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Alderholt Meadows, Alderholt, Fordingbridge

Assessment of Road Traffic Noise

Date: November 2023

Client Name: Dudsbury Homes (Southern) Ltd

Document Reference: WIE19098-100-TN-3.2.1

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

Issue	Prepared by	Checked & Approved by
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1. Introduction

1.1. Waterman Infrastructure and Environment Ltd. was instructed by Dudsbury Homes (Southern) Ltd to carry out an assessment of development-related traffic noise on the road transport network surrounding the proposed Alderholt Meadows development (hereafter the 'Site'). A location plan of the Site is presented as **Figure 1-1**.

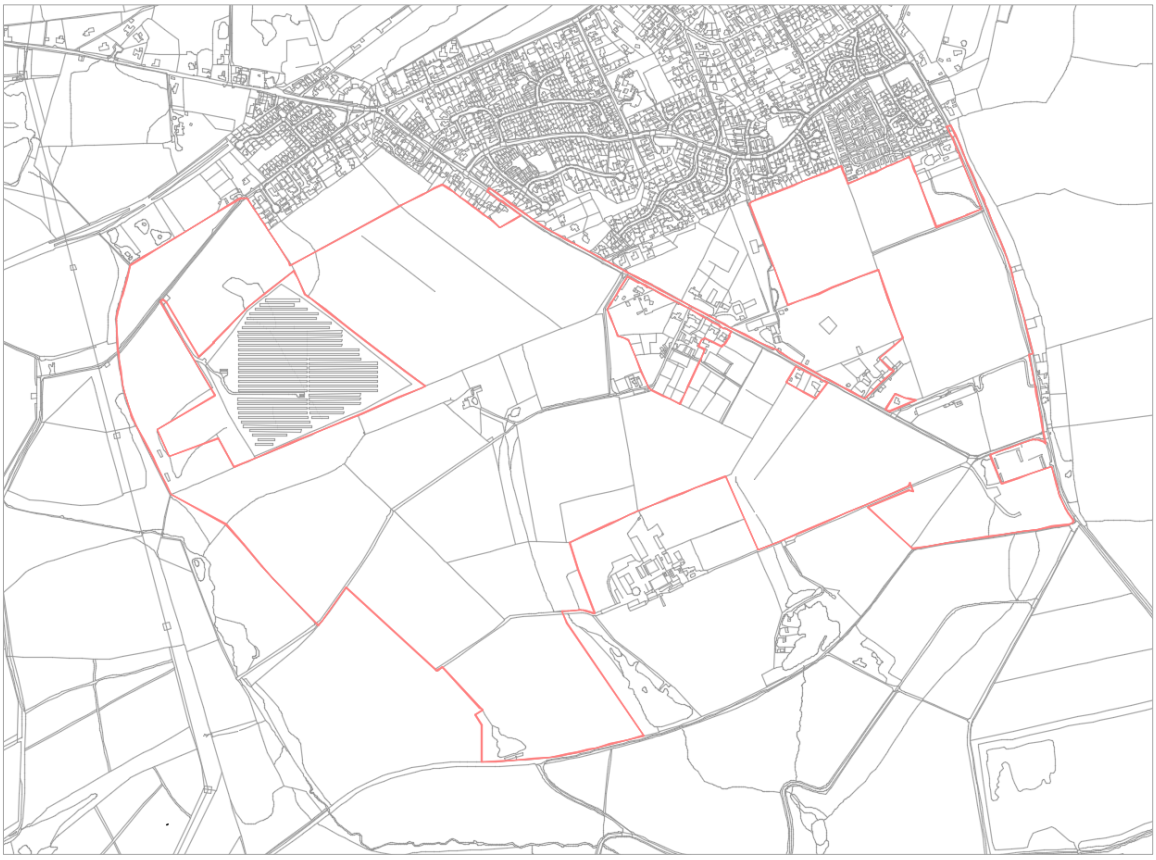
Background and Development Information

1.2. The development proposals are construction of approximately 1,700 residential homes with associated amenities including: a village centre, primary school, doctors surgery and health centre, local shops, cafes and pubs, community hall and enterprise hub and studios. The proposed development will include open space, a recreation ground/village park and private soft landscaping.

1.3. Previously an assessment of the effects of the existing noise environment at the Site was carried out by Waterman (document ref: WIE19098-108-R-2.1.3); the assessment found that noise from existing environmental sources was not a major constraint on the proposed uses.

1.4. This study focusses on the potential change in noise levels that would occur on the wider road network due to the additional road traffic generated by the development. Noise levels have been calculated on major affected roads and noise difference plots have been generated to show the potential effects of road traffic noise on the wider area.

Figure 1-1: Location Plan of the Site



2. Assessment of Road Traffic Noise Level Change

Road Traffic Flow Data

2.1. Road traffic flow data has been provided by Paul Basham Associates (transport consultant) for several road links around the Site for the following scenarios:

- 2027 Forecast
- 2027 with Development
- 2033 with Development

2.2. All flow data have been provided in terms of the 18 hour average annualised weekday traffic (AAWT). Full traffic flow data provided as **Annex A** to this note.

Calculation of Road Traffic Noise

2.3. In order to determine the potential level of noise level change across the study area a noise propagation of the Site and its surrounds has been developed using the CadnaA software package.

