

Tritax Symmetry (Hinckley) Limited

## **HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE**

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### **The Hinckley National Rail Freight Interchange Development Consent Order**

Project reference TR050007

### **Applicant's response to deadline 3 submissions [Part 9 - Noise]**

Document reference: 18.13

Revision: 01

**9 January 2024**

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Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009  
Regulation 5(2)(q)

Response Number	Matter	Applicants Response
1	<p><b>Blaby District Council</b></p> <p><b>1 Introduction</b></p> <p>1.1 As noted at paragraph 5.3 of BDC's Written statement of oral case at ISH3, due to the hearing's time constraints BDC's noise consultant was not able to make a number of points in relation to the Applicant's assessment of likely noise impacts. Outlined below are the additional points BDC sought to make at ISH3.</p>	See responses below.
2	<p><b>2 Threshold for determination of effects</b></p> <p>2.1 Paragraph 10.36 of ES Chapter 10 [APP-119] states "The effect is determined by the change in noise level, with changes of 3dB being only just perceptible under laboratory conditions. This relates to noise that is continuous and similar in nature to the existing noise, however using the rating level, rather than the specific level, accounts for this". BDC consider such an approach is not robust for the reasons detailed below.</p>	See response to point 3.
3	<p>2.2 Paragraph 2.7 of the Institute of Environmental Management and Assessment Guidelines for Environmental Noise Impact Assessment (IEMA Noise Guidelines) states that (our emphasis) "For broad band sounds which are very similar in all but magnitude, a change or difference in noise level of 1 dB is just perceptible under laboratory conditions, 3 dB is perceptible under most normal conditions, and a 10 dB increase generally appears to be twice as loud. Therefore, a change of 3dB for broad band noise such as road traffic (noise that is continuous and similar in nature), would be perceptible under normal conditions, rather than only just perceptible under laboratory conditions as claimed by the Applicant.</p>	<p>This is a typographical error within ES Chapter 10 Noise and Vibration (document reference: 6.1.10A) Paragraph 10.36 should read as per the following;</p> <p>[...]</p> <p>The effect is determined by the change in noise level, with changes of 3dB being perceptible under most normal conditions.</p> <p>[...]</p> <p>Notwithstanding this, the changes in noise levels are predicted to be less than 3dB with mitigation in place. This is detailed in paragraph 10.299 of the ES Chapter (document reference: 6.1.10A).</p>
4	<p>2.3 Paragraph 2.7 of the IEMA Noise Guidelines then goes onto state that "These broad principles may not apply where the change in noise level is due to the introduction of a noise with different frequency and/or temporal characteristics compared to sounds making up the existing noise climate. In which case, changes of less than 1 dB may be perceptible under some circumstances." BDC posits in the context of the Proposed Development that noise of an industrial nature is likely to be more perceptible.</p>	<p>For receptors to the north, noise from the rail freight interchange will influence the future noise climate. However, the existing noise climate in this area is dominated by road noise and rail movements. The proposed operations include HGV movements, rail movements and engine noise from reach stackers and gantry cranes, all of which are in-keeping with the existing noise climate. Furthermore, acoustic barriers are proposed between the rail interchange and receptors which will remove line of sight to those noise sources which are located close to the ground.</p> <p>For receptors to the east of the rail spur, noise from the rail spur and service yard activities will influence the future noise climate, however mitigation is proposed along the eastern boundary to reduce noise from these sources.</p> <p>For receptors to the west of the A47 link road, the future noise climate will be influenced by road traffic on the A47 which will mask noise from service yard activities and the rail interchange.</p> <p>For receptors to the south of the M69, the future noise climate will continue to be influenced by road traffic on the M69 which will likely mask noise from service yard activities.</p> <p>Therefore, in line with the Noise and Vibration Chapter 'it is considered that with the proposed acoustic barriers in place, impulsive noise associated with the proposed operations close to the</p>

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		<p>ground are unlikely to be perceptible. Therefore, no penalty for impulsivity has been included within the following assessment’.</p> <p>Notwithstanding the above, through discussions with BDC and HBBC, a sensitivity analysis has been undertaken where 3dB penalty for operational noise associated with the HNRFI has been applied. This sensitivity analysis concludes that with the implementation of acoustic barriers, the resultant effects at nearby NSRs are not significant. This document is appended to the Statement of Common Ground (NRFI SoCG between the Applicant and Blaby District Council Document Reference 19.1B)</p>
5	<p>2.4 As noted above, the ES at paragraph 10.36 states that “using the rating level, rather than the specific level, accounts for this”. However, the assessment, with mitigation in place, uses the specific level rather than the rating level it claims to use and indeed should be used in accordance with current standards. The rating level needs to account for Acoustic Character corrections which should be applied to the specific level to account for, amongst other things, tonality of the specific noise, intermittency of the specific noise, and impulsivity of the specific noise (i.e. noise with different frequency and/or temporal characteristics as set out in the IEMA Noise Guidelines). These are all characteristics which separate industrial noise sources from broadband sources such as road traffic.</p>	<p>See response to Point 4</p>
6	<p>2.5 Despite this, paragraph 10.288 of the ES [APP-119] states that it “is considered that with the proposed acoustic barriers in place, impulsive noise associated with the proposed operations closer to the ground are unlikely to be perceptible. Therefore, no penalty for impulsivity has been included within the following assessment.”</p>	<p>Noted</p>
7	<p>2.6 BDC submit that no character correction of any kind has been applied. Therefore, the assessment is based on the specific level rather than the rating level as claimed and required under British Standards. There is no justification for the removal of acoustic character corrections with mitigation in place. This approach has total disregard to the nature of the sound that is being assessed and is not an acceptable approach. BDC submit that the Applicant’s approach leads to a significant underestimation of the predicted impacts and overestimation of the attenuation provided by the bunds. This is because not only do the values include the attenuation benefits of the bund itself, but also the benefit from the removal of the characteristics, or ‘penalties’, that need to be attributed to the noise source and should be applied to the specific level.</p>	<p>BS4142:2014, Section 11 states that <i>‘when making assessments and arriving at decisions, therefore, it is essential to place the sound in context’</i>.</p> <p>As stated in ES Chapter 10 Noise and Vibration (document reference: 6.1.10A) Revision 07, Paragraph 10.161, although operations will include activities which are individually intermittent, it is considered that many of these operations will overlap, which will give the impression of the site operating consistently.</p> <p>With mitigation in place, it is further noted in paragraph 10.288 that <i>‘it is considered that with the proposed acoustic barriers in place, impulsive noise associated with the proposed operations close to the ground are unlikely to be perceptible. Therefore, no penalty for impulsivity has been included within the following assessment’</i>.</p>
8	<p>2.7 Whilst the Applicant has tried to contextualise the above point at Paragraph 10.161 of ES Chapter 10 by stating “Although operations will include activities which are individually intermittent, it is considered that many of these operations will overlap, which will give the impression of the site operating consistently”. The reasoning being that because the Proposed Development will operate continuously it will become a ‘broad band’ noise source. BDC submits this contradicts the IEMA Noise Guidelines and importantly BS 4142.</p>	<p>We do not agree with this statement, BS4142 specifically states that <i>‘The rating level is equal to the specific level if there are no such features present or expected to be present’</i>.</p> <p>Notwithstanding this, a sensitivity test will be undertaken to include a +3 dB penalty for Other Sound Characteristics, in accordance with BS4142, which states the following;</p>

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		<p><i>'Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied'.</i></p> <p>This will be provided at deadline 4.</p>
9	<p><b>3 Impact of 3 dB Increase</b></p> <p>3.1 BDC refers to the IEMA Noise Guidelines which state that "3 dB is perceptible under most normal conditions, and a 10 dB increase generally appears to be twice as loud" in reference to broadband noise such as road traffic. BDC consider that these values are important to note, as they highlight the underestimations of impacts made throughout the noise assessment.</p>	Noted
10	<p>3.2 Paragraph 10.41 of the ES states that "A change of 3dB LAeqT or greater is generally considered to result in a noticeable change". This statement is in contrast to their earlier assertion at para 10.36, which correlates to a 'Medium' impact in accordance with their IEMA Noise Guidelines summary in Table 10.9 and the short-term DMRB impact within Table 10.11 of the ES. Paragraph 10.54 similarly states that "Changes of medium magnitude or above are considered to be significant."</p>	<p>There is a typographical error in Paragraph 10.41, this should read as follows  <i>'The effect is determined by the change in noise level, with changes of 1dB being only just perceptible under Laboratory conditions'.</i></p> <p>In terms of the change in operational noise associated with the HRNFI, the criteria set out in Table 10.13 has been adopted, which states that a change in noise levels between 3 dB and 4.9 dB is an indication of a low impact.</p> <p>Notwithstanding this, the Noise Policy Statement for England goes on to state that;</p> <p><i>'Of course, taken in isolation and to a literal extreme, noise minimisation would mean no noise at all. In reality, although it has not always been stated, the aim has tended to be to minimise noise as far as is reasonably practical... the application of the NPSE should enable noise to be considered alongside other relevant issues and not to be considered in isolation. In the past, the wider benefits of a particular policy, development or other activity may not have been given adequate weight when assessing the noise implications'.</i></p> <p>Mitigation has been recommended to reduce any noise impacts as much as possible, and when considered within the context of the existing noise environment, significant impacts are reduced.</p>
11	<p>3.3 In respect of road traffic impacts, and taking the future baseline scenario as a starting point, i.e., considering impacts for all other committed developments but excluding impact from the Proposed Development, Paragraph 10.112 of the ES states that "For noise levels to increase by 3dB, which is widely accepted to be just perceptible, there would need to be a doubling of existing flows". Whilst it is not disputed that a doubling of road traffic would result in a 3dB increase to ambient levels, it has already been established above that a 3dB increase cannot be described as "widely accepted to be just perceptible".</p>	Noted.
12	<p>3.4 Paragraph 10.112 goes on to state that "A review has been undertaken of the traffic data provided by the Transport Consultant, which indicates that there will be a 4dB increase on the B4669 and slip roads associated with the M69, and up to a 6dB increase at the roundabout associated with junction 2 of the M69".</p>	It should be noted that this is with the proposed development and Junction 2 slips in place.

