

Sound Measurements Which Refute the Applicant's Ambient Sound Claims by William David Moore

A consultant, who is a member of the Institute of Acoustics, was contracted to undertake sound measurements and produce a report.

Due to limitations of weather suitability, consultant availability, and cost, the measurements were for a 24-hour period.

The measurements were recorded at the location 52.557018° N, 1.321985° W. The resulting report has been submitted to the Examining Authority alongside this document as "Billington Lakes Noise Measurements 26th Feb 24 V2".

This measurement location was chosen for two reasons:

1. The location is in the vicinity of various NSRs associated with the applicant's NMP4, those being NSRs 1-8 & 24-26. NMP4 is shown in [Figure 10.2](#). NSRs 1-8 & 24-26 are shown in [Figure 10.1](#).
2. The location is within the claimed rail and road noise contours introduced in the applicant's [Written Statement of Oral Case ISH3 \[Appendix F - Noise Assessment Update Note\]](#).

The location is shown on the map below.



Rail movements were normal on the measured days, Realtimetrains data has been submitted alongside this document as “16th and 17th February 2024 Hinckley Realtimetrains by William David Moore”

The measurements recorded 98 periods of 15 minutes, which is greater than the 96 during a 24 hour period. As a result, the first and last time periods have not been included in calculations.

In terms of the night-time, logarithmically averaging the LAeq levels gives a night-time LAeq of 47.1 dB.

In terms of the daytime, one 15 minute time period recorded an LAeq level which was 9.7 dB above any other time period during the daytime or night-time. The period also had an LAFmax level of 92.3 dB. The LA10 level was in line with other time periods.

This was likely caused by a natural sound in close proximity to the microphone. This was regarded as an outlier and was replaced by an LAeq level equal to the logarithmic average of the LAeq levels of the preceding and subsequent 15 minute time periods.

Logarithmically averaging the LAeq levels gives a daytime LAeq of 47.9 dB.

Part 1 - The Applicant's NMP4 Measurements

The applicant measured sound levels at NMP4. The applicant then applied the ambient sound levels measured by NMP4 to NSRs 1-8 & 24-26. I am now going to compare the ambient sound levels measured by NMP4 against the ambient sound levels measured at 52.557018° N, 1.321985° W.

Night-time

The weekday night-time ambient sound levels measured by NMP4 ranged from 56.2-60 dB.

The **lowest** weekday night-time ambient sound level measured by NMP4 and attributed to NSRs 1-8 & 24-26 in the applicant's noise report was 56.2 dB, as shown in Table 10.43 on page 80.

The weekday night-time ambient sound level measured at 52.557018° N, 1.321985° W was 47.1 dB.

The level measured at 52.557018° N, 1.321985° W is 9.1 dB below the **lowest** level measured during the same time period by NMP4.

This is summarised in the table below.

Range of NMP4 Measurements (Weekday Night-times)	52.557018° N, 1.321985° W Measurement (Weekday Night-time)	Overstatement by the applicant
56.2-60 dB	47.1 dB	9.1-12.9 dB

Daytime

The daytime ambient sound levels measured by NMP4 from Monday-Saturday ranged from 58-60 dB.

The **lowest** weekday daytime ambient sound level measured by NMP4 and attributed to NSRs 1-8 & 24-26 in the applicant's noise report was 59.2 dB, as shown in Table 10.43 on page 80.

The Saturday daytime ambient sound level measured by NMP4 was 58 dB, as shown in Table 10.23 on page 48.

The Friday-Saturday daytime ambient sound level measured at 52.557018° N, 1.321985° W was 47.9 dB.

The level measured at 52.557018° N, 1.321985° W is 10.1 dB below the **lowest** level measured during the same time period by NMP4.

This is summarised in the table below.

Range of NMP4 Measurements (Monday to Saturday Daytimes)	52.557018° N, 1.321985° W Measurement (Friday to Saturday Daytime)	Overstatement by the applicant
58-60 dB	47.9 dB	10.1-12.1 dB

Summary

I would emphasise that I am not saying the ambient sound levels measured by NMP4 are incorrect, but that directly copying them to NSRs 1-8 & 24-26 is grossly inappropriate.

The reason for the large discrepancies in ambient sound levels between NMP4 and 52.557018° N, 1.321985° W is one I have repeatedly explained throughout the examination process. NMP4 recorded ambient sound levels ~12 metres from the railway line. The applicant didn't attenuate the measured sound of the train pass bys to the NSRs.

This discrepancy won't surprise anyone who has paid attention to my written submissions and oral statements throughout the examination process.

The consequences of this failure for the applicant's noise report are profound.

Part 2 - The Applicant's Noise Assessment Update Contour Claims

Following repeated submissions by interested parties on the applicant's overstatement of ambient sound levels at the NSRs, the applicant eventually responded by releasing [Written Statement of Oral Case ISH3 \[Appendix F - Noise Assessment Update Note\]](#). In this update note, the applicant made various ambient road and rail contour claims. I am now going to compare those contour claims against the ambient sound levels measured at 52.557018° N, 1.321985° W.

Night-time

The location 52.557018° N, 1.321985° W is within the 50-54.9 dB ambient rail noise contour in Figure 2.

The location 52.557018° N, 1.321985° W is well within the night-time 52-53.9 dB ambient road noise contour in Figure 4.

According to the applicant's Noise Assessment Update Note, the area experiences a cumulative 54.8 dB of night-time ambient sound due to rail and road noise, as shown in Table 4.

But the measured ambient night-time level of 47.1 dB is 7.7 dB below the level predicted by the applicant's noise contours.

This is summarised in the table below.

Time Period	Applicant's Noise Contours (All Night-times)	52.557018° N, 1.321985° W Measurement (Weekday Night-time)	Overstatement by the Applicant's Noise Contours
Night-time	50.0 + 53.0 = 54.8 dB	47.1 dB	7.7 dB

The night-time rail and road noise contour claims in the applicant's Noise Assessment Update Note are wrong.

Daytime

The location 52.557018° N, 1.321985° W is within the 50-54.9 dB ambient rail noise contour in Figure 2. See the applicant's comment under Figure 2 within the Update Note.

The location 52.557018° N, 1.321985° W is well within the daytime 54-55.9 dB ambient road noise contour in Figure 3.

According to the applicant's Noise Assessment Update Note, the area experiences 56.2 dB of daytime ambient sound due to rail and road noise, as shown in Table 4.

But the measured ambient daytime level of 47.9 dB is 8.3 dB below the level predicted by the applicant's noise contours.

This is summarised in the table below.

Time Period	Applicant's Noise Contours (All Daytimes)	52.557018° N, 1.321985° W Measurement (Friday to Saturday Daytime)	Overstatement by the Applicant's Noise Contours
Daytime	50.0 + 55.0 = 56.2 dB	47.9 dB	8.3 dB

The daytime rail and road noise contour claims in the applicant's Noise Assessment Update Note are wrong.

Summary

The reason for these large discrepancies in ambient sound levels between the applicant's noise contours and measurements at 52.557018° N, 1.321985° W is one I have repeatedly explained throughout the examination process. The applicant's road and rail contours predict ambient sound levels which are significantly higher than those measured by the applicant's own NMPs.

This discrepancy won't surprise anyone who has paid attention to my written submissions and oral statements throughout the examination process.

The consequences of this for the applicant's noise report are profound.

Part 3 - Impact on the Applicant's Rating Penalty Decisions

The applicant hasn't disclosed any methodology behind rating penalty decisions, other than saying the subjective method has been used.

The applicant has attributed the ambient sound levels measured by NMP4 to the NSRs associated with NMP4. Those current ambient sound levels are wildly overstated.

The applicant's responses to my submissions on rating penalties indicate the applicant's rating penalty decisions for NSRs 1-8 & 24-26 are likely based on an average of all the ambient sound levels measured by NMP4.

Which explains why, in the pre-mitigation scenario, the same rating penalties are applied in all time periods, despite different ambient sound levels having been measured during different time periods.

In the post-mitigation scenario, the applicant has not applied any rating penalties to the projected specific sound levels at any NSR during any time period.

The applicant's rating penalty decisions are wrong. The overstated current ambient sound levels were likely used in the applicant's rating penalty decisions.

This won't surprise anyone who has paid attention to my written submissions and oral statements throughout the examination process.

The consequences of this for the applicant's noise report are profound.

Part 4 - Cumulative Impact on the Applicant's Context Sections

The applicant's operational noise assessment initially compares projected rating levels against current background sound levels. In the **post-mitigation** scenario, this leads to permanent, major adverse impacts at NSRs during all time periods, as shown in Paragraphs 10.291, 10.293, 10.295 & 10.297. This is despite the absence of rating penalties.

The applicant then applies their "context". This involves the applicant comparing the current ambient sound levels attributed to the NSRs with the projected rating levels at the NSRs during different time periods.

The applicant has used those calculations to adjust major adverse impacts down to minor adverse impacts.

The current ambient sound levels attributed to the NSRs in the applicant's report during different time periods are wrong.

The projected rating levels attributed to the NSRs in the applicant's report during different time periods are wrong.

The applicant has performed calculations using two sets of incorrect numbers.

The applicant's "context" sections are completely wrong and are worse than worthless, they are actively conveying false information which the applicant has used to make incorrect adjustments to their BS 4142 assessment.

This won't surprise anyone who has paid attention to my written submissions and oral statements throughout the examination process.

The consequences of this for the applicant's noise report are profound.

Part 5 - Other Information

1. The location 52.557018° N, 1.321985° W is within the applicant's rail contours. None of the NSRs in the applicant's Noise Assessment Update Note are within the applicant's rail contours, so the rail noise at those NSRs would be lower.
2. Other NSRs associated with NMP4 - e.g. NSRs 1 & 2 - are located in lower road noise contours within the applicant's road noise contour map, so the ambient road noise at those NSRs would be lower than the levels measured at 52.557018° N, 1.321985° W.
3. The measurements at 52.557018° N, 1.321985° W did not measure the periods with the lowest train activity, those being Saturday night-time and Sunday daytime. Measurements during those periods would be lower due to far lower train activity on the railway line.
4. The measurements at 52.557018° N, 1.321985° W did not just measure rail and road noise, but all sound. The location included significant sound from natural sources, including songbirds in trees and bushes and waterfowl on the lakes. The rail and road noise alone would be lower.
5. The measurements at 52.557018° N, 1.321985° W measured just one 24-hour period. The applicant's measurements at NMP4 measured a whole week and used the lowest day during each time period. Measuring over a longer time period at 52.557018° N, 1.321985° W would lead to lower sound levels.

This document has focused on NMP4 and its NSRs.

However, there is exactly the same problem with NMP3 and its NSR 19 of Burbage Common & Woods.

The applicant has used the ambient sound levels measured by NMP3 in extremely close proximity to the railway line, leading to weekday daytime ambient sound levels of 57.4-60 dB.

The applicant has subsequently claimed that moving ~80 metres from the railway line causes some kind of dramatic increase in the distant road noise, so the measured sound of the train pass bys shouldn't be attenuated to the NSR location. The applicant's claim is not credible.

There is also the same problem with the tranquillity assessment of Burbage Common & Woods.

The applicant has performed calculations using the ambient sound levels measured by NMP3 in extremely close proximity to the railway line.

Conclusion

The applicant's noise assessments are built on a catastrophic foundational failure.

I explained this to the applicant during the PEIR consultation in April 2022, here is an excerpt:

“When the report is projecting noise from possible sources in the future e.g. A47 link road, construction or gantry cranes, great effort is unsurprisingly put into calculations to estimate the extent to which the noise would be lower at NSRs due to distance and in place mitigation. Dramatic drops are estimated with individual estimates prepared for each NSR.

Similar calculations clearly haven't been performed to estimate to what extent the noise measured at ML3, directly adjacent to noise sources, is lower at NSRs due to distance and in place mitigation.”

The applicant should never have made such self-serving errors in the first place, but at the very least they should have been corrected after the PEIR.

Instead, **despite having been told what they were doing wrong and why it was so damaging**, the applicant's submission to the Planning Inspectorate fully replicated the self-serving errors.

I explained the problem to the applicant on pages 2-4 of my [Written Representation](#) at Deadline 1, here is an excerpt:

“The consequences of this failure cascade through the report, creating an absolute rabbit warren of incorrect numerical values, statements, analysis and conclusions. This is a particularly acute problem due to the attitude with which the report later approaches contextualisation within BS 4142.

*In the eyes of the report, the stated current LAeq levels at NSRs become **extremely** important - to the point of being exclusively important - in determining the impact of the proposals. It's all predicated on LAeq numbers which are wildly overstated because they are not and have not been made to be representative through application of attenuation corrections to train pass bys.”*

The problem has been explained to the applicant at every Deadline since then.

The problem was explained at oral hearings. Here is an excerpt from [my statement at Open Floor Hearing \(OFH2\)](#):

“The noise and vibration report arrives at existing ambient sound levels at NSRs which can only be correct if trains are passing immediately outside the front door of each NSR. But of course they aren't, and those existing ambient sound levels in the noise and vibration report are wrong.”

The problem has been explained to the applicant again, and again, and again.

The applicant has spent the examination period variously: ignoring, denying, obfuscating and attempting to distract from something which is so obviously completely wrong.

It has only been necessary to prove the applicant wrong by organising and paying for professional noise measurements because the applicant's behaviour over the last six months has been so appalling.

The applicant should have provided an accurate, impartial assessment. The applicant has determinedly done exactly the opposite.