

The Network Rail (East West Rail Bicester to Bedford Improvements) Order

Response to environmental issues raised regarding
OBJ/223

Network Rail

March 2019

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1. Introduction

1.1.1 An objection was submitted by Mr and Mrs West (OBJ/223) dated 4 September 2018 to The Network Rail (East West Rail Bicester to Bedford Improvements) Order (the Order) of 27 July 2018. Mr and Mrs West appeared at the public inquiry into the Order on February 2019 and asked certain questions of Mr Shuttleworth giving evidence for Network Rail, to which NR stated it would provide further responses.

1.1.2 The questions asked by Mr and Mrs West were:

- What effect, if any, would the topsoil bund along the west side of compound B2 have on the noise levels from construction activity in the compound as perceived at Littleworth Farm?
- What information was used to test the cost-effectiveness of a noise barrier alongside the railway past Littleworth Farm?
- How were the quoted baseline noise values for Littleworth Farm of 41dB (night time) and 45dB (day time) derived, when the figures reported for noise measurement site AML11 near Littleworth Farm are lower?

1.1.3 The responses are set out below.

2. Effect of the compound topsoil bund.

2.1.1 The assessment in the Environmental Statement supporting the application for the Order shows that the noise levels from activity within Compound B2 during construction of the Order scheme would not give rise to noise levels above the lowest observed adverse effect level (LOAEL). Consequently, any additional mitigation provided by the presence of a topsoil bund along the west side of the compound would not alter the assessment findings.

2.1.2 Further calculations have been undertaken for activities taking place within the compound (at the side closest to Littleworth Farm), which indicate that a 2m topsoil bund along the west side of the compound would attenuate the noise levels at Littleworth Farm by a similar amount to that of the sound absorption across the field, with only a limited influence on the noise levels perceived. The bund would provide around an additional 1dB of attenuation for activities within the compound that are within about 10-15m of the bund; however, the bund would make no difference to the levels of noise from activities on the far side of the compound.

3. Noise barrier appraisal

3.1.1 The assessment of acoustic barrier mitigation options considers the cost of the mitigation against the value of the acoustic benefit provided by the barrier. The resulting ratio of benefit divided by cost is expressed in terms of Net Present Value (NPV) and is calculated over a 60-year period, as advised in the Department for Transport's web-based Transport Appraisal Guidance (TAG), Unit A3 Environmental Impact Appraisal

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/638648/TAG_unit_a3_envir_imp_app_dec_15.pdf) This method places a value on the health effects of noise, using both daytime and night-time noise levels.

3.1.2 The cost of the barriers is taken to be £700 (net) per linear metre of barrier. This includes costs for the initial design, supply and installation of the barrier and ongoing costs to maintain the barrier over the 60-year period. The noise barriers will be acoustically absorbent on the rail side.

3.1.3 The NPV ratio of the costs and benefits allows the situations to be compared. Where the benefits are similar to or exceed the costs (ie. NPV ratio close to or greater than 1), the mitigation can be demonstrated to offer value for money. Where the costs

considerably exceed the benefits, the mitigation does not offer value for money, and would therefore not be cost effective. The initial appraisal does not consider other costs or benefits for the barriers.

- 3.1.4 A 700m length of barrier has been tested for the Littleworth Farm group of properties (predicted impacts of 1 major and 1 moderate adverse reported in the ES), which would have a cost of £490,000. This would reduce noise levels at the properties by 4-5dB and change the impacts to one moderate and one minor adverse. The highest noise level would be 47 dB. (This is reported in the Atkins' Technical Note 'Assessing Adverse Noise Impacts' dated 8 November 2018.)
- 3.1.5 The barrier would provide a benefit of £10,400 to these properties, which results in a cost/benefit ratio of 0.02, indicating that this barrier would not be cost effective. A shorter barrier could probably be used to deliver the same level of benefit, but this would still not represent a cost-effective solution. Further, this appraisal has not included the cost of any additional engineering works that may be required to be able to provide such a barrier in this location.

4. Baseline noise levels at Littleworth Farm

- 4.1.1 The baseline levels used in the noise assessment have been derived from data collected by the nearest comparable long-term unaccompanied noise survey locations. As these locations collect data over a seven-day period, these are found to provide a much better representation of typical ambient noise conditions for an area than the short-term accompanied noise survey locations, which use sets of three 5-minute measurements during each of the day time and night time periods.
- 4.1.2 These short measurements do not provide a true picture of the noise baseline: for example, locations AML11 and AML23 have their lowest night time levels in the high 20's dB. The lowest night time levels measured at ML32 are lower still at about 20dB and on other nights noise levels do not drop below about 35dB. The seven-day average night time L_{Aeq} level at ML32 is 38dB, which shows that a few short-term samples of the lowest noise levels cannot be used to be representative of the 8 hour night period between 23:00 and 07:00.
- 4.1.3 The baseline noise levels used in the assessment for Littleworth Farm are the same as those used for properties at Verney Junction and other properties nearby, and have been taken from:
- Location ML8 to the east of Littleworth Farm and north of Verney Junction – this has the equal lowest daytime measured level of all the unaccompanied measurement locations across the scheme. This has a daytime L_{Aeq} of 42dB, which equates to a façade level of 45dB $_{LAeq}$ in the assessment.
 - Location ML32 to the west of Littleworth Farm - this has the lowest night time noise level of all the unaccompanied measurement locations in Section 2B. This has a night time L_{Aeq} of 38dB, which equates to a façade level of 41dB $_{LAeq}$ in the assessment.
- 4.1.4 Even if lower noise levels were assumed for ambient baseline levels at a noise receptor, the with-scheme noise levels would not change by much (less than 1dB), but the without-scheme noise levels would be lower. This would result in a larger change in noise level and so some of those receptors that are moderate adverse are more likely to become major adverse. But the overall predicted levels will not increase and at Littleworth Farm, for example, the results would still fall below the significant observed adverse effect level (SOAEL) and remain adverse rather than significant adverse in policy terms.