Comments on the Applicant's Response to my Deadline 8 Submission - by Dr David Moore.

Part 1 of 3 - Supplementary Summary

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Unique Reference Number: 20040614

I here make my Comments upon the Responses made by the Applicant. I have used "Tritax" to refer to both the contents of the Applicant's Responses and to the contents of the Applicant's Environmental Statement.

In all that follows, all references to distances from the trackside refer to the distance from the Nearside Railhead.

Introduction

Firstly, by way of explanation, Dr David Moore and Mr William Moore are two distinct Interested Parties. I have not followed Mr William Moore's submissions at any level of detail, nor has he followed mine. The sole significant interchange has been that I passed on a copy of the Acoustics Report that I had commissioned from Noise Survey Ltd to Mr William Moore, and we both included it in our own individual submissions.

As you are likely aware, as the Examination Period drew towards its close, the Examining Authority invited Interested Parties to submit at the final Deadline 8 a "Summary and Signposting" document that would outline to both the Examining Authority and the Department for Transport what their own involvement in the Examination Process had been and the major issues that were still in dispute.

Accordingly, at Deadline 8 I submitted my own "Summary and Signposting" document, along with the recently-arrived Noise Survey Ltd report that I mentioned above, together with other supportive documents I had prepared for consideration by the Examining Authority.

I had been awaiting the Noise Survey Ltd report for several weeks, but it had been repeatedly delayed by unsuitable weather conditions in January and early February, and only became available to me a few days before Deadline 8, leaving me only just enough time to prepare the accompanying documentation before submission.

I think that, for both the Examining Authority and for Tritax, the receipt of these documents must have come as a shock. For here were Noise Measurements that flatly contradicted the Noise Climate that Tritax had proposed as the cornerstone of their Noise and vibration report. And, being direct Noise Measurements, they were extremely difficult to refute.

In their subsequent Examiner's Report, the Examining Authority made clear they had not considered the Deadline 8 submissions from me or from Mr William Moore in the preparation of their Report.

It is my understanding that it now falls to the Department for Transport themselves to examine the Deadline 8 submissions from myself and from Mr William Moore as Interested Parties, together with the Responses subsequently made by Tritax, and also such Comments on Responses that Mr William Moore and I submit to you in our turn.

This being so, it may be unclear to the Department for Transport how these Deadline 8 submissions, and the subsequent Responses and Comments made, relate to Tritax's Application. And obviously, the "Summary and Signposting" that I submitted at Deadline 8 was not written with these present circumstances in mind.

Accordingly, I have included a "Supplementary Summary" section below that I hope sets the broader scene and will be of some help.

Supplementary Summary

For me, all these matters really began on the 3rd April 2022, when I first read Tritax's "Hinckley NRFI PEIR Chapter 10: Noise and vibration" report, and it was immediately apparent that it was fundamentally flawed. Because Tritax had conducted Ambient Noise measurements at Noise Monitoring Positions (NMPs or MLs aka "microphones") located very close to the trackside (or roadside). And then they had directly applied those very same measured Ambient Noise levels to Noise Sensitive Receptors (NSRs aka "dwellings") that were up to 400 metres away from the track! Moreover, Tritax's report did not indicate how far their NMPs had been placed away from the track, even though this would obviously directly affect the Ambient Noise Levels that Tritax had measured.

Further, Tritax had not used the Background Noise levels that they had measured at the NMPs to characterise the NSRs (as is done almost without exception in other Noise and vibration reports). Instead, they had used the (very much higher) Ambient Noise levels that they had measured at the NMPs very close to the trackside and that, as I have already described, they had directly applied to NSRs even though they were very distant from the tracks!

Accordingly, I replied to Tritax with my "Tritax Consultation Response" letter of the 7th April 2022. This drew Tritax's attention to both of these matters in some detail, and pointed out that, taken together, these two errors gained Tritax an advantage of 26.3dB and had the effect of invalidating the whole of the remainder of their report. I also advised that the distances at which the Noise Monitoring Positions had been placed away from the trackside/roadside should be indicated, as it would directly affect the Noise levels they had measured. Tritax did not reply.

Matters progressed further on the 17th April 2023, when I read Tritax's "Hinckley NRFI ES Chapter 10: Noise and vibration" report, which I was surprised to find was essentially unchanged from their earlier PEIR Document.

This time, my Response was in the form of my Deadline 1 submission, which comprised some five documents in all. My main submission document, "Written Representation to the Examining Authority" ran to some 38 pages, and included 12 Sections, of which, *for these present purposes*, Sections 1, 2 and 5 are the most important. In Section 2, I drew Tritax's attention to my earlier PEIR "Tritax Consultation Response" letter. And in Sections 1 and 5 I clearly restated, in much greater detail, the two major issues that I have just outlined above, and emphasised that their Noise and vibration report would be invalid if they continued with their present approach. I also requested again that Tritax should state the distance of their Noise Monitoring Positions from the trackside, which from various considerations I had surmised to be just 12 metres away.

To make these five submissions as accessible as possible, I used the very minimum of technical terms. And, where appropriate, I gave a little bit more in the way of explanation to try to make matters clear.

Tritax's Comments to my Written Representation were submitted at Deadline 2, in their "Applicant's Comments on Written Representations [Part 4 of 4 Residents Businesses]" document. Only three pages related to Noise and Vibration, of which half just listed issues raised, and the other half simply repeated what Tritax had already said in their Noise and vibration report. There was no reference to me, nor was there any engagement with the matters I had raised.

Undaunted by this, at Deadline 3 I submitted my "Comments on the Applicant's Response to Written Representation" document. This ran to 23 pages and was formatted in the same 12 Sections that I had used for my Deadline 1 document.

I described that Tritax had made no meaningful Comments in their reply to my Written Representation. And, in my new Sections 1 and 5, I provided a yet more detailed description of those same two errors that Tritax had made in their Noise and vibration report, and emphasised that they would both invalidate Tritax's Noise and vibration report.

Some two weeks before that Deadline 3 submission, I had made an Oral Submission at Open Floor Hearing 2, in which I voiced the above failures in Tritax's Noise and vibration report, and the profound effect they would have upon its results. I also beseeched the Examining Authority, in the strongest possible terms, to get Tritax's report and my Written Representation in front of somebody with a strong technical Acoustics background in order to settle these matters.

My Open Floor Hearing submission was well received, with applause from the audience. I think that, largely to defend against this, Tritax produced a "Noise Assessment Update Note" which they submitted shortly afterwards at Deadline 3.

Tritax responded to my Deadline 3 "Comments on the Applicant's Response to Written Representation" document in their Deadline 4 submission "Applicant's Response to deadline 3 submissions [Part 9 – Noise]". In their response to my Sections 1, 2 and 5, Tritax simply now made reference to their "Noise Assessment Update Note". Tritax also Responded to a number of Written Questions posed by the Examining Authority by oblique reference to this same "Noise Assessment Update Note".

You will see that by the time the Deadline 4 submissions were published on the 12th January 2024, we had already proceeded four months into the Examination Period, leaving just two months remaining. And within those two months, time needed to be allowed for Interested Parties to submit their Responses to the submitted documents that were already in play, and then in turn to submit their own Comments to the Responses they would receive back!

Also, amongst the many other documents, there was now the "Noise Assessment Update Note" in play too. In this, Tritax presented some additional data concerning the Noise Climate, which they described as agreeing with, and so supporting, their Noise and vibration report.

Essentially, Tritax's "Noise Assessment Update Note" introduced Rail Noise and Road Noise data from two different sources. The Rail Noise data was in the form of screenshots taken from the online Extrium "England Noise and Air Quality Viewer" of the DEFRA "Round 2" Rail Noise data. The Road Noise data was in the form of a Noise Map indicating predictions from Tritax's own internally-generated Road Noise Model in respect of HNRFI.

Though rather indirect, the obvious way of Responding to Tritax now was to examine and Respond to their "Noise Assessment Update Note".

Accordingly, at Deadline 5 I submitted my "Comments on the Applicant's Responses to the Examining Authority's Written Questions" document.

In that document I pointed out that Tritax had already directly measured the Noise levels at Noise Monitoring Positions NMP3 and NMP4 in a very detailed manner over an extended period of seven days. And that from these measurements the **Rail** Noise levels could (very accurately and reliably) be established by simple reference to CRN "Calculation of Railway Noise". And that the Extrium Rail Noise data which Tritax had now adopted in their "Noise Assessment Update Note" was approximately 12dB higher (and rather more at Night-Time) than was indicated by their own NMP3 and NMP4 measurements!

I also described that the Noise level measurements at Noise Monitoring Positions NMP3 and NMP4 also provided **Road** Noise measurements at those locations too. And that the Road Noise Map that Tritax had now adopted in their "Noise Assessment Update Note" was approximately 13dB higher than was indicated by their own NMP3 and NMP4 measurements. Unfortunately, however, the Road Noise Map Tritax had chosen to provide in their "Noise Assessment Update Note" was of very limited geographical extent and so did not cover either NMP3 or NMP4. And this prevented direct comparisons being made at the NMP3 and NMP4 locations themselves.

While I was preparing my Deadline 5 submission, it became increasingly apparent to me that nothing might really came of this submission, because I had eventually realised that, perhaps even from the very start, and particularly in respect of any technical matters, the Examining Authority had not understood a great deal of what I had already submitted. And that probably the only way to be properly heard was to put in front of them firm numbers highlighting contradictions that would demand further investigation.

In respect of my Deadline 5 submission though, I was very sure of my ground, and so I resolved to have Noise Measurements performed that would highlight very large discrepancies between Rail Noise levels and Road Noise levels measured directly on the ground and the Rail Noise Levels and Road Noise levels in Tritax's "Noise Assessment Update Note".

There was only a month or so left, but I commissioned the measurements, and managed to submit the Noise Survey Ltd report and my supporting documents at Deadline 8.

My Deadline 8 submissions described Noise Measurements I had commissioned at a location known as "Billington Lakes". I had chosen that location because it would provide both Rail Noise data and Rail Noise data in a single measurement at a single location. And the location I chose would also allow direct comparison with *both* the Rail Noise data *and* the Road Noise data presented in Tritax's "Noise Assessment Update Note" at that same location, because (unlike NMP3 and NMP4), the measurement location lies within the very limited geographical confines of the Road Noise Map that Tritax had provided in their Update Note.

As described in the Examiner's Report, both the Rail Noise and Road Noise levels at Billington Lakes were very much lower than those presented in Tritax's "Noise Assessment Update Note". And this, together with the lateness of the hour, caused the Examining Authority to pass these matters to the Department for Transport.

Finally here, I return to the issue of the actual positions, in terms of distance from the trackside and roadside, that Tritax had placed their Noise Monitoring Positions NMPs. In their Noise and vibration

report, in contradiction to the requirements of BS4142, Tritax had not indicated the distance from the trackside or roadside at which their Noise Monitoring Positions had been located, and without that information those measurements remained uncalibrated. As I described earlier, I had surmised that the trackside NMPs NMP3 and NMP4 had been placed at 12 metres from the nearside rail head. I had used this assumed distance of 12 metres in the calculations I had included in my submissions, in which I had repeatedly requested that Tritax should state this distance. In the event, it was not until the Examining Authority posed a direct Examiner's Question to them that Tritax eventually provided confirmation at Deadline 5 on the 9th February 2024.

The Examination References of most, if not all, of the documents I have mentioned above are indicated on the final page of my "Signposting and Summary" [REP8-047] document.

Please proceed now to Part 2 of my submission.

