

Forest Farm, Chippenham
Environmental Statement

Chapter 4
Air quality



4 Air quality

Introduction

- 4.1 Quantum Air was appointed to undertake the assessment of potential effects on air quality. This chapter summarises the findings of Quantum Air's assessment and the full report is included as technical appendix C. Construction-related effects were scoped out of the assessment, which therefore focuses on post-construction effects as a result of increased traffic emissions. However, a construction dust assessment is provided in technical appendix C for completeness. The references and data sources used in the assessment are shown in table 4.1.

Defra, 2024, UK Pollutant Release and Transfer Register: https://prtr.defra.gov.uk/facility-results?view=facilities&q=1296782
Defra, 2023, Background mapping: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/background-maps/
Defra, 2022, Local Air Quality Management Technical Guidance LAQM.TG22
Defra, 2022, UK Regions (exc. London) Technical Guidance
Environmental Protection UK and Institute of Air Quality Management, 2017, Land-Use Planning & Development Control: Planning for Air Quality v1.2
Ministry of Housing, Communities and Local Government, 2019, Planning Practice Guidance: Air Quality
Wiltshire Council, 2025, Annual Status Report
Table 4.1: References and data sources

Legislation and policy

Legislation

- 4.2 Part IV of the Environment Act 1995 introduced a system of local air quality management (LAQM). This requires local authorities to review and assess air quality within their boundaries against a set of objectives. The *Air Quality Strategy* (2007) established the policy framework for ambient air quality management and assessment in the UK and set out national air quality objectives. Where these are not met, a local authority must declare an air quality management area (AQMA) and draw up an air quality action plan. The government published its *Clean Air Strategy* in January 2019. This set out the methods by which air pollution will be reduced, but did not introduce any new air quality objectives. The *Air Quality Strategy: Framework for Local Authority Delivery 2023* (Defra, 2023) sets out the strategic air quality framework for local authorities in England and actions the government expects them to take.
- 4.3 The Air Quality Standards Regulations 2010 (as amended) implement the EC's Directive 2008/50/EC on ambient air quality and cleaner air for Europe. The regulations set out a series of mandatory limit values assigned to individual pollutants, based on an assessment of the effects of each pollutant on public health. These limit values are the same as the national air quality objectives for nitrogen dioxide (NO₂) and particulate matter (PM₁₀), but differ in terms of compliance dates, locations where they apply and the legal responsibility for ensuring they are complied with.
- 4.4 The Environment Act 2021 gives the government the power to set long term, legally binding environmental targets. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set two new targets for future concentrations of fine particulate matter (PM_{2.5}). The Environmental Improvement Plan (Defra, 2025) adds detail to the goals defined in Defra's

(2018) 25 Year Environment Plan, including that of achieving clean air. It also sets out updated air quality targets that have been set for concentrations of PM_{2.5}. These include the long term targets set out in the regulations, as well as interim targets to be achieved by 2030.

- 4.5 The national air quality criteria relevant to this assessment are set out in table 4.2.

Pollutant	Time period	Limit value	Date to be achieved by (and maintained after)
Nitrogen dioxide (NO ₂)	One-hour mean	200 µg/m ³ (not to be exceeded more than 18 times per calendar year)	31.12.05
	Annual mean	40 µg/m ³	31.12.05
Particulate matter (PM ₁₀)	24-hour mean	50 µg/m ³ (not to be exceeded more than 35 times per calendar year)	31.12.04
	Annual mean	40 µg/m ³	31.12.04
Particulate matter (PM _{2.5})	Annual mean	20 µg/m ³	2020
		Target of 15% reduction in concentrations at urban background	Between 2010 and 2020
	Interim annual mean target	10 µg/m ³	December 2030
		Target of 30% reduction in average population exposure	
	Legally binding annual mean target	10 µg/m ³	2040
		Target of 35% reduction in average population exposure	

Table 4.2: Air quality criteria

National policy

- 4.6 The National Planning Policy Framework (NPPF; 2024) sets out the government's planning policies for England and how they are expected to be applied. In relation to air quality, paragraph 199 of the NPPF states that:

“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

- 4.7 The NPPF is supported by the Ministry of Housing, Communities and Local Government's online National Planning Practice Guidance: *Air quality* (2019), which includes guiding principles on how planning can take account of the impacts of new development on air quality.