2.4. The model has been set to output noise levels in terms of $L_{A10,18hr,}$ based on the road traffic flow data set out in **Annex A** and in accordance with the methodology set out in the Calculation of Road Traffic Noise (CRTN)[1]. Noise levels have been calculated across the study area for each scenario

[1] Department of Transport, (1988). Calculation of Road Traffic Noise (CRTN), HMSO, London.

set out in the above section and noise maps of the area produced and are presented as **Figures 2-1 – 2-3** on the following pages.

2.5. It should be noted that these noise maps represent a worst-case scenario as noise levels are calculated at a height of 4m above ground level and do not account for noise attenuation from intervening structures, such as buildings, within nearby towns / villages.

Assessment of Noise Level Change

2.6. To better understand the magnitude of change in noise levels from development related traffic the following comparisons between the noise maps have been carried out:

- 2027 forecast vs 2027 development (500 development units)
- 2027 forecast vs 2033 development (full development scenario)

2.7. The above scenarios provide an insight into the magnitude of noise level change in terms of both short-term and long-term changes across the wider transport network surrounding the development Site.

2.8. Noise maps showing the magnitudes of change in noise level are presented as **Figures 2-4** and **2-5**[2]. As demonstrated by these maps, the main changes to road traffic noise are in the north of the study area, particularly focussed around Alderholt.

2027 forecast vs 2027 development– Short-term

2.9. Noise level change mapping for the 2027 short-term scenario indicates that noise level change across the study area would generally be below 1 dB $L_{A10,18hr}$ with only some areas experiencing levels above this. Areas around Batterly Drove / B3081, Harbridge Drove and B3078 / Station Road, are predicted to have a level of change between 1 – 2 dB $L_{A10,18hr}$ with a small area around Hillbury Road (north) having a level of change between 2 – 3 dB $L_{A10,18hr}$.

2027 forecast vs 2033 development -Long-term

2.10. **Figure 2-5** shows the noise level change from both development related traffic and natural traffic growth in the area between 2027 and 2033. As shown in **Figure 2-5**, noise levels would again mostly increase by < 2dB $L_{A10,18hr}$ in the majority of areas, with the exception of areas previously highlighted in the 2027 short-term scenario which would predominantly experience increases of between 2 – 3 dB $L_{A10,18hr}$. Additionally, the most significant increases are expected in the local areas (within 50m) of Ringwood Road and Hillbury Road (north) where changes in level of 3 – 5 dB are expected.

2.11. In contrast to the previous scenario, the effects of road traffic on noise levels in the 2027 - 2033 scenario would occur over a much longer period of time and would be a very gradual change as road traffic associated with the development grows following completion and occupation of development buildings.

Potential Effects

2.12. The primary source of guidance for assessing the potential effects of road traffic noise on surrounding sensitive uses is the Design Manual for Roads and Bridges (DMRB) LA 111[3]. The

[2] Where no level is shown within the noise maps, this indicates a change of < 1 dB $L_{A10.18hr}$.
[3] Highways Agency. (2020). Design Manual for Roads and Bridges (DMRB) - LA 111 Noise and Vibration. Highways England.

DMRB provides guidance on the potential adverse effects of both absolute noise levels from road sources and the effects of changes to road traffic noise levels in the short and long term.

2.13. Th potential effects associated with varying magnitudes of noise level change for both short-term and long-term scenarios are presented as **Table 2-1** and **2-2** below.

Table 2-1: Magnitude of Change – Short-term

Short-term Magnitude of Effect	Noise Level Change (dB $L_{A10,18hr}$)
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	Less than 1.0

Table 2-2: Magnitude of Change – Long-term

Short-term Magnitude of Effect	Noise Level Change (dB $L_{A10,18hr}$)
Major	Greater than or equal to 10.0
Moderate	5.0 to 9.9
Minor	3.0 to 4.9
Negligible	Less than 3.0

2.14. The potential significance of these effects is then determined by the definitions below.

Table 2-3: Significance of Road Traffic Noise Effects

Short-term Magnitude of Effect	Significance
Major	Significant
Moderate	
Minor	Not significant
Negligible	

2.15. The above definitions have been applied to the noise mapping presented as **Figures 2-4** and **2-5** to show the extent / magnitude of potential adverse effects across the study area. These maps are presented as **Figure 2-6** and **2-7** for the short-term and long-term scenarios, respectively.

2.16. As demonstrated by these figures for both the short-term and long-term scenarios only minor effects are expected, with these effects being constrained to the local areas around Batterly Drove / B3081, Harbridge Drove and B3078 / Station Road in the short-term scenario, and Ringwood Road and Hillbury Road (north) in the long-term scenario.

2.17. As all magnitude of effects are predicted to be minor, the significance of these effects would be *not significant* as per **Table 2-3**. It should be noted that these effects primarily apply to residential areas; where the use of the area is less sensitive than this, a lower magnitude of effect would be expected.

3. Summary & Conclusions

3.1. Waterman Infrastructure and Environment Ltd. was instructed by Dudsbury Homes (Southern) Ltd to carry out an assessment of development-related traffic noise on the road transport network surrounding the proposed Alderholt Meadows development.

3.2. Noise levels from overall traffic flows on the road transport network were predicted for three scenarios:

- 2027 Forecast
- 2027 with Development
- 2033 with Development

3.3. The resulting noise maps from these three scenarios were compared to determine the short-term (2027 forecast vs 2027 development) and long-term (2027 forecast vs 2033 development) effects of the change in noise level attributable to the development. Overall, effects in both scenarios were local and not considered significant based on the predicted magnitude of change.