Dr David Moore

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, GSK, London Underground, Johnson & Johnson, Ricardo, Monsanto, DePuy, AstraZeneca, BAE Systems, Unilever, Reckitt, Sanofi and Alstom. Now retired, his technical interests include Mechanical Design, Mathematical Modelling, Computational Fluid Dynamics and Digital Signal Processing.

Comments on the Applicant's Response to my Deadline 8 Submission - by Dr David Moore.

Part 2 of 3 - Investigation

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In all that follows, all references to distances from the trackside refer to the distance from the Nearside Railhead.

1. Overview

A major Comment in reading Tritax's Response to my Deadline 8 submission is that they have made no mention at all of the HM Government's DEFRA Data Services Platform, which made available in October 2024 the DEFRA Round 4 data sets for Rail Noise and Road Noise. These very comprehensive data sets provide Noise Contour data over all of the proposed site and its surrounding area (and indeed all of England). This data is provided at an unprecedented level of accuracy and detail.

In my Deadline 8 submission I described the Noise Measurements that I commissioned at a single measurement point at a location known as Billington Lakes which is located at 200 metres from the trackside.

I also demonstrated that the measured Noise Levels at Billington Lakes were much very lower than the Noise levels that Tritax measured at their Noise Monitoring Position NMP4 located at 12 metres from the trackside.

[In their Noise and vibration report, Tritax say that those NMP4 Noise levels measured at 12 metres from the trackside are "representative" of NSRs located at up to 460 metres away from the trackside and apply those NMP4 Noise levels at 12 metres away from the trackside *directly* to the NSRs at up to 460 metres away from the trackside].

Further, I demonstrated that the measured Noise Levels at Billington Lakes were very much lower than the Noise Levels that Tritax have stated in their "Noise Assessment Update Note" [and which Tritax have introduced to support their Noise and vibration report].

The DEFRA Round 4 Rail Noise and Road Noise data sets now available online fully confirm the findings of my Deadline 8 submission. Indeed, the DEFRA Round 4 Noise Levels show even greater disagreement with both Tritax's Noise and Vibration report and with Tritax's "Noise Assessment Update Note" than did the measured Noise levels at Billington Lakes that I described in my Deadline 8 submission.

Long-awaited, this DEFRA Round 4 Rail Noise and Road Noise data is now available to all at the DEFRA website https://environment.data.gov.uk/

I show below several Noise Contour Maps that I have taken directly from the simple online DEFRA Round 4 previewer and to which I refer in the following pages.

I have done my very best to make all that follows as accessible as possible. Should the Department for Transport need any additional information in the way of clarification, please contact me. I would also be happy to talk through any matter that seems unclear.

2. Comparison of DEFRA Round 4 Noise Data with Tritax's "Noise Assessment Update Note" - at Billington Lakes

Taking the **Road** Noise at the Billington Lakes location first, it may be seen in Figure 1 below that the DEFRA Round 4 Daytime Road Noise $L_{Aeq16hr}$ is in the form of a very flat Noise Contour, with a Noise level at Billington Lakes in the range of 40dB to 45dB. And Figure 2 indicates that the DEFRA Round 4 Night Time Road Noise Level L_{night} has a similar very flat Noise Contour, with a Noise level at Billington Lakes in the range of 35dB to 40dB.

[These flat Noise Contours are of course very easy to understand and to compare with one another. And in Figure 3 below I have also shown a Site Map that I have taken from the DEFRA previewer to help you get your bearings. This shows the features on the ground much more clearly than the Noise Contour Maps. I have also marked on the Site Map the positions of the Billington Lakes and NMP4 Noise Monitoring Positions, together with some other features which I will refer to later].

In Tritax's "Noise Assessment Update Note", Tritax's Figure 3 and Table 4 indicate the Daytime Road Noise level $L_{Aeq16hr}$ at Billington Lakes to be within the range of 54dB to 55.9dB. And Tritax's Figure 4 and Table 4 indicate the Night Time Road Noise level L_{night} at Billington Lakes to be within the range of 52dB to 53.9dB. Both of Tritax's Figures 3 and 4 also indicate flat Noise Contours.

So just by comparing these two sets of numbers it is immediately obvious that there are large errors between the DEFRA and Tritax's Road Noise levels, amounting to around 13dB for the Daytime Road Noise levels, and increasing to around 16dB for the Night Time Road Noise levels.

Turning now to the **Rail** Noise, Figure 4 below shows the DEFRA Round 4 Daytime Rail Noise level $L_{Aeq16hr}$ at Billington Lakes to be in the range of 40dB to 45dB. And Figure 5 shows that the DEFRA Round 4 Night Time Rail Noise level L_{night} at Billington Lakes is in the range of 35dB to 40dB.

In Tritax's "Noise Assessment Update Note", Tritax's Figure 1 shows that the Extrium Rail Noise Contours do not extend out from the trail track as far as Billington Lakes. Because of this, Tritax have assumed the Daytime Rail Noise level $L_{Aeq16hr}$ to be identical to the Night Time Rail Noise level L_{night} of 50dB as indicated in Tritax's Figure 2.

Again, by comparing these two sets of numbers it is immediately obvious that there are large errors between the DEFRA and Tritax's Rail Noise levels, amounting to around 8dB for the Daytime Rail Noise levels, and increasing to around 13 dB for the Night Time Rail Noise levels. [The Daytime error is smaller because of the assumption made].

The above demonstration serves to confirm very simply the findings I described in my Deadline 8 submission, which was of course based upon the Noise Measurements I commissioned at Billington Lakes. Indeed, the errors are in general found to be considerably greater here.

However, this simple method also highlights a limitation of the online DEFRA Round 4 viewer, which is that it only provides Noise Contours at 5dB intervals.

So, rather than depend solely upon the simple DEFRA previewer, I have also downloaded the relevant DEFRA Round 4 GeoTIFF files from the DEFRA website, which in conjunction with the Graphic Information System QGIS provides much more detailed Noise Contours together with Grid

Position information of the whole of the area. DEFRA's GeoTIFF files allow the Rail Noise Contour data to be displayed at much closer (and selectable) dB intervals, and the Noise Contours themselves are shown as detailed curved lines without the "pixelation" of the DEFRA previewer.

In much of what follows, I have accessed the DEFRA Round 4 Rail Noise Contours at the much finer intervals of 1dB, and for the DEFRA Round 4 Road Noise Contours I have selected the still finer 0.5dB intervals.

With reference to the DEFRA Round 4 GeoTIFF data, the Daytime and Night Time Road and Rail Noise levels at the Billington Lakes measurement site are as follows:

Daytime Road Noise level $L_{Aeq16hr}$ = 40.7dB
Night Time Road Noise level L_{night} = 35.5dB
Daytime Rail Noise level $L_{Aeq16hr}$ = 41.7dB
Night Time Rail Noise level L_{night} = 37.5dB

Comparing these with the Noise levels indicated in Tritax's "Noise Assessment Update Note" as described above, and taking the mean of Tritax's range values indicates the following errors:

Daytime Road Noise level $L_{Aeq16hr}$ = 14.3dB error
Night Time Road Noise level L_{night} = 17.5dB error
Daytime Rail Noise level $L_{Aeq16hr}$ = 8.3dB error
Night Time Rail Noise level L_{night} = 12.5dB error

These are very large errors.

3. Comparison of DEFRA Round 4 Noise Data with Tritax's Noise and vibration report – at Billington Lakes

In Tritax's "Noise Assessment Update Note" considered above, Tritax's Road Noise levels and Rail Noise levels were indicated separately, and so could be directly compared with the corresponding DEFRA Round 4 Road Noise and Rail Noise levels.

But in Tritax's Noise and vibration report considered here, Tritax's Noise levels are instead indicated as Ambient Noise levels. And rather than being indicated as Daytime and Night Time values for the whole week, they are instead sub-divided into Weekday and Weekend values. So in order to compare the DEFRA Round 4 Noise Data with Tritax's Noise and vibration report, we need to convert both sets of data into Daytime and Night Time Ambient levels, as follows:

In Tritax's Noise and vibration report, in Table 10.43 Tritax indicate a Weekday Daytime Ambient Noise level at NMP4 of 59.2dB. And in Table 10.44, Tritax indicate a Weekend Daytime Ambient Noise level at NMP4 of 53.7dB. By applying logarithmic averaging to these 5 day and 2 day periods that make up the whole 7 day week, we arrive at the Daytime Ambient Noise level $L_{Aeq16hr}$ at NMP4 (at 12 metres from the trackside) of 58.2dB.

Similarly, in Tritax's Noise and vibration report in Table 10.43, Tritax indicate a Weekday Night Time Ambient Noise level at NMP4 of 56.2dB. And in Table 10.44, they indicate a Weekend Ambient Noise level at NMP4 of 50.1dB. Again by logarithmic averaging, this gives a Night Time Ambient Noise level L_{night} at NMP4 (at 12 metres from the trackside) of 55.1dB.

[Following the procedure they have adopted in their Noise and vibration report, Tritax then would then go on to apply these Ambient Daytime and Night Time Noise levels directly to Billington Lakes, in exactly the same way that they have done to all the other NRSs they deem to be "representative" even though those NSRs may be located up to 460 metres away from the trackside. This means that, according to Tritax's Noise and vibration report, Billington Lakes has a Daytime Ambient Noise level of 58.2dB, and a Night Time Ambient Noise level of 55.1dB, these being taken directly from NMP4 at 12 metres from the trackside. This is done even though Billington Lakes is at 200 metres from the trackside, and NMP4 is at 12 metres from the trackside. The issue here is not that the Noise Values at NMP4 are wrong, it is that Tritax have grossly misused the NMP4 data].

In Section 2, we established the DEFRA Round 4 Road and Rail Noise Levels at Billington Lakes, and from these we now need to find the Daytime and Night Time Ambient Noise levels using logarithmic addition. This gives a Daytime Ambient Noise level $L_{Aeq16hr}$ at Billington Lakes of 44.2dB. Similarly, the Night Time Ambient Noise level L_{night} is calculated as 39.6dB.

The error in the Daytime Ambient Noise level L_{Aeq16} is therefore 58.2dB – 44.2dB = 14.0dB. And the error in the Night Time Ambient Noise Level L_{night} is 55.1dB – 39.6dB = 15.5dB.

Summarising these:

Daytime Ambient Noise level $L_{Aeq16hr}$ = 14.0dB error
Night Time Ambient Noise level L_{night} = 15.5dB error

Again, the above investigation serves to confirm the findings I described in my Deadline 8 submission, and in general the errors indicated here are considerably greater than those I indicated in my Deadline 8 submission.

These last two Sections have also demonstrated that the errors in Tritax's Noise and vibration report are closely similar to the errors in Tritax's "Noise Assessment Update Note". And it is for that reason that Tritax are able to say that their Noise and vibration report and their "Noise Assessment Update Note" agree with one another!

4. Comparison of DEFRA Round 4 Noise Data with Tritax's "Noise Assessment Update Note" - at other NSRs

The previous two Sections have investigated the errors in Tritax's "Noise Assessment Update Note" and Tritax's Noise and vibration report for the particular case of Billington Lakes, this being the location at which I had commissioned Noise measurements directly on the ground.

These errors are very large. However, Billington Lakes is only 200 metres from the trackside, and for the several NSRs that are located further from the trackside, these errors would be increased still further.

By way of example, I consider the case of NSR2, which is one of three dwellings located around the Southern (dead end) of Bridle Path Road.