Local policy

- 4.8 Local planning policy in relation to air quality is provided by the adopted *Wiltshire Core Strategy* (2015). Core Policy 55: Air quality requires

development proposals to demonstrate that measures can be taken to effectively mitigate emissions to protect public health, environmental quality and amenity.

- 4.9 Wiltshire Council's (2019) *Air Quality Strategy for Wiltshire 2019-2024* provides four strategic priorities for air quality in the county:

- To secure the air quality objectives in the AQMAs
- To maintain good air quality across the rest of the county
- To lead by example through Wiltshire Council's own actions
- To communicate and disseminate information to residents and other stakeholders

- 4.10 A more detailed review of legislation and policy is provided in technical appendix C.

Methodology

Baseline

- 4.11 Information on the existing air quality in the vicinity of the site was obtained by collating the results of monitoring carried out by Wiltshire Council. Background concentrations of air pollutants were obtained from the Defra website. Industrial and waste management sources that may affect the area were identified using Defra's Pollutant Release and Transfer Register (Defra, 2024). The references and data sources used in the study are shown in table 4.1.
- 4.12 The ADMS-Roads (v.5.0.1) software was used to model baseline concentrations of NO₂, PM₁₀ and PM_{2.5} at 38 existing sensitive receptors in the vicinity of the site and along the local road network. The locations of the sensitive receptors are shown on figure 4.1. Full details of the modelling inputs are provided in technical appendix C.

Impact assessment

- 4.13 The ADMS-Roads model was used to predict annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} at the 38 existing sensitive receptors, both with and without the proposed development. In addition, air quality at eight receptors within the proposed development was modelled to consider the introduction of new exposure to existing sources of pollution. The modelling was undertaken using the emissions factor toolkit 12.1 published by Defra. Full details of the model verification and data inputs are provided in technical appendix C.
- 4.14 The following scenarios were modelled for the assessment:
- 2024 baseline
 - 2029 future baseline (estimated year of opening): baseline plus committed developments and wider background traffic growth
 - 2029 with development: baseline plus committed developments and wider background traffic growth plus proposed development
 - 2029 with sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments

- 2036 future baseline: baseline plus committed developments and wider background traffic growth
- 2036 with development: baseline plus committed developments and wider background traffic growth plus proposed development
- 2036 sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments

- 4.15 The two sensitivity test scenarios are assessed in chapter 11: cumulative effects.
- 4.16 The significance of the post-construction effects was assessed using the criteria produced by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) in 2017. These criteria define impact descriptors based on the percentage change relative to the air quality assessment level (AQAL) as a result of the proposed development and the absolute concentration at a receptor in relation to the AQAL (figure 4.2). The overall significance of effects was determined, in accordance with the guidance, using professional judgement and taking account of the impact descriptors. Effects that are moderate or above are considered to be significant in EIA terms.

Limitations and uncertainties

- 4.17 The results from dispersion modelling may differ from measured concentrations as a result of estimates and uncertainties associated with the input data. An adjustment of modelled results is required to ensure that the final concentrations presented are representative of an area's monitoring information. Adjustment factors have therefore been applied to the modelling results. Full details of the verification process and calculated adjustment factors are provided in technical appendix C.
- 4.18 To ensure a robust assessment, a pessimistic assumption of no reduction over time in background pollutant concentrations has been adopted. The 2023 background values were therefore used for the future scenarios for all pollutants.