FIGURES

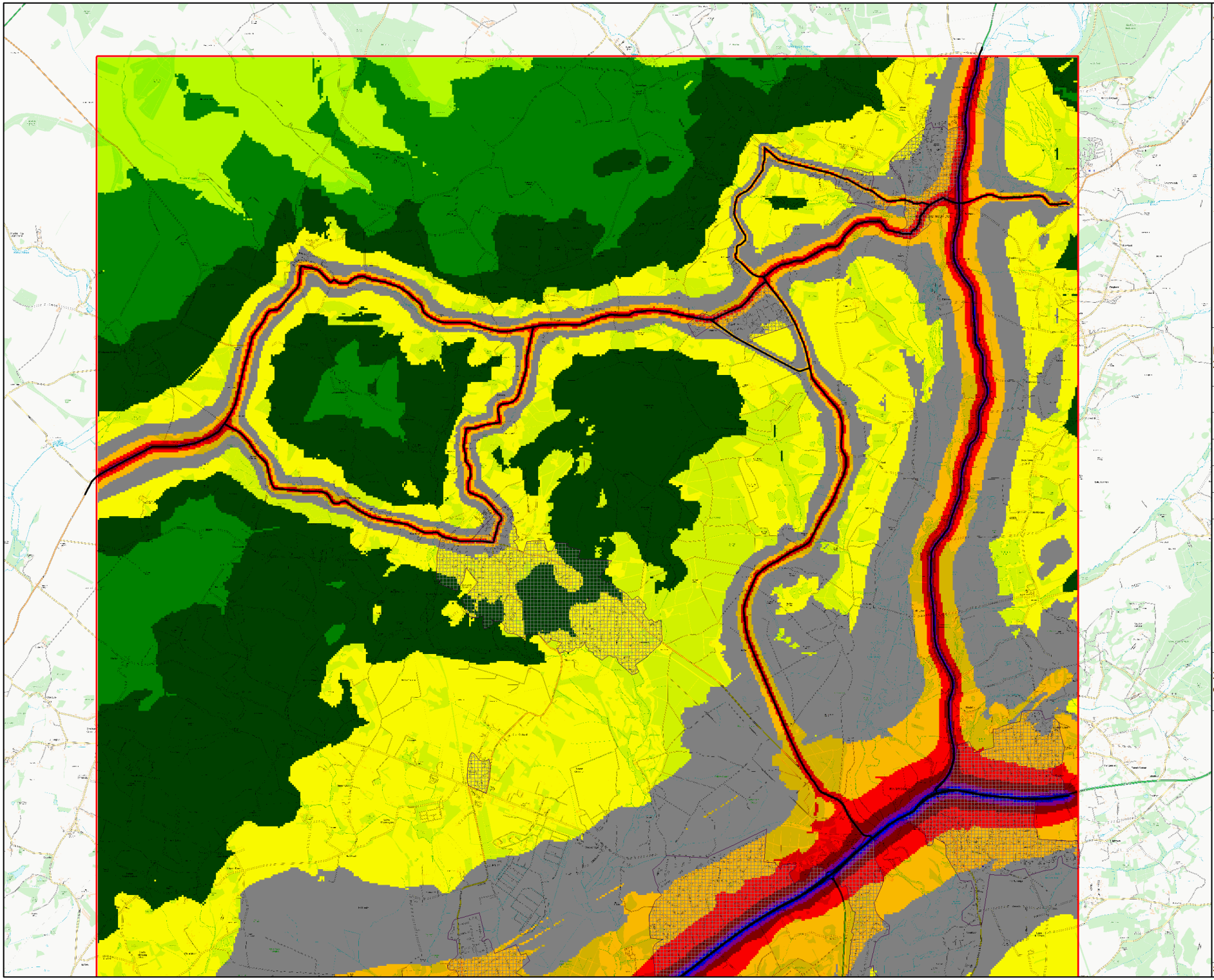


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Figure 2-1 Road Traffic Noise 2027 Forecast

Iss.	Date	Auth.	Chk. By
001	23/11/2023	MP	XX

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2027 Forecast
dB LA10,18hr

- > -99.0 dB
- > 35.0 dB
- > 40.0 dB
- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB
- > 80.0 dB
- > 85.0 dB