DEFRA Round 4 indicates the following Noise Levels at NSR2, which are lower still than those at Billington Lakes at Night Time:

Daytime Road Noise level $L_{Aeq16hr}$ = 41dB
Night Time Road Noise level L_{night} = 35dB
Daytime Rail Noise level $L_{Aeq16hr}$ = 37dB
Night Time Rail Noise level L_{night} = 33dB

In contrast, Tritax's "Noise Assessment Update Note" rules that all the Noise levels at NSR2 are the same as the ones it indicated for Billington Lakes in Section2, and this results in the following increased errors at NSR2 at Night Time:

Daytime Road Noise level $L_{Aeq16hr}$ = 14dB error
Night Time Road Noise level L_{night} = 18dB error
Daytime Rail Noise level $L_{Aeq16hr}$ = 13dB error
Night Time Rail Noise level L_{night} = 17dB error

5. Comparison of DEFRA Round 4 Noise Data with Tritax's Noise and vibration report at other NSRs

As explained in Section 3 for Billington Lakes, the Daytime Ambient Noise level $L_{Aeq16hr}$ that Tritax applied in their Noise and vibration report to NSR2 (at 430 metres from the track) is the same as the Daytime Ambient Noise level they measured at NMP4 (at 12 metres from the track), and that is 58.2dB.

Similarly, the Night Time Ambient Noise level L_{night} that Tritax applied in their Noise and vibration report to NSR2 (at 430 metres from the track) is the same as the Night Time Ambient Noise level they measured at NMP4 (at 12 metres from the track), and that is 55.1dB.

In exactly the same way as described above for Billington Lakes, the DEFRA Round 4 Daytime and Night Time Ambient Noise levels can be found by logarithmic addition of the Road Noise and Rail Noise levels. This gives a Daytime Ambient Noise level $L_{Aeq16hr}$ at NSR2 of 42.5dB, and a Night Time Ambient Noise level L_{night} of 37.1dB.

These results indicate the following increased errors at NSR2:

Daytime Ambient Noise level $L_{Aeq16hr}$ = 15.7dB error
Night Time Ambient Noise level L_{night} = 18.0dB error

6. Confirmation of DEFRA Round 4 Rail Noise

Although it has been revealing to explore Noise levels at the particular locations of Billington Lakes and NSR2, much more can be learned by displaying the DEFRA Round 4 data and the Billington Lakes measurements in rather a different way.

With reference first to **Daytime** Rail Noise, it can be seen in Figure 4 that the DEFRA Round 4 Daytime Rail Noise Contours follow a continuous and uniform pattern of banding along the length of the track, with only very minor variations apart from the bridge over the tracks at Burbage Common Road. Indeed, it can be seen that the DEFRA Round 4 Rail Noise Contours in the regions of Billington Lakes and NMP4 are sensibly identical.

It is therefore possible to create a Sectional View of the DEFRA Round 4 Rail Noise Contours, which shows the manner in which the Rail Noise level is attenuated with increasing distance from the track. In Figure 6 I show a typical Sectional View describing the DEFRA Round 4 Rail Noise Contours at the locations of Billington Lakes and NMP4. With reference to the Key, this is shown in Gold.

[The locations of Billington Lakes and NMP4 are indicated on the Site Map in Figure 3. Figure 3 also indicates the positions of the typical Sectional Views through Billington Lakes and NMP4].

An advantage of this Sectional View approach is that it allows other data to be shown alongside the DEFRA Round 4 Noise Contour so that they can be directly compared with one another.

Accordingly, I have included in the Sectional View the Daytime Rail Noise level measured at Billington Lakes on the 16th and 17th February 2024. This is indicated by the (upper) Green Dot, and is of course shown at a location 200 metres from the trackside. It can be seen that this (upper) Green Dot stands a little (approximately 2dB) higher than the DEFRA Round 4 Rail Noise Contour. On checking the Real Time Trains data for that 16-hour Daytime measurement period on the 16th and 17th February 2024 (data which I included in my Deadline 8 submission), it is seen there were some 16 Freight Train movements, whereas during a typical Daytime period there would be only 11. To correct for this, the upper Green dot has been replaced by the lower Green Dot, which is 1.0dB lower and agrees very closely with the DEFRA Round 4 Rail contour.

In a similar way, I have also included in the Sectional View the Daytime Rail Noise level that Tritax measured at NMP4. This is indicated by the (large) Blue Dot and is of course shown at a location 12 metres from the trackside. [This Daytime Rail Noise Level at NMP4 has been calculated by logarithmic averaging of Tritax's own Daytime Weekday and Daytime Weekend Noise Levels at NMP4, with due account being taken of the Residual Noise level at NMP4].

But the Sectional View holds a further advantage here too. Because, from this NMP4 Rail Noise measurement at 12 metres from the trackside, the characteristic Noise Contour of the NMP4 Rail Noise with distance from the trackside can be directly calculated using the "Calculation of Railway Noise", CRN. And, in the Sectional View, that characteristic Noise Contour can be displayed alongside the DEFRA Round 4 Noise Contour, and the whole of the two Noise Contours can directly compared.

With reference to the Key, the NMP4 characteristic Noise Contour calculated using CRN is shown as the smaller Blue Dots and the Blue Line. Note in particular the very close agreement between this Blue NMP4 Rail Noise Contour and the Gold DEFRA Round 4 Rail Noise Contour.

As well as the NMP4 data just discussed, yet another source of data that is available is the SEL "Sound Exposure Level" that can be calculated by reference to CRN. In contrast to the Measured NMP4 value described above, the SEL is obtained by consideration of the Class of the Passenger Vehicles, Locomotives, and Freight Wagons running on the line, and also by the Compositions of the Trains and their Velocities. This, together with the Numbers of Trains running, and the type of Track and Ballast present, allows the characteristic variation of Rail Noise with distance from the trackside to be calculated directly.

The SEL method has the significant advantage that it avoids the need for local Noise measurements, which are often unavoidably of short duration, and instead makes use of the standard SEL Noise parameter data presented within CRN, from which unwanted statistical variations (e.g. of the Noise produced by individual rolling stock) have been carefully removed. And provided the Numbers of Trains running has been correctly identified, the SEL method gives very accurate and statistically robust results.

For these several reasons, SEL is the primary component of the "Calculation of Railway Noise". And it is this SEL method that has been used by DEFRA throughout the preparation of their Round 4 Rail Noise database.

In preparing my earlier technical submissions to the Examining Authority, I have already generated several SEL-based "Calculation of Railway Noise" spreadsheet calculations and have found them to be in excellent agreement with other available data.

In Figure 6, I therefore also show the characteristic variation of Rail Noise with distance from the trackside, calculated in accordance with the "Calculation of Railway Noise" and employing the SEL method as described above.

Over the period of a fortnight in September 2024, and a further fortnight in late November/early December 2024, I archived the daily Real Time Trains data and tallied the numbers of Passenger and Freight Trains running each day. The running data that I have had available for my SEL calculations is therefore extremely robust.

With reference to the Key, the SEL-derived characteristic Noise Contour is shown as the Purple Dots and the Purple Line. Note in particular the very close level of agreement between this Purple Line, the Gold DEFRA Round 4 data, and the Blue Line denoting the NMP4 characteristic.

For completeness, I have also included in Figure 6 the characteristic Noise Contours that Tritax indicated in their "Noise Assessment Update Note". With reference to the Key, this is indicated by the Red Dots and the Red Line. Clearly, this is very much higher than all of the others.

Collectively, then we have four independently-derived sets of data that agree with one another very closely. And one of these is Tritax's own NMP4 measured data. This puts the correctness and reliability of the DEFRA Round 4 Daytime Rail Noise data beyond doubt.

And Tritax's Rail Noise Contour from their "Noise Assessment Update Note" is very much higher than all of the other four, and is highlighted here as indisputably wrong.

Turning now to the **Night Time** Rail Noise, it can be seen in Figure 5 that the DEFRA Round 4 Night Time Rail Noise Contours, although of course lower than the Daytime ones, display the same continuous and uniform pattern of banding along the length of the track.

In Figure 7 I therefore show a second Sectional View in which all of the Daytime Rail Parameters I described above in respect of Figure 6 have been replaced by their Night Time equivalents. All of the colour codings remain the same.

As was the case for the Daytime Rail Noise, you will see that the Night Time Rail Noise measured at Billington Lakes on the 16th and 17th February 2024 and indicated by the (upper) Green Dot stands a little higher than the DEFRA Round 4 Rail Noise contour. On checking the Real Time Trains data for that 8-hour Night Time measurement period over those two days, it is seen that there were some 13 Freight Train movements, whereas during a typical Night Time period there would be only 5. To correct for this, the upper Green dot has been replaced by the lower Green Dot, which is 3.8dB lower and agrees reasonably well with the DEFRA Round 4 Rail Noise Contour.

Once again, we have four independently-derived sets of data, three of which agree with one another very closely, one of those being Tritax's own NMP4 measured data. This also puts the correctness and reliability of the DEFRA Round 4 Night Time Rail Noise data beyond doubt.

And as before, Tritax's Rail Noise Contour from their "Noise Assessment Update Note" is shown to be very much higher than the other four, and indisputably wrong.

Finally here now, three remaining points:

Firstly, these Sectional Views describe the Daytime and the Night Time Rail Noise levels respectively. These of course are the Daytime and Night Time levels averaged over the whole 7-day weekly period, and do not indicate the Weekday and Weekend variations about that average. However, as described in the "Calculation of Railway Noise" and demonstrated above, Rail Noise data can be logarithmically adjusted upwards or downwards to reflect the variation of the Numbers of Trains (both Freight and Passenger) that are known to be running during any particular time period.

With reference to the Numbers of Trains running over the two fortnightly periods in September and in November/December that I have mentioned, this logarithmic adjustment indicates the **Weekday** Daytime Rail Noise level to be 1.0dB above the Daytime Rail Noise levels described in Figure 6. And it indicates the **Weekend** Daytime Rail Noise levels to be 4dB below the Daytime Rail Noise levels described in Figure 6.

This can be looked upon as simply a shift of all values shown in Figure 6 upwards and downwards respectively by those amounts.

For the Weekday Night Time Rail Noise level shown in Figure 7, the corresponding the upward shift is 1.0dB. For the Weekend Night Time Rail Noise level, the Rail Noise levels are very low on Sundays and on Saturday nights, and indeed can disappear entirely.

Secondly, you will see that in the Sectional Views shown in Figures 6 and 7, I have extended the DEFRA Round 4 Rail Noise characteristic beyond 300 metres with dashed lines to represent the progressive reduction in the Rail Noise characteristic that continues beyond that distance. In fact, The “Calculation of Railway Noise” advises that beyond 300 metres the Rail Noise level may fall off rather more rapidly, but this is of little consequence as it is in any case already low.

And finally, I make further reference to the Rail Noise characteristic that Tritax indicated in their “Noise Assessment Update Note”, and which is shown as the solid Red Line in the Sectional Views. As you can see, these solid Red Lines do reduce with distance in the expected way, down to a Daytime Noise level of 55dB, and a Night Time Noise level of 50dB. But in Figures 6 and 7 I have not extended that reduction with a continuing downward *dashed* line, in the way that I did with the DEFRA Round 4 characteristics as described above.

This is because, in their “Noise Assessment Update Note”, for those NSRs located at distances beyond their solid line, Tritax have tended not to apply attenuation to their 55dB and 50dB Rail Noise levels to reflect the attenuation that would occur at greater distances from the trackside. Instead, in their “Noise Assessment Update Note” Tritax have generally applied the 55dB and 50dB Noise levels directly.