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13	3.5 A change of 4dB would correlate to a 'Medium' impact in accordance with the IEMA Noise Guidelines and DMRB guidance, with a change of 6dB representing a 'High' impact in the short-term in accordance with DMRB (Moderate and Major respectively if we were to use DMRB terminology).	
14	3.6 BDC submit that it is important to consider sensitive dwellings at these locations. The above demonstrates that even before the Proposed Development comes to fruition (future baseline scenario), the sensitive dwellings will already have experienced noise level increases of up to 6dB. These increases also need to be considered in relation to cumulative, or in combination impacts. It should be noted that IEMA Noise Guidelines references the effect of cumulative impacts at paragraph 7.86 as follows: "There can be situations when separate, independent proposals are put forward at about the same time and which are going to impact on the same receptors. The various proposals need to be assessed independently, but at some point, there should be liaison between the projects to consider the cumulative impact on the sensitive receptors of all the proposals. The cumulative impact is likely to be of concern for the local planning authority and, of course, those affected by the proposals are unlikely to differentiate between the noise from the different developments. They are simply going to perceive the total change to their noise environment, should all the developments be implemented."	<p>The pertinent guidance for assessing and reporting the effects of highways noise and vibration from construction and operation of highways projects is the Design Manual for Roads and Bridges (DMRB). The noise assessment of off-site road traffic has been undertaken drawing on the principles of DMRB.</p> <p>There is a note in DMRB which is helpful to the situation (p. 20 baseline) that states validation of baseline can be undertaken by comparing modelled noise levels to measured noise levels using corrections to take account of expected changes in traffic levels between the date of monitoring and the date of the baseline.</p> <p>The assessment method within DMRB and adopted is to compare effects against a "without development" future scenario. Ignoring the committed developments would essentially be ignoring part of the future baseline.</p>
15	3.7 Therefore, one needs to consider the cumulative impact for both the future baseline (4 – 6dB increase), along with the impact of the Proposed Development itself, which has not been undertaken.	See above
16	<p>3.8 BDC submits that one can predict (at an unsophisticated level) what these impacts may be based on the 'without mitigation' impacts presented at paragraph 10.237 of the ES. It is important to note at this point that the crude approach is due to the lack of tabulated information presented within ES Chapter 10. For example, no receptor specific numerical values are provided, therefore, we can only estimate what the numerical impact is based on the descriptive 'Major' effect stated at paragraph 10.237 as follows:</p> <p>The four residential receptors predicted to experience a major adverse effect are located...One receptor within the traveler's site, along Smithy Lane, nearest to Junction 2 of the M69... Two receptors at the traveller's site along Leicester Road (B4668)"</p>	It is worth noting that this is the 'without mitigation' scenario, and with mitigation, these impacts are predicted to be reduced.
17	3.9 This statement suggests, albeit without mitigation, that a Major Impact ( $\geq 5$ dB in accordance with DMRB) would be experienced at two of the locations predicted to experience Medium to Major impacts for the future baseline. Therefore, these receptors would likely experience an increase of 10+dB when considered cumulatively in accordance with the IEMA Noise Guidelines.	See response to point 14, 16 and 18.
18	3.10 It is appreciated that this is based on the 'without mitigation' scenario, nevertheless, it highlights the fundamental flaws within the assessment. BDC suggest that any benefits associated with the mitigation scenario cannot be relied upon.	<p>We do not agree with this statement. The assessment has been undertaken in accordance with the principles of DMRB, which is the guidance for assessing noise from highways projects.</p> <p>Notwithstanding this, see response to point 14.</p>
19	<p><b>4 LAmx levels associated with Gantry Cranes</b></p> <p>4.1 Paragraphs 10.311 and 10.312 of the ES indicate that a 10dB reduction has been afforded to the gantry cranes through the provision of mitigation in the form of suitable equipment selection and exhaust silencers, which obviously is welcome. However, this reduction can only be afforded to the rating level of the plant, and not maximum event levels associated with, for example, impact noise associated with container stacking.</p>	<p>To clarify, the 'with mitigation' maximum noise level assessment does not include a 10 dB reduction as a result of plant selection.</p> <p>The 'with mitigation' assessment has only considered the benefit provided by the acoustic barriers. Paragraph 10.314 could be reworded as per the below to clarify this point.</p> <p><b><i>"10.314 The LAF max level as a result of reach stackers and/or cranes handling containers has been recalculated with the proposed acoustic barriers in place. The LAF max has been calculated</i></b></p>

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		<p><i>for those receptors where an exceedance of the criteria was predicted. The results are shown below in Tables 10.61.”</i></p> <p>Furthermore, it has since been confirmed that ‘soft dock’ technology will be implemented on the scheme which allows containers to be positioned accurately using cameras and gentle positioning onto stacks and trailers. This is the mitigation strategy for reducing maximum noise levels associated with spreader impact and container placement.</p>
20	<p>4.2 Upon questioning this point with the Applicant, they have referenced the Proof of Evidence document presented in Appendix 10.7 [APP-186]. However, upon reviewing the Proof of Evidence document BDC considers this does not provide robust a evidence base, rather the relevant document just states that a 10dB reduction can be afforded but doesn’t offer any numerical data to verify this claim. Therefore, this reduction cannot be afforded to maximum levels within the mitigation scenario, and subsequently, this mitigation scenario cannot be relied upon</p>	<p>Detail on this and the 10dB reduction afforded to electric cranes was provided at deadline 3 (document reference: 18.7.6 REP 3-061).</p> <p>In addition, Northampton Gateway Rail Freight Interchange ES Appendix 10.6 “Appendix 8.5 – Summary of assumptions for SRNFI operational activities”) (document reference: 6.2.10.6, APP-185) included electric gantry crane noise data, which presented a sound power level of around 10dB lower than that assumed in this assessment (99dBA compared with 109dBA). Therefore, a 10dB reduction in noise level when considering electric cranes is considered reasonable and achievable.</p> <p>To clarify, the ‘with mitigation’ maximum noise level assessment does not include a 10 dB reduction as a result of plant selection.</p>
21	<p><b>Dr David Moore</b></p> <p>Introduction On the 10th October 2023, I submitted a Written Representation to the Examining Authority regarding the Environmental Statement submitted by Tritax Symmetry (Hinckley) Ltd in respect of their proposed Hinckley National Rail Freight Interchange and with particular reference to Chapter 10: Noise and vibration.</p> <p>The Responses that Tritax Symmetry (Hinckley) Ltd made to those Interested Parties who had registered as individuals appear to be grouped in the “Applicant’s Comments on Written Representations [Part 4 of 4 Residents Businesses]” [REP2-066].</p> <p>I here make my Comments upon the Responses made by Tritax Symmetry (Hinckley) Ltd. For reasons of brevity, I have in these Comments used “Tritax” to refer both to the contents of the Applicant’s Responses and to the contents of the Applicant’s Environmental Statement.</p> <p>My Written Representation was a technically-based document that identified and discussed several serious failures and shortcomings in Tritax’s Noise and vibration report. It ran to 38 pages and comprised 12 main Sections.</p> <p>In these Comments, I have passed through those same 12 Sections in order, summarising what I said in my Written Representation, and providing additional detail where appropriate to reflect Tritax’s Responses and to update on more recent events.</p>	<p>The applicant disagrees strongly with the suggestion that there has been no engagement with some elements of Dr David Moore’s previous representations.</p> <p>On fully reviewing the information provided, the applicant distilled down what were considered to be the 12 main points that were being raised, given the length of the submission. Each of these was addressed in the applicant’s Deadline 2 submission.</p> <p>Notwithstanding this, further responses have been provided below to further clarify points being made.</p>

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	<p>In each of these Sections, I have indicated any Responses that Tritax have made, wherever it appeared that their Response might possibly have been directed to me. For many Sections, there was no Response. For other Sections, despite looking closely, there appears to be no engagement with what I had written.</p> <p>In my Written Representation I drew particular attention to two separate methodological errors <b><i>that link together to misdirect data and so invalidate much of the remainder of the Noise and vibration report.</i></b></p> <p>The first such error has the effect of greatly inflating the ambient noise levels at many of the NSRs, by up to 16dB. This was described in Section 1 of my Written Representation and also now in Section 1 of this Comments document.</p> <p>The second error changes the comparison between the Operational noise levels and the background noise levels at the NSRs so that it is made instead with the ambient noise levels at the NSRs. Owing to the inflation of the ambient noise levels that I have just described, for many of the NSRs these ambient noise levels are in fact over 20dB higher than the background noise levels they replace. This was described in Section 5 of my Written Representation and also now in Section 5 of this Comments document.</p> <p>So, what is actually happening in Tritax’s Noise and vibration report is that what the Operational noise levels are actually being compared with is not the background noise levels at the NSRs, nor even the ambient noise levels at the NSRs, but actually the ambient noise levels measured at the Noise Monitoring Positions close by the sides of the track and roads!</p> <p>Needless to say, these two grave interconnected errors greatly favour Tritax’s Proposed Development. Their rightful removal from the Noise and Vibration report, and the introduction of the increased rating penalties that would inevitably follow, will have the effect of washing away all of the latter part of Tritax’s Noise and vibration report and its results.</p> <p>Neither of the two errors Tritax have made is technically justifiable, and both are in contravention of British Standard BS 4142:2014+A1:2019 “Methods for rating and assessing industrial and commercial sound”.</p> <p>Yet here they lie, still hidden in plain sight in Tritax’s Noise and vibration report, seemingly undiscovered by the Examining Authority, Blaby District Council, Hinckley and Bosworth Borough Council, or indeed by anyone else!</p> <p>This is a game changer, and this Comments document is yet another attempt to have my voice heard.</p> <p>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 &amp; Gamble, GSK, London Underground, Johnson &amp; 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.</p>	

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22	<p><b>Section 1. Failure to Determine Baseline Conditions</b></p> <p>In Section 1 of my Written Representation, which ran to 5½ pages, I described in detail how Tritax had taken the ambient (LAeq) noise levels they recorded at the Noise Monitoring Positions (NMPs) adjacent to the trackside (or roadside), and simply imposed them upon the Noise Sensitive Receptors (NSRs) without applying any attenuation to the ambient noise levels for the train pass bys, even though some of those NSRs are hundreds of metres away from the track (or road).</p> <p>I explained that this was a flagrant, fundamental and extremely grave failing that rendered very much of the remainder of Tritax’s Noise and vibration report invalid, that it contravened every relevant Acoustic Theory, was in breach of every British and International Standard, and also defied common sense. Those same remarks also applied to the maximum noise levels (LAmax,f ).</p> <p>For reasons of accessibility, in my Written Representation I adopted a descriptive rather than mathematical approach.</p> <p>In the latter part of Section 1, I also described in detail how Tritax had failed to indicate the distance at which the Noise Monitoring Positions (NMPs) had been placed away from the trackside (or roadside) and that the ambient (LAeq) and maximum (LAmax,f ) noise levels they recorded were dependent upon that distance, and so had no real meaning unless those distances were known. I explained that my observation of the site indicated that NMP4 was placed at no more than 12 metres from the nearside rail of the closest trainline.</p> <p>Finally, I outlined that once those distances were confirmed, it would be possible to calculate the actual ambient (LAeq) and maximum (LAmax,f ) noise levels at the NSRs from the NMP data already available from the Noise and vibration report.</p> <p>Tritax’s sole response to all of this was:</p> <p>“As set out in Table 10.1 of the ES Noise and vibration chapter, the noise monitoring methodology has been detailed within the technical note NTT2814 –Hinckley Survey Method Statement_Issue_P02 (document reference: 6.2.10.5, APP-184), which has been submitted to and agreed with Blaby District Council and Hinckley and Bosworth Borough Council – in both cases it was agreed by suitably qualified technical officers.”</p> <p>As you will see, Tritax did not engage with any of the points I raised. The Method Statement to which they refer (of which of course I was already aware) is purely a procedural document, that can have no sway upon the ambient (LAeq) and maximum (LAmax,f ) noise levels that NSRs actually experience. Also, Tritax do not indicate that they support the Method Statement, rather, their aim seems to be to pass a measure of responsibility for their Noise and vibration report to Blaby District Council and Hinckley and Bosworth Borough Council.</p>	<p>Further information to support the continued use of the measured ambient noise levels is provided specifically in pages 6 to 11 of the Written Statements of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document reference: 18.7.6, REP3-061).</p> <p>Essentially, within that document, the NMP4 measurement data was compared against DEFRA strategic noise mapping and found that, with increased distance from the rail line moving north, receptors experience increased road traffic noise and therefore for NSRs represented by NMP4, the ambient noise levels from the mapping align with those used.</p>

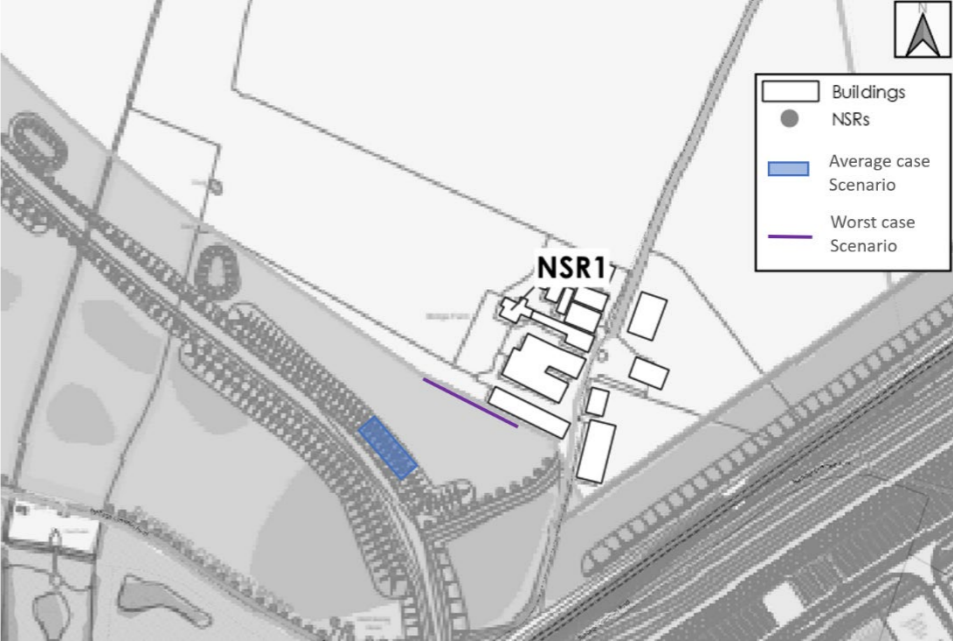


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	<p>As Tritax had given no meaningful response, I attempted to raise this matter in the Issue Specific Hearing 3 – Environmental Matters, Agenda Item 5 in respect of Noise and vibration.</p> <p>I also presented an Oral Submission to the Open Floor Hearing 2 as an Interested Party. This was necessarily very condensed at just 3 minutes long, but describes Tritax’s grave error in imposing the ambient (LAeq) noise levels measured at the NMPs directly upon the NSRs, and gives an example of the error of 16 dB that results in the case of three NSRs located at a distance of 430 metres away from the nearside rail. The text is shown below:</p> <p>I also show on the following pages a sample calculation in accordance with “Calculation of Railway Noise” (CRN) that demonstrates that an attenuation of 16 dB needs to be applied in the case of these three NSRs at a distance of 430 metres from the nearside rail, exactly as I described in my Oral Submission. I have also included some words of explanation</p>	
23	<p><b>Text of Oral Submission to Open Floor Hearing 2 – Dr David Moore</b></p> <p>I am Dr David Moore and I am an Interested Party. I am a Chartered Engineer, and a Fellow of the Institution of Mechanical Engineers.</p> <p>I submitted a 38-page Written Representation on the 10th October in respect of Tritax’s Noise and vibration report. The approach and questions from the Examining Authority I heard yesterday strongly suggest that nobody with an Acoustics background has properly understood either Tritax’s report or my Written Representation.</p> <p>In view of this, I am concentrating here on just one of Tritax’s failings, which in itself is grave enough to wash away all of the latter part of Tritax’s report and results. The errors I am talking about here are of the order of 15 to 20dB, which is a game changer.</p> <p>Much of Tritax’s report depends upon the values of the existing noise levels at the Noise Sensitive Receptors, or NSRs. There are two key parameters here, called background noise and ambient noise.</p> <p>Tritax’s report first gathers noise data at six Noise Monitoring Positions or NMPs positioned beside the rail track or the road and from which it derives those same two key parameters of background noise and ambient noise. Of course these values are local to the track (or road). Let’s talk track here.</p> <p>Tritax then apply both of those values directly to the NSRs. Now, for the background noise, this is an accepted thing to do. But for the ambient noise it is certainly not the accepted thing to do and in fact it is gravely wrong. This is because an attenuation must be applied to reflect that the NSR is further away from the track than the Noise Monitoring Position where the local measurement was made.</p>	Please see previous response to point 22.

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	<p>Three of these NSRs for example are located at approximately 430 metres away from the track, and so an attenuation of 16dB needs to be applied. So the ambient noise attributed by Tritax to those NSRs of 59.2dB should in fact be 43.2dB.</p> <p>This methodological error percolates down through the remainder of Tritax's report, and in fact would inevitably grow in dB stature because of the effect upon the rating values that are subsequently applied. So, a new Noise report.</p> <p>I beseech you, in the strongest possible terms, get Tritax's report and my Written Representation in front of somebody with a strong technical Acoustics background.</p> <p>Now would be best, while there is still time for Tritax and Interested Parties to respond, and the Proposed Development is not yet built.</p> <p>I have only a 3 minute window, and so have described only one thing.</p> <p>Thank you</p>	
24	<p><b>Calculation of the Attenuation of the Ambient Sound Level between the Noise Measuring Position NMP4 and a Noise Sensitive Receptor NSR located at 430 metres away from the rail track</b></p> <p>Ambient Sound Level at NMP4 = 59.2 dB Residual Sound Level at NMP4 = 42.0 dB</p> <p>First, subtract the Residual Sound Level at NMP4 from the Ambient Sound Level at NMP4, to arrive at the Specific Train Sound Level at NMP4:</p> <p>Specific Train Sound Level at NMP4 = <math>10 \log (10^{5.92} - 10^{4.20}) = 59.116 \text{ dB}</math></p> <p>Now, in accordance with CRN, apply attenuation corrections to the Specific Train Sound Level at NMP4 to arrive at the Specific Train Sound Level at the NSR located at 430 metres distance from the nearside rail. (Note that Charts 3, 4, 5 and 7 are Charts and Calculation Formulae provided in CRN).</p> <p>Specific Train Sound Level at NMP4 (carried down from above) = 59.116 dB</p> <p>Now subtract the following to apply the necessary attenuations Attenuation for Distance (Chart 3) - <math>10 \log_{10} (430/12) \text{ dB} = -15.543 \text{ dB}</math> d' is 430 metres NMP4 is at 12 metres</p> <p>Attenuation for Air Absorption (Chart 4) <math>0.2 - 0.008 \times (430 + (25 - 12)) \text{ dB} = -3.344 \text{ dB}</math> d' is 430 metres NMP4 is at 12 metres</p>	<p>Please see previous response to point 22.</p> <p>The comments ignore the existence of road traffic noise in the area.</p>

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	<p>Attenuation for Ground Absorption (Chart 5) <math>-0.6 \times 1.0 \times (6 - 2.3) \log_{10} (430/25)</math> dB = - 2.743 dB d is 430 metres H is mean height 2.3 metres I is all soft ground 1.0</p> <p>Attenuation for slight local Track Curvature – Angle of View (Chart 7) = - 0.164 dB <math>\alpha_1</math> is 45° <math>\theta_1</math> is 90° <math>\alpha_2</math> is 62° <math>\theta_2</math> is 57°</p> <p>Specific Train Sound Level at the NSR located at 430 metres away from the nearside rail = 37.322 dB</p> <p>Finally, add back the Residual Sound Level at the NSR, which is taken to be the Residual Sound Level at NMP4, to arrive at the Ambient Sound Level at the NSR located at 430 metres distance from the nearside rail:</p> <p>Ambient Sound Level at the NSR = <math>10 \log_{10} (10^{3.732} + 10^{4.20}) = 43.272</math> dB</p> <p><b>Compared with the Ambient Sound Level of 59.2 dB at NMP4, the Ambient Sound Level at the NSR located at 430 metres away from the nearside rail is 43.272dB and has therefore been attenuated by 15.928 dB, which I rounded to 16 dB in my Oral Submission.</b></p> <p>In the way of explanation for the above calculation:</p> <p>For the Ambient Sound Level at NMP4 I used Tritax’s own Weekday averaged value. For the Residual Sound Level at NMP4 I used Tritax’s own Weekday Background Sound Level +3dB. NMP4 is placed at 12 metres from the nearside rail.</p> <p>At distances over 300 metres, CRN may underestimate the attenuation over open soft ground, so that the ambient noise level at the NSR of 43.272dB that I arrived at in the calculation may actually be slightly lower still at 41dB or 42dB.</p> <p>But, in order to allay any possible concerns, I have also calculated, for those same NSRs, the ambient noise level at intermediate distances of 300 metres, 200 metres, 150 metres and 100 metres from the rail track, as shown below. You may see that at 300 metres, the attenuation is almost the same as that indicated at 430 metres.</p> <p>Distance from track Attenuation Ambient noise level  430 metres 15.9 dB 43.3dB  300 metres 15.0 dB 44.2dB  200 metres 13.5 dB 45.7dB  150 metres 12.3 dB 46.9dB  100 metres 10.5 dB 48.7dB  12 metres 0.0dB 59.2dB  Unattenuated!</p> <p>The ambient noise level of 59.2dB is the ambient noise value measured at NMP4, which is at 12 metres from the trackside. It is this unattenuated ambient noise level that Tritax have imposed upon all of the 11 NSRs associated with NMP4 in their Noise and vibration report. This is wrong.</p>	

Response Number	Matter	Applicants Response
	<p>The median distance from the rail track of those 11 NSRs associated with NMP4 is 330 metres.</p> <p>As well as the attenuation in respect of the ambient noise level at NMP4 and its NSRs that I have considered above, broadly similar attenuation of the ambient noise level will also apply in respect of NMP3 and its NSRs on Burbage Common. So the ambient noise levels on Burbage Common have been similarly overestimated.</p> <p>As I described in my Introduction, the result of Tritax's error here is that the ambient noise levels at the NSRs that are arrived at in Tritax's report are greater, and in many cases very much greater than the ambient noise levels at the NSRs actually are.</p> <p>As we shall see in Section 5, Tritax then go on to compare the Operational noise levels, not with the background noise levels at the NSRs, but instead with the ambient noise levels at the NSRs.</p> <p>Because, as we have seen above, no attenuation has been applied to these ambient noise levels, they are actually the ambient noise levels measured at the Noise Monitoring Positions close by the sides of the track and roads! And for many of the NSRs these ambient noise levels are in fact over 20dB higher than the background noise levels they replace!</p> <p>If you wish to maintain the continuity of this discussion, please move on now to Section 5</p>	
25	<p><b>2. Failure to Heed Consultation Response Warnings</b></p> <p>In Section 2 of my Written Representation, which ran to 1¼ pages, I described how in my Consultation Response of the 7th April 2022 I had warned Tritax that in their PEIR Chapter 10 Noise and vibration report of January 2022 that they had made the gross error that the noise levels measured local to the track were being directly used as the noise levels local to the NSRs without attenuation, and also that they had failed to provide important NMP positioning data.</p> <p>And that now we find, as I indicated in Section 1 of my Written Representation, that those same failings have been carried over into their Chapter 10 Noise and vibration submission to the Examining Authority. And that they really only have themselves to blame.</p> <p>Tritax made no response to this.</p>	Please see previous responses to points 21 and 22.
26	<p><b>3. Failure to Determine Construction Noise</b></p> <p>In Section 3 of my Written Representation, which ran to 3 pages, I described that, in their assessment of Construction Noise, Tritax had investigated two scenarios, which they termed "worst case" and "average case" respectively.</p>	<p>With regard to the comment around application of ISO 9613-2, to clarify, construction noise has been calculated in full compliance with the methodologies set out in BS5228 Part 1, which is the correct calculation methodology for predicting construction noise, rather than ISO 9613-2.</p> <p>With regard to the point around the character of the construction noise, the criteria sets described in BS5228-1 already take into consideration the nature of construction noise and therefore do not allow or require the practitioner to adjust the resultant noise levels.</p>

Response Number	Matter	Applicants Response
	<p>In Tritax’s “average case” scenario, the construction plant is all operating at the approximate centre point of the closest area of construction to each NSR. This gives an “average case” (LAeq) value of 58dB, which is very much smaller than their “worst case” (LAeq) value of 90dB.</p> <p>This reduction can only have been caused by the noise having been attenuated over a considerable distance, which means in turn that Tritax’s “closest area of construction” must be very large.</p> <p>Simple calculations I performed indicated that this attenuation of 32 dB between the “worst case” and “average case” is achieved only when the centre point at which the construction plant is operating is 300 metres distant from the NSR. This in turn means that Tritax’s “closest area of construction” must be around 600 metres across, which roughly corresponds to the dimension of whole of the main site.</p> <p>Tritax’s “average case” scenario is therefore unrepresentative, because it means that no item of construction plant would ever be allowed closer to the NSR than 300 metres.</p> <p>I then referred to the authoritative ISO-9613-2-1996 “Acoustics – Attenuation of sound during propagation outdoors” - Part 2: General method of calculation, which states that:</p> <p>“a group of point sources may be described by an equivalent point sound source situated in the middle of the group, in particular if”.....“the distance d from the single equivalent point source to the receiver exceeds twice the largest dimension Hmax of the sources (d &gt; 2Hmax)”</p> <p>and:</p> <p>“If the distance d is smaller (d ≤ 2Hmax), or if the propagation conditions for the component point sources are different (e.g. due to screening), the total sound source shall be divided into its component point sources.”</p> <p>In our case, assuming the area is 600 metres square, then the diagonal Hmax is approximately 850 metres. This means that d, the distance of the NSR from the centre of the site, would need to be in excess of 1.7 kilometres for Tritax’s “average case” calculation to be applicable! For the NSRs that are considered here, d is of course in all cases very much less than 1.7 kilometres, and so the items of plant need to be considered individually.</p> <p>As a way forwards, I performed simple calculations in accordance with BS5228 Part 1, based upon more realistic “average case” assumptions for the first construction phase, which I described in some detail. The results obtained from this more realistic “average case” noise were in the region of 77 dB to 83 dB.</p> <p>A further consideration was that this much higher construction noise, as well as dominating the existing noise climate, would have strong tonality, impulsivity, and intermittency characteristics that are entirely out of character with the true existing noise climate.</p>	<p>The following illustrative figure, which is not to scale, presents an example of how the construction area was defined for receptors included within the construction noise assessment.</p>  <p>The worst-case scenario assumes that construction works could take place within 5m of the Main DCO limits.</p> <p>The average case scenario assumes construction taking place within the closest area where works are required, as shown on the above figure for NSR1.</p> <p>The average case and worst case assessments represent the range of potential outcomes for works. Where there is a large area of construction, the worst case impacts would remain the same as if it were a smaller area, however, conversely, if there is a large area where activities are on average going to be a very significant distance away from the site boundary, the average case assessment should reflect this. This is demonstrated in the above figure.</p> <p>It is noted that the current SoCG with BDC and HBBC has the following Matters Agreed:</p> <ul style="list-style-type: none"> <li>• Construction Phase Noise Assessment – Assessment Criteria</li> <li>• Construction Phase Noise Assessment – Assessment Methodology</li> <li>• Construction Phase Noise Assessment (notwithstanding further information regarding the CEMP)</li> </ul>

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	<p>In the latter part of Section 3 of my Written Representation, I took strong issue with Tritax regarding their extremely selective misrepresentation of BS 5228 Part 1, which in their Noise and vibration report they had used to justify excluding from their Table 10.28 all NSR receptors that lie more than 300 metres away from the site boundary. In fact, BS 5228 makes no mention at all of excluding such receptors. Tritax's decision to remove NSRs from their Table 10.28 is to be deplored as it effectively disenfranchises those residents from the assessment process.</p> <p>Tritax's response was as follows:</p> <p>"The ES Noise and vibration chapter (document reference: 6.1.10, APP-119) adopts a standard approach for assessing "average case" and "worst case" construction noise levels. Only one NSR is predicted to have a significant adverse effect during two phases without mitigation.</p> <p>The worst case assessment shows some much greater noise levels in some phases at some NSRs prior to mitigation. In each case, the actual activity generating the noise levels is likely to be of a short duration and localised. Given that the worst case assessment assumes that stages 1, 2 and 4 could take place within 5m of the DCO limits, in many cases the activity simply will not take place as close as assessed.</p> <p>Notwithstanding this, the framework CEMP incorporates a range of noise control techniques and strategies to reduce noise, many of which are referenced in "British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites parts 1: Noise" as effective noise control measures."</p> <p>As you will see, Tritax did not engage with any of the points I raised. I was of course already aware of the Construction Environmental Master Plan (CEMP), and had made extensive reference to BS5228 in this Section 3 of my Written Representation to them.</p>	
27	<p><b>4. Completed Development Model</b></p> <p>In Section 4 of my Written Proposal, which ran to half a page, I described that the CadnaA noise models for the Completed Development were set to G=0.5 (50% acoustically absorptive ground). But that, in contrast, the CadnaA noise model for Off-Site traffic noise was set to G=0.0 in order to, as Tritax explained "reflect the areas of hard standing across the site".</p> <p>From the "Illustrative Masterplan" it is evident that the Main Site is overwhelmingly acoustically reflective (i.e. G=0.0), and particularly so in the critical area to the North West of Units 7, 8, and 9 that projects noise forwards across the tracks towards the affected NSRs.</p> <p>This is one of the very few areas of the CadnaA modelling work that is accessible.</p>	<p>The generalised noise model setting has been G = 0.5, which essentially takes into account the mixed ground conditions between source and receiver (i.e. from source to receiver the sound will need to travel across some hard ground and some soft ground). Where other absorption coefficients have been used for specific areas, these have been stated in the ES chapter.</p> <p>As described in paragraph 10.220 of the ES Chapter, the "Do Something" scenario ground absorption coefficient has been assumed to be 0 across the Proposed Development to reflect the situation that the scheme comes forward and the soft ground across the site is developed out to hard standing. For "Do Minimum" scenarios, the Proposed Development area would not be built out and therefore remain as soft ground, i.e. an absorption coefficient of 1.</p> <p>It is of note that the following matter is currently agreed with BDC and HBBC:</p> <ul style="list-style-type: none"> <li>Operational Phase Noise Assessment - Modelling Inputs and Source Data</li> </ul>

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	<p>Tritax's sole response to this was: "All noise model inputs, data sources, calculation methodologies, settings and software have been reported on, and noise contour outputs have been provided in the ES (document ref 6.1.10 App - 119).</p> <p>Evidently, Tritax did not engage with any of the points I raised, and made no reference to correcting their CadnaA model in this critical area.</p>	
28	<p><b>5. Failure to Properly Compare the Completed Development Noise Levels</b></p> <p>In Section 5 of my Written Proposal, which ran to 3¼ pages, I described how Tritax compared the predicted Operational noise levels they had obtained from the CadnaA noise models with the prevailing noise climate at the NSRs.</p> <p>British Standard BS 4142:2014+A1:2019 "Methods for rating and assessing industrial and commercial sound" describes methods for rating and assessing sound of an industrial and/or commercial nature.</p> <p>In Tables 10.39 to 10.42, Tritax compare their predicted Operational noise levels with the measured background noise levels in accordance with British Standard BS 4142:2014+A1:2019.</p> <p>But the results, shown in Tables 10.39 to 10.42 are unfavourable to the Proposed Development because High "Magnitudes of Impact" are indicated at many of the NSRs.</p> <p><b><i>I would state in passing here that I strongly disagree with the rating penalties that Tritax have apportioned in these Tables and consider them to be too low, or far too low, so that the Magnitudes of Impacts would in truth be yet more serious than those shown in their Tables. But because, as we shall see, Tritax quickly forget these results anyway as they move on to other comparisons, I will not pursue this matter any further now, but anticipate that it would arise again in any future Noise and vibration report.</i></b></p> <p>Faced with this serious problem, Tritax then look around for other things to do, and it is fascinating to see what happens next.</p> <p>In my Introduction and my Section 1, I have already described that in Tritax's Noise and vibration report the ambient noise levels at the NSRs are greater, and in many cases very much greater, than the ambient noise levels at those NSRs actually are.</p> <p>And that this is because no attenuation has been applied to these ambient noise levels at the NSRs, to reflect the fact that the NSRs are at a (in some cases very considerable) distance from the NMPs at which those ambient noise levels were actually measured.</p> <p>As a result, in Tritax's report the ambient noise levels indicated at the NSRs are actually the same ambient noise levels as those measured at the Noise Monitoring Positions close by the sides of the track and roads!</p>	<p>The Association of Noise Consultants (ANC) is a trade organisation. The Technical Note was produced to assist their members with interpretation of the British Standard, however p2 of the document states:</p> <p><i>"This is intended to be a discussion document with some qualified views from the ANC Working Group (WG) and should not be taken as a prescriptive guide. The discussion is also intended to assist with the evolution and development of subsequent guidance."</i></p> <p>The applicant considers BS4142 to be clear as a standalone document, and it is not considered that there is anything within the ANC Technical Note that would change the approach or results of the assessments set out in the ES Chapter.</p> <p>Notwithstanding this, the IEMA Guidelines for Noise Impact Assessment 2014 stat in 7.54 that "Relying solely on the change in noise level is not appropriate because it risks ignoring the context of the noise change" and recommends the consideration of the absolute level. The consideration of a rating level against background sound level, a change in ambient noise level and the future absolute noise level then provides a comprehensive evidence base on which to determine the residual effect.</p> <p>As previously stated in the Deadline 2 submission, the approach to the consideration of context is in line with that of other similar developments such as East Midlands Gateway, where "WHO Guidelines for Community Noise (1999)", "British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings" and changes in ambient noise level were all considered.</p>

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	<p>What Tritax now try to do is to compare their predicted Operational noise levels not with the background (LA90) noise levels at the NSRs, but instead with their ambient (LAeq) noise levels at the NSRs.</p> <p>In their sub-sub-Section on Context Tritax try to build a case for doing this in just two short paragraphs 10.173 and 10.174 which I here quote verbatim:</p> <p>“10.173 The results of the assessment indicate that adverse impacts may be experienced at NSRs during the periods under consideration. However, BS 4142 states that ‘the significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs’. Therefore, the context has been considered below for those receptors that may experience adverse impacts as a result of Operational noise associated with the Proposed Development.” “</p> <p>10.174 BS 4142 goes on to state that ‘where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background’.”</p> <p>Tritax then go directly on to switch from the background noise levels to their ambient noise levels in paragraph 10.175: “</p> <p>10.175 The sound rating levels have been compared to the existing noise climate at each receptor where an adverse impact is predicted, for the daytime and night-time for both the weekday and weekend period.”</p> <p>What Tritax actually mean by the innocently-sounding “existing noise climate” is their ambient (LAeq) noise levels at the NSRs.</p> <p><b><i>And Tritax’s noise problems largely go away!</i></b></p> <p>It is however very difficult to discern any logical argument in paragraphs 10.173 and 10.174 that leads to or in any way justifies the action Tritax take in paragraph 10.175 of switching from background levels to their ambient levels.</p> <p>But for the moment, let’s take it at face value, and see where it leads.</p> <p>Taken together, paragraph 10.173 and 10.174 simply suggest that, as well as the <b><i>relative</i></b> levels of the Operational noise and background noise being considered, their <b><i>absolute</i></b> levels might also be considered when those <b><i>absolute</i></b> levels are low.</p> <p>This immediately poses the question “how low?”, but unfortunately BS4142 provides no guidance here.</p>	



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	<p>Much more useful is the BS4142:2014+A1:2019 “Technical Note” published by the Association of Noise Consultants Good Practice Working Group in March 2020. As its authors explain in their introduction, it is “designed to assist readers with a reasonable interpretation and application of BS 4142 as a whole”.</p> <p>Regarding absolute levels, the BS4142 “Technical Note” covers this matter very fully, and for reasons of clarity this is shown below in its entirety:</p> <p>“The standard states that the absolute level of sound can be of significance, where the residual values are low and where they are high, and should be taken into account when determining the overall impact of a particular specific sound source.</p> <p>The second paragraph notes that absolute levels may be as, or more, important than relative outcomes where background and rating levels are low. <b><i>It is important to note that both background and rating levels would need to be low for this particular caveat to apply.</i></b></p> <p>BS 4142 does not indicate how the initial estimate of impact should be adjusted when background and rating levels are low, only that the absolute levels may be more important than the difference between the two values. It is likely that where the background and rating levels are low, the absolute levels might suggest a more acceptable outcome than would otherwise be suggested by the difference between the values. <b><i>For example a situation might be considered acceptable where a rating level of 30dB is 10dB above a background sound level of 20dB, i.e. an initial estimate of a significant adverse impact is modified by the low rating and background sound levels.</i></b></p> <p><b><i>BS 4142 does not define ‘low’ in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30 dB LA90, and low rating levels as being less than about 35 dB LAr,Tr.</i></b></p> <p><b><i>The WG suggest that similar values would not be unreasonable in the context of BS 4142, but that the assessor should make a judgement and justify it where appropriate.”</i></b></p> <p>The italics are mine.</p> <p>Particularly important here is the statement:</p> <p>“The second paragraph notes that absolute levels may be as, or more, important than relative outcomes where background and rating levels are low. <b><i>It is important to note that both background and rating levels would need to be low for this particular caveat to apply.”</i></b></p> <p>In Tritax’s Noise and vibration report, Table 10.39 indicates both the background levels and the rating levels ruling on Weekday daytimes.</p>	

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	<p>With reference to Table 10.39, careful investigation reveals that all of the NSRs listed have either a background level or a rating level of 45dB or more. Compared with the numbers discussed above, these are by no means low values, which means of course that the case that Tritax have tried to make does not apply. Indeed, some of the background levels and rating levels in Table 10.39 are actually quite high, ranging up to 51dB and 67dB respectively.</p> <p>Additionally, I would mention here that neither BS4142:2014+A1:2019, nor indeed the BS4142:2014+A1:2019 “Technical Note” published by the Association of Noise Consultants Good Practice Working Group in March 2020, from which I have extensively quoted either discusses, considers, nor even mentions the possibility that the background noise levels might be replaced, or even supplemented, by any other parameter whatsoever.</p> <p>And certainly not by ambient noise levels that are actually the same ambient noise levels that were measured at the Noise Monitoring Positions close by the sides of the track and roads!</p> <p>As an example of the advantage Tritax have been trying to secure here, it is instructive to compare Tritax’s (inflated) ambient noise level with their background noise level at each of the 11 NSRs relating to NMP4. For all of these NSRs, for Weekday daytimes, their (inflated) ambient noise level is 59.2dB, and their background noise level as indicated in Table 10.39 is 39.0dB. This gives Tritax a direct advantage of 20.2dB. If you also take into account the reduction in the rating penalties that would also come about, this advantage is probably around 25dB or more.</p> <p>What Tritax are attempting to do here is to rewrite the rules as they please without any technical justification. And it is happening in plain sight! Comparison of the Specific Sound level (which here translates to the Operational noise level) with the background noise level is the cornerstone of BS4142:2014+A1:2019 and is there to protect the public. Tritax’s Tables 10.43, 10.44 and 10.45, which compare the Operational noise levels with Tritax’s inflated ambient noise levels are all invalid and should be removed from the Noise and vibration report.</p> <p>Anyone who has lingering doubts about what I have written in Sections 1 and 5 above should consider the effect of Tritax’s Proposed Development <b>when no trains are passing by. During that great (90%+) majority of time</b>, it is inconceivable that the noise environment at the NSRs associated with NMP4 could be characterised by an ambient noise level of 59.2dB. Yet in their Noise and vibration report, it is that value of 59.2dB that Tritax have chosen to compare with the Operational noise from their Proposed Development. Should this Proposed Development be approved, the ramifications for those NSRs and for considerable areas of Burbage Common are therefore not difficult to predict, and will not be long in coming.</p> <p><b><i>We have now arrived at the key point in the whole of Tritax’s Noise and vibration report, and maybe too in the Examining Authority’s recommendation on Tritax’s Proposed Development.</i></b></p>	

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	<p><b><i>Because what we have here are two interlocking failures that act together to radically change the outcome of Tritax's Noise and vibration report, to Tritax's great advantage.</i></b></p> <p><b><i>The first is that, as described in Section 1, and without technical justification, Tritax have not applied to the ambient noise levels the necessary attenuation with distance between the NMPs and the NSRs.</i></b></p> <p><b><i>The second is that, as just described in this Section 5, and again without technical justification, Tritax have moved from background noise levels at the NSRs to their inflated ambient noise levels at the NSRs.</i></b></p> <p><b><i>So, overall, what the Operational noise levels are actually being compared with is not the background, LA90, levels at the NSRs, nor even the ambient, LAeq, levels at the NSRs, but actually the ambient, LAeq, levels measured at the Noise Monitoring Positions NMP1 to NMP6 close by the sides of the track and roads!</i></b></p> <p><b><i>This is a game changer that will require the rewriting of the whole of Tritax's Noise and Vibration report</i></b></p>	
29	<p><b>6. Failure to Include all Noise Sources caused by the Proposed Development</b></p> <p>In Section 6 of my Written Representation, which ran to 1¼ pages, I described that in Tritax's Noise and vibration report the CadnaA "Completed Development" models were actually incomplete, and that the "Magnitudes of Impact" that were arrived at from these models did therefore not take account of additional noise sources from:</p> <p>Fixed plant, equipment and break-out noise Gas-fired combined heat and power plant Off-Site rail movements Off-Site road traffic noise impacts</p> <p>Instead, the first two of these additional noise sources were somehow awarded additional "noise allowances", whilst the second two were considered individually, in a piecemeal fashion, and each was talked away as insignificant, and lost.</p> <p>The Noise and vibration report therefore provides <b><i>no form of repository where the many noise inputs caused by the Proposed Development are accumulated and assessed.</i></b></p> <p>I also described that, whilst it is common practice to consider Construction and Operational activities separately, this is justifiable because they usually occur sequentially and the Construction activities are usually of short duration.</p> <p>But in the Proposed Development, both the Construction and the Operational activities will be underway simultaneously, and for a period of perhaps 10 years. Those affected by the Proposed Development will care nothing for any distinction between Construction and Operational noise, and the two should clearly be considered together in Tritax's Noise and vibration report. Tritax made no response to this</p>	<p>Final details of fixed plant serving buildings is unknown and 10.194 to 10.205 of the ES Chapter 10 deals specifically with this. This approach and the noise level limits set to be designed to are currently "Matters Agreed" in the SoCG (V07) with BDC and HBBC.</p> <p>Noise from off-site rail movements and off-site road traffic has been assessed in the appropriate way and a cumulative assessment has been undertaken in the ES Chapter.</p> <p>The site is of such a significant scale that, for a given receptor, at any given time, either operational noise will dominate over the construction noise, or vice versa.</p> <p>Furthermore, it is impossible to reliably combine noise from operational and construction phase activity, as they are of a different nature, one is temporary whilst the other is permanent, and they have different psychological responses. Generally, people are more tolerant of shorter term, temporary noise than permanent noise. This is why they are assessed in different ways, underpinned by different British Standards and guidance documents, and to different criteria.</p> <p>BS5228-1 Section 6.3 <i>Issues associated with noise effects and community reaction</i> reinforces this through the statement "However, it is generally assumed that a greater difference might be tolerated, than for an industrial source, when it is known that the operations are of short or limited duration."</p> <p>The Noise &amp; Vibration Chapter for West Midlands Interchange included a commentary on potential for combined effects from construction phases and operational phases occurring concurrently, but did not include a formal assessment, whilst for Northampton Gateway it was</p>

Response Number	Matter	Applicants Response
		<p>not considered at all. The consistent theme is that it is impossible to reliably undertake a quantitative assessment of the in-combination effects.</p> <p>The Applicant acknowledges that the operational use of the first phases of the Proposed Development while later phases are being constructed has the potential to lead to short term increased noise levels at nearby receptors. However, where construction works are located near to a receptor and near to the site boundary, there will be no additive effect i.e the construction works will dominate.</p> <p>The following is taken from the Noise and Vibration Chapter undertaken for West Midlands Interchange.</p> <p><i>“The potential for combined effects is greater where the construction works are further away from any given receptor, when the construction noise levels are predicted to drop towards the level of noise generated by the operations. However, as the site is built out, screening will be provided by the development itself which will reduce any cumulative effects.</i></p> <p><i>Overall, the effect of cumulative construction and operational noise levels is unlikely to be significantly greater than construction on its own.</i></p> <p><i>The key difference will be at night, where construction works stop, and the early phases of the operational development continue. In these instances, the impacts set out in the operational noise assessment will occur with no added effect from construction noise.”</i></p> <p>Adopting the same approach for the Proposed Development would therefore not change the overall reported residual effects.</p>
30	<p><b>7. Failure to Determine Baseline Train Operations</b></p>	
	<p>In Section 7 of my Written Representation, which ran to 3¼ pages, I demonstrated that Tritax had wildly overstated the number of freight train movements by a factor of between 200 and 250 percent. This is because Tritax have assumed that the daily online timetable provided retrospectively by Realtime Trains describes trains that all ran. Whereas in fact, only a minority of the freight trains that Realtime Trains list daily do actually run. These running trains can easily be identified by the presence of the running time data which Realtime Trains supply only for the running trains, and also by the absence of the “Q” designation, which they apply only to non-running trains.</p>	<p>With regard to the use of weekend night-time time data, as previously stated in paragraph 10.107, previous measurements undertaken in 2018 as part of the project included Saturday night noise levels that correlated well with the understanding around train movements on that night. Therefore, it is considered that this is more representative baseline position to take.</p>

Response Number	Matter	Applicants Response
	<p>This means that Tritax’s Table 10.49 includes a large number of freight trains that actually do not run. And, on the face of it, it would seem intuitively obvious that this represents the “worst case” situation. But in fact, because of the particular way that Tritax have then chosen to proceed, far from it being the “worse case”, it actually represents the “best case” situation because it serves to minimise Tritax’s later calculation of the additional noise from Off-Site rail movements.</p> <p>This is because it makes the additional freight trains caused by the Proposed Development to be a much smaller percentage increase than it actually should be. And it is upon that percentage increase that Tritax have based their additional noise calculations.</p> <p>For example, for Weekday daytimes, Tritax have indicated the existing number of freight trains to be 41, whereas the actual number is approximately 16. So the percentage increase caused by the 21 additional freight trains visiting the site is actually 131% rather than 51%.</p> <p>Similarly, for Weekday night-times Tritax have indicated the existing number of freight trains to be 21, whereas the actual number is approximately 8. So the percentage increase caused by the 11 additional freight trains visiting the site is actually 138% rather than 52%.</p> <p>A further and extremely unfortunate effect of Tritax adopting their inflated number of freight trains is that, in paragraph 10.106 of their Noise and vibration report they use it as evidence that the train noise data that Tritax gathered on Saturday the 24th April at NMP4 is “not considered typical” on the grounds that there were no trains on the rail line during the night-time period between 23.00 and 07.00. Tritax then go on to replace that data with the data they measured on the night of Sunday the 25th April.</p> <p>In actual fact, proper examination of Realtime Trains data for Saturday nights reveals that it is entirely typical that no trains run on a Saturday night-time. The last train on Saturday typically passes Elmesthorpe at almost exactly 23.00 on the Saturday night, and there are typically no more trains until after 07.00 on the Sunday morning.</p> <p>So what Tritax have done here is to replace a condition on the Saturday night, where no trains are running, with another on the Sunday night where at least some trains are running from about 04.00 on the Monday morning. Doing this has applied an inappropriate skew to the data that Tritax use to establish the noise levels at the local NSRs. And it has removed from Tritax’s Noise and vibration report all evidence that NSRs, and indeed all those residents in both directions along those several kilometres of line, enjoy undisturbed Saturday nights.</p> <p>In the latter part of Section 7, I also explained that the Class 66 diesel-engined Freight Trains each generate a noise contribution, LAeq , that is much higher (+10.3dB) than the Turbostar Class 170 Passenger trains, which means that 11 Turbostar Passenger trains are required to generate the same noise contribution as a single</p>	