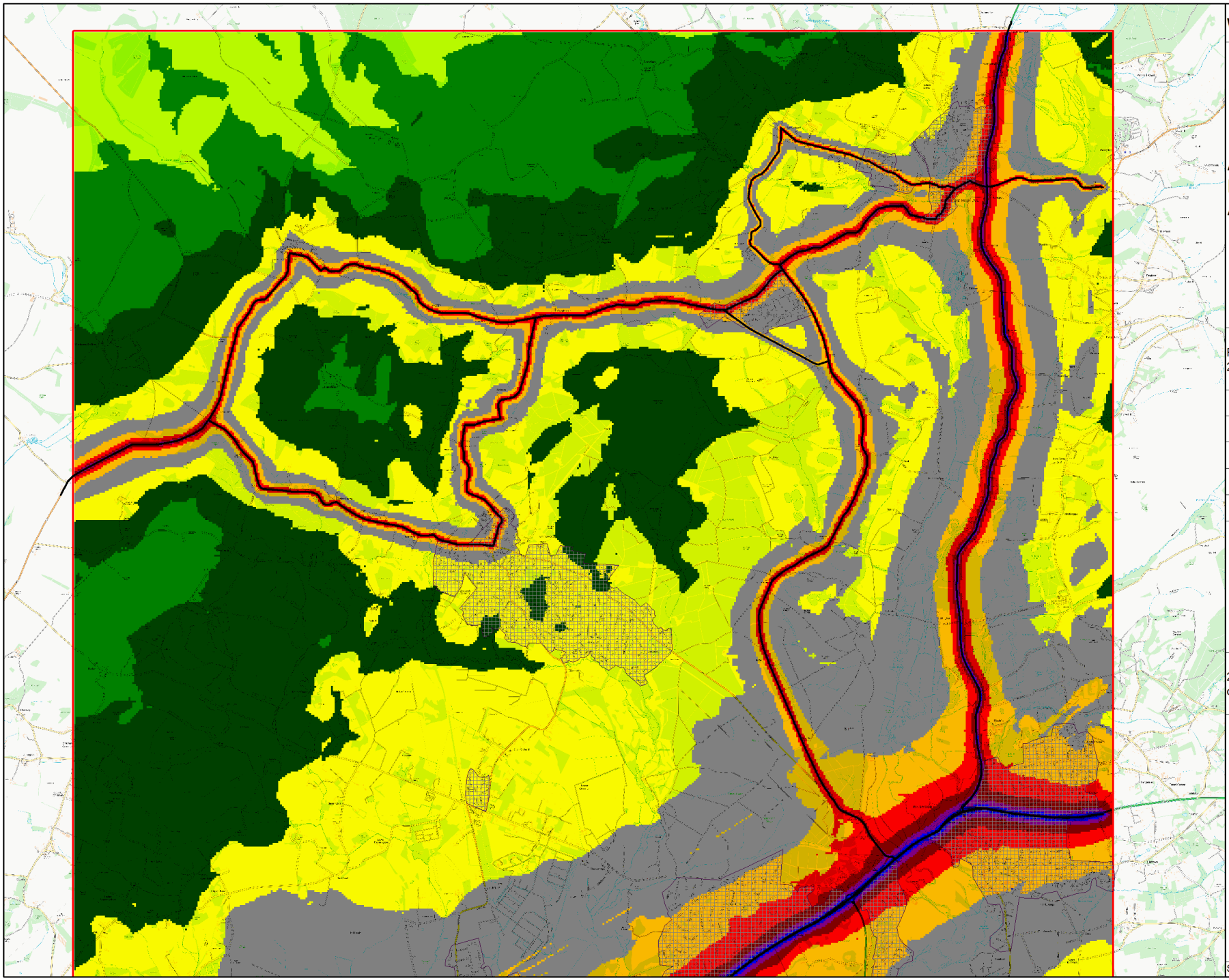

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Figure 2-2 Road Traffic Noise
2027 Development

Iss.	Date	Auth.	Chk. By
001	23/11/2023	MP	XX

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2027 Development
dB LA10,18hr

- > -99.0 dB
- > 35.0 dB
- > 40.0 dB
- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB
- > 80.0 dB
- > 85.0 dB

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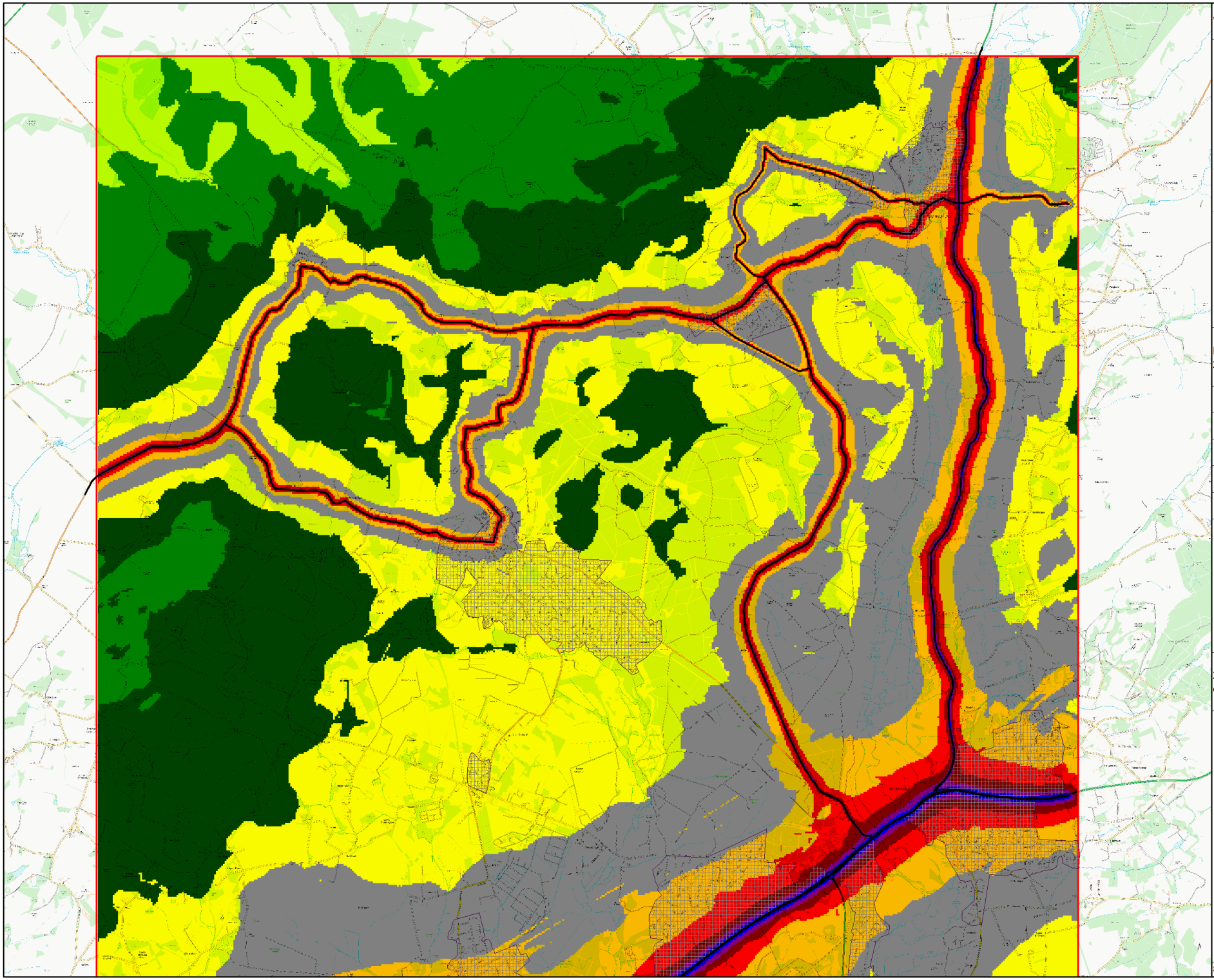

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Figure 2-3 Road Traffic Noise
2033 Development

Iss.	Date	Auth.	Chk. By
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2033 Development
dB LA10,18hr

- > 35.0 dB
- > 40.0 dB
- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB
- > 80.0 dB
- > 85.0 dB

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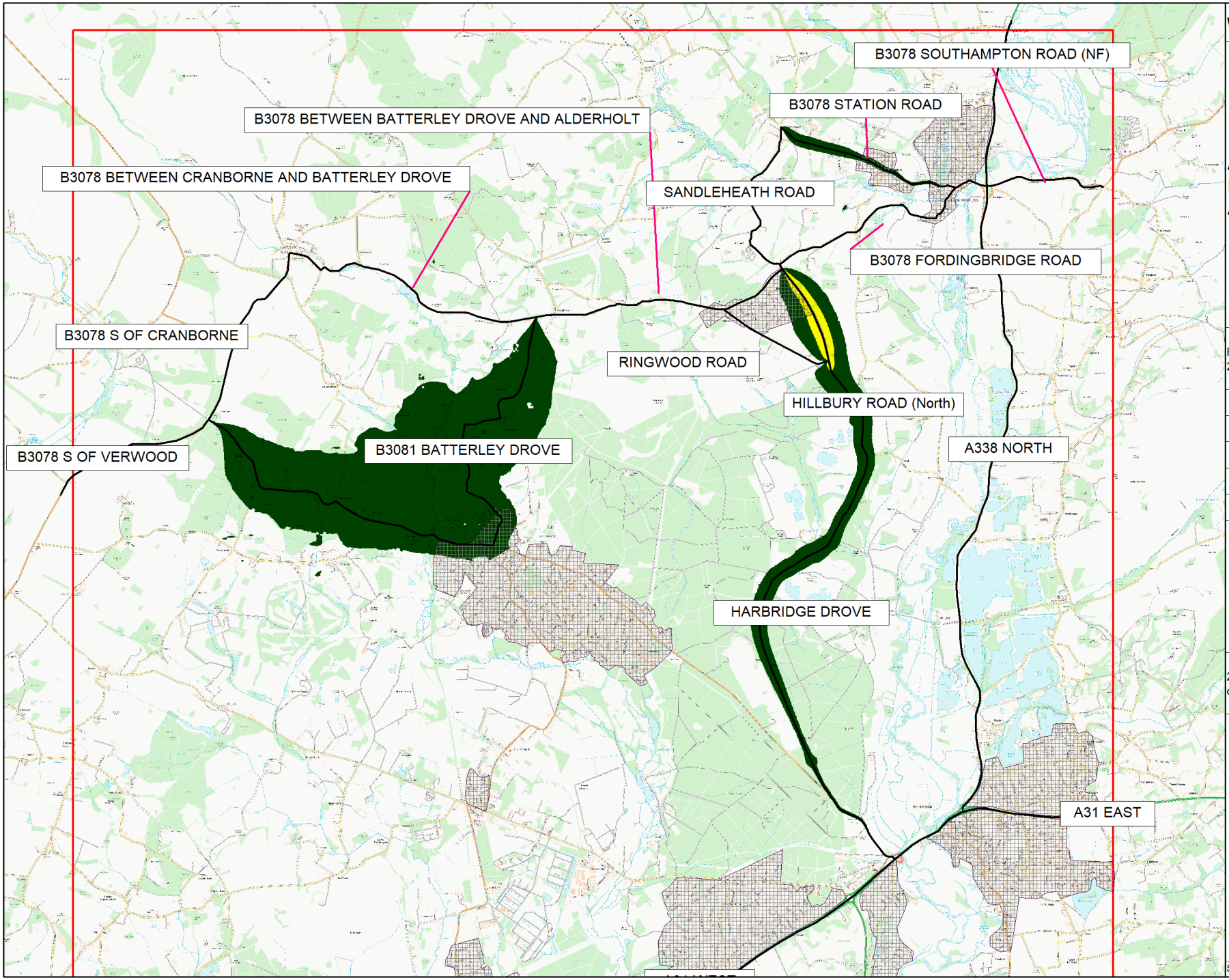

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Figure 2-4 Noise Level Change
2027 - Short Term

Iss.	Date	Auth.	Chk. By
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2027 Forecast vs 2027 DEV
dB LA10,18hr

- 1.0 <= ... < 2.0
- 2.0 <= ... < 3.0
- 3.0 <= ... < 4.0
- 4.0 <= ... < 5.0
- 5.0 <= ... < 6.0
- 6.0 <= ... < 7.0
- 7.0 <= ... < 8.0
- 8.0 <= ... < 9.0
- 9.0 <= ... < 10.0
- 10.0 <= ...

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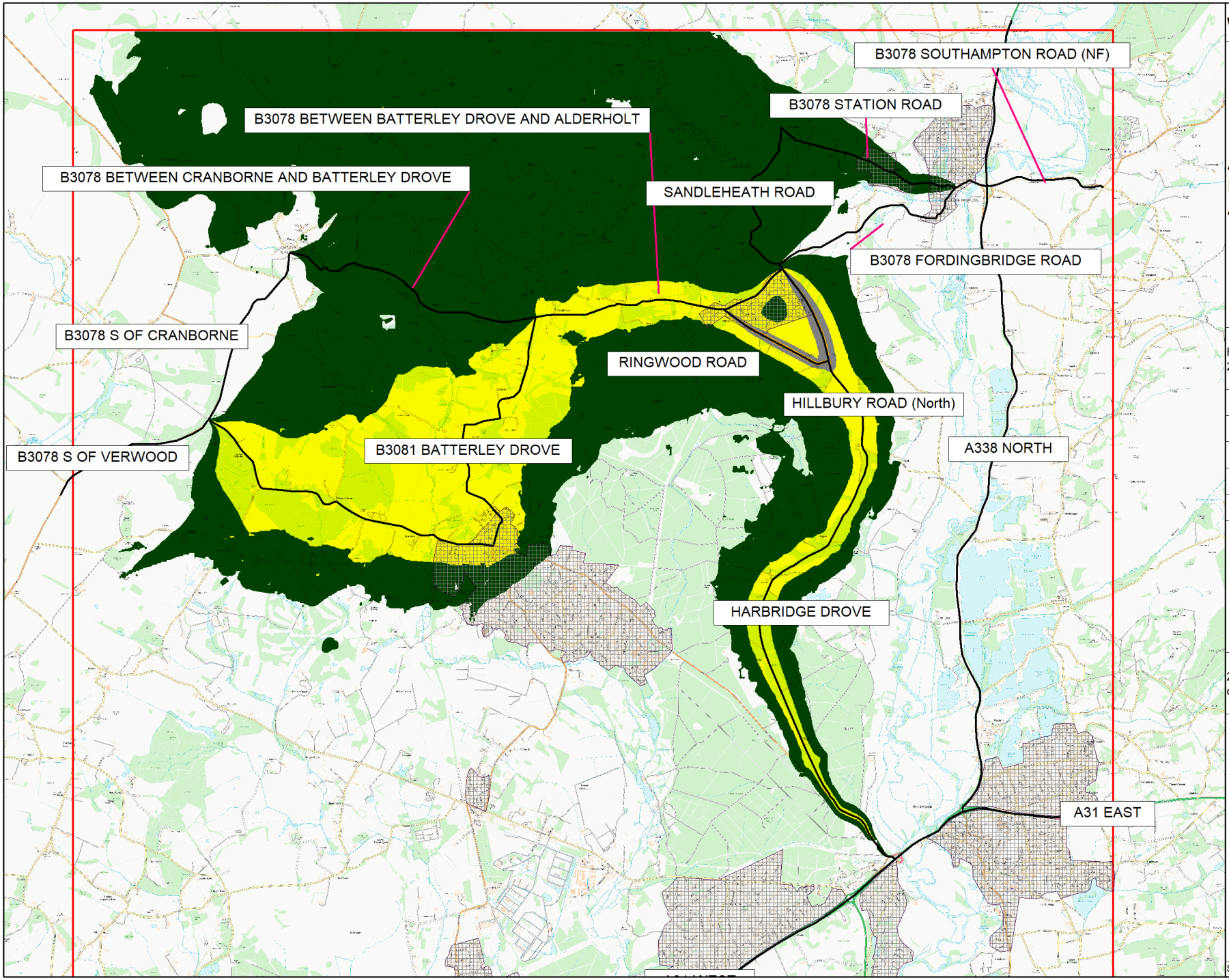

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Figure 2-5 Noise Level Change 2027 / 2033 - Long Term

Iss.	Date	Auth.	Chk. By
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2027 Forecast vs 2033 DEV
dB LA10,18hr

- 1.0 <= ... < 2.0
- 2.0 <= ... < 3.0
- 3.0 <= ... < 4.0
- 4.0 <= ... < 5.0
- 5.0 <= ... < 6.0
- 6.0 <= ... < 7.0
- 7.0 <= ... < 8.0
- 8.0 <= ... < 9.0
- 9.0 <= ... < 10.0
- 10.0 <= ...