Accordingly, I have in both cases extended Tritax’s characteristic with a horizontaI dashed line, which aims to reflect what Tritax appear to have usually done.

7. Confirmation of DEFRA Round 4 Road Noise

In Figure 8 I show the Sectional View in respect of **Daytime Road** Noise. This is of the same form as Figure 6 for the Daytime Rail Noise, but because the Daytime Road Noise Contour is essentially flat rather than a curved Contour, it is very much simpler. Also, of course, the SEL Rail Noise data shown in Figures 6 and 7 is not present. All of the Key colour codings remain the same.

The NMP4 Road Noise measured data is shown as a Blue Dot, at 12 metres away from the trackside where Noise Monitoring Position NMP4 was located. From my Deadline 8 Spreadsheet submission, I calculated the Daytime Road Noise level at NMP4 to be 44.9dB. This used Tritax's NMP4 Time History Graphs for the 23rd April and 24th April 2021, with reference to the Ambient Noise levels ruling in those 15-minute intervals when there were no train passes. As can be seen in Figure 8, this agrees with the DEFRA Round 4 Daytime Road Noise data very closely.

[By way of explanation, this is more properly termed the Daytime Residual Noise level, because, although it excludes the Daytime Rail Noise, it does include any other local Daytime Noise in addition to just the Daytime Road Noise alone].

Similarly, the Billington Lakes measured data is shown as a Green Dot, at 200 metres away from the trackside where the Billington Lakes Monitoring Position was located. And as I described above, from my Deadline 8 Spreadsheet submission, I calculated the Daytime Road Noise level (actually the Daytime Residual Noise level) at Billington Lakes to be 45.5dB, using that same method. As can be seen in Figure 8, this Residual Noise level is a little (around 5dB) higher than the DEFRA Round 4 Daytime Road Noise level indicated at that location at Billington Lakes.

In the Noise Survey Ltd report, the Noise Consultant described that "The location of the measurements is not close to road traffic noise and was influenced by wildlife such as birds chirping."

Indeed, local to Billington Lakes, there were waterfowl at the water's edge (noisy Mallards and Canada Geese etc.) that would have the effect of raising the Daytime Residual Noise level measured at Billington Lakes above the DEFRA Round 4 Daytime Road Noise level shown in Figure 8.

With these issues understood, these three independently-derived sets of data agree closely with one another, one of those being Tritax's own NMP4 measured data. This puts the correctness and reliability of the DEFRA Round 4 Daytime Road data beyond doubt.

I have also included in Figure 8 the characteristic line showing the Daytime Road Noise levels that Tritax indicated in their "Noise Assessment Update Note", and indicated by the Red Dots and the Red Line. Clearly, this is again very much higher than all of the others.

Turning now to the **Night Time** Road Noise, in Figure 9 I show a further Sectional View in which all of the Daytime Parameters I described above in respect of Figure 8 have been duly replaced by their Night Time equivalents. All of the Key colour codings again remain the same.

The NMP4 measured data is again shown as a Blue Dot, at 12 metres away from the trackside. From my Deadline 8 Spreadsheet submission, I calculated the Night Time Road Noise level at NMP4 to be 43.0dB.

Similarly, the Billington Lakes measured data is shown as a Green Dot, at 200 metres away from the trackside. From my Deadline 8 Spreadsheet submission, I calculated the Night Time Road Noise level at Billington Lakes to be 41.7dB.

Again, both of these Noise levels are a little higher than the DEFRA Round 4 Daytime Road Noise level indicated at these respective locations. But, given that the DEFRA Round 4 Road Noise levels are so low, at between 35.5dB and 37dB, any additional noise from birds and wildfowl would have had a disproportionate effect, and the results serve to confirm the correctness and reliability of the DEFRA Round 4 Night Time Road data.

I have also included in Figure 9 the characteristic line showing the Night Time Road Noise levels that Tritax indicated in their “Noise Assessment Update Note”, and indicated by the Red Dots and the Red Line. Clearly, this is again very much higher than all of the others.

8. What Tritax Did Wrong

So, having confirmed the DEFRA Round 4 Rail and Road Noise data against the other available data sources, and confirmed that Tritax's "Noise Assessment Update Note" is hopelessly wrong, the issue that still remains is:

What did Tritax do wrong?

After all, I have myself confirmed over the last several pages that Tritax's own NMP4 measurement data agrees closely with the DEFRA Round 4 Rail and Road Noise data, and also with the Billington Lakes measurements that I commissioned myself.

So what could Tritax have possibly done wrong?

This is best explained with reference to the further Sectional View shown in Figure 10. This time, though, rather than showing the DEFRA Round 4 Daytime Rail Noise Contour and the DEFRA Daytime Road Noise Contour separately in two Sectional Views in Figures 6 and 8 as I did previously, instead in Figure 10 I now show those two Daytime Noise Contours combined together into a single DEFRA Round 4 Daytime Ambient Noise Contour. The combination of the DEFRA Round 4 Daytime Rail and Road Noise levels into the DEFRA Round 4 Daytime Ambient Noise level is performed by logarithmic addition.

And, now that the DEFRA Round 4 Daytime Rail and Road Noise levels have been fully confirmed in the previous Sections, this single DEFRA Round 4 Daytime Ambient Noise Contour is almost the only one that needs to be transferred across into Figure 10. It is again shown on Gold.

The only other data that needs to be transferred over is the Daytime Ambient Noise level that Tritax measured at Noise Monitoring Position NMP4 located at 12 metres from the trackside. In Figure 6, the Daytime Rail Noise measured at NMP4 was represented by a large Blue Dot. And in Figure 8, the Daytime Road Noise level measured at NMP4 was also represented by a large Blue Dot. In Figure 10, these are in presented in their combined form as the Daytime Ambient Noise Level, which is likewise represented as a large Blue Dot. This simply represents the Ambient Noise level that Tritax measured at NMP4 at 12 metres from the trackside.

With reference to Figure 10, what Tritax have done in their Noise and vibration report is to take the Ambient Noise measured at NMP4 at 12 metres from the trackside, and apply it directly to NSRs at very considerably greater distances from the trackside without applying any form of attenuation at all. This is represented in Figure 10 by the curved Blue Arrows. So the Daytime Ambient Noise Level that Tritax apply to the NSRs in their Noise and vibration report is identical to the Daytime Ambient Noise level measured at NMP4 at 12 metres from the trackside, and is indicated in Figure 10 as the thick Red Line. With reference to Section 3, this Daytime Ambient Noise Level at NMP4 is 58.2dB.

[The issue here is not that the Daytime Ambient Noise level that Tritax measured at 12 metres from the trackside is wrong. It is that Tritax have grossly misused that NMP4 data].

In Figure 10, the Ambient Noise level at the NSRs is actually indicated by the DEFRA Round 4 Daytime Ambient Noise level, shown in Gold. This is very much lower than Tritax's thick Red Line, and the

difference between the two represents a very major source of error in Tritax's Noise and vibration report.

Indeed, in Figure 10, it is extremely clear that the Daytime Ambient Noise at such NSRs is very much less than the Daytime Ambient Noise level that Tritax have applied to them. This means that Tritax's Noise and vibration report is very seriously wrong and indeed is fundamentally flawed.

The errors that **immediately** result from Tritax's methodology are shown in Figure 10 to be in the region of 15dB to 16dB.

Not only are these errors extremely large in themselves, but because they occur very early in Tritax's Noise and vibration report, they carry on through all of the remainder of Tritax's report and change not only the numbers, but also the whole approach that needs to be followed. Further, those early errors in Tritax's Noise and vibration report will be increased yet further by the considerably increased Rating penalties that that will also need to be applied to them.

Turning now to the **Night Time** Ambient Noise, in Figure 11 I show a further Sectional View in which all of the Daytime Parameters I described above in respect of Figure 10 have been duly replaced by their Night Time equivalents. All of the Key colour codings again remain the same.

With reference to Section 3, the Night Time Ambient Noise Level measured at NMP4 at 12 metres from the track is 55.1dB, and Tritax again apply this directly to NSRs at very considerably greater distances from the trackside without applying any form of attenuation at all. This is represented in Figure 11 by the curved Blue Arrows as before. So the Night Time Ambient Noise Level that Tritax apply to the NSRs in their Noise and vibration report is identical to the Night Time Ambient Noise level measured at NMP4 at 12 metres from the trackside, and is again indicated in Figure 11 as the thick Red Line.

The errors that **immediately** result from Tritax's methodology are shown in Figure 10 to be in the region of 17dB to 18dB.

Of course, all of the Comments I have made above in respect to the Daytime Ambient Noise errors in Tritax's Noise and vibration report apply equally to the Night Time Ambient Noise errors here, and indeed the errors are slightly larger.

9. The Local Environment

The Historic Land Settlement dwellings which are represented by these NSRs that we have been discussing are at some distance from the nearest Public Road, and so can be accessed only by the unadopted single-track private roads of Bridle Path Road, Billington Road East and Billington Road West. All of these roads are dead end roads, and are typically just 2.4 to 2.5 metres wide.

By way of example here I show in Figures 12 and 13 a couple of photographs depicting the Local Environment that we have been referring to over these last few pages. Both of these photographs look in a Southerly direction down Bridle Path Road towards the dead end at the bottom of Bridle Path Road.

10. Context

The investigation presented above is in respect of the Noise Monitoring Position NMP4. Substantially the same, and very serious, errors apply to NMP3 and the whole of Burbage Common. These would require still more explanation, and my Part 2 above is submitted by way of example only.

Please proceed now to Part 3 of my submission.

Dr David Moore

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, GSK, London Underground, Johnson & Johnson, Ricardo, Monsanto, DePuy, AstraZeneca, BAE Systems, Unilever, Reckitt, Sanofi and Alstom. Now retired, his technical interests include Mechanical Design, Mathematical Modelling, Computational Fluid Dynamics and Digital Signal Processing.