Response Number	Matter	Applicants Response
	<p>Freight train. Also, the maximum sound level, LAmax,f , of the Freight trains is also correspondingly higher. So the major factor in play here is the number of Freight trains, rather than the number of Passenger trains.</p> <p>Tritax’s response to this was: “Paragraph 10.207 of the ES Noise and vibration (document reference 6.1.10, APP-119) chapter states that the assumed existing train movements have been confirmed by the project Rail Consultant”</p> <p>and:</p> <p>“Paragraphs 10.106 to 10.108 of the ES Noise and vibration chapter (document reference 6.1.10, APP-109) fully discusses the noise survey results and consider whether the Saturday night measured noise data at NMP4 is considered representative of weekend night-time conditions”</p> <p>As you will understand, Tritax did not engage with any of the points I had raised.</p> <p>I was of course already aware of the contents of paragraph 10.207 of the Noise and vibration report and indeed, it was exactly this same paragraph 10.207 that I put to Tritax at the start of Section 7 of my Written Representation.</p> <p>And I was of course already aware of the contents of paragraphs 10.106 to 10.108 of the Noise and vibration report, and had referred directly to 10.106 and its following paragraphs in Section 7 of my Written Representation.</p> <p>Overall, then, Tritax simply repeated what they had already written in the Noise and vibration report. A less appropriate response from Tritax is difficult to imagine</p>	
<p><b>31</b></p>	<p><b>8. Failure to Determine Noise from Off-Site rail movements</b></p> <p>In Section 8 of my Written Representation, which ran to 1½ pages, I demonstrated that Tritax had underestimated the additional noise from Off-Site rail movements. This was in large part because, as I described in Section 7, Tritax had failed to properly determine the Baseline Train conditions.</p> <p>This meant that Tritax had seriously underestimated the percentage increase in the number of freight train movements that would be caused by their Proposed Development, and it largely is this percentage increase that determines the increase in noise from Off-Site rail movements.</p> <p>I also explained that Passenger trains produce much less noise, and so are less important.</p>	<p>The assessment of off-site rail movements is a “Matter Agreed” in the SoCG (V09) with BDC and HBBC.</p> <p>The noise assessment has not specifically considered the starting up of a combustion engine, but noise from a locomotive pulling away has been included within the assessment, which is similar to an engine starting up. Both sources have similar frequency content and include the engine revving up. Therefore, the source data and assumptions made within the assessment are robust. Furthermore, the modelling inputs and source data are agreed through the Statement of Common Ground with BDC and HBBC.</p> <p>Table 10.36 of the ES Chapter (document reference: 6.1.10A) includes source noise data for a diesel locomotive idling/pulling away. Paragraph 10.154 (fourth bullet) states how this noise source has been included in the noise model.</p>

Response Number	Matter	Applicants Response
	<p>The result of all this is that, with reference to Tritax's Figure 10.50, the Change (increase) in rail traffic noise levels for (Weekday) daytimes, which Tritax gave as +1.6dB, should in fact be +3.2dB. And for (Weekday) night-times, which Tritax gave as +1.8dB, should in fact be +3.8dB.</p> <p>Moreover, Tritax failed to consider the increase in the rail traffic noise levels at Weekends, both daytime and night-time, which are much higher again than those I have indicated above. The exact levels depend slightly upon the assumptions made in the CRN calculations, but are around 5.1dB for Weekend daytimes and 10.0dB for Weekend night-times.</p> <p>These increases will of course not apply just to the short length of line local to the HNRFI main site, but will also apply to the extensive lengths of line running towards Hinckley and Leicester.</p> <p>For those NSRs local to the HNRFI main site, and including Burbage Common, additional factors will also apply, including the installation of sets of railway points that need to be negotiated at speed by through rail traffic, diesel freight locomotives accelerating on Full Power condition as they leave the site and accelerate slowly up to full speed, and the introduction of the very extensive acoustic barriers that will reflect the Off-Site rail noise towards the local affected NSRs.</p> <p>CRN specifies that an additional +1.5dB penalty should be applied for such reflective barriers. This alone would bring up the increase in noise from Off-Site rail movements that I have described above to 4.7dB, 5.3dB, 6.6dB and 11.5dB respectively.</p> <p>Tritax offered no response to the above points that I had raised. Finally, I would like to make the point here that these Off-Site rail noise figures are not included into any sort of total accumulating pot of additional noise inputs that will result from the Proposed Development. In Tritax's Noise and vibration report, no such total pot exists. Instead, along with several other noise inputs, such as road noise, they are kept separate, are considered piecemeal, and have been individually rejected as insignificant, and lost.</p> <p>This practice is unsound</p>	<p>With regard to trains moving at lower speeds, train movements at a higher speed generate higher noise levels, therefore trains accelerating/decelerating will produce lower noise levels than if they were free flowing. Therefore, the introduction of any measures that reduce the speed of a train, such as the provision of a station or stop, should reduce noise impacts.</p> <p>With regard to acoustic reflections as a result of the proposed acoustic barriers, such barriers can be built with absorptive surfaces if required to remove such reflections. This will be controlled through Requirement 4.</p>
32	<p><b>9. Failure to Define study area</b></p> <p>In Section 9 of my Written Representation, which ran to half a page, I related that, as described in paragraph 10.12 of Tritax's Noise and vibration report, for Off-Site rail movements, an initial assessment was undertaken for a notional receptor, 25 metres away from the line, in accordance with "Calculation of Railway Noise" (CRN). And where that initial assessment identified an effect of moderate adverse and above, then the study area would be extended to include Stoney Stanton to the northeast and the outskirts of Hinckley to the southwest.</p> <p>As it had been established in Sections 7 and 8 of my Written Representation that Tritax had failed properly to determine both the Baseline Train operations and the noise from Off-Site rail movements, it appeared very likely that Tritax's definition of the study area was wrong, and should be investigated.</p>	Please see responses to points 30 and 31.

Response Number	Matter	Applicants Response
	Tritax offered no response to the above points that I raised.	
33	<p><b>10. Failure to Consider Context</b></p> <p>In Section 10 of my Written Proposal, which ran to 2 pages, I described that, except for the possible exception of two paragraphs, Tritax did not consider <i>Context</i> at all.</p> <p>I explained that, given the industrial composition and the size of their Proposed Development, compared with the peaceful and secluded nature of the site and its surroundings, this was a grave omission.</p> <p>So, with reference to HM Government’s website Noise and vibration management: environmental permits - GOV.UK , I proceeded to write a suitable Context Section for Tritax’s Noise and vibration report.</p> <p>The content of that <i>Context</i> Section was telling.</p> <p><b><i>However, what was even more telling, was that Tritax left it out.</i></b></p> <p>Tritax made no response to this</p>	<p>The Environmental Permitting (England and Wales) Regulations 2016 are not relevant to this DCO application with regard to noise.</p> <p>Context has been considered in the ES Chapter – (document reference: 6.1.10A) see 10.298 to 10.310.</p>
34	<p><b>11. Failure to Consider Uncertainty</b></p> <p>In Section 11 of my Written Proposal, which ran to 1¼ pages, I described that British Standard BS 4142:2014+A1:2019 “Methods for rating and assessing industrial and commercial sound” includes information on Uncertainty and its application to acoustics.</p> <p>It states that “The extent to which uncertainty is considered should be proportionate to the scale and nature of the assessment. In situations that are marginal, the level of uncertainty is likely to be more important than situations that are clear.”</p> <p>Tritax’s Noise and vibration report mentions uncertainty in only one paragraph, and does not address uncertainty in any meaningful way. And this in Tritax’s Noise and vibration report for a Nationally Significant Infrastructure Project.</p> <p>With regard to the Proposed Development, the Noise and vibration report has been largely based upon the site layout indicated in the ES Figure 3.1 “Illustrative Masterplan” [APP-230], but the actual specification of buildings, equipment and plant has of necessity been assumed, as too have the construction plant and activities.</p>	<p>The level of uncertainty of the measurement is low given the length of the measurement period and intervals, and the removal of any adverse weather conditions.</p> <p>The level of uncertainty from the calculation is low. The resultant levels have been derived using acoustic modelling software that uses industry recognised standard IOS 9613-2 calculation method, which assumes downwind sound propagation in all directions. Standardised sound pressure levels were used as input data in the model which is considered to be representative of the sources and the conditions under which the sources are expected to operate.</p> <p>Uncertainty is therefore low.</p>



Response Number	Matter	Applicants Response
	<p>As a result of the above, and the varying and interactive nature of the noise components from many sources, it is inevitable that Tritax's predicted noise levels will all be subject to a broad statistical Standard Deviation about the nominal values that Tritax have arrived at in their report.</p> <p>In the latter Sections of their report in particular, Tritax examine in considerable detail nuanced variations in dB levels. Given that no attention has been given to uncertainty, these are unlikely to be meaningful.</p> <p>Tritax made no response to this</p>	
35	<p><b>12. Discussion and Conclusions</b></p> <p>In Section 12 of my Written Proposal, which ran to ¾ page, I described that critical formative sections of the Noise and vibration report contain fundamental and significant methodological errors that have the effect of invalidating much of the remainder of the report.</p> <p>And it turns out that all of those errors that I identified would favour the Proposed Development.</p> <p>Particular attention was drawn to two separate methodological errors that, <i>by linking together to misdirect data</i>, had the effect of invalidating much of the remainder of the report.</p> <p>In comparison with other similar reports available online that I have studied, this present report stood out as lacking openness, objectivity and professional rigour. Its contents appeared to be selective and to follow its own agenda.</p> <p>If the present procedures for Nationally Significant Infrastructure Projects are not to be undermined, then Applicants have a duty to provide information to the Examining Authority that is fair, objective, rigorous and correct.</p> <p>I wrote that in its present form, Tritax's Noise and vibration report did not offer appropriate guidance to the Examining Authority in their assessment of Tritax's Proposed Development. Tritax made no response to this. Dr David Moor</p>	The applicant disagrees with this opinion.
36	<p><b><u>Catastrophic Foundational Failure</u></b></p> <p>My written representation contained a section titled "Catastrophic Foundational Failure". This section explained that because no attenuation corrections have been applied to the sound of train pass bys measured at NMP4, the report's current ambient sound levels at the receptors are wildly overstated. The report states the receptors' current ambient sound levels as if trains are passing a few metres away, as they were at NMP4's location. However, the receptors are a median distance of ~333 metres away from the railway line.</p> <p>The applicant's response is: "As set out in Table 10.1 of the ES Noise and vibration chapter, the noise monitoring methodology has been detailed within the technical note NTT2814 –Hinckley Survey Method</p>	Please refer to the response to point 22.

Response Number	Matter	Applicants Response
	<p>Statement_Issue_P02 (document reference: 6.2.10.5, APP-184), which has been submitted to and agreed with Blaby District Council and Hinckley and Bosworth Borough Council – in both cases it was agreed by suitably qualified technical officers.”</p> <p>I don't consider the applicant's comment a meaningful response to my written representation.</p>	
37	<p><b><u>Lack of Any Rating Penalty to Projected Specific Sound</u></b></p> <p>My written representation contained a section titled “Lack of Any Rating Penalty to Projected Specific Sound”. This section explained that, as in the noise reports of other proposed rail freight interchanges, in the absence of any penalties for impulsive, tonal or intermittent characteristics, there should be a +3 dB penalty due to “other sound characteristics”.</p> <p>The applicant's response is: “A detailed reasoning behind the adopted character corrections has been included in paragraphs 10.157 to 10.161 and Tables 10.39 to 10.42 of the ES Noise and vibration chapter, including corrections ranging between 0 and +10, dependant on scenario. Paragraph 10.288 rationalises the removal of character corrections for the With Mitigation assessment.”</p> <p>The referenced paragraphs and tables do not apply or even consider a penalty due to “other sound characteristics” in the absence of penalties for impulsive, tonal or intermittent characteristics. This does not address the point I made in my written representation or the evidence I provided to support that point.</p> <p>I don't consider the applicant's comment a meaningful response to my written representation.</p>	<p>At the request of BDC and HBBC, a sensitivity analysis has been undertaken to test the impact of adding a +3dB acoustic character penalty to the mitigated operational noise levels. The results of this and corresponding conclusions are provided in the Statement of Common Ground (NRFI SoCG between the Applicant and Blaby District Council Document Reference 19.1B).</p>
38	<p><b><u>Improper Application of Impulsive and Tonal Penalties to Projected Specific Sound</u></b></p> <p>My written representation contained a section titled “Improper Application of Impulsive and Tonal Penalties to Projected Specific Sound”. This section explained that the report does not disclose the method it has used to allocate rating penalties and that applying the method disclosed and used in Paragraph 13.256 of The West Midlands Rail Freight Interchange Environmental Statement On Noise and Vibration results in far higher rating penalties.</p> <p>The applicant's response is: “A detailed reasoning behind the adopted character corrections has been included in paragraphs 10.157 to 10.161 and Tables 10.39 to 10.42 of the ES Noise and vibration chapter, including corrections ranging between 0 and +10, dependant on scenario. Paragraph 10.288 rationalises the removal of character corrections for the With Mitigation assessment.”</p> <p>This does not address the points I made in my written representation or the evidence I provided to support those points. It simply lists paragraphs in the report, paragraphs which I had read and to which I was responding in my written representation.</p>	<p>The applicant has clearly set out the rationale for the acoustic character corrections selected in paragraphs 10.157 to 10.161 and does not agree with the interested party's view on this.</p>