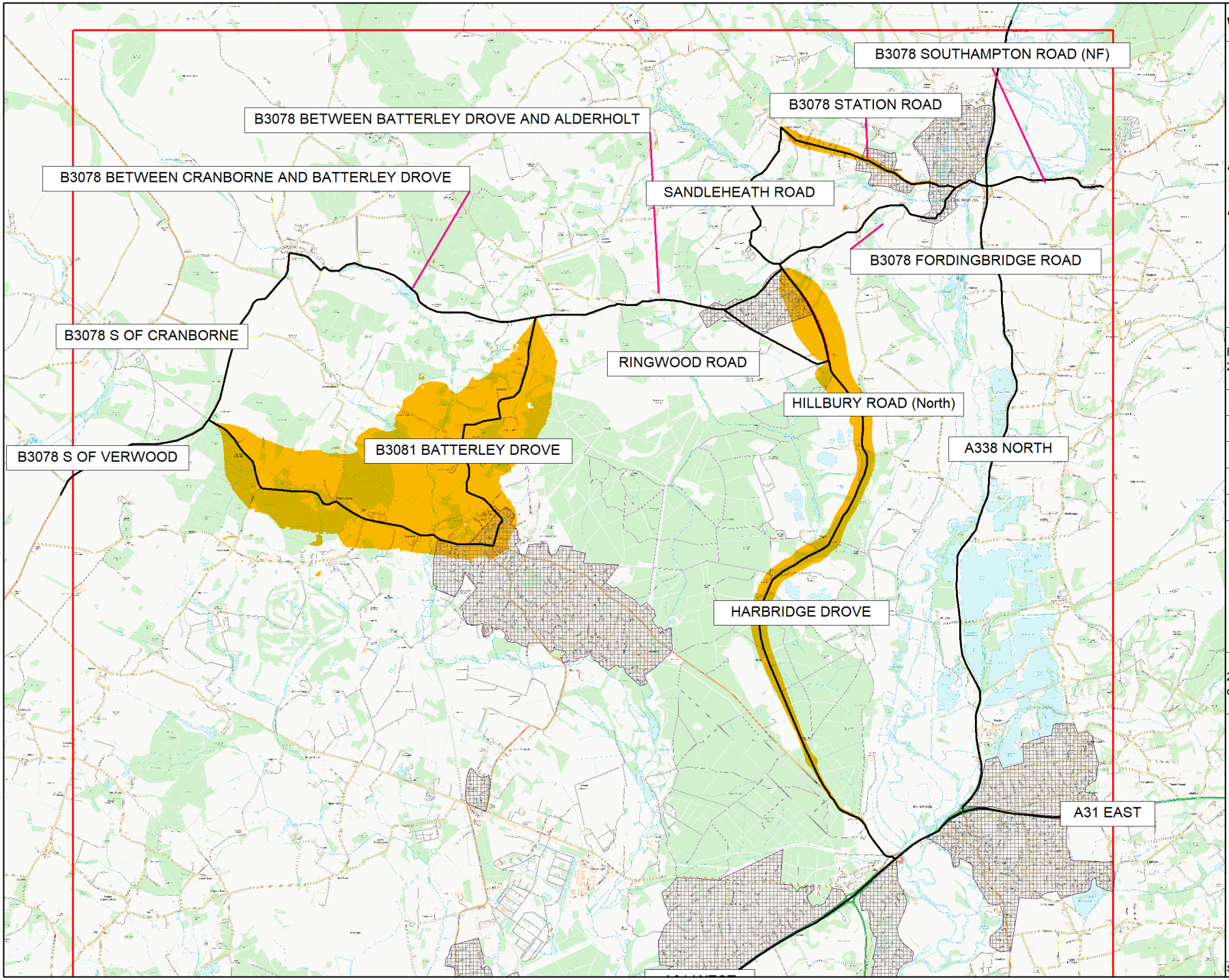

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Figure 2-6 Noise Effects
2027 - Short Term

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2027 Forecast vs 2027 DEV
dB LA10,18hr

Minor Impact (>= 1.0 dBA)
Moderate Impact (>= 3.0 dBA)
Major Impact 5.0 (>= 5.0 dBA)

