51M/Bucks/CDC Noise, Sound and Vibration Group

Noise Forum

Some Fundamental and Basic Considerations

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Two Fundamental Questions

1. How will noise be assessed ?
2. How much will it be mitigated ?

Is it a Noise ?

HS2 have entitled consideration of this potential environmental effect as Sound Noise and Vibration.

A **Sound** only becomes a **Noise** if it satisfies the basic criteria of there being a potential adverse effect upon a receptor. (para 14.1.2).

We could arrive at the situation where HS2 consider there will be no noise from the construction or operation of this line because their criteria of what constitutes an adverse effect is not breached.

The Metric Question ?

$L_{pAeq,T}$ or L_{pAF} max

Put more simply, should we be considering the noise exposure over the period of a day or the louder events of a single pass by.

After a huge amount of effort HS2 Ltd have now included Lmax as an input into the assessment methodology. (para 13.3.36)

Identification of sound impacts

A direct long term sound impact will be identified at a residential receptor where the proposed scheme causes absolute sound levels that are above the values of 50 dB L_{Aeq} by day or 40 dB L_{Aeq} by night.

Unless these absolute levels are exceeded No impact will be identified and the clear inference is that No Noise will be present.

If this first trigger is met then the next test of **either** a maximum sound level of $\geq$85 dB L_{Amax} **or** a change in the day or night equivalent continuous sound level as defined in table 33.

Thus two tests have to be met before the noise exposure of a residential receptor is even identified as being present.

Magnitude of an impact

If an impact is identified as being present than it will be this table that is used to quantify the impact. That is to say – to classify the subjective effect.

Table 33: Airborne sound from operational train movements - impact criteria[140]

Long term Impact Classification	Short term Impact Classification	Sound level change dB $L_{pAeq,T}$ (positive or negative) T = either 16hr day or 8hr night
Negligible	Negligible	≥ 0 dB and < 1 dB
	Minor	≥ 1 dB and < 3 dB
Minor	Moderate	≥ 3 dB and < 5 dB
Moderate	Major	≥ 5 dB and < 10 dB
Major		≥ 10 dB

What of LAmax ?

- If an impact is identified using the LAmax of slide 5 there is no indication in the EIA SMR of how the **Magnitude** of that impact will be quantified.
- It will be deemed to be present at ≥ 85 dB(A) but that would seem to be it.
- Does that mean that there is no impact at less than this value.
- At 85 dB(A) at the façade there would be a level of 70 dB(A) within the dwelling if windows were to be open.
- This level would intrude into any activity within a dwelling. Volume levels for radio or television would need to be raised significantly. Conversation would be difficult. Rest and relaxation would interrupted.

Significance of an effect

- So what is ‘adverse’ ?
- What is ‘significant adverse’

See paragraphs 14.3.31…….

There are 8 factors that would be used by HS2 Ltd to determine the degree of significance of the identified impact. None of these are presented with numerical guidance.

14.3.31

- Type of effect being considered
- The number and grouping of receptors subject to impacts
- The magnitude of the impacts and available dose-response information
- The existing sound environment in terms of the absolute level and the character of the existing soundscape
- Any unique features of the Proposed Scheme's sound or impacts in the area being considered
- The potential combined impacts of sound and vibration
- The duration of impact for temporary sources
- The effectiveness of mitigation through design or other means

MITIGATION

The EIA will identify mitigation measures that would help to avoid, reduce or, where appropriate, offset **significant adverse** effects.(para 2.3.4)

The significance of effects will be evaluated with reference to recognised standards and accepted criteria… where available. Where these are not available, professional judgement will be used to develop an appropriate approach to undertake a robust and appropriate assessment. (para 2.5.7)

Noise Policy and Guidance

WHO – World Health Organisation
NPPF - National Planning Policy Framework
NPSE - Noise Policy Statement for England
Relevant British Standards BS 4142
The Environmental Noise Directive (END)

The professional judgement of Local Authorities. The LPA adopted planning policies within the NPPF.

Are these authorities guiding the assessment or are the assumptions, measures, standards and conclusions of previous projects being taken as a baseline for HS2 ?

Can we now address our two questions ?

1 Don’t know.. We have indications as to whether it will be identified if a noise impact exists and to the magnitude of the impact but no measure of what constitutes a ‘significant adverse effect.

2 Don’t know… we do not even know without an answer to the first question whether a particular site will be mitigated.

Is there any relevant legislation ?

- The Noise Insulation Regulations of 1996.
- These require that for a dwelling to be eligible it has to be exposed to a level >68 dB(A) Leq daytime, and some other detail, when calculated using the method of Calculation of Railway Noise 1995.
- It is accepted by HS2 Ltd that CRN 1995 is not sufficiently robust to calculate the noise from rail traffic at the proposed line speed. Nor will it accommodate the increased source height of pantographs. It will need to be revised.

Where are we now.

- The EIA , by following the SMR, will seek to identify, quantify and mitigate the potential noise situation so as to inform the ES of any significant effects that remain. Significant effects can be positive or negative.

- At this point none of the factors that will inform these matters have been provided.

- At a CF meeting the HS2 representative clearly stated that mitigation would be provided as required by the Law.

Thank You