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7th April 2022

Tritax Symmetry
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Third Floor
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Manchester
M2 5HT

Dear Sir or Madam,

Re: Hinckley National Rail Freight Interchange

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Moving now to the first of the individual Chapters I will consider here, it looks as though your consultant, whilst seemingly being able to perform detailed simulations using standard acoustic packages, nevertheless makes simple errors that undermine the greater part of Chapter 10.

Chapter 10 Noise and vibration

I consider that procedures described in this Chapter variously lack rigour, are inappropriate and arrive at wrong conclusions.

In particular, I wish to draw your attention to the following key sections:

10.4 Baseline conditions

This section states that noise monitoring was conducted at just four positions, which are described in 10.76 as being “considered representative of NSRs”. Their locations are indicated in Figure 10.2. Despite a reference to Appendix 10.3, no further information seems to be available.

From Figure 10.2, it appears that three of the monitoring positions were by the side of the road, and just one was by the side of the rail track.

Rather disconcertingly, it appears that the single trackside monitor ML3 was placed close by Bridge Farm where it would be deep within a confining cutting, and just where trains are required routinely to sound their horns. From the information available, it may even have been placed by the roadside at the top of the cutting.

As the noise analysis develops in subsequent sections, the data from these sensors assumes great importance in the outcome of the study.

It therefore follows that a full and detailed description and justification is required of the practices that have been followed in the placing and use of the noise monitoring equipment, including the methods by which the four different noise parameters given in the Tables 10.17 to 10.20 were derived from the raw data.

10.5 Potential significant environmental effects of the proposals

10.5.1 Construction Phase

This section starts by stating that the noise at the NSRs (which are typically the affected dwellings) depends upon:

the local noise generated by the various items of the construction plant
the distance between the plant and the NSR
the noise attenuation due to ground absorption, air absorption etc.

Table 10.23 shows the results of the noise study simulations performed.

This study predicts noise levels at those NSRs that lie within 300 metres of the Main HNRFI Site that are extremely high, and quite unacceptable. Curiously, in 10.90 it completely excludes all NSRs that lie beyond 300 metres, the reason given being that such noise study results can be unreliable. In the light of the very high noise levels that were obtained for the closer NSRs, this is indefensible, and effectively disenfranchises many NSRs from the noise study. They should without question be included.

Valiant efforts are then made to bring down the noise study results. This includes the statement in 10.89 that “For the average case scenarios, the site preparation and foundation works could be associated with the proposed roads”. This unfathomable argument apparently suffices to reduce the noise study results by up to 25dB (that is, reduce the noise by a factor of around 300).

Sorry, but I’m not at all convinced by this, and much fuller explanation is required.
One useful further parameter that should be included in the description is the summed local noise of the various construction plant.

But there is also a colossal error in the Construction Phase noise study which I shall now describe.

Having settled upon the reduced values (the original extremely high ones being mysteriously rejected as ‘worst case’) the noise study indicates in Table 10.23 that the noise level at those NSRs that are within 300 metres of the Main HNRFI Site are in the order of 65dB.

10.91 then refers back to the noise monitoring values in Tables 10.17 to 10.20 and attempts to relate these directly with the noise study results in Table 10.23.

This is a gross error. The noise monitoring values in Tables 10.17 to 10.20 are noise values measured ***local*** to the trackside or roadside. They are not the noise values ***local*** to the NSR, and must not be used as such.

For clarity, and by way of example, NSR3 is located some 430 metres from the HNRFI site boundary, and therefore rather further from the track. When a train passes, NSR3 does not experience an L_{Amax} of 96dB! I should know, because I live there! That L_{Amax} of 96dB is **local** to the track!

With this accepted, your noise problem becomes a very great deal worse. The discussion offered in 10.91 to 10.97 and the conclusions drawn in them are all rendered invalid.

10.5.2 Completed Development

Noise Model

In broad terms, the Noise Model and noise study simulations for the Completed Development follow the same lines as those for the Construction Phase above.

Again, the noise at the NSRs (which are typically the affected dwellings) depends upon:

the local noise generated by the various sources at the operating site
the distance between the site and the NSR

the noise attenuation due to ground absorption, air absorption etc, with the buildings and topography of the Completed Development now factored in.

