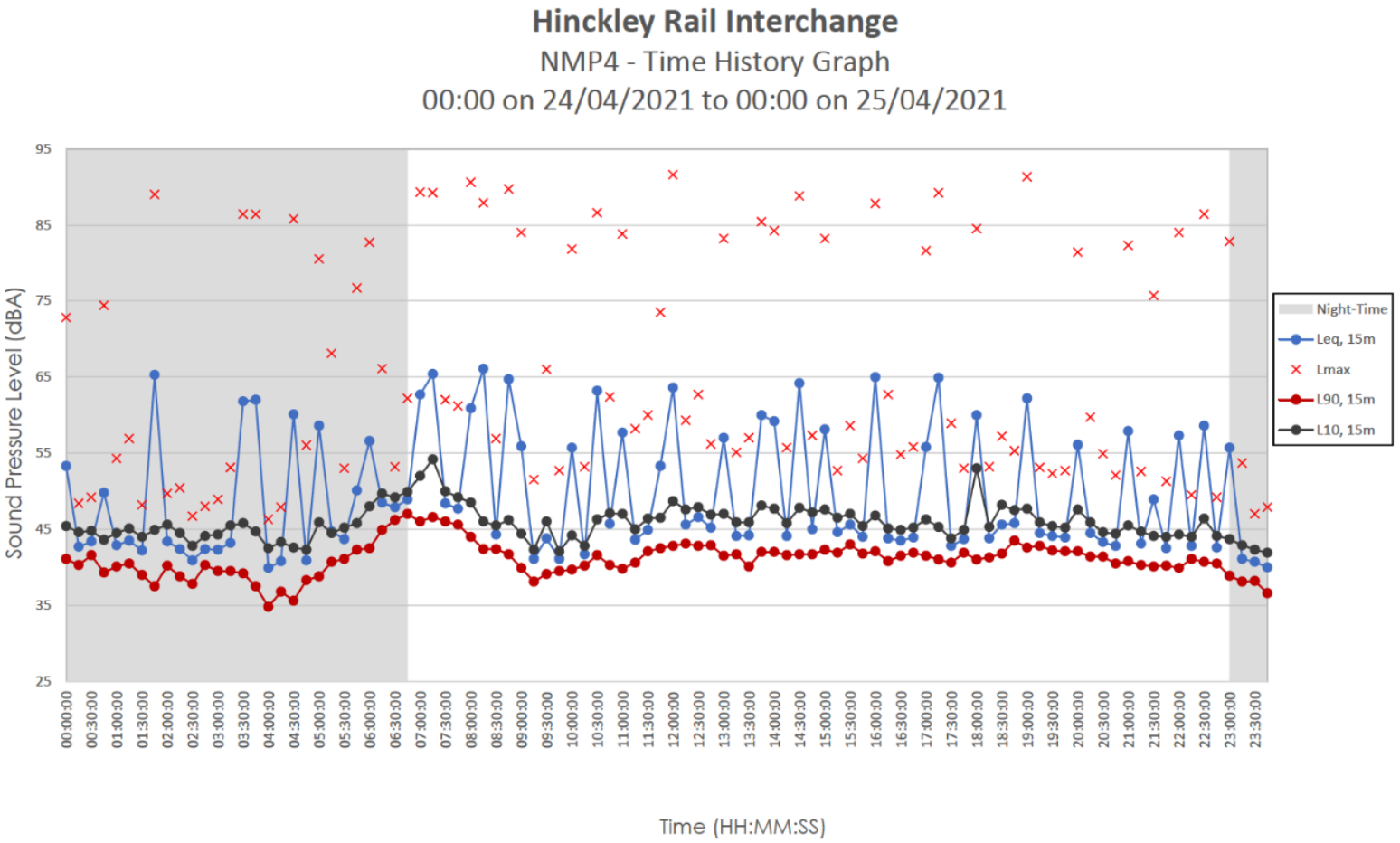
Response to the Applicant's Noise Assessment Update Note by William David Moore

The applicant has submitted a document titled Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note]. In a roundabout way, the applicant's document attempts to justify the absence of attenuation corrections to the sound of train pass bys measured by NMP4.

Rail noise dominates NMP4's ambient sound levels

The ambient sound levels measured by NMP4 are utterly dominated by sound of extremely close proximity train pass bys with far lower sound levels when trains aren't passing by, i.e. almost all the time. Overwhelming evidence of this is contained within the summary results pages for NMP4, as explained below in points 1-4. An example summary results page is included in Figure 1, below.

Figure 1:



1. The LAeq sound levels repeatedly spike up and down throughout the daytime and night-time by ~15-20 dB from the low-mid forties, up to 55-65 dB. These spikes are caused by the sound of extremely close proximity train pass bys. Distant road noise would not cause these repeated spikes.

2. If these high LAeq sound levels were caused by the distant road noise we would always see the LA10 levels spiking along with the LAeq levels, but we don't because they're caused by train pass bys and train pass bys are inherently brief.

3. If these spikes were caused by changes in the distant road noise, we would see significant changes up and down in LA90 levels, but we don't because they're caused by train pass bys and train pass bys are inherently brief. This is why there's a gap of 20 dB between the weekday daytime background sound level in the report and the weekday daytime ambient sound level in the report. The train pass bys have no impact on the measured background sound levels, which contain the distant road noise. This is why NMP4's measured background sound levels can simply be copied to NSRs 1-8 & 24-26.

4. The spread between the LA90 levels, LAeq levels, and LA10 levels is very tight in those 15 minute periods which don't contain spikes in LAeq levels. This is because these time periods are dominated by the distant road noise in the low-mid forties dB. The gap between the LA90 levels and the LA10 levels remains stable during periods with spikes in LAeq levels because the distant road noise is stable.