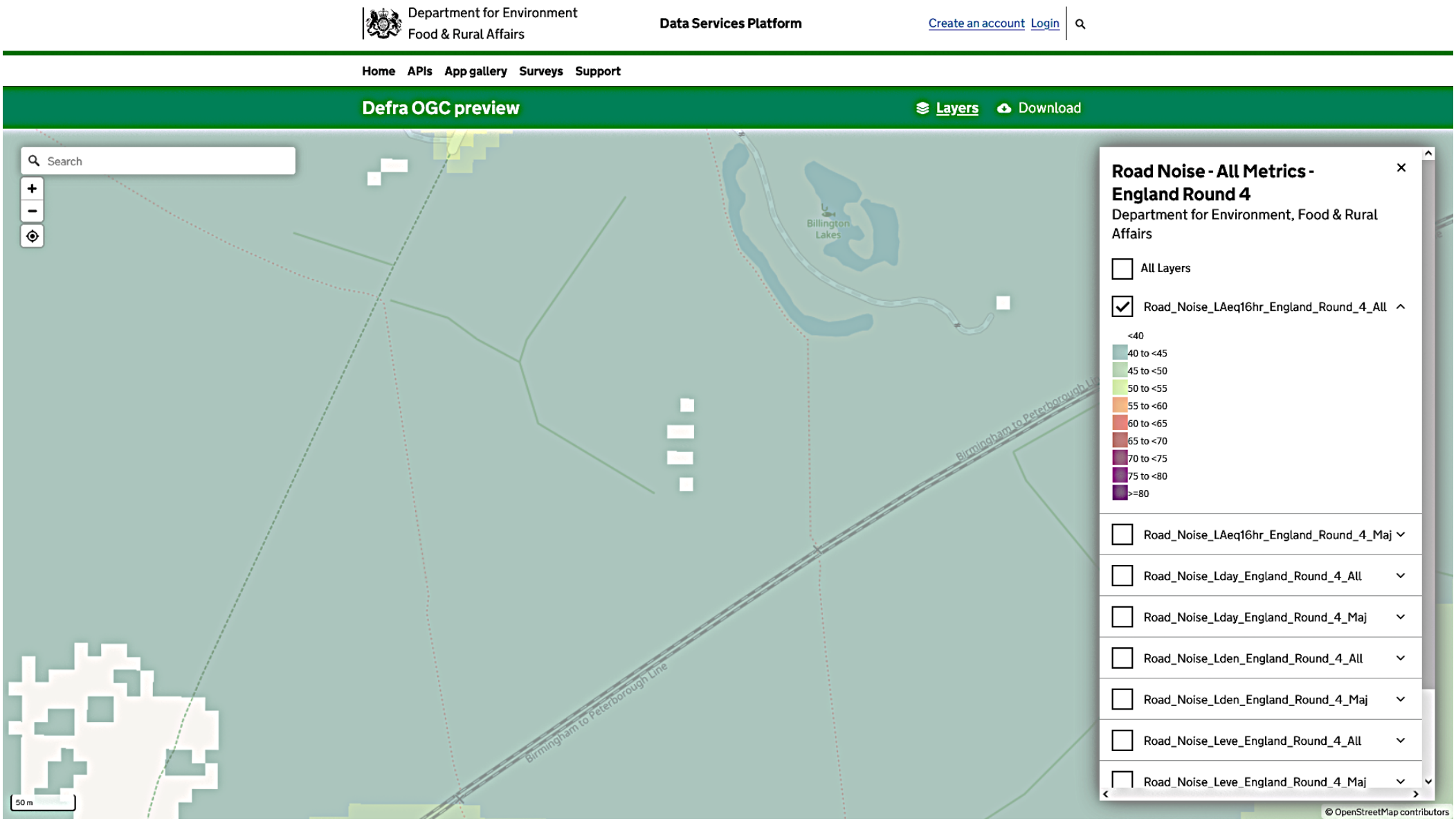

Figure 1. DEFRA Round 4 - Daytime Road Noise $L_{Aeq16hr}$

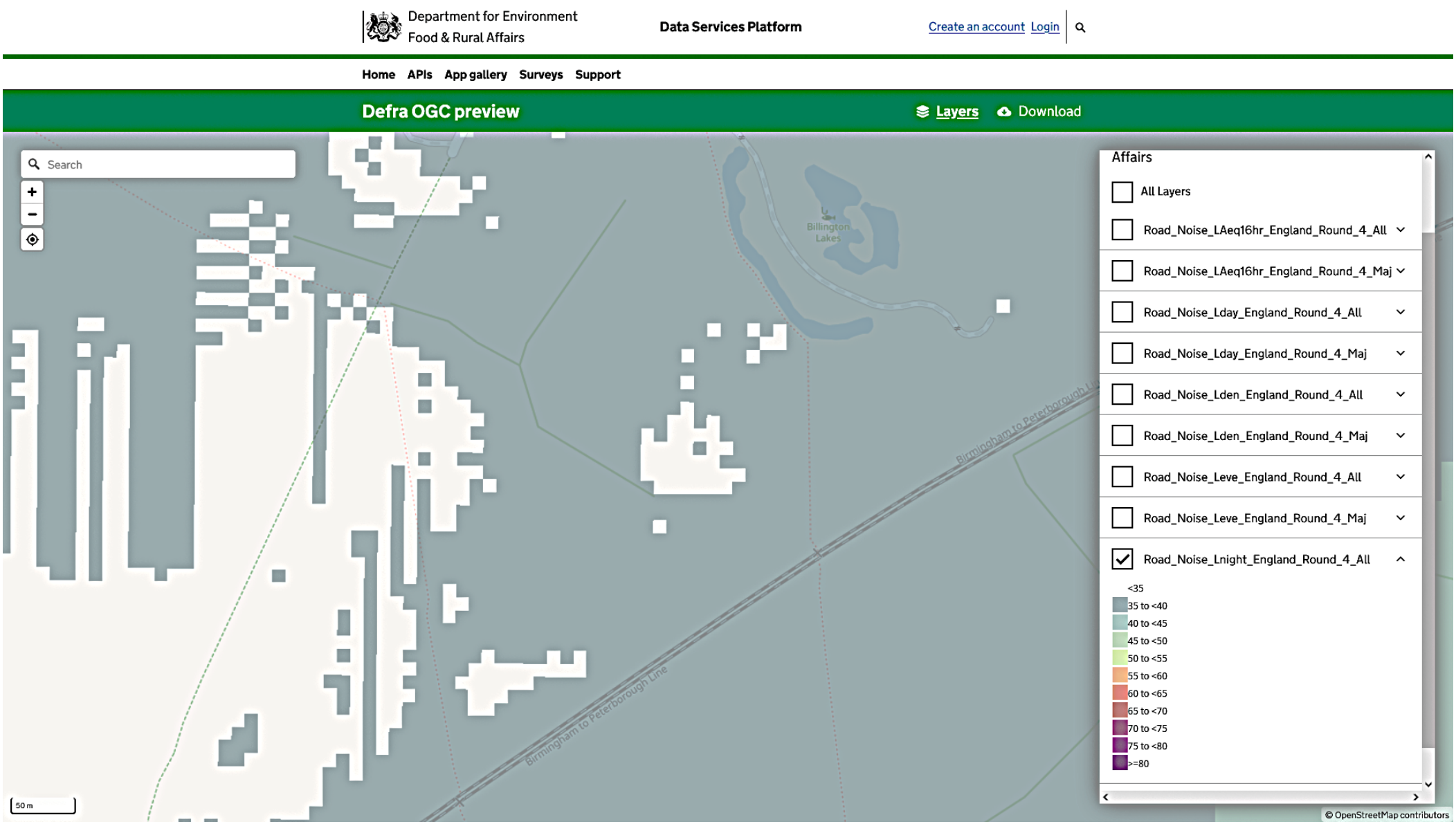

Figure 2. DEFRA Round 4 – Night Time Road Noise Lnight

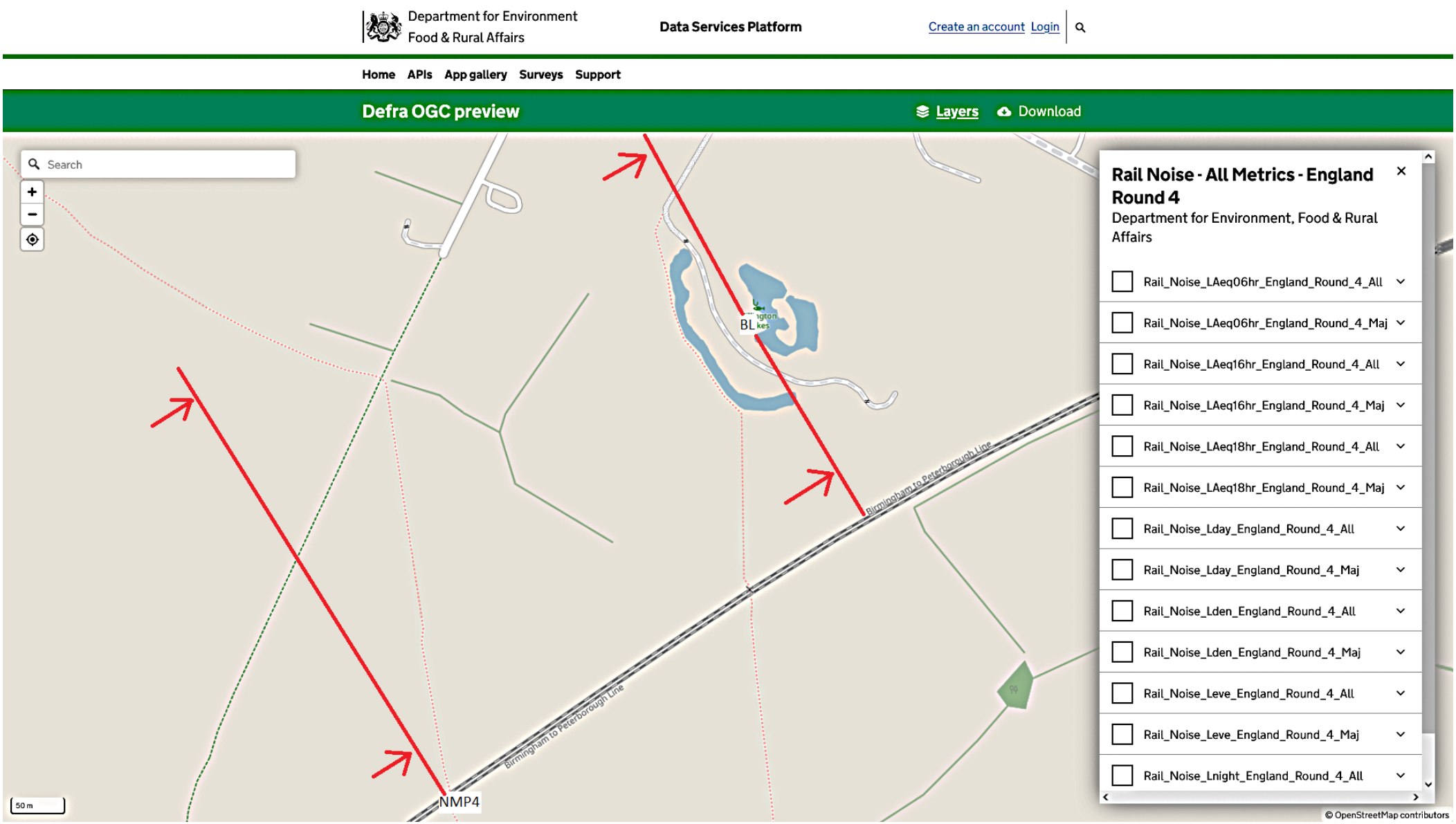

Figure 3. DEFRA Round 4 – Site Map, showing
NMP4 and Billington Lakes Noise Monitoring Positions and Positions of Sectional Views

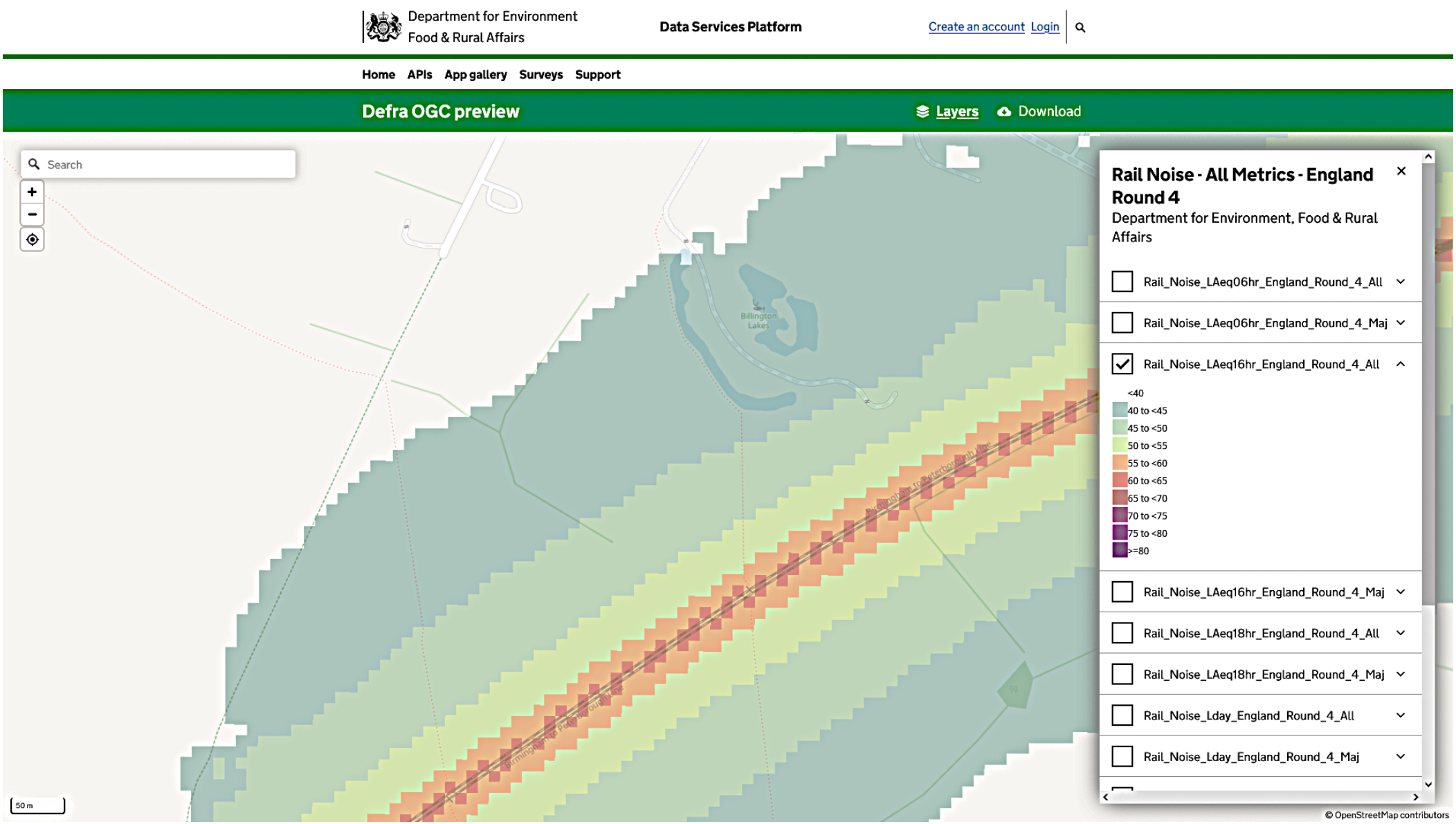

Figure 4. DEFRA Round 4 – Daytime Rail Noise $L_{Aeq16hr}$

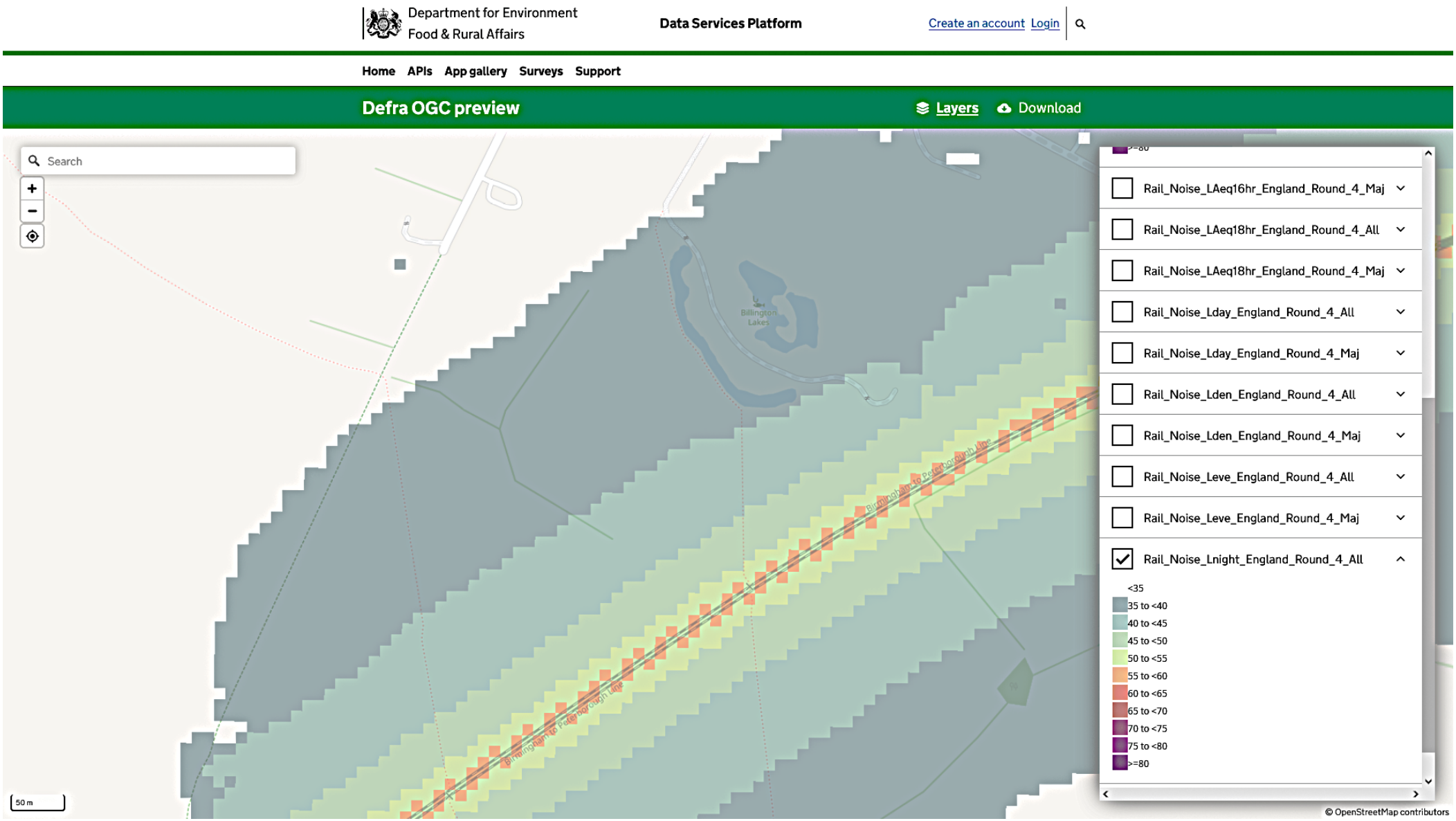

Figure 5. DEFRA Round 4 – Night Time Rail Noise L_{night}

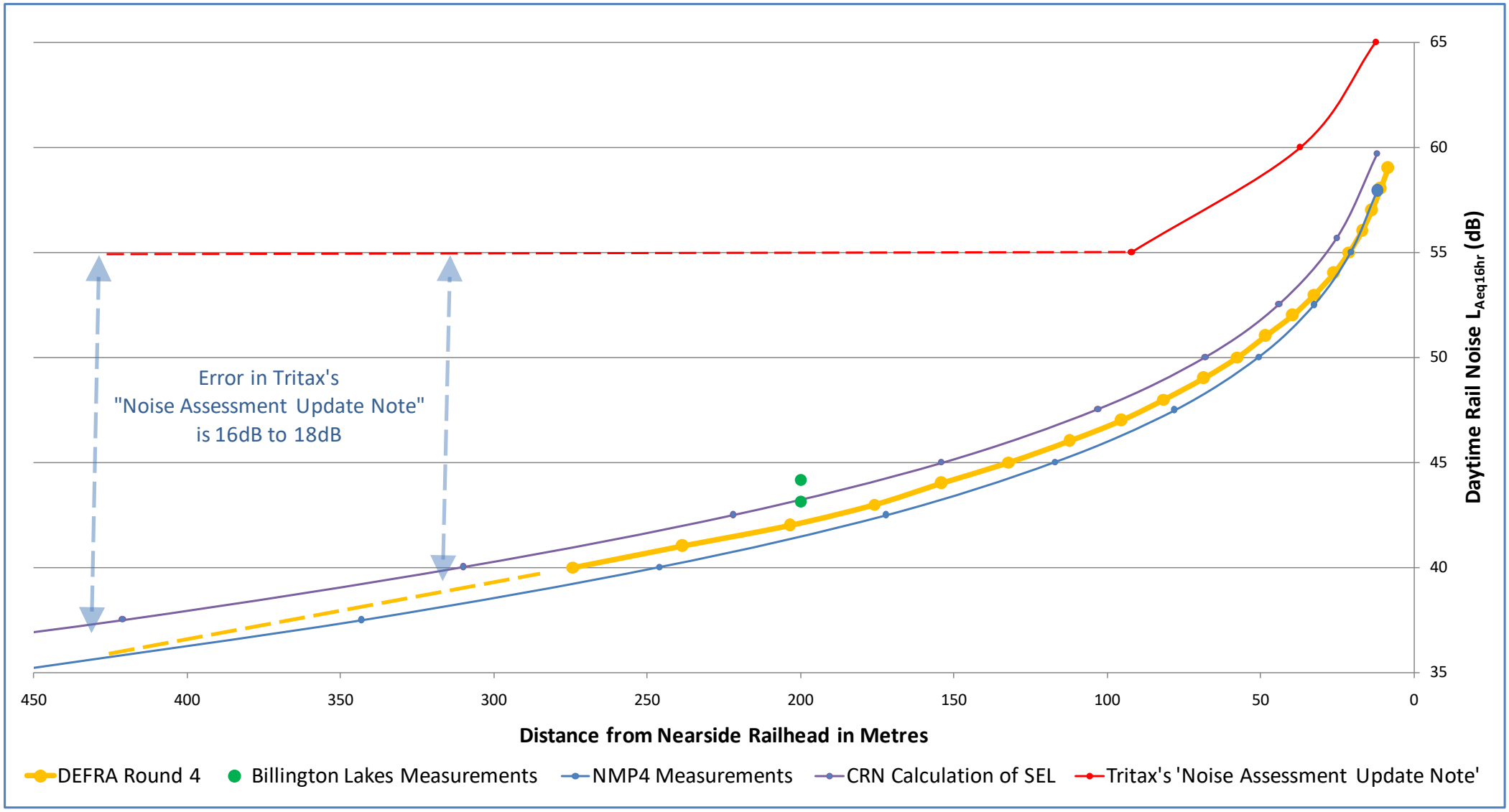

Figure 6. Sectional View through NMP4 and Billington Lakes showing Daytime Rail Noise $L_{Aeq16hr}$ versus Distance from Nearside Rail

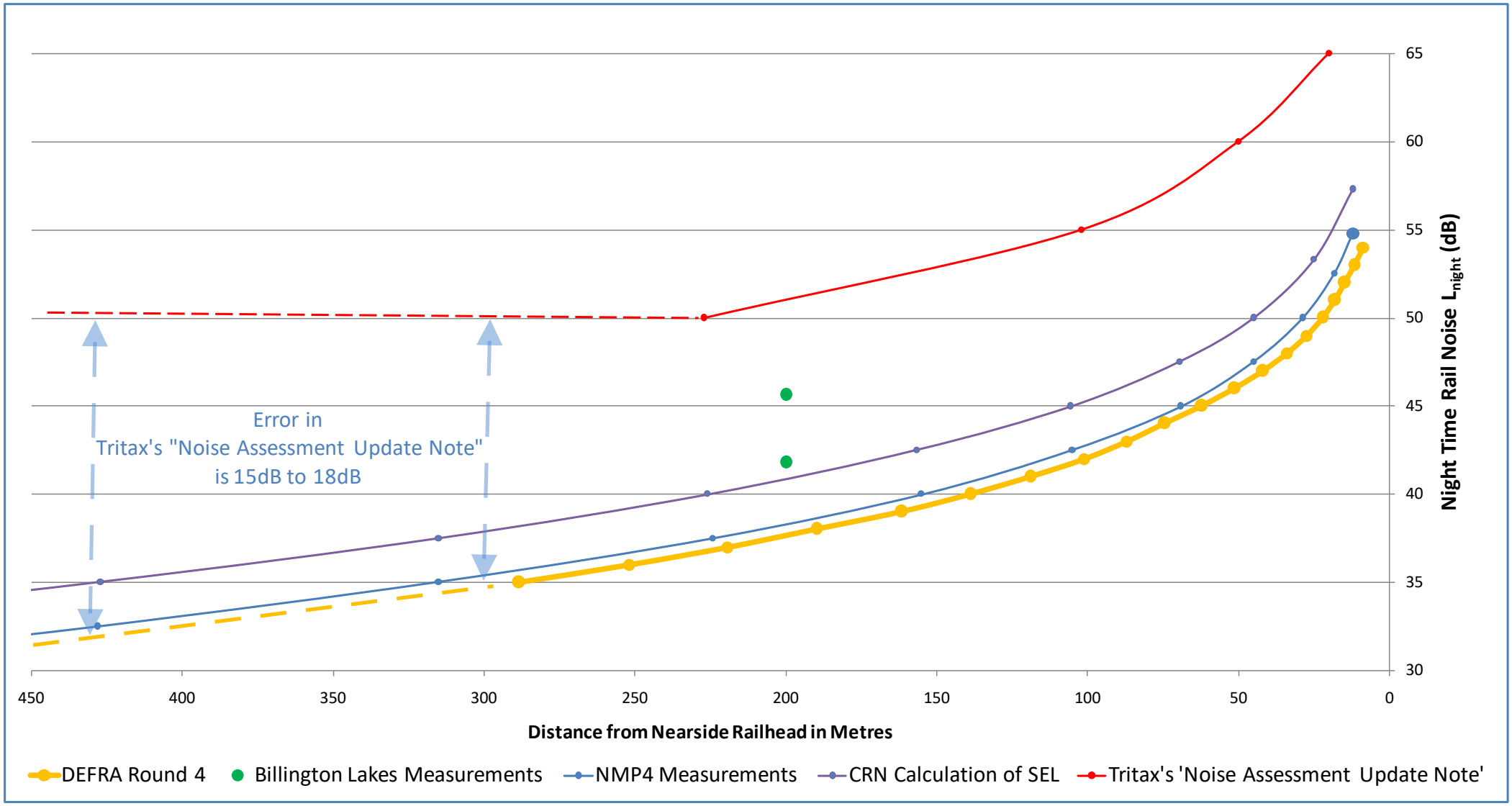

Figure 7. Sectional View through NMP4 and Billington Lakes showing Night Time Rail Noise L_{night} versus Distance from Nearside Rail

Figure 8. Sectional View through NMP4 and Billington Lakes showing Daytime Road Noise $L_{Aeq16hr}$ versus Distance from Nearside Rail

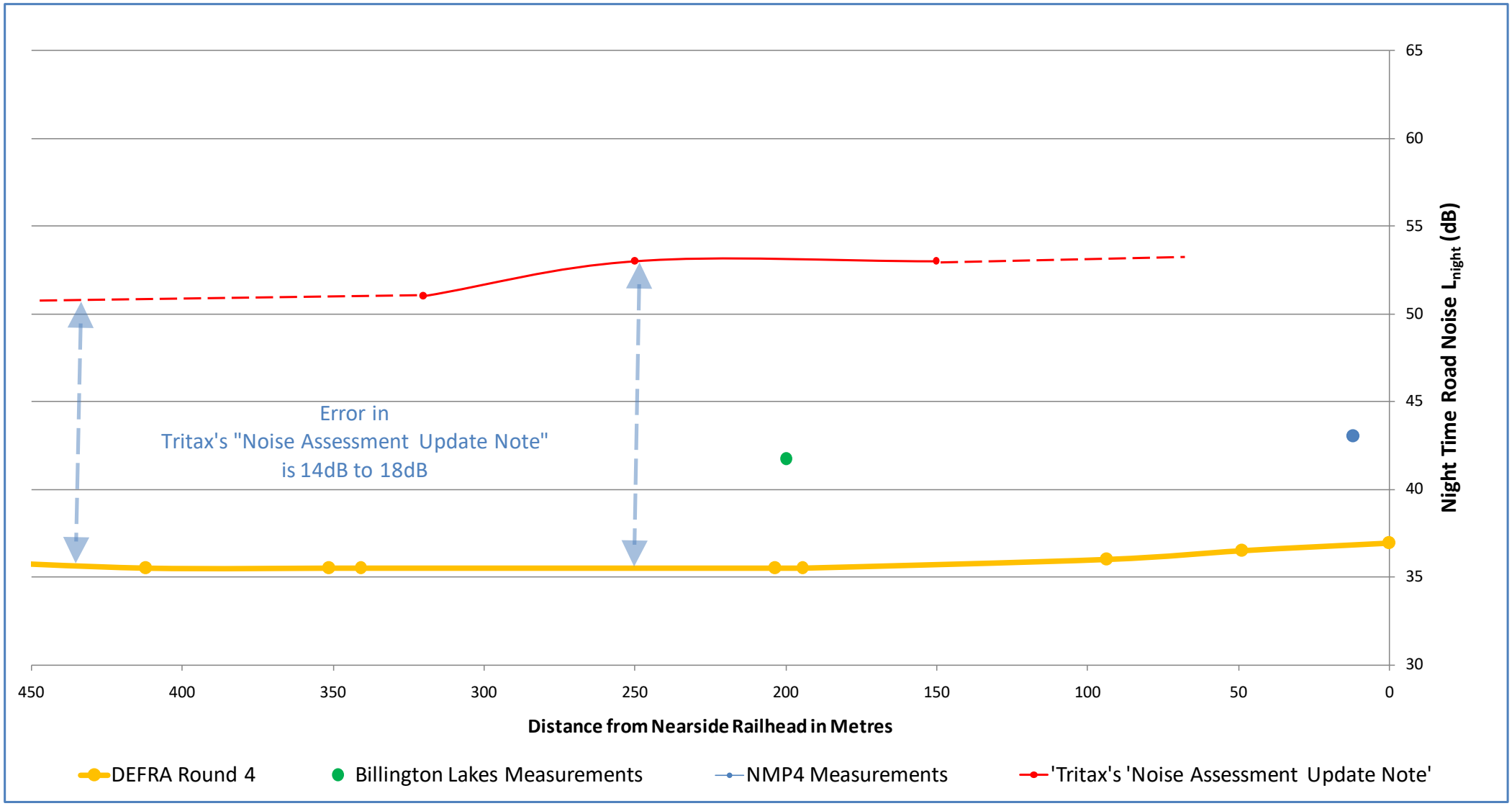

Figure 9. Sectional View through NMP4 and Billington Lakes showing Night Time Road Noise L_{night} versus Distance from Nearside Rail

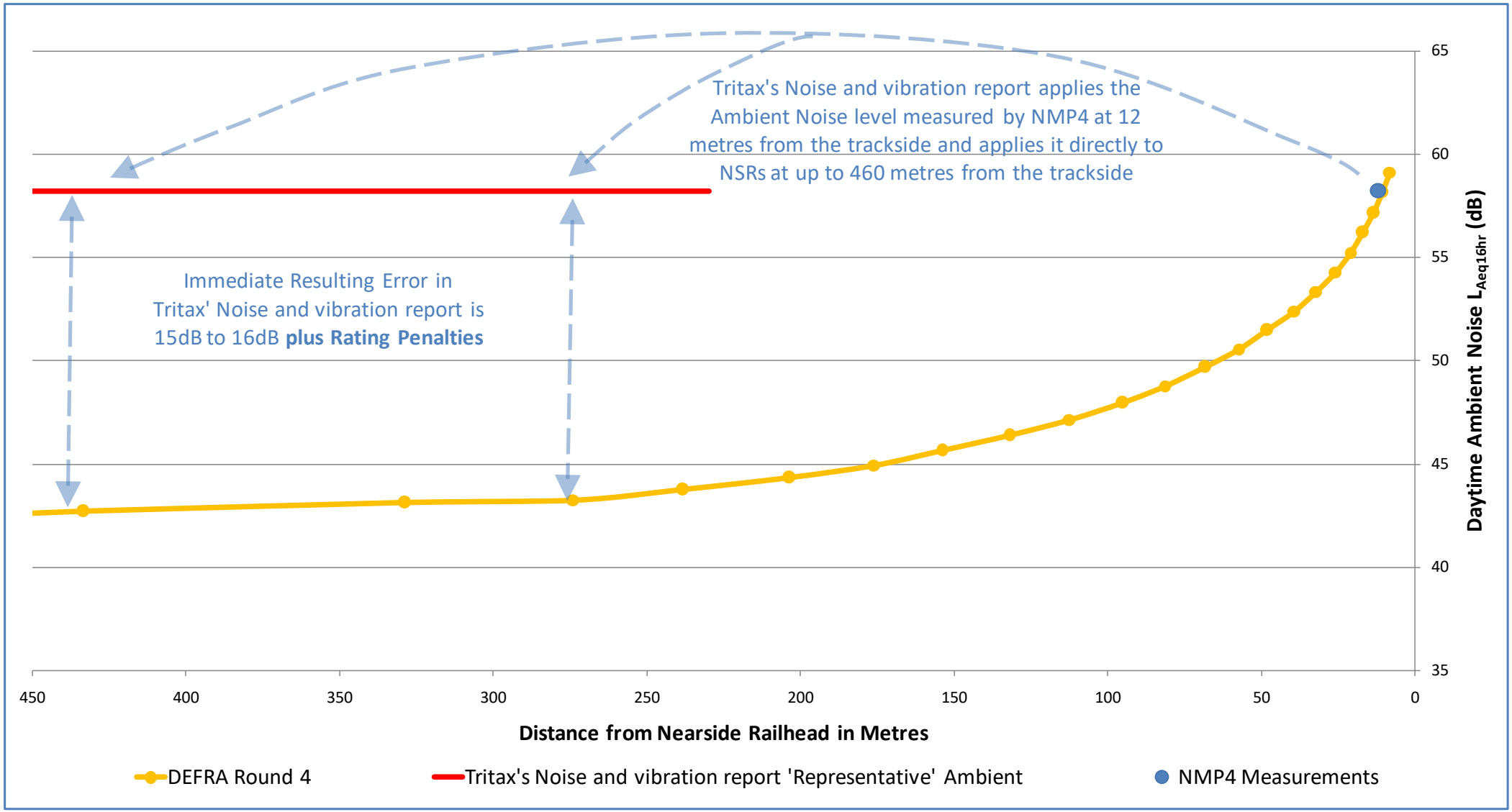

Figure 10. Sectional View through NMP4 and Billington Lakes showing Daytime Ambient Noise $L_{Aeq16hr}$ versus Distance from Nearside Rail