Response Number	Matter	Applicants Response
	<p>The applicant's method still hasn't been disclosed. The applicant does not disclose any detailed reasoning behind its allocated rating penalties, statements are made without any methodological or numerical justification.</p> <p>The applicant has not responded to the highlighting of the method used in the noise report of another rail freight interchange, or the difference between the results obtained from applying that method (using the report's own sound levels) and the much lower, unsubstantiated rating penalties allocated in the applicant's report. I don't consider the applicant's comment a meaningful response to my written representation.</p>	
39	<p><b><u>Wrongful Expunging of Saturday Night-time Sound Measurements</u></b></p> <p>My written representation contained a section titled "Wrongful Expunging of Saturday Night-time Sound Measurements". This section provided evidence that measured Saturday night-time noise levels should not have been expunged and that Sunday night-time train pass bys are structurally higher.</p> <p>The applicant's response is: "Paragraphs 10.106 to 10.108 of the ES Noise and vibration chapter (document reference: 6.1.10, APP-119) fully discuss the noise survey results and consider whether the Saturday night measured noise data at NMP4 is considered representative of weekend night-time conditions."</p> <p>This does not address the points I made in my written representation or the evidence I provided to support those points. It simply lists paragraphs in the report, paragraphs which I had read and to which I was responding in my written representation.</p> <p>I don't consider the applicant's comment a meaningful response to my written representation.</p>	Please see response to point 30.
40	<p><b><u>Highly Misleading Reference to Relevance of Absolute Sound Levels (Context Section)</u></b></p> <p>My written representation contained a section titled "Highly Misleading Reference to Relevance of Absolute Sound Levels (Context Section)". This section explained that the inclusion of Paragraph 10.174 is highly misleading and that the report should not have relied upon it at all.</p> <p>The applicant's response is: "The approach to the consideration of context is in line with that of other similar developments such as East Midlands Gateway, where "WHO Guidelines for Community Noise (1999)", "British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings" and changes in ambient noise level were all considered."</p> <p>This does not address the point I made in my written representation or the evidence I provided to support that point. The report's inclusion and reliance upon Paragraph 10.174 is not justified by any of the three documents the applicant has listed. ES Appendix 10.8 East Midlands Gateway – Rail Freight Terminal – Noise Assessment does not include an equivalent of Paragraph 10.174.</p> <p>I don't consider the applicant's comment a meaningful response to my written representation.</p>	Please see response to point 28.
41	<p><b><u>Use and Misuse of Context</u></b></p>	Please see response to point 28.

Response Number	Matter	Applicants Response
	<p>My written representation contained a section titled “Use and Misuse of Context” which emphatically objected to the report’s approach to contextualisation. Principally: using the misleading impression created by the wrongful inclusion of Paragraph 10.174, having background sound levels supplanted by stated ambient sound levels along with the lack of context given to those ambient sound levels.</p> <p>The applicant’s response is: “The approach to the consideration of context is in line with that of other similar developments such as East Midlands Gateway, where “WHO Guidelines for Community Noise (1999)”, “British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings” and changes in ambient noise level were all considered.”</p> <p>My written representation didn’t object to the report considering “WHO Guidelines for Community Noise (1999)” or “British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings”.</p> <p>In case of East Midlands Gateway, the daytime rating levels are compared with the daytime background levels. The rating levels are meaningfully below the daytime background levels during all wind conditions at all NSRs and therefore no adverse effects are expected.</p> <p>Meanwhile, in this case, the (understated) daytime rating levels are compared with the daytime background levels. The rating levels are far higher than the daytime background levels, leading to major adverse effects. The report then swaps out background levels and swaps in (overstated) ambient levels. Rating levels 18 dB above background are then immediately managed down to minor adverse effects. The report appallingly fails to distinguish between the brief, sporadic nature of train pass bys and the projected noise. Noise from train pass bys wouldn’t mask the relatively continuous 18 dB above background industrial noise at all. The change would be extremely negative.</p> <p>In case of East Midlands Gateway, the night-time rating levels are compared with the night-time background levels. The current ambient sound level is mentioned once: to deduce that the hotel windows likely attenuate by at least 30 dB when closed because the hotel’s internal sound requirement is 30 dB or below and the ambient level outside was measured as 60 dB. This attenuation is then used for a noise induced awakening calculation for train pass bys. That is the only mention of the current ambient sound level. Ambient sound levels are never used to supplant background levels and no attempt to calculate a change in ambient sound levels is ever made.</p> <p>Meanwhile, in this case, the (understated) night-time rating levels are compared with the night-time background levels. The rating levels are far higher than the night-time background levels, leading to major adverse effects. The report then swaps out background levels and swaps in (overstated) ambient levels. Rating levels 18 dB above background are then immediately managed down to minor adverse effects. The report appallingly fails to distinguish between the brief, sporadic nature of train pass bys and the projected noise. Noise from train pass bys wouldn’t mask the relatively continuous 18 dB above background industrial noise at all. The change would be extremely negative.</p>	

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	<p>The report's context section is nothing like the context section of East Midlands Gateway's noise report. It is surreal to see the applicant claim it is.</p> <p>I would add that the applicant's method statement says the operational noise assessment will compare projected operational noise against background levels, not against ambient levels. Yet the report subsequently makes its comparison against background levels functionally irrelevant to the outcome of its assessment by having those results supplanted by a comparison against ambient levels. The method statement lists three potential uses for ambient sound levels and comparison against operational noise isn't one of them. It seems the applicant's view of the method statement is rather selective.</p> <p>Again, the report's context section is facilitated by the use of two sets of incorrect numbers: wildly overstated ambient sound levels and understated rating levels. Once these failures are rectified, the report's "context" will be not just incorrect and inappropriate but also officially obsolete.</p>	
42	<p><b>Demonstrable Overstatement of Current Freight Train Passes</b></p> <p>My written representation contained a section titled "Demonstrable Overstatement of Current Freight Train Passes" which explained that the report hugely overstates the number of current freight train pass bys on the railway line during a typical weekday, which means it overstates the current sound due to train pass bys and therefore understates the projected increase in sound.</p> <p>The applicant's response is: "Paragraph 10.207 of the ES Noise and vibration (document reference: 6.1.10, APP-119) chapter states that the assumed existing train movements have been confirmed by the project Rail Consultant."</p> <p>This does not address the points I made in my written representation and or the evidence I provided to support those points. It simply lists a paragraph in the report, a paragraph which I had read and to which I was responding in my written representation.</p> <p>I don't consider the applicant's comment a meaningful response to my written representation.</p> <p>Subsequently, under questioning by the examining authority, the applicant's representative acknowledged that the report is based on timetable listings.</p> <p>This confirms that my written representation was correct and the applicant has hugely overstated the number of current freight train pass bys on the railway line during a typical weekday. The report includes every single timetable listing of freight trains which run only when required, disregarding how many actually run during a typical weekday.</p> <p>In response to other written representations on train noise, the applicant has written as though train movements are homogeneous. However, for the purposes of a noise assessment, that is most definitely not</p>	<p>There would need to be a significant reduction in number of trains running for this to have an appreciable effect on the existing ambient noise levels in proximity to the railway.</p> <p>Furthermore, in the applicant's Written Statements of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document reference: 18.7.6, REP3-061), the Defra strategic noise mapping for the railway is referenced. This is essentially annualised data that allows a long term "average" to be considered. The document demonstrates that the levels used for the existing ambient baseline are representative.</p>

Response Number	Matter	Applicants Response
	<p>the case. A freight train pass by generates many multiples of the sound energy generated by a passenger train pass by so overstating freight trains is particularly significant.</p> <p>As I explained in my written representation, the applicant hasn't conducted an assessment for current and projected weekend daytime and night-time train pass bys, which would lead to far larger changes in sound levels. The applicant did not respond to this point. As I explained in my written representation, the applicant's impact scale in Paragraph 10.41 and shown in Table 10.9 is at odds with the significance assessment included within the train noise assessment of Tables 8.3-8.5 Northampton Gateway - Rail Freight Interchange, which is based on a combination of the change in noise exposure and the resulting noise exposure. For example: a daytime SOAEL of 65 dB, a night-time SOAEL of 55 dB, a resulting exposure above SOAEL being a significant adverse impact and an increase of 5 dB being required for this increase to be a major adverse impact. The applicant did not respond to this point.</p>	
43	<p><b><u>Construction and Construction 'Mitigation'</u></b></p> <p>My written representation contained a section titled "Construction and Construction 'Mitigation'".</p> <p>The applicant's report stated in Paragraph 10.130: "The unmitigated effect of construction noise is likely to be a temporary, major adverse at worst for NSRs, based on construction taking place close to NSRs. However, for most receptors, for the average case scenarios, the noise levels are predicted to be below the criterion of 65 dB, resulting in a temporary, minor adverse effect. For NSRs 1, there is predicted to be slight exceedance of the criterion resulting in a temporary, moderate adverse impact."</p> <p>The applicant's report then stated in "Table 10.65 - Summary of effects" that the construction noise would be a major adverse effect. This isn't surprising because the worst case predicted figures were up to 90 dB at NSRs. This summary of effects clearly wasn't just based on the average case because, as Paragraph 10.30 states, the average case effect was at most a moderate adverse impact. It was clearly based on construction occurring closer to the NSRs and those were figures which needed to be mitigated.</p> <p>The first part of the applicant's response is: "The ES Noise and vibration chapter (document reference: 6.1.10, APP-119) adopts a standard approach for assessing "average case" and "worst case" construction noise levels. Only one NSR is predicted to have a significant adverse effect during two phases without mitigation."</p> <p>I presume this statement is about NSR 1, based purely on the average case, which is not what the report's summary of effects was based on.</p> <p>The applicant's response continues: "The worst case assessment shows some much greater noise levels in some phases at some NSRs prior to mitigation. In each case, the actual activity generating the noise levels is likely to be of a short duration and localised. Given that the worst case assessment assumes that stages 1, 2 and 4 could take place within 5m of the DCO limits, in many cases the activity simply will not take place as close as assessed. Notwithstanding this, the framework CEMP incorporates a range of noise control techniques and strategies to reduce noise, many of which are referenced in "British Standard</p>	Please see response to point 26.

