

TECHNICAL NOTE – Mineral Processing Facility Schedule 5 response

Attention: Paul Barker - Environment Agency

Mineral Processing Facility Schedule 5, notice of request for more information response 29th November 2022

Tungsten West Plc (Tungsten West) submitted a bespoke environmental permit (EP) application for the operation of the Mineral Processing Facility on the 26th August 2021. The Environment Agency (EA) duly made the application on the 16th September 2021 and carried out an initial public consultation closing on the 29th October 2021. Tungsten West has been issued a Schedule 5 notice of request for more information from the EA on the 8th February and 16th February 2022.

This technical note addresses the points raised in the schedule 5 issued on 16th February 2022 with regards to comments made on infrasound and Low Frequency Noise. The schedule 5 request is detailed below in bold italics with Tungsten West's response following.

- 1) Please provide a revised NVIA to address the following issues:
 - Please justify and explain the selection of the predictive model, and why this was used rather than a more standard modelling techniques – eg CadnaA which would be easier to assess LFN impacts against, and is likely to provide greater certainty and result accuracy than using the current bespoke method.

Reasoning – please refer to the schedule 5 for full details of the reasoning.

Tungsten West response

Tungsten West has appointed Steven Walker, Technical Director (Acoustics) of WSP Australia to undertake a noise modelling exercise using SoundPLAN (Version 8.2) acoustics software to calculate levels of infrasound and Low Frequency Noise (LFN) at local NSRs. SoundPLAN is a well-established, and widely used package, for the calculation of noise adopting acoustic standards for environmental noise propagation.

- **An assessment of amplification of LFN within nearby homes has not been fully considered in the NVIA. The worse impacts at receptors before may well have been within the 50Hz third octave band rather than from sound levels at receptors within the 16Hz third octave band.**

Tungsten West response

Tungsten West has included an assessment of the fundamental operating frequency of the screens at 12Hz and 16Hz and the second and third harmonics. The predicted LFN levels at the Noise Sensitive Receptors (NSR) are considered for each one-third octave band frequency and the total LFN at 50Hz and below. LFN levels have been estimated to evaluate the potential for LFN impacts.



- There are predicted sound pressure levels at Dartmoor Zoo of 69dB(Z) at 12Hz, which are above the 65dB(Z) ASHRAE acceptability level. This is later forgotten as part of the success criteria presented in Table 19.

Tungsten West response

The EA guidance note, 'Noise and vibration management: environmental permits, updated 31st January 2022¹', does not include specific reference to the ASHREA criterion as a method of assessment. Tungsten West has undertaken a noise modelling exercise using SoundPLAN and assessed the potential risk of pollution against NANR45.

- **Provide an assessment of 'beating' effects arising from screens and other equipment running at different frequencies.**

Tungsten West response

With the mitigation measures proposed, although unlikely to eliminate beating, by reducing LFN closer to the background levels, and at least 5dB below the night-time NANR45 criterion at 12.5Hz and 16Hz, a reduction in any perceptible beating effects could be achieved.

NANR45 does not specify penalties are required with beating effects instead "the criterion curve should be relaxed by 5dB for steady sounds" as such Tungsten West considers the application of NANR45 criterion to be appropriate.

- **Please include propagation calculations which include the effect of active noise control or other noise control measures discussed within NVIA.**

Tungsten West response

See SoundPLAN (Version 8.2) acoustics software and calculations presented therein e.g., International Standard ISO9613-2 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.

- **The current estimate of the range of acoustic efficiency (0.005-0.208, Section 6.3.1 and Table 5 and 0.005 to 0.819 in Table 17) is so large that the validity of this methodology is questionable and could undermine the results and conclusions from the modelling presented in the report.**

Tungsten West response

Tungsten West acknowledge the variability in the result and as such have applied a conservative radiation efficiency (also referred to as acoustic efficiency) of 0.1, this represents a conservative +3dB correction to the sound power level.

- **The modelling seems to assume that the sound from the screens will be propagating spherically at a distance of 1m from the screen bed (p21, paragraph 2). The sound is unlikely to be propagating spherically at such a close distance, which will underestimate the sound levels at greater distances.**

¹ [Noise and vibration management: environmental permits - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/noise-and-vibration-management-environmental-permits)



Tungsten West response

See SoundPLAN (Version 8.2) acoustics software and calculations presented therein. The updated assessment assumes the building façades are the source of emission.

- **Please include a more comprehensive appraisal (including consideration of costs and benefits) of all available control options so that the most appropriate selection of control options can be identified, and the cumulative effect quantified, in accordance with the principle of using 'best available techniques (BAT) to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole'**

Tungsten West response –

Tungsten West proposes to install proven mitigations to the generation and management of infrasound and LFN. Tungsten West is still obtaining cost proposals for these mitigation measures to ensure the most appropriate selection of control options can be identified in accordance with Best Available Techniques (BAT) and is operationally practicable. It is proposed that a comprehensive appraisal of all considered options be included as a Noise and Vibration Management Plan for approval by the EA.

- **Assessment of impacts from LFN at some relevant receptors has not been provided to date – i.e., Windwhistle Farm and Lutton. Please ensure all relevant receptors are accounted for in your NVIA.**

Tungsten West response

Whindwhistle Farm, Lutton and all relevant receptors have been considered in the SoundPLAN assessment.

- **Please include an assessment of the noise and vibration (including LFN) impacts from operation of the proposed Jaw crushers, or other primary crushers proposed in response to our schedule 5 response concerning the BS4142 assessment.**

Tungsten West response

Tungsten West has updated a BS4142 background noise assessment that has considered the impact of noise from a proposed Primary Jaw and Secondary Cone crushing arrangement. As such Tungsten West consider these items of plant outside the scope of this study.

- **Please provide copies of any input data used in the modelling for us to audit the results of the revised NVIA against.**

Tungsten West response

See SoundPLAN (Version 8.2) acoustics software and calculations presented therein.



- Please include a new potential receptor location for Goodamoor Farm (near Dartmoor Zoo), as part of your re-submission

Tungsten West response

Tungsten West has not considered Goodamoor Farm as the site's closest receptor because a refusal of certificate of lawfulness for existing use of development (Appendix A) was issued to the occupants of Goodamoor Farm on the 12th August 2022.