We end up with weekday daytime ambient sound levels used in the report for NMP4 of almost 60 dB, which are then applied to NSRs 1-8 & 24-26. This isn't because of distant road noise, it's because of the sound of extremely close proximity train pass bys.

The applicant's perverse response

The applicant hasn't attempted to mount any direct technical defence of the failure to apply attenuation corrections to the measured sound of train pass bys. There is no attempt to claim that the sound of the train pass bys measured ~12 metres from the railway line are the same at the NSRs. Instead, the applicant attempts to introduce two new, "indicative" contours, neither of which are levels measured on the ground.

No one asked the applicant to do this and there was no reason for the applicant to do this. The sound levels measured by NMP4 are not - and never have been - in dispute. The applicability of the measured levels to NSRs 1-8 & 24-26 is not in dispute, with the exception that attenuation corrections need to be applied to the measured sound of train pass bys. The applicant has repeatedly been made aware of this, and has had almost two years since the PEIR consultation to correct the problem.

The applicant makes claims about road noise at the NSRs and tries to use this to justify not attenuating NMP4's train pass bys

The applicant is now attempting to claim that the ambient sound levels at NSRs 1-8 & 24-26 are 56.2 dB during the daytime and 54.8 dB during the night-time, **dominated not by rail noise, but by road noise** of 55 dB during the daytime and 53 dB during the night-time. The claimed rail noise is 50 dB. Presumably these claimed noise levels apply to both weekdays and weekends. This is the first time the applicant has ever acknowledged rail noise attenuation.

Knowingly or not, the applicant is attempting to argue that no attenuation corrections need to be applied to NMP4's rail noise dominated ambient sound levels, because the applicant's

road noise contours supposedly show the area experiencing sort of similar road noise levels to NMP4's rail noise dominated ambient sound levels. Think it through, it's an intellectually incoherent position.

There is voluminous evidence that the applicant's road noise contours overstate road noise levels versus those measured by NMPs and should not be used in lieu of NMP measurements

1. The applicant's own report states that the applicant's road noise model's sound levels are in excess of those measured by NMPs, as shown in the report's Table 10.51 and Paragraphs 10.226-10.228. For the purposes which the applicant was using their road noise model for at that time, that may have meant a robust assessment case. However, if the applicant attempts to use their road noise model to make definitive claims about ambient road noise levels, then the applicant's model doesn't present a robust assessment case, simply an incorrect one. The applicant was aware of that.

    > 1.1. The applicant's operational noise assessment uses the lowest day of background or ambient sound levels measured during each time period. Table 10.51 doesn't use the lowest day, which means the difference between the predicted level and the day with the lowest level is greater than the differences shown in Table 10.51. E.g. The difference at NMP1 for the daytime would be the predicted level (59 dB in Table 10.51) minus the lowest daytime level (53.6 dB in Table 10.43). This difference is 5.4 dB, greater than the 3 dB difference between predicted and measured sound levels in Table 10.51.

2. NMP4's Saturday night-time measurements (which the applicant wrongly expunged) had ambient sound levels **due to all sources of sound** of 44 dB, as shown in the report's Table 10.23. This is 9 dB below the night-time ambient sound level which the applicant is now attempting to ascribe to NSRs 1-8 & 24-26 **purely due to road noise** during night-time periods.

3. The applicant is attempting to claim that daytime ambient levels due to road noise are 16 dB above the weekday background sound levels, as shown in Table 10.55. As explained at the beginning of this document, the distant road noise generates a very small gap between the background sound level and the ambient sound level.

4. The applicant is attempting to claim that ambient sound levels at NSRs 1-8 & 24-26 **purely due to road noise** are higher than the weekday ambient sound levels used in the report for NSRs 9-11, as measured by NMP1, located ~300 metres from the M69. These lower ambient sound level figures for NSRs 9-11 are shown in the report's Table 10.43. The levels in the PEIR noise report were even lower.

5. The applicant's road noise contour map is incompatible with the DEFRA road noise contour maps, which show road noise sound levels in the area below 55 dB LAeq (the lowest displayed threshold) during the day and below 50 dB LAeq (the lowest displayed threshold) at night. An example has been included in Figure 2 at the end of this document.

6. Distant road noise sound levels vary significantly due to different wind directions, wind speeds and other meteorological conditions. Sound levels measured by NMPs reflect these variations.

7. Road and rail (particularly rail) activity can vary significantly during different days. Sound levels measured by NMPs reflect these variations.

8. Contour maps give indications at a height of 4 metres, not the 1.5 metres measured by NMPs and used for the BS 4142 assessment.

What needs to happen to resolve this problem

The applicant needs to be returned to the measured sound levels at NMP4 and the applicant needs to apply attenuation corrections to the measured sound of train pass bys to generate ambient sound levels at NSRs 1-8 & 24-26 during weekday daytimes, weekday night-times, weekend daytimes and weekend night-times.

The situation at NMP3 and NSR 19 (Burbage Common & Woods) is very similar to the situation at NMP4.

As an aside, the applicant has made a mess of Table 5 in their update note. NSRs 2, 3 & 4 aren't on Billington Road East but have been included in the table. It's disturbing but unsurprising that we are two months away from the end of the examination period and the applicant still isn't familiar with the basic matters at hand.

There are other problems with the applicant's document but I have to draw the line somewhere. I'll await answers to the Examining Authority's questions.

Figure 2, DEFRA LAeq dB Daytime (0700-2300) road noise contours: