

Technical Note

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NOISE AND VIBRATION ASSESSMENT - TECHNICAL NOTE

1.1 INTRODUCTION

In 2025, Tetra Tech RPS Acoustics Team (TT RPS) was commissioned by the University of Reading to undertake an outline noise impact assessment on the proposed development at Loddon Garden Village. The proposed development is located north of Arborfield and west of Wokingham, on land owned variously by the University of Reading, Hatch Farmland Ltd and Gleeson Land. The outcome of this assessment (subsequently referred to as the ‘ES assessment’) is reported in Loddon Garden Village Environmental Statement Chapter 15: Noise and Vibration.

The planning boundary used in that assessment included for a track on the alignment of the Loddon Garden Village/Thames Valley Science Park (LGV/TVSP) Link Road. This planning boundary is subsequently referred to in this report as the ‘ES planning boundary’. The ES planning boundary has now been enlarged to allow for this permanent future road. As a consequence, further assessment has been required to determine any additional noise and vibration impacts associated with the planning boundary enlargement, compared to those already reported in Chapter 15.

The scope and findings of the further assessment, which has applied the same methodology as described in Chapter 15, are reported in this technical note.

1.2 SCOPE OF FURTHER ASSESSMENT

The boundary for the LGV/TVSP Link Road in the context of the ES planning boundary is shown in Figure 1 below. The resulting combined planning boundary is subsequently referred to in this technical note as the ‘enlarged planning boundary’.

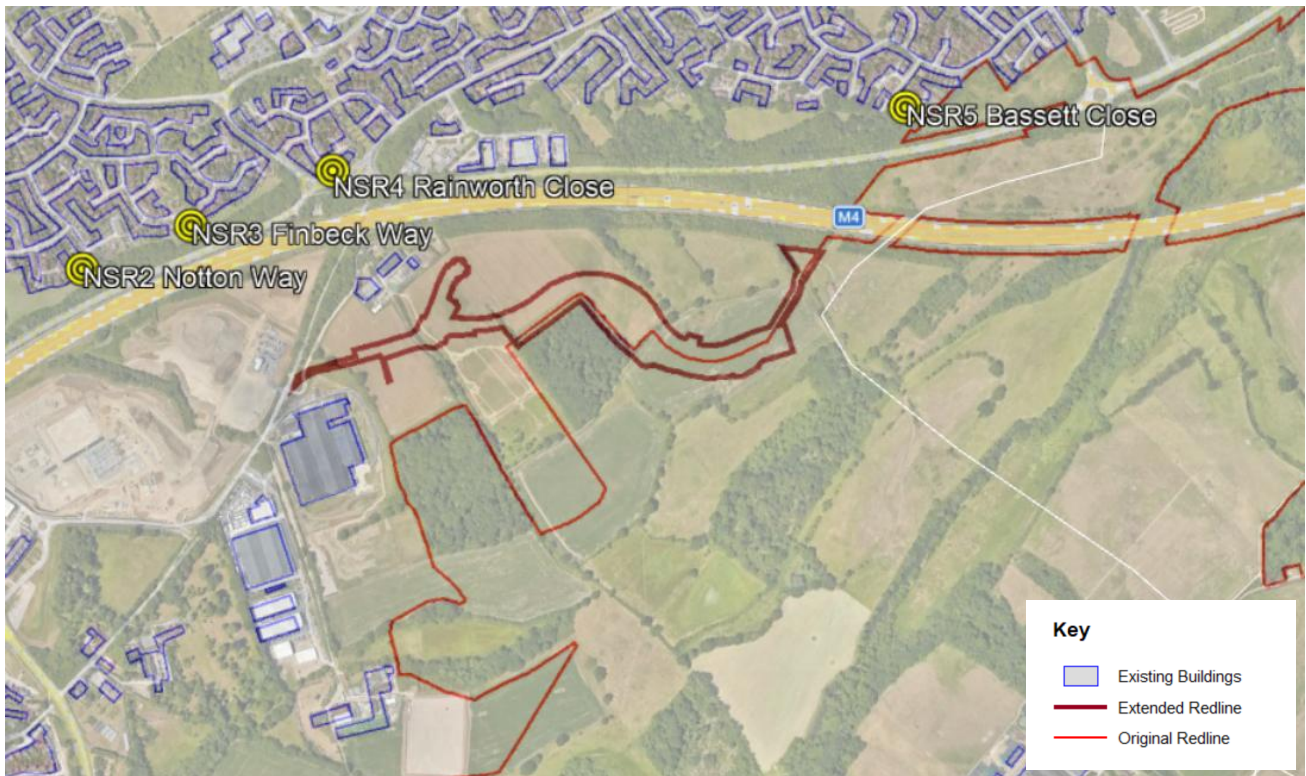


Figure 1 – Location Plan showing closest NSRs

Figure 1 shows that the enlarged planning boundary is closer to several existing noise sensitive receptors (NSRs) situated to the north of the M4 when compared to the ES boundary.

NSR3 and NSR4 are located within 300 m of the extended planning boundary and therefore these have potential to be impacted during the construction phase, particularly by noise associated with the construction of the LGV/TVSP link road. These receptors were greater than 300 m from the ES planning boundary and therefore were not included in the ES construction noise impact assessment. Therefore, an assessment of construction noise impacts at these receptors has been scoped into this further assessment.

There are no NSRs located within 100 m of the enlarged planning boundary and therefore an assessment of construction vibration impacts has been scoped out of this further assessment.

With regard to construction traffic, the data used to undertake the assessment reported in Chapter 15 included that associated with the construction of the link road. Therefore, an assessment of construction traffic impacts has been scoped out of this further assessment.

With regard to operational noise, the sources of noise within the enlarged planning boundary are solely road traffic and therefore an assessment of operational noise (excluding traffic) impacts has been scoped out of this further assessment.

There is the potential for additional traffic noise impacts at NSRs within 600 m of the enlarged planning boundary, particularly increases in road traffic noise at NSR2, NSR3, NSR4 and NSR5 due to the contribution from the LGV/TVSP link once it is fully operational. Therefore, an assessment of operational traffic noise impacts has been scoped into this assessment.

A summary of the further assessment scope set out above, together with the affected receptors, is presented in **Table 1** below.

Table 1: Further assessment scope summary

Noise Sensitive Receptor	Name	Sensitivity ¹	Construction Noise Assessment	Operational Traffic Noise Assessment
NSR2	Notton Way	Medium	No ²	Yes
NSR3	Finbeck Way	Medium	Yes	Yes
NSR4	Rainworth Close	Medium	Yes	Yes
NSR5	Bassett Close	Medium	No ³	Yes

1.3 RESULTS OF FURTHER ASSESSMENT

1.3.1 Construction noise

As noted in Chapter 15, construction works will be carried out in line with the Construction Environmental Management Plan (CEMP). The CEMP will include measures to control noise and vibration effects as far as practicable. Examples of such measures are set out in paragraph 15.4.1 of Chapter 15.4, and include the setting of appropriate trigger levels to ensure threshold values within BS 5228 Part 1 are not exceeded.

In determining the appropriate trigger levels for NSR3 and NSR4, the ambient noise levels measured at monitoring location LT2 are considered to be the most representative, due to road traffic noise from the M4 being dominant at this location. Further details of the levels recorded at this location are set out in Appendix 15.2 of the ES. The resulting trigger levels are set out in **Table 2** below.

It is noted that location LT2 is set further back from the M4 when compared to the NSR3 and NSR4 locations, and hence levels at NSR3 and NSR4 are likely to be higher than those recorded at LT2. However, this approach has resulted in a worst case for these NSRs, with the trigger levels being set to the lowest thresholds within BS 5228 Part 1.

Table 2: Construction noise trigger levels

Receptor	Representative Monitoring Location	Category	Threshold Value (dB LAeq,16hr facade)
NSR3	LT2	A	65
NSR4	LT2	A	65

With reference to **Table 1**, the sensitivity of these receptors is Medium. Assuming works are carried out in line with the CEMP, with the imposition of these thresholds and inherent mitigation set out in Section 15.4 of Chapter 15, construction noise impacts at these receptors are likely to range from Negligible to Low.

Therefore, with reference to Table 15.11 of Chapter 15, the significance of noise effects during construction would be Negligible to Minor adverse, which is not significant in EIA terms.

¹ Defined in Table 15.1 of Chapter 15

² In excess of 300 m from extended planning boundary

³ Receptor included within original assessment

1.3.2 Operational traffic noise

The further assessment of operational traffic noise has focused on the potential for the LGV/TVSP Link Road to increase road traffic noise at the NSRs identified in **Table 1**.

The data provided by the Project Traffic Consultants as part of the ES assessment, which includes data for the LGV/TVSP Link Road, has been used to inform this further assessment. It is noted that the LGV/TVSP Link Road is not fully operational in the opening year of the first occupation of the Loddon Garden Village development. Therefore, for the purpose of this further assessment, the short-term change in the future year (2040) has been used to determine any road traffic noise impacts at the NSRs from its use.

A review of the traffic model links provided for the ES assessment has identified the following links as main contributors to road traffic noise levels at NSRs in **Table 1**:

- 01 – M4 Eastbound
- 02 – M4 Westbound
- 08 – Lower Earley Way
- 10 – Lower Earley Way
- 36 – Proposed LGV/TVSP Link Road
- 37 – Proposed LGV/TVSP Link Road
- 41 – Proposed LGV/TVSP Link Road

The location of these links is provided in **Figure 2** below.

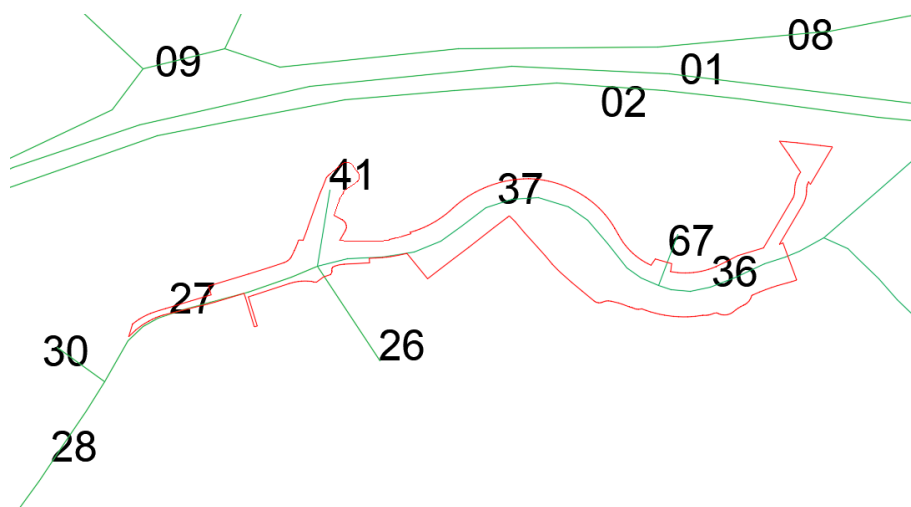


Figure 2 - Traffic Link locations

It is noted that Link 27 is existing and has therefore been previously assessed within Chapter 15.

To assess any increases in road traffic noise resulting from the proposed link roads, the assessment has focused on deriving the daytime Basic Noise Level (BNL) for each of these links, which represents the traffic noise level at 10 m from the nearside carriageway. These levels, which have been calculated in accordance with methodology set out in paragraphs 15.2.12 – 15.2.17 of Chapter 15 are presented in **Table 3** below.

Table 3: Basic Noise Levels predictions

Link Ref.	Road Name	Without LGV/TVSP Link Road 2040 BNL $L_{A10,18h}$ dB	With LGV/TVSP Link Road 2040 BNL $L_{A10,18h}$ dB
1	M4 Eastbound	79	79
2	M4 Westbound	79	79
8	Lower Earley Way	71	71
10	Lower Earley Way	74	74
36	Proposed LGV/TVSP Link Road	-	66
37	Proposed LGV/TVSP Link Road	-	66
41	Proposed LGV/TVSP Link Road	-	63

The predictions in **Table 3** above indicate that the highest BNLs both with and without the LGV/TVSP link road are associated with the M4 carriageways. In comparison, the predictions indicate that BNLs associated with the proposed LGV/TVSP link road are more than 10 dB below those associated with the M4. The M4 and Lower Earley Way are situated closer to the NSRs, with the LGV/TVSP Link Road being situated at least 300 m further away.

Based on these predictions, the road traffic noise from the proposed LGV/TVSP Link Road will not contribute to the overall traffic noise level at the nearest NSRs and therefore will result in no change in road traffic noise levels. As a result, the operational road traffic noise impacts at NSRs due to the operation of the link road are negligible. With reference to **Table 1**, the sensitivity of these receptors is Medium. Therefore, with reference to Table 15.11 of Chapter 15, the significance of noise effects during construction would be Negligible adverse, which is not significant in EIA terms.