With regard to 10.105, the Noise Model and study should be broadened to include the Proposed Development in partially completed conditions.

The Proposed Development may take 10 years to be completed, and NSRs will therefore be subject to noise from the partially completed development for a very considerable period. Indeed, depending upon economic conditions and freight logistics, the Proposed Development may never be completed at all, so that the partially completed condition will become permanent.

Consideration should also be given to modelling with the Proposed Development partially completed in combination with ongoing construction work.

Tables 10.34 to 10.37 show the results of the Completed Development noise study simulations performed. They depict individual NSR levels, and collectively cover weekday, weekend, daytime and night time working.

10.120 then refers back to the noise monitoring values in Tables 10.17 to 10.20 and attempts to relate these directly with the noise study results.

This therefore repeats the gross error that was made in the Construction Phase noise study and which I described earlier with respect to 10.91. The only minor difference is that now the lowest calculated L_{A90}, values from Tables 10.17 to 10.21 have been taken, rather than the L_{Aequ} values taken in 10.91.

10.120 also unaccountably draws reference to an obsolete British Standard, BS 4142:1997, and in particular a section within it entitled “Method for rating industrial noise affecting mixed residential and industrial areas”. This is referred to in a footnote in Table 10.34.

In introducing this obsolete British Standard at this point, the study implicitly attempts to categorise all of the NSRs as already belonging to a “mixed residential and industrial area”. This is emphatically not the case and is an entirely inappropriate proposal.

Those familiar with the area will know that it is extremely quiet. The historic Elmesthorpe Land Settlement area is especially so, and is made up of farm land, interspersed with discrete residential properties having extensive gardens and grounds and dotted along two dead-end private, single-track roads. They are outstanding within the region for the seclusion and tranquillity that they offer.

The attempt this study makes to introduce this obsolete British Standard and apply it to these properties imposes a very significant noise degradation upon them which is wholly unjustified. Within this study, this is doubly true, since the study sets out to establish a “Background” level which will then immediately be subject to further noise degradation depending upon the results predicted by the noise study itself.

10.120 then goes on to conflate the two noise levels (these being respectively those from Tables 10.17 to 10.20 and those from the “Method for rating industrial noise affecting mixed residential and industrial areas” both of which I have already undermined). The description of how this was done in the study is both confused and confusing.

Finally the study arrives at ‘”Background L_{A90}” values that it lists in Tables 10.34 to 10.37. For the reasons I have already given, the ‘”Background L_{A90}” values the study shows in these tables are invalid.

Even with all of this going on, however, the results in Tables 10.34 to 10.37 indicate that the noise produced by the Completed Development will be high and quite unacceptable for a number of NSRs.

Perhaps predictably, the study then makes valiant efforts to “improve’” the results of the noise study. It does this by discovering ways in which the “Background” level (described in 10.120 and shown in Tables 10.34 to 10.37 as the “Background L_{A90}”) can somehow be increased. This is attempted in the next sub-section of the study, Context.

Context

This starts off with 10.130, which puts forward a curious and singularly weak argument concerning how the noise from the Completed Proposal will be viewed by NSRs in the context of the "Background" noise that we now hear. I am confident that NSRs who have had the Hinckley NRFI imposed upon them would be enraged far more by the noise it generates than by the existing "Background" which is largely birdsong, ducks, horses, Canada Geese and night time owls. Yes, context is indeed important!

10.132 then refers back to the noise monitoring values in Tables 10.17 to 10.20 and attempts to relate these directly with the noise study results.

Section 10.132 is extremely short and barely manages to outline what the study has done. However, scrutiny suggests that, for each of the NSRs, the closest noise monitoring location (ML1 through ML4 as appropriate) has been chosen to directly represent the noise level ***local*** to that NSR.

In effect then, 10.132 duplicates 10.120, except that in an effort to increase the 'Background' noise at the NSRs, it takes from Tables 10.17 to 10.20 not the lower L_{A90} value of 10.120 but instead the higher L_{Aequ} value. In doing so it manages to increase the "Background" at the individual NSRs by up to 26.3dB compared with those in Tables 10.34 to 10.37 (and which are themselves invalid).