Baseline

Industrial sources of air pollution

- 4.19 No significant industrial sources of air pollution have been identified that are likely to affect the proposed development and industrial emissions are not considered further here.

Local air quality monitoring

- 4.20 Wiltshire Council monitors air quality as part of its responsibilities under the LAQM regime. It has declared an AQMA for exceedances of the annual mean NO₂ objective in Calne, encompassing most of the main road (the A4) through the town and sections of two adjoining roads (Wood Street and the A3102), approximately 4.5 km to the east of the site. Wiltshire Council carries out diffusion tube monitoring of annual mean NO₂ concentrations in both

Chippenham and Calne and results from these monitoring points are set out in table 4.3.

Ref.	Location	2020	2021	2022	2023	2024
13	Horsebrook, Calne	7.8	7.8	7.4	6.2	7.4
14	34 New Road, Calne (King George)	40.8	42.6	33.9	28.4	27.6
15	30 London Road, Calne	23.4	25.7	21.7	19.8	18.0
16	57 Curzon Street, Calne	19.5	20.9	19.9	16.7	15.7
17	18 Curzon Street, Calne	-	32.9	31.1	27.6	26.0
18	Bourne House, Bath Road, Chippenham	23.7	25.0	23.3	21.6	19.7
19	Rowde Mead, Chippenham	8.5	8.8	9.5	8.3	7.8
20	Station Hill, Chippenham	26.3	28.6	27.7	24.9	23.4

Table 4.3: Summary of monitored annual mean NO₂ concentrations (µg/m³)

- 4.21 Concentrations of NO₂ have remained below the annual mean objective at all the monitoring points except site 14 in Calne, where the objective was exceeded in 2020 and 2021. This is a roadside monitoring point within the AQMA and is not representative of conditions at the application site.

Background concentrations

- 4.22 Information on background concentrations of pollutants for the Wiltshire Council administrative area was obtained from the Defra website. To derive representative background concentrations for air quality across the study area, the values for all grid cells within Wiltshire Council were averaged to produce a single mean background concentration for the authority area. The data in table 4.4 show that the estimated annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5} are well below the relevant annual mean objectives.

Pollutant	Oxides of nitrogen (NO _x)	NO ₂	PM ₁₀	PM _{2.5}
Concentration (µg/m ³)	6.3	5.0	11.2	6.4

Table 4.4: Estimated annual mean background pollutant concentrations

Modelled baseline air quality

- 4.23 The modelled baseline NO₂, PM₁₀ and PM_{2.5} concentrations at the 38 existing sensitive receptors are shown in table 4.5. The locations of the sensitive receptors are shown in figure 4.1.

Receptor	Annual mean NO ₂ (µg/m ³)	Annual mean PM ₁₀ (µg/m ³)	Annual mean PM _{2.5} (µg/m ³)
R1: Residential property on A4 Bath Road	12.32	16.06	9.55
R2: Residential property on A420 Ivy Lane	11.44	14.95	8.96
R3: Residential property on A420 Ivy Lane	13.20	16.83	9.96
R4: Residential property on Bath Road	12.29	15.49	9.25
R5: Offices on Bath Road	11.37	15.03	9.01
R6: Residential property on Gladstone Road	10.14	14.02	8.48
R7: Residential property on Gladstone Road	9.51	13.36	8.13
R8: Residential property on Westmead Lane	9.14	12.93	7.90
R9: Residential property on Charter Road	9.03	12.82	7.84
R10: Residential property on The Paddocks	8.87	12.51	7.69
R11: Residential property on Avenue La Fleche	9.75	13.44	8.17
R12: Residential property on Avenue La Fleche	10.13	13.85	8.39
R13: Residential property on Claypole Mead	11.34	14.30	8.71
R14: Residential property on Monks Way	9.27	13.11	7.99
R15: Residential property on Holland Close	9.86	13.72	8.31
R16: Residential property on Colborne Close	10.29	14.15	8.55
R17: Residential property on London Road	9.72	13.56	8.23

Receptor	Annual mean NO ₂ (µg/m ³)	Annual mean PM ₁₀ (µg/m ³)	Annual mean PM _{2.5} (µg/m ³)
R18: Residential property on London Road	9.83	13.68	8.29
R19: Residential property on London Road	9.56	13.36	8.13
R20: Residential property on A4 London Road	9.73	13.47	8.19
R21: Residential property on A4 London Road	9.82	13.50	8.22
R22: Residential property on A4 London Road	9.96	13.58	8.27
R23: Stanley Park sports ground	9.73	13.36	8.15
R24: Residential property on A4 London Road	10.09	13.68	8.33
R25: Forest Farm	8.30	12.10	7.45
R26: Forest Farm	8.35	12.14	7.48
R27: Residential property on A4 London Road	10.31	13.77	8.39
R28: Residential property on A4 London Road	7.25	12.53	7.56
R29: Residential property on A342 Old Derry Hill	6.76	12.23	7.38
R30: Residential property on Barry Place	6.10	11.65	7.06
R31: Residential property on A342 Old Derry Hill	6.90	12.39	7.47
R32: Residential property on Petty Lane	6.20	11.75	7.12
R33: Residential property on Chapel Street	6.41	11.95	7.23
R34: Residential property on A4 Chilvester Hill	8.01	13.12	7.88
R35: Residential property on Saffron Meadow	7.58	12.50	7.56
R36: Residential property on Saffron Meadow	7.66	12.67	7.65
R37: Residential property on Yew Tree Close	7.42	12.65	7.61
R38: Residential property on Lodge Close	7.56	12.81	7.69

Table 4.5: Modelled 2024 baseline pollutant concentrations at the sensitive receptors

4.24 The annual mean NO₂, PM₁₀ and PM_{2.5} concentrations are well below the relevant objectives at all the receptors, including R34 to R38 within Calne AQMA.

Future baseline

4.25 The modelled future baseline NO₂, PM₁₀ and PM_{2.5} concentrations at the sensitive receptors are shown in tables 4.6 for 2029 and 4.7 for 2036. The annual mean concentrations of all three pollutants are predicted to be well below the relevant objectives at all the receptors, including R34 to R38 within Calne AQMA.

Receptor	Annual mean NO ₂ (µg/m ³)	Annual mean PM ₁₀ (µg/m ³)	Annual mean PM _{2.5} (µg/m ³)
R1: Residential property on A4 Bath Road	10.50	16.17	9.58
R2: Residential property on A420 Ivy Lane	10.01	15.04	8.99
R3: Residential property on A420 Ivy Lane	11.10	17.17	10.10
R4: Residential property on Bath Road	10.36	15.41	9.17
R5: Offices on Bath Road	9.89	14.99	8.96
R6: Residential property on Gladstone Road	9.27	14.04	8.47
R7: Residential property on Gladstone Road	8.91	13.37	8.12
R8: Residential property on Westmead Lane	8.76	13.01	7.93
R9: Residential property on Charter Road	8.69	12.89	7.87
R10: Residential property on The Paddocks	8.60	12.56	7.71
R11: Residential property on Avenue La Fleche	9.09	13.50	8.20
R12: Residential property on Avenue La Fleche	9.30	13.92	8.41
R13: Residential property on Claypole Mead	10.08	14.51	8.80
R14: Residential property on Monks Way	8.86	13.25	8.06
R15: Residential property on Holland Close	9.23	13.94	8.42
R16: Residential property on Colborne Close	9.49	14.42	8.67
R17: Residential property on London Road	9.04	13.58	8.23
R18: Residential property on London Road	9.10	13.71	8.30
R19: Residential property on London Road	8.99	13.45	8.17
R20: Residential property on A4 London Road	9.12	13.61	8.26
R21: Residential property on A4 London Road	9.16	13.63	8.27
R22: Residential property on A4 London Road	9.24	13.70	8.32
R23: Stanley Park sports ground	9.10	13.47	8.20