Response Number	Matter	Applicants Response
	<p>5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites parts 1: Noise” as effective noise control measures.”</p> <p>The applicant seems to want to push a more binary choice between taking an average case or an inherently unrealistic worst case, with the applicant now favouring the average case. The West Midlands Rail Freight Interchange Environmental Statement On Noise and Vibration gave a range between two figures for each proposed phase of construction.</p> <p>The report gives no numerical basis at all for the reduction from major adverse to between minor and moderate adverse significance. In the absence of any lower predicted numerical values, the predicted numerical effect should be considered unchanged. The reduction from major adverse to moderate and minor adverse seems purely subjective and unsubstantiated. In making this subjective adjustment, there’s no evidence the report properly considered factors included in BS 5228’s “6.3 Issues associated with noise effects and community reaction”. These factors include: attitude to the site operator, noise characteristics (e.g. impulsivity), duration of site operations and existing ambient noise levels.</p>	
44	<p><b><u>Assessment of Operational Maximum Noise Levels</u></b></p> <p>My written representation contained a section titled “Assessment of Operational Maximum Noise Levels”. This section explained that the report does not disclose the methodology which led to the thresholds of its “magnitude of effect” scale in Table 10.8 and that there’s no indication the report has considered the number of container placements and spreader impacts, despite there likely being very many of them during a night.</p> <p>The applicant’s response is: “The number of individual container placements and spreader impacts have been assessed against a maximum noise level not typically to be exceeded, irrespective of how many events there are.” This is rather opaque. I think “The number” at the beginning of this response must refer to the LAFmax values rather than a number of container placements and spreader impacts in a night, given the response adds “irrespective of how many events there are”.</p> <p>This indicates the report is not considering the number of container placements and spreader impacts there may be during a night-time period. The methodology behind the report’s “magnitude of effect” scale in Table 10.8 still hasn’t been disclosed. At the moment there’s nothing justifying the “magnitude of effect” scale in Table 10.8 other than the applicant’s declaration. I gave the applicant the opportunity to change that but so far it hasn’t been taken.</p> <p>As the assessment is of operational maximum noise levels, potential maximum noise levels from off-site train movements haven’t been considered. The applicant did not respond to this point.</p>	<p>Table 10.8 has been derived on the basis of World Health Organization Guidelines for Community Noise 1999. The guidelines contain guidance on LAFmax noise levels during the night, the document draws upon guidance from Vallet and Vernet, which states:</p> <p>“For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAFmax more than 10-15 times per night”. This is essentially therefore the criterion to which the table refers to and effectively defines the Significant Observed Adverse Effect Level (SOAEL).</p>

Response Number	Matter	Applicants Response
45	<p><b><u>Window Attenuation</u></b></p> <p>My written representation contained a section titled “Window Attenuation”. This section examined the assumed window attenuation in the applicant’s report.</p> <p>The applicant’s response is: “The 15 dB reduction is taken from “British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings”, which is based on a partially open window providing background ventilation and, as such, is a reasonable assumption to take.”</p> <p>As I explained in my written representation, BS 8233 makes clear that the level of attenuation due to a partially open window is contingent upon a number of factors which can significantly reduce attenuation. By insisting on a 15 dB reduction, the applicant is gambling on all of the following being true at all NSRs during all time periods:</p> <p>That no NSR would ever have any window types which would result in lower attenuation. That no NSR would ever have a window more than slightly open due to occupant choice, or to obtain rapid or purge ventilation, all of which would result in lower attenuation. That no NSR would ever receive noise due to the proposals containing frequency content which would result in lower attenuation.</p> <p>These are not a reasonable series of gambles for the applicant to make. Unsurprisingly, the East Midlands Gateway – Rail Freight Interchange noise report and the Northampton Gateway - Rail Freight Interchange noise report did not make those gambles and they assumed a partially open window would lead to a 12 dB reduction of the sounds projected to be caused by such proposals. I reiterate that the applicant’s report should have followed suit.</p>	<p>The applicant maintains that the reduction provided in the British Standard is the appropriate level to take.</p>
46	<p><b><u>Burbage Common &amp; Woods</u></b></p> <p>This section simply set the scene at Burbage Common &amp; Woods, highlighting that the monitoring at NMP3 - in extremely close proximity to the railway line - contains the sound of extremely close proximity train pass bys which unsurprisingly caused large spikes in measured Leq values during those periods when trains passed by.</p> <p>The lack of a direct response from the applicant to this section is fine, I merely highlighted that the circumstances at NMP3 are very similar to those at NMP4</p>	<p>Noted.</p>



Response Number	Matter	Applicants Response
47	<p><b><u>Lack of Attenuation Corrections at Burbage Common &amp; Woods</u></b></p> <p>This section set out the report’s wrongful behaviour regarding Burbage Common &amp; Woods, which follows the same pattern as the behaviour I objected to in earlier sections of my written representation, principally:</p> <ol style="list-style-type: none"> <li>1. Not attenuating the sound of train pass bys measured at NMP3 to the NSR location (NSR 19), leading to an overstatement of current ambient sound levels at NSR 19 because trains aren’t passing a few metres away from the NSR location. (as in “Catastrophic Foundational Failure). In this case, at NSR 19, the sound of train pass bys would be reduced not just by distance but also topography as the railway line is in a cutting as it passes near the bridge which forms a barrier and reduces the sound of train pass bys on the Common.</li> <li>2. Rating penalties which appear too low. (as in “Improper Application of Impulsive and Tonal Penalties to Projected Specific Sound”)</li> <li>3. In the absence of any penalties for impulsive, tonal or intermittent characteristics, not adding a 3 dB penalty to predicted specific sound due to “other sound characteristics”. This refers to the post-mitigation assessment. (as in “Lack of Any Rating Penalty to Projected Specific Sound”)</li> <li>4. Applying the report’s incorrect and inappropriate “context” to the operational noise assessment, leading to rating levels 19 dB above background immediately being managed down to minor adverse effects. (as in Use and Misuse of Context”)</li> </ol> <p>These points are sufficiently covered by other sections so the lack of a direct response from the applicant to these points is fine, I merely highlighted that they also apply to the assessment at Burbage Common &amp; Woods.</p> <p>I made some rather more nuanced points in this section regarding the choice of Burbage Common’s NSR location along with explaining why not attenuating the sound of train pass bys measured at NMP3 to the NSR location and then using those ambient sound levels is so damaging to the assessment of tranquillity but I’m going to skip over those at this time because I need to prioritise.</p>	<p>The applicant agrees that the underlying comments within this section are dealt within the previous comments. Figure 10.15 (document reference: 6.3.10.15, APP-284) of the sound propagation from the Site with mitigation that allows the future noise levels at Burbage Common and Woods to be considered.</p>
48	<p><b><u>Related Mischaracterisation and Consequences of Decisions Involving Burbage Common &amp; Woods</u></b></p> <p>This section set out the following interlocking points:</p> <ol style="list-style-type: none"> <li>1. Given LAeq values containing the unattenuated train pass bys measured at NMP3 have been stated as the LAeq values for the NSR location, those values are not a useful indication of current vs projected noise at the NSR location because the LAeq values are so skewed by the unattenuated, extremely close proximity train pass bys measured at NMP3.</li> <li>2. The report’s attempt to claim the predicted noise at Burbage Common &amp; Woods would “not be out of character” with the current noise environment at Burbage Common &amp; Woods is wrong.</li> </ol>	<p>Please see response to point 47.</p>

Response Number	Matter	Applicants Response
	<p>3. Looking at the LA10 values measured at ML2 during the PEIR (LA10,16hr was 43 dB) and those displayed on the Summary Results page for measurements at NMP3 shows levels far lower than the 59 dB predicted due to the proposed link road.</p> <p>4. The report wrongly believes the ambient sound levels at Burbage Common’s NSR location are already above 55 dB during the weekday daytime and already above 50 dB during the weekend daytime because the LAeq values are overstated due to the absence of attenuation corrections to the extremely close proximity train pass bys measured at NMP3.</p> <p>These problems are overwhelmingly caused by the failure to attenuate the sound of train pass bys measured at the NMP3 to the NSR location. The report then hides behind these overstated ambient sound levels to give the impression the noise levels wouldn’t change that much. The only reason it looks like that is because the sound of train pass bys measured at NMP3 haven’t been attenuated. That’s the reason I had to resort to LA10 values, because stated LAeq values are skewed by that lack of attenuation.</p> <p>This is why the applicant’s response: “Noise impacting onto Burbage Common and Woods has been assessed by considering both the absolute noise levels and the change in noise levels. This is in line with the “IEMA Guidelines for environmental noise impact assessment” document.” is rather missing the point.</p> <p>The problem isn’t that the tranquillity assessment looks at a change in LAeq rather than LA10 values, the problem is that not attenuating the sound of the train pass bys measured at NMP3 means the LAeq values at the NSR location are overstated, which means the scale of change in ambient sound levels at the NSR location due to the proposed A47 link road and site-related noise is concealed. Until the measured sound of train pass bys have been attenuated to the NSR location, looking at measured LA10 values and then taking the projected 57 dB LAeq dominated by the proposed link road and adding 2 dB to generate an LA10 value of 59 dB, provides a way to partially peer through to reality because the measured LA10 values aren’t as skewed by train pass bys as those pass bys are inherently brief.</p> <p>As I explained in my written representation, Paragraph 10.264 makes clear that the report’s “Future contribution from Proposed Development” in Table 10.54 does not include the cumulative projected noise due to all site noise, only operational noise. The report has also not included increased noise due to projected off-site rail movements. The applicant did not respond to this point.</p>	
<p>49</p>	<p><b><u>Fundamental Incompatibility Between the Proposer’s Measured Facts and the Proposer’s Modelled Road Noise</u></b></p> <p>This section of my written representation explained that the current road noise figures within the contour maps created by the applicant are significantly higher than those recorded at noise monitoring positions relating to Burbage Common.</p>	<p>The issue is considered to be based around the disputed representative measured noise levels. Therefore, please refer to response to point 22.</p>

Response Number	Matter	Applicants Response
	<p>The applicant's response is: "The noise model used to determine off-site road traffic noise impacts underwent a calibration exercise as reported in Paragraphs 10.223 to 10.228. The assessment methodology as adopted from "Highways England (2019) Design Manual for Roads and Bridges (DMRB) LA 111 Noise and vibration Revision 2" is essentially based on a change in noise level, rather than a consideration of the absolute noise levels. Therefore, for the purpose of the road traffic noise assessment, a situation where the noise model is overpredicting compared to a measured noise level is not problematic. Where a noise model is underpredicting, there could be an issue in regard to future noise levels incorrectly being predicted below the threshold required for qualification under the Noise Insulation Regulations. However, this is not the case here."</p> <p>The applicant seems to accept the road noise contour maps may well overstate the current road noise levels at Burbage Common. The applicant's response satisfies this section of my written representation.</p> <p>This means the road noise contour maps do not contest the LA10 values measured at ML2 (during the PEIR) &amp; NMP3. Comparing these values against the 59 dB LA10 predicted for Burbage Common's NSR location foreshadows the very large change in road noise due to the proposed A47 link road.</p> <p>Once the sounds of train pass bys measured at NMP3 are attenuated to Burbage Common's NSR location, this change will also be reflected in a large difference between the LAeq at the NSR location and the predicted 57 LAeq at the NSR location. The difference will be particularly large for the weekend period.</p>	
50	<p><b><u>Lack of Cumulative Impact Assessment</u></b></p> <p>My written representation contained a section titled "Lack of Cumulative Impact Assessment". This section explained that there is no cumulative 'all in' calculation of the increase in sound levels at NSRs due to the cumulative effect of all projected sources of sound: all noise from the site, increased road traffic noise and increased off-site rail movements.</p> <p>The applicant's response is: "Paragraphs 10.350 to 10.353 of the ES Noise and vibration chapter (document reference: 6.1.10, APP-119) provide an assessment of the cumulative and in-combination effects of noise and vibration as a result of the development."</p> <p>The referenced paragraphs do not include the calculation I described. There's no figure of the cumulative projected increases in sound at each NSR due to the addition of all new sound sources and the increase in sound from existing sources.</p>	<p>Further information regarding the cumulative effect of the development can be found in the Technical Note (Noise and Vibration Scott Schedule) (document reference: 19.1B) accompanying the SoCG (V09) with BDC and HBBC.</p>
51	<p><b><u>The Black Box &amp; Conclusion</u></b></p> <p>My written representation contained a section titled "The Black Box &amp; Conclusion". This section explained that, given the amount of wrongful behaviour in the areas of the report which are somewhat open to inspection, and given the behaviour consistently flows to favour the applicant, it would be foolish to have confidence in those areas which aren't on public display.</p>	<p>Noted.</p>

Noise

Response Number	Matter	Applicants Response
	<p>The applicant's response is: "All noise model inputs, data sources, calculation methodologies, settings and software have been reported on, and noise contour outputs have been provided in the ES (document reference: 6.1.10, APP-119)."</p> <p>I don't feel there's anything to comment on.</p>	