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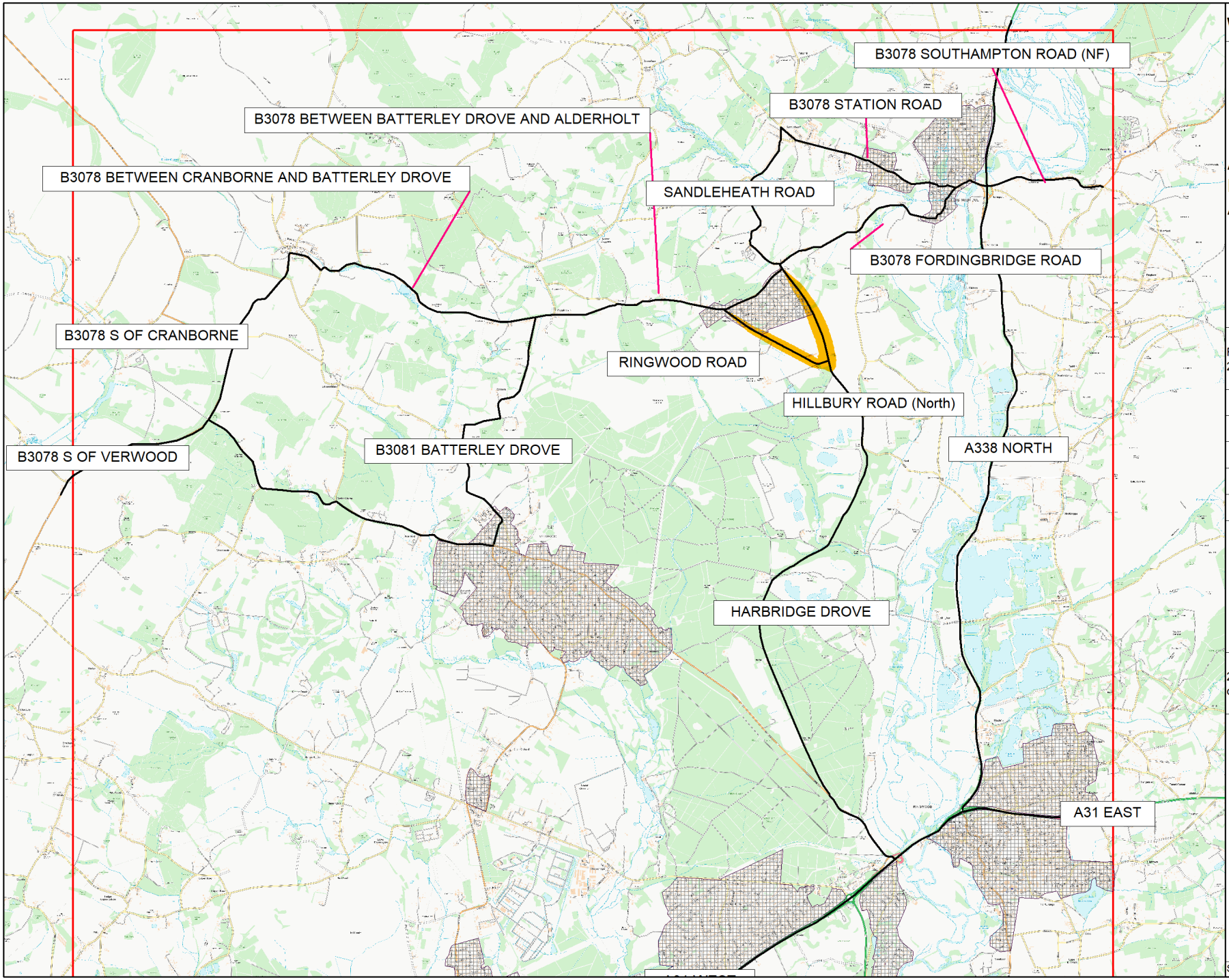

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Figure 2-7 Noise Effects
2027 / 2033 - Long Term

Iss.	Date	Auth.	Chk. By
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2027 Forecast vs 2033 DEV
dB LA10,18hr

- Minor Impact (>= 3.0 dBA)
- Moderate Impact (>= 5.0 dBA)
- Major Impact 5.0 (>= 10.0 dBA)

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ANNEXES

A. Full Traffic Flow Information

	2022		2027 FORECAST		2027 500 DEV		2033 FORECAST		2033 W DEV		SPEED LIMIT
LINK	AAWT (18HR)	HGV%	AAWT (18HR)	HGV%	AADT (18HR)	HGV%	AADT (18HR)	HGV%	AADT (18HR)	HGV%	
B3078 S OF CRANBORNE	3454	5%	3503	5%	3715	5%	3540	5%	4214	5%	30/60
B3078 S OF VERWOOD	8978	5%	9840	5%	10230	5%	9145	5%	10150	5%	60
B3078 BETWEEN CRANBORNE AND BATTERLEY DROVE	2565	5%	2602	5%	2862	5%	2629	5%	3303	5%	30/60
B3081 BATTERLEY DROVE	2559	5%	2596	5%	3420	5%	2623	5%	4751	5%	60
B3078 BETWEEN BATTERLEY DROVE AND ALDERHOLT	4576	5%	4641	5%	5726	5%	4720	5%	7521	5%	40/60
B3078 STATION ROAD	3945	5%	4001	5%	5244	5%	4081	5%	6225	5%	30
RINGWOOD ROAD	1199	5%	1216	5%	1216	5%	1240	5%	3126	5%	30
HILLBURY ROAD (North)	2331	5%	2364	5%	4742	5%	2411	5%	5967	5%	30/40
HARBRIDGE DROVE	3367	5%	3415	5%	4532	5%	3473	5%	6356	5%	40/60
A31 WEST	99921	5%	104497	5%	105168	5%	105662	5%	107392	5%	70
A31 EAST	102764	5%	107471	5%	107918	5%	108669	5%	109822	5%	70
B3078 FORDINGBRIDGE ROAD	6419	5%	6575	5%	7180	5%	6622	5%	8185	5%	40/60
SANDLEHEATH ROAD	2583	5%	2620	5%	3004	5%	2648	5%	3639	5%	30
A338 NORTH	13257	5%	13579	5%	13778	5%	13329	5%	13845	5%	70
B3078 SOUTHAMPTON ROAD (NF)	3596	5%	3683	5%	3690	5%	3722	5%	3738	5%	40