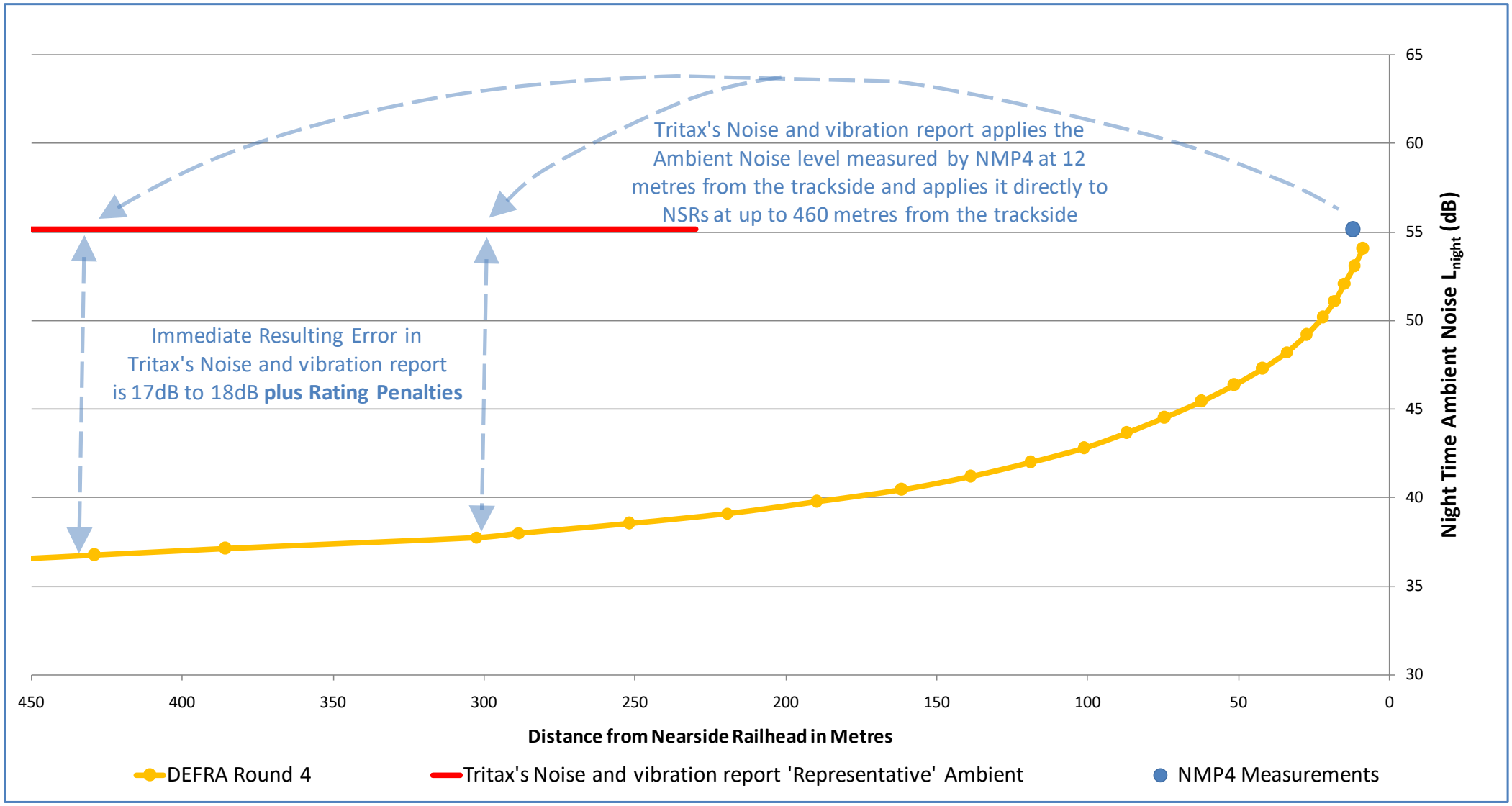

Figure 11. Sectional View through NMP4 and Billington Lakes showing Night Time Ambient Noise L_{night} versus Distance from Nearside Rail

Figure 12. The Local Environment

Figure 13. The Local Environment

Comments on the Applicant's Response to my Deadline 8 Submission - by Dr David Moore.

Part 3 of 3 - Ramifications

Dr David Moore MA (Cantab) PhD CEng FIMechE
Unique Reference Number: 20040614

In all that follows, all references to distances from the trackside refer to the distance from the Nearside Railhead.

Rather than descend immediately into a fine level of detail, it is instructive to first look back and see how this present position has arisen.

On the one hand we have Tritax, whose imperative is to have their Application approved. And on the other we have the Application itself, where the Proposed Site is in the middle of open countryside in what very much looks like an unsuitable location, not least for reasons of Noise.

In looking at Tritax's Noise and vibration report, it is possible to identify the point at which this rather evident problem first manifests itself. This is in their Tables 10.20 to 10.25, where the very low Background Noise levels are first identified, and in Tables 10.39 to 10.42 where (as specified in BS4142) those very low Background Noise levels are compared with Tritax's Operational Noise levels. At that point it becomes clear that the Operational Noise levels are very much higher than the Background Noise levels, and it is evident that because of this, and especially when **appropriate** Rating Penalties are applied, the Application has no hope.

It is at this point that Tritax's Noise and vibration report becomes very Creative. Firstly, (and without technical justification), Tritax decide not to use the Background Noise levels at all, but to use the (somewhat higher) Ambient Noise levels instead. And secondly, (and in the face of every accepted acoustic principle), Tritax grossly inflate those Ambient Noise levels by saying that the Ambient Noise level at the NSRs is the same as the Ambient Noise level they measured at NMPs at 12 metres from the trackside.

Taken together, Tritax's changes transform their Noise and vibration report, and for Tritax make the impossible possible.

Unfortunately, these changes also have the effect of entirely invalidating Tritax's Noise and vibration report. As a means to having Tritax's Application approved, Tritax's Noise and vibration report is an exemplary document. As a Noise and Vibration report to submit to the Examining Authority in respect of a Nationally Significant Infrastructure Project, it is entirely unsuitable.

Moreover, having been accepted as part of a Nationally Significant Infrastructure Project, Tritax's Noise and vibration report carries with it enormous power to mislead.

At the time that Tritax's Noise and vibration report was first written, and published as their PEIR document in April 2022, it would have seemed very unlikely that it would ever receive close

professional scrutiny, neither from the Examining Authority whose three members have more general skills, nor from the (very small) Blaby District and Hinckley & Bosworth Borough Councils who have no relevant in-house expertise. Nor indeed from any other Interested Party.

In the event, this has not proved to be the case. Indeed, from the publication of Tritax's very first PEIR Noise and vibration report onwards I have continually apprised Tritax of the very major errors they have made, as well as the many other failings in their reports. Tritax's continued denials rule out any possibility that Tritax's errors could have been accidental or due to incompetence.

Indeed, Tritax eventually responded with their "Noise Assessment Update Note". Curiously, and again Creatively, this broadly agreed with and so was used to support Tritax's Noise and vibration report. This was despite much evidence to the contrary, which Tritax ignored.

Subsequently, at the final Deadline 8, I submitted Noise measurements I had commissioned to disprove both Tritax's Noise and vibration report and Tritax's "Noise Assessment Update Note".

And now we see that, in their latest Response, Tritax still deny their errors. Although, in the latter parts of their Response, Tritax seem to be moving towards an approach of Damage Limitation, both in respect of the implications for their Hinckley NRFI project, and for themselves.

But by far the most telling aspect of their Response is that, despite the availability of the new DEFRA Round 4 Rail Noise data and Road Noise data that was published on the DEFRA website in October 2024, and that provides direct and indeed overwhelming confirmation of the errors in both Tritax's Noise and vibration report and Tritax's "Noise Assessment Update Note", we see that Tritax have made no mention at all of the DEFRA Round 4 data in their Response. Even though this long-awaited DEFRA Round 4 data is widely known and indeed was announced on the Institute of Acoustics' website in October 2024.

One, rather obvious, effect of this new DEFRA Round 4 Road and Rail data is that, when taken together with Tritax's Noise Monitoring at NMP3, NMP4 and other locations, and also the Noise Measurements at Billington Lakes, and the CRN-based SEL calculation of Rail Noise data (all of which closely agree closely with one another) we now have a very comprehensive, detailed and robust description of the Noise Climate over the Proposed Site and the Surrounding Area. Indeed we have now almost an embarrassment of data.

The Authors of Tritax's Noise and vibration report, very few in number, bear a heavy responsibility for its content and its manifold failings. This is compounded by their behaviour throughout the Examination Process, both in terms of lack of engagement, (which might be best described as "stonewalling") and the frankly disingenuous and misleading Responses they have submitted in its wake, with particular reference to Tritax's "Noise Assessment Update Note".

These individuals appear to make no claim to be Chartered Engineers, and so are not registered with the Regulatory Engineering Council. Nevertheless, they are still subject to their own Institute of

Acoustics' Code of Conduct. They are reminded of this. And this is a Nationally Significant Infrastructure Project.

Taken together, the very full Comments I have already made in my Parts 1 and 2 and above serve both to answer and more especially to invalidate very much indeed of Tritax's Response, and in particular their Response in Paragraphs 3.45.1 and 3.45.2 of their Letter to the Secretary of State.

So, coming now to the finer detail, there is little that remains to be said.

As a broad Comment here though, Tritax's Responses often take the form of text lifted directly from a British Standard (especially BS4142) followed by just a few words of their own. Superficially, this may appear impressive, imperious, and even intimidating. To its intended audience, this is very likely the desired effect. But closer examination generally indicates the text to be ill-chosen, and that very little is actually being said.

Finally here, a word about how this Hinckley NRFI Application has shaped my experiences over the last two years.

In the Academic positions of Senior Research Fellow and Lecturer, and as the Chief Engineer of a major Industrial Design and Engineering Consultancy and a Fellow of the Institution of Mechanical Engineers, I have over very many years become intimately familiar with a very wide range of Engineering disciplines. Projects have included the Design and Development of Systems and Devices, many of them Safety Critical, for many Medical, Railway, Automotive and Industrial Clients. And, of especial relevance, the furnishing of Consultancy Services for the reduction in the Noise Signatures of the UK's fleet of Vanguard Nuclear Submarines.

Even with these advantages, I have found acting as an Interested Party in respect of this Hinckley NRFI Application to be an extremely time-consuming, stressful and in many ways unequal affair. It is very easy for the Applicant to make misleading or incorrect statements, but much more difficult for me to then tidy them up. And this of course needs to be balanced against the attention of the reader, who obviously has very many other issues to consider as well. It should not fall to members of the public to be obliged to do this, or to commission professional Noise measurements on their own behalf.

Finally, I have never seen a convoluted mess quite as bad as this one. As I beseeched the Examining Authority at the Open Floor Hearing 2 some 14 months ago, these matters could be settled by an Independent Acoustics Consultant with an investigative turn of mind.

Not by Tritax or their Agents.

Given what has been happening here, Tritax have managed to get a very long way. Now they will be focussed upon keeping the lid on the box, and somehow getting over the line.

Tritax's main asset may now be an entrenched view that, given this is a Nationally Significant Infrastructure Project, their Noise and vibration report couldn't be **this** wrong. But it is.

If the DEFRA Round 4 Noise data had been available two years earlier, Tritax's Noise and vibration report could never have been written in its present form, and none of this could have happened.

Dr David Moore