Receptor	Annual mean NO ₂ (µg/m ³)	Annual mean PM ₁₀ (µg/m ³)	Annual mean PM _{2.5} (µg/m ³)
R24: Residential property on A4 London Road	9.32	13.81	8.38
R25: Forest Farm	8.26	12.11	7.46
R26: Forest Farm	8.29	12.15	7.48
R27: Residential property on A4 London Road	9.45	13.91	8.44
R28: Residential property on A4 London Road	6.41	12.66	7.62
R29: Residential property on A342 Old Derry Hill	6.11	12.33	7.42
R30: Residential property on Barry Place	5.73	11.71	7.09
R31: Residential property on A342 Old Derry Hill	6.20	12.51	7.52
R32: Residential property on Petty Lane	5.78	11.81	7.14
R33: Residential property on Chapel Street	5.90	12.02	7.26
R34: Residential property on A4 Chilvester Hill	7.29	13.22	7.92
R35: Residential property on Saffron Meadow	7.03	12.54	7.58
R36: Residential property on Saffron Meadow	7.08	12.73	7.67
R37: Residential property on Yew Tree Close	6.94	12.70	7.63
R38: Residential property on Lodge Close	7.01	12.86	7.71

Table 4.6: Modelled 2029 future baseline pollutant concentrations at the sensitive receptors

Receptor	Annual mean NO ₂ (µg/m ³)	Annual mean PM ₁₀ (µg/m ³)	Annual mean PM _{2.5} (µg/m ³)
R1: Residential property on A4 Bath Road	9.08	16.15	9.58
R2: Residential property on A420 Ivy Lane	8.91	15.00	8.97
R3: Residential property on A420 Ivy Lane	9.31	17.13	10.09
R4: Residential property on Bath Road	9.06	15.33	9.14
R5: Offices on Bath Road	8.86	14.96	8.95
R6: Residential property on Gladstone Road	8.62	14.05	8.48
R7: Residential property on Gladstone Road	8.48	13.37	8.12
R8: Residential property on Westmead Lane	8.41	13.01	7.93
R9: Residential property on Charter Road	8.39	12.89	7.87
R10: Residential property on The Paddocks	8.35	12.56	7.71
R11: Residential property on Avenue La Fleche	8.53	13.50	8.20
R12: Residential property on Avenue La Fleche	8.61	13.92	8.42
R13: Residential property on Claypole Mead	8.93	14.53	8.82
R14: Residential property on Monks Way	8.45	13.25	8.06
R15: Residential property on Holland Close	8.59	13.94	8.42
R16: Residential property on Colborne Close	8.69	14.42	8.67
R17: Residential property on London Road	8.52	13.58	8.23
R18: Residential property on London Road	8.54	13.70	8.30
R19: Residential property on London Road	8.50	13.45	8.17
R20: Residential property on A4 London Road	8.55	13.61	8.26
R21: Residential property on A4 London Road	8.57	13.63	8.28
R22: Residential property on A4 London Road	8.60	13.71	8.33
R23: Stanley Park sports ground	8.55	13.48	8.20
R24: Residential property on A4 London Road	8.63	13.82	8.39
R25: Forest Farm	8.22	12.11	7.46
R26: Forest Farm	8.23	12.15	7.48
R27: Residential property on A4 London Road	8.68	13.92	8.45
R28: Residential property on A4 London Road	5.67	12.67	7.63
R29: Residential property on A342 Old Derry Hill	5.55	12.33	7.43
R30: Residential property on Barry Place	5.40	11.71	7.09
R31: Residential property on A342 Old Derry Hill	5.58	12.51	7.52
R32: Residential property on Petty Lane	5.43	11.81	7.15
R33: Residential property on Chapel Street	5.47	12.03	7.26
R34: Residential property on A4 Chilvester Hill	6.69	13.26	7.95
R35: Residential property on Saffron Meadow	6.59	12.57	7.60
R36: Residential property on Saffron Meadow	6.61	12.76	7.69
R37: Residential property on Yew Tree Close	6.55	12.72	7.64
R38: Residential property on Lodge Close	6.58	12.89	7.73

