A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.7 Environmental Statement – Appendix 6.5 Source Information and Assumptions for Operational Road Traffic Noise Assessment

Part A

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Development Consent Order 20[xx]

Environmental Statement - Appendix

Regulation Reference:	APFP Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010041
Application Document Reference	TR010041/APP/6.7
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Version	Date	Status of Version
Rev 0	June 2020	Application Issue

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TABLES

SOURCE INFORMATION AND ASSUMPTIONS FOR OPERATIONAL ROAD TRAFFIC NOISE ASSESSMENT

6.1.1. The Noise Modelling Assumptions and Settings are detailed in **Table 6-1** below.

Table 6-1 - Noise Modelling Assumptions and Settings

[1] Noise prediction methodology	▪ The Calculation of Road Traffic Noise (CRTN) memorandum (1988), published by the Department of Transport and Welsh Office. ▪ Additional advice detailed within Annex 4: Additional advice to CRTN procedures of the DMRB Volume 11 Section 3 Part 7, HD 213/11 – Revision 1 Noise and vibration.
[2] Noise modelling software	▪ Version 2017 (64 bit) of the CadnaA, PC based, noise modelling suite.
[3] Base mapping	▪ Ordnance Survey (OS) MasterMap Topography Layer has been incorporated within the noise model to provide base-mapping for the area.
[4] Terrain data	▪ For Part A: Morpeth to Felton (Part A) alignment, topographic data have been extracted from the 3D engineering drawings, as supplied by WSP. ▪ For the remainder of the Study Area, Lidar data (1 metre grid spacing) were downloaded from the .GOV website and imported into CadnaA, with 1 metre height contours subsequently generated by the noise modelling software.
[5] Road traffic source	▪ All roads that are unaltered by Part A, have been spatially aligned using the OS MasterMap Topography Layer. ▪ All new, altered and relieved roads comprising Part A improvements, have been spatially aligned using the engineering drawings provided by WSP. ▪ Road heights and gradients have been determined automatically from the terrain data as created (refer to [4] above). ▪ The traffic data (flow, speed and proportion of heavy vehicles) have been provided for all relevant scenarios: • Do-minimum, year of opening (2023) • Do-something, design year (2038) • Do-minimum, year of opening (2023)

	• Do-something, design year (2038) ▪ Roads with 18-hour flows of less than 1,000 have been excluded. Where flows fall between 1,000 and 4,000 in the 18-hour period, a low-flow correction has been applied. ▪ Speed bands have been used; all roads have been assigned one of the following speeds, as specified in IAN185/15: 97, 63, 33 and 20 kph. ▪ All roads with a standard hot rolled asphalt surface have been assigned a correction of -1.0 dB where speeds are below 75 kph and -0.5 dB for speeds at or above 75 kph (equivalent to a road surface texture depth of 1.5 mm). All roads with a new low noise road surface have been assigned a correction of -3.5 dB, but only where speeds are at or above 75 kph, otherwise a correction of -1.0 dB has been applied.
[6] Bridges	▪ Bridges have been incorporated manually into the noise model and spatially aligned based on the OS MasterMap Topography Layer and the terrain data as created (refer to [4] above). Where any road passes over a bridge, care has been taken to ensure the road sits appropriately on the bridge, rather than following the local terrain.
[7] Buildings	▪ Building outlines have been incorporated into the noise model based on the OS MasterMap Topography Layer. A height of 8 metres has been assigned universally to all buildings unless they are a bungalow, in which case 5 metres was assigned. ▪ All buildings have been set to be reflective (absorption coefficient of 0), which means that these buildings potentially might reflect noise if they lie close to, and on the opposite side of the highway (i.e. opposite reflections using CRTN terminology).
[8] Ground cover	▪ A default ground absorption coefficient of 1 has been adopted (i.e. acoustically absorbent ground cover). However, roads and buildings have been set to be acoustically reflecting.
[9] Noise levels	▪ Unless stated otherwise, all noise levels presented in this report are in terms of $L_{A10,18h}$ in the free-field.

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