These new and increased L_{Aequ} values are shown in Tables 10.38 and 10.39. Rather misleadingly, they are now, without explanation, relabeled as "Ambient Level"

Another way of looking at what has happened overall here is that in 10.132 the study follows almost exactly the same procedure that it did earlier in 10.91, which of course I have already explained is wrong. Both refer to and use the L_{Aequ} value from Tables 10.17 to 10.20. The only very minor difference is that 10.132 uses some **average** of the six weekday L_{Aequ} values and some **average** of the two weekend L_{Aequ} values listed day-by-day in the Tables 10.17 to 10.20.

Stripping away the fine detail then:

10.132 refers back to the noise monitoring values in Tables 10.17 to 10.20 and attempts to relate these directly with the noise study results in Table 10.38 and 10.39.

This is of course a gross error, for all the same reasons that I have repeatedly given before. The noise monitoring values in Tables 10.17 to 10.20 are noise values measured ***local*** to the trackside or roadside. They are not the noise values ***local*** to the NSR, and must not be used as such.

Once again, this means that the results shown in the Tables 10.38 and 10.39 are invalid, together with the dependent discussion in the remainder of the "Context" section.

Assessment of operational maximum noise levels

WHO Guidelines should not be resorted to to determine maximum noise levels.
As the WHO name implies, they are maximum permissible levels to avoid harm.
This noise study relates to the residents of a very quiet location, indeed extremely quiet in the tranquillity of the evening and night. These comments relate to:

10.143
Table 10.41
Table 10.56

A47 Link Road

The following Tables do not indicate how the "Magnitude of impact" has been derived.

The current noise values local to the NSR should be used to establish the “Magnitude of the impact”, and what is done should be made clear.

Table 10.48
Table 10.57

Gantry Cranes

Chapter 3 Project description, section 3.19 states:
“Up to four mobile gantry cranes up to 28 metres in height and with a span of up to 40 metres are proposed. The cranes **would run under electric power on rubber tyres** to assist quiet operation”.

Sections 10.240 and 10.241 should therefore be deleted, and section 10.242 amended appropriately. The writer of the study appears to be unfamiliar with the subject matter he is discussing. Diesel Powered Gantry Cranes should not be considered a viable option.

Cumulative and Combination Effects

In this noise study, the effects of Construction, Operation and Road Traffic Noise have been considered separately.
Their combined overall effect should also be investigated.

Other Knock-On Effects

The following Tables replicate the noise values that were derived and shown in Tables 10.34 to 10.37. They are therefore invalid, for the reasons I have given earlier:

Table 10.42
Table 10.50
Table 10.51
Table 10.52
Table 10.53

The following Tables replicate the noise values that were derived and shown in Tables 10.38 and Table 10.39. They are therefore invalid, for the reasons I have given earlier:

Table 10.54
Table 10.55

Overall then, it appears that your Consultant BWB has made several elementary errors that are evident even from the basic description provided in Chapter 10. Each of these errors has the effect of greatly underestimating the noise profile of your Hinckley NRFI.

This is very concerning, because at the other end of the scale, simulation modelling is by its very nature relatively involved, requiring the best personnel having full access to in-house facilities and exercising great care.

That these apparent mistakes have happened now does not bode at all well for the accuracy and credibility of any revised study that may subsequently emerge.

I note too that some earlier work performed elsewhere by quite another Consultant, RPS, who presumably have no contractual relationship with Tritax HRFI, has been imported into this present Hinckley NRFI study, and has been used on trust and without further scrutiny.

Residents should not find themselves in a gravely degraded and continually noisy Elmesthorpe.

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Yours Faithfully,

Dr David Moore.

MA (Cantab) PhD

David Moore is a Chartered Engineer, and a Fellow of the Institution of Mechanical Engineers. He has some 25 years experience in Industrial Design Consultancy. Clients have included 3M, Procter & Gamble, London Underground, Johnson & Johnson, Monsanto, DePuy, AstraZeneca, Reckitt, Sanofi and Alstom. Now retired, his technical interests include Mechanical Design, Mathematical Modelling and Digital Signal Processing.