Table 4.7: Modelled 2036 future baseline pollutant concentrations at the sensitive receptors

Effects post-construction

- 4.26 The predicted 'with development' post-construction NO₂, PM₁₀ and PM_{2.5} concentrations and the changes as a result of the proposed development are set out in tables 4.8 for 2029 and 4.9 for 2036. The annual mean concentrations of all three pollutants are predicted to be well below the relevant objectives at all the receptors, including R34 to R38 within Calne AQMA. All the receptors are predicted to experience increases in NO₂ levels of 3% or less of the annual mean objective and in PM₁₀ and PM_{2.5} levels of less than 1% of the relevant annual mean objective. These increases will all be negligible and not significant.

Receptor ref.	NO ₂		PM ₁₀		PM _{2.5}	
	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*
R1	10.55	0.1%	16.25	0.2%	9.62	0.2%
R2	10.03	0.1%	15.09	0.1%	9.01	0.1%
R3	11.16	0.1%	17.28	0.3%	10.15	0.3%
R4	10.38	0.0%	15.43	0.1%	9.18	0.1%
R5	9.91	0.0%	15.01	0.0%	8.97	0.1%
R6	9.28	0.0%	14.07	0.1%	8.48	0.1%
R7	8.93	0.0%	13.38	0.0%	8.12	0.0%
R8	8.78	0.1%	13.05	0.1%	7.95	0.1%
R9	8.71	0.0%	12.93	0.1%	7.89	0.1%
R10	8.62	0.0%	12.58	0.1%	7.72	0.1%
R11	9.11	0.0%	13.52	0.0%	8.21	0.0%
R12	9.31	0.0%	13.94	0.0%	8.42	0.0%
R13	10.17	0.2%	14.62	0.3%	8.86	0.3%
R14	9.53	1.7%	13.39	0.3%	8.14	0.4%
R15	10.25	2.6%	14.15	0.5%	8.54	0.6%
R16	10.70	3.0%	14.67	0.6%	8.82	0.7%
R17	9.11	0.2%	13.66	0.2%	8.27	0.2%
R18	9.22	0.3%	13.80	0.2%	8.35	0.2%
R19	9.33	0.8%	13.56	0.3%	8.23	0.3%
R20	9.56	1.1%	13.74	0.3%	8.33	0.4%
R21	9.42	0.7%	13.74	0.3%	8.34	0.3%
R22	9.38	0.3%	13.82	0.3%	8.39	0.3%
R23	9.20	0.2%	13.58	0.3%	8.26	0.3%
R24	9.42	0.3%	13.95	0.4%	8.46	0.4%
R25	8.30	0.1%	12.14	0.1%	7.47	0.1%
R26	8.33	0.1%	12.19	0.1%	7.50	0.1%
R27	9.47	0.1%	13.94	0.1%	8.46	0.1%
R28	6.43	0.0%	12.69	0.1%	7.63	0.1%
R29	6.13	0.0%	12.35	0.1%	7.44	0.1%
R30	5.74	0.0%	11.72	0.0%	7.09	0.0%
R31	6.21	0.0%	12.53	0.1%	7.53	0.1%
R32	5.79	0.0%	11.82	0.0%	7.15	0.0%
R33	5.92	0.0%	12.04	0.0%	7.27	0.1%
R34	7.31	0.0%	13.25	0.1%	7.94	0.1%
R35	7.04	0.0%	12.55	0.0%	7.58	0.0%
R36	7.09	0.0%	12.74	0.0%	7.67	0.0%
R37	6.95	0.0%	12.72	0.0%	7.64	0.0%
R38	7.02	0.0%	12.88	0.1%	7.72	0.1%

