The construction best practice measures that the Contractor(s) will adopt (as appropriate to the planned works) to minimise noise during construction include:

- ensure avoidance of unnecessary engine revving;
- ensure all vehicle movements occur within normal hours or at agreed times, taking into account the primary function of sensitive receptors in the vicinity (e.g. avoiding school drop-off / pickup periods);
- maximise the reuse of any waste / material arising on site to minimise vehicle movements;
- plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public highway;
- minimise opening and closing of site accesses, through good co-ordination of deliveries and vehicle movements;
- report any defective equipment / plant as soon as possible so that corrective maintenance can be undertaken;
- ensure that mobile plant is well maintained such that loose body fittings or exhausts do not rattle or vibrate;
- ensuring plant machinery is turned off when not in use;
- any plant found to be requiring interim maintenance to be taken out of use;
- where practicable, noisy works should be interspersed between quieter works to provide periods of respite;
- where practicable, the works should be phased to ensure that the noisiest operations are performed during the least sensitive times;
- understand the duration of the works and their impacts; if moderately higher noise levels may result in a significant reduction in the overall duration of the works this should be considered;
- locate the site access away from noise sensitive receptors where practicable;
- reduce loading / unloading heights for muck away and material movement to mitigate impact noise; and
- handle all material in a manner that minimises noise.

1.3.7 Designated site-based staff shall have the authority to take the steps necessary on behalf of the Contractor(s) to ensure noise and vibration is adequately controlled and managed.

1.3.8 All site staff are to be briefed on their responsibilities with respect to management of construction noise and vibration and other legal requirements including best practice and the application of BPM. The performance of the training should then be regularly reviewed and repeated throughout the construction programme as appropriate.

Working hours

- 1.3.9 Core working hours for construction highway works of the Project will be 07:00 to 19:00 Monday to Friday, and 07:00 to 13:00 on Saturdays. In exceptions, there may be a requirement for a 7-day work week. This would be agreed with the local council as appropriate.
- 1.3.10 Prior to and following the core working hours, a 'shoulder hour' for mobilisation and shut down will be applied (07:00 to 08:00 and 18:00 to 19:00 weekdays, 07:00 to 08:00 and 13:00 to 14:00 Saturday). The activities permitted during the shoulder hours shall include staff arrivals and departures, briefings and toolbox talks, deliveries to site and unloading, and activities including site and safety inspections and plant maintenance. Such activities shall not include noise generating activity including use of heavy plant or activity resulting in impacts between objects resulting in loud noises, ground breaking or earthworks.
- 1.3.11 Where extended and continuous periods of construction may be required for operational or safety purposes these shall require notification to the relevant Local Planning Authority in accordance with the Communication and Complaints Management section below

Construction Plant Mitigation

- 1.3.12 Careful scrutiny of plant selection at procurement stage will ensure that the potential noise impact of construction activities is reduced as much as is reasonably possible. General plant considerations are as follows:
- ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC, United Kingdom Statutory Instruments (SI) 2001/1701;
 - fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer;
 - follow manufacturer's guidance and instructions in relation to operation of plant and equipment, and use in a manner which minimises noise;
 - use all plant and equipment only for tasks for which it has been designed; and
 - shut down all plant and equipment in intermittent use in the intervening periods between works or throttle it down to a minimum.

Localised screening and temporary noise barriers

- 1.3.13 Temporary noise barriers and localised screening will be installed as appropriate to further reduce noise emissions in proximity to noise-sensitive receptors. The need will be determined based on the confirmed list of plant and equipment and construction programme and the predicted noise levels assessed in accordance with BS 5228 part 1.
- 1.3.14 The exact specification of any temporary noise barriers will be determined during detailed design and described in the final NVMP.
- 1.3.15 Noise barriers will have an appropriate specification for the location and noise reduction required. As an example of the relative effectiveness of applying a temporary localised noise barrier BS 5228 (BSI, 2014a; 2014b) states: *"...as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources*

from the receiver. High topographical features and specifically designed and positioned noise barriers could provide greater attenuation.”

- 1.3.16 All generators that may be used outside core hours shall be fully surrounded by temporary acoustic screening on heras-style fencing.

Vibration Control

- 1.3.17 Vibration is unlikely to be a significant impact at any receptor. The H-pole installation, access installation and trenching may give rise to temporary perceptible vibration for a very short period of time where the works are undertaken within 50m of residences. If vibro-compaction is used on accesses or where vibration or impact driven methods are used for H-pole installation, this will be communicated in writing to the local residents within 100m of the works.

Applications for consent under Section 61 of the Control of Pollution Act 1974

- 1.3.18 No significant residual construction noise and vibration effects are predicted based on the planned construction working hours and employment of the embedded environmental mitigation. Section 61 application may need to be considered where additional mitigation, monitoring and management may be necessary due to significant changes in the potential for noise or vibration generation.
- 1.3.19 Where a Section 61 application is considered appropriate, prior to the commencement of the relevant works, meetings would be sought, where required, with the local authorities to discuss the construction activities to be included in the Section 61 application and any potential mitigation.
- 1.3.20 The Contractor(s) will be required to submit any applications for Section 61 consents, variations and dispensations under CoPA 1974.
- 1.3.21 Activities that typically do not require a Section 61 consent include non-noise generating activities and activities that occur within the specified construction working hours for the Project.
- 1.3.22 In cases where there is a change of working method or procedure to those presented in the NVMP that could result in a significant noise impact, a revised noise and vibration assessment will be undertaken and appropriate mitigation identified and provided in the stage specific NVMP.
- 1.3.23 The potential for significant noise and/or vibration effects, is defined against the following criteria:
- Activities that are in one location (within a 300m radius of a receptor) longer than 10 consecutive days (especially night-time) and for which noisy work is required;
 - Activities that are in one location (within a 300m radius of a receptor) for two or more consecutive days and are predicted to be 75dB $L_{Aeq,T}$ or more during the daytime, 65dB $L_{Aeq,T}$ in the evenings or at the weekend, or 55dB $L_{Aeq,T}$ at night (23:00 to 07:00);
 - Vibratory works, (such as vibro-compaction) within 20m of a residential property; and
 - Highly vibratory works (such as impact piling) within 100m of a residential property.

- 1.3.24 Where a Section 61 consent is to be sought the contractor will provide the following, unless otherwise agreed with the relevant planning authority:
- An outline of the proposed construction methods, types and numbers of plant to be used;
 - Definition of the working hours required and, where these differ from the working hours (detailed in Requirement 7 of the Draft DCO [REP2-002]), a justification of the hours sought;
 - A work programme which identifies the location and duration of each significant noise and/or vibration generating activity;
 - The sound power levels, or sound pressure level at 10m, for each item of plant for each relevant activity;
 - Appropriate (in terms of noise/vibration level, duration and working hours) justification that the method and plant proposed demonstrates that Best Practical Means (BPM) has been employed to control noise and vibration impacts;
 - Predicted noise and vibration levels at specified locations supported by calculations following the methodology in BS 5228-1:2009+A1:2014 for noise and BS 52282:2009+A1:2014 for vibration (British Standard Institute, 2014a; 2014b) and the likely effects of these levels on affected noise and/or vibration -sensitive receptors and the likely durations of these effects;
 - All steps to be employed to minimise noise and vibration during the works;
 - Proposals for any noise and vibration monitoring considered necessary including frequency, locations relative to each work site, reporting proposals etc.;
 - Proposals for the notification of receptors affected by works, and dissemination of communication management and complaint management plan information relevant to the works; and
 - The number, extent (geographically and in terms of construction activities) and duration of Section 61 applications will be the subject of consultation between the Contractor(s) and each relevant local authority.
- 1.3.25 Lead in times will be agreed with the local authorities in advance of the applications being submitted and a format for the applications will be agreed prior to the first application being made. This is to ensure appropriate information is provided in a timely manner. The local authorities are required to inform the applicant of their decision within the statutory 28 days of the application being received. If this does not occur, then there is an appeals process.
- 1.3.26 Agreement of proposed measures will be sought from the relevant local authority through Section 61 consent, dispensation or variation applications.
- 1.3.27 Monitoring is not currently proposed due to the lack of significant noise generating activity in the same location for 1 month or more. However, if noise complaints arise from construction activities, monitoring may be needed to identify additional mitigation.

Compliance Monitoring

- 1.3.27 Monitoring is not currently proposed due to the lack of significant noise generating activity in the same location for 1 month or more. However, if noise complaints arise from construction activities, monitoring may be needed to identify additional mitigation.
- 1.3.28 Descriptions of construction noise monitoring are provided below.

- 1.3.29 Any construction monitoring regime will be agreed with the relevant planning authority and details included in the final NVMP (or relevant s61 agreement). Any personnel undertaking noise monitoring shall be able to demonstrate their competency for the task and are expected, as a minimum, to be a member of the Institute of Acoustics (AMIOA or higher).
- 1.3.30 Management measures associated with construction noise and/or vibration monitoring are as follows:
- Establish pre-existing levels of ambient noise;
 - Carry out attended noise and/or vibration monitoring at the start of any new phase of works or following any complaints, to check source emission data from plant on-site;
 - Carry out regular on-site observation monitoring and checks / audits to ensure that BPM is being employed at all times. Such checks should include:
 - ▶ hours of working;
 - ▶ presence of mitigation measures, equipment, and screening;
 - ▶ number and type of plant;
 - ▶ construction methods;
 - ▶ where applicable any specific Section 61 consent conditions;
 - ▶ site reviews should be logged, and remedial actions recorded; and
 - ▶ where temporal thresholds are at risk of exceedance, the NVMP will identify where compliance monitoring should be sought including durations and frequency of reporting.
- 1.3.31 Generally, the approach to monitoring will be as follows:
- Noise monitoring will only be carried out for daytime activity near worksites where noise predictions are above 65dB for one month or more or above 75dB for more than one day, or as required following valid noise complaints from third parties; and
 - The results from the initial (and any subsequent) monitoring exercise shall then be used to identify which future sites would require additional protection, and mitigation and monitoring requirements included within the NVMP.

Communication and Complaint Management

Public notifications

- 1.3.32 The timing of works will be confirmed including those that require continuous or extended working hours.
- 1.3.33 In the case of works required in response to an emergency, the relevant local authority, local residents and any other potentially affected stakeholders will be advised as soon as reasonably practicable that emergency works are taking place. Potentially affected residents will also be notified of the helpline number for the Project.
- 1.3.34 A plan detailing community engagement and provision of public information to local residents and occupiers about the works, and for the handling of complaints will be prepared for the final CEMP and the final NVMP will be updated to align with the proposed engagement mechanisms.

Outline Complaint Procedure

- 1.3.35 Where a person from a community local to the works makes a complaint with respect to construction noise and/or vibration, it will be passed initially to the Contractor's community relations team. The community relations team will liaise with relevant members of the Project team to investigate the complaint and communicate the outcome to the complainant.
- 1.3.36 Where complaint is substantiated, the complaint will be escalated to a suitably qualified acoustician for investigation. Noise and/or vibration monitoring maybe carried out and where levels are deemed to require additional mitigation, appropriate and timely action will be undertaken by the Project construction team and their Contractor(s).
- 1.3.37 Actions could include:
- site specific noise monitoring;
 - implementing additional noise management measures; and
 - changing the method of working or plant being used; and/ or providing temporary acoustic screening between the works and the affected receptors.
- 1.3.38 Where significantly high levels (75dB or more during the day, 65dB or more during evenings and weekends or 55dB or more at night) are measured at sensitive receptors, it may be necessary to halt the activity causing the complaint until mitigation can be incorporated, or provide temporary respite or temporary rehousing to affected receptors.
- 1.3.39 Records of complaints, subsequent investigation and any related resolution, will be available, on request, to the relevant local authority.
- 1.3.40 If the complainant is unsatisfied with the final response, they will be provided with details of the escalation process.