Table 4.8: Predicted 2029 'with development' post-construction pollutant concentrations and change as a result of the proposed development
*Percentage change relative to the AQAL

Receptor ref.	NO ₂		PM ₁₀		PM _{2.5}	
	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*
R1	9.09	0.04%	16.22	0.18%	9.62	0.10%
R2	8.91	0.02%	15.04	0.10%	8.99	0.05%
R3	9.33	0.04%	17.21	0.22%	10.13	0.11%
R4	9.07	0.01%	15.35	0.05%	9.15	0.03%
R5	8.87	0.01%	14.97	0.05%	8.96	0.02%
R6	8.63	0.01%	14.08	0.06%	8.49	0.03%
R7	8.49	0.01%	13.39	0.04%	8.13	0.02%
R8	8.42	0.02%	13.05	0.08%	7.95	0.04%
R9	8.39	0.02%	12.92	0.08%	7.89	0.04%
R10	8.36	0.01%	12.58	0.05%	7.72	0.03%
R11	8.54	0.01%	13.52	0.04%	8.21	0.02%
R12	8.61	0.01%	13.93	0.04%	8.43	0.02%
R13	8.96	0.08%	14.64	0.27%	8.88	0.15%
R14	8.47	0.04%	13.32	0.18%	8.10	0.10%
R15	8.61	0.06%	14.05	0.28%	8.48	0.15%
R16	8.72	0.07%	14.55	0.34%	8.75	0.18%
R17	8.54	0.04%	13.66	0.22%	8.28	0.12%
R18	8.56	0.05%	13.80	0.24%	8.35	0.13%
R19	8.52	0.04%	13.54	0.21%	8.22	0.11%
R20	8.57	0.05%	13.71	0.24%	8.32	0.13%
R21	8.59	0.06%	13.73	0.25%	8.33	0.13%
R22	8.63	0.07%	13.82	0.28%	8.39	0.15%
R23	8.57	0.06%	13.59	0.27%	8.26	0.15%
R24	8.66	0.08%	13.95	0.34%	8.46	0.18%
R25	8.23	0.02%	12.13	0.07%	7.47	0.04%
R26	8.24	0.02%	12.19	0.08%	7.50	0.04%
R27	8.69	0.02%	13.94	0.06%	8.47	0.03%
R28	5.67	0.01%	12.69	0.06%	7.64	0.03%
R29	5.56	0.01%	12.35	0.05%	7.44	0.02%
R30	5.41	0.01%	11.72	0.03%	7.10	0.02%
R31	5.59	0.01%	12.53	0.06%	7.53	0.03%
R32	5.43	0.01%	11.82	0.02%	7.15	0.01%
R33	5.48	0.01%	12.04	0.03%	7.27	0.02%
R34	6.70	0.01%	13.28	0.04%	7.96	0.02%
R35	6.59	0.01%	12.58	0.02%	7.60	0.01%
R36	6.61	0.01%	12.77	0.03%	7.69	0.01%
R37	6.55	0.00%	12.73	0.02%	7.65	0.01%
R38	6.58	0.01%	12.90	0.03%	7.74	0.01%

Table 4.9: Predicted 2036 'with development' post-construction pollutant concentrations and change as a result of the proposed development
*Percentage change relative to the AQUAL

4.27 The proposed development will introduce new residential receptors. The predicted annual mean NO₂ concentrations at new receptors within the proposed development site in 2029 are all less than 10 µg/m³. Predicted annual mean PM₁₀ concentrations are all less than 14 µg/m³, while predicted annual mean PM_{2.5} concentrations are all less than 9 µg/m³. All of these levels are well below the relevant annual mean objectives and air quality for future residents of the development will therefore be acceptable. The full findings of the assessment of potential air quality effects on the proposed development are set out in technical appendix C.

Mitigation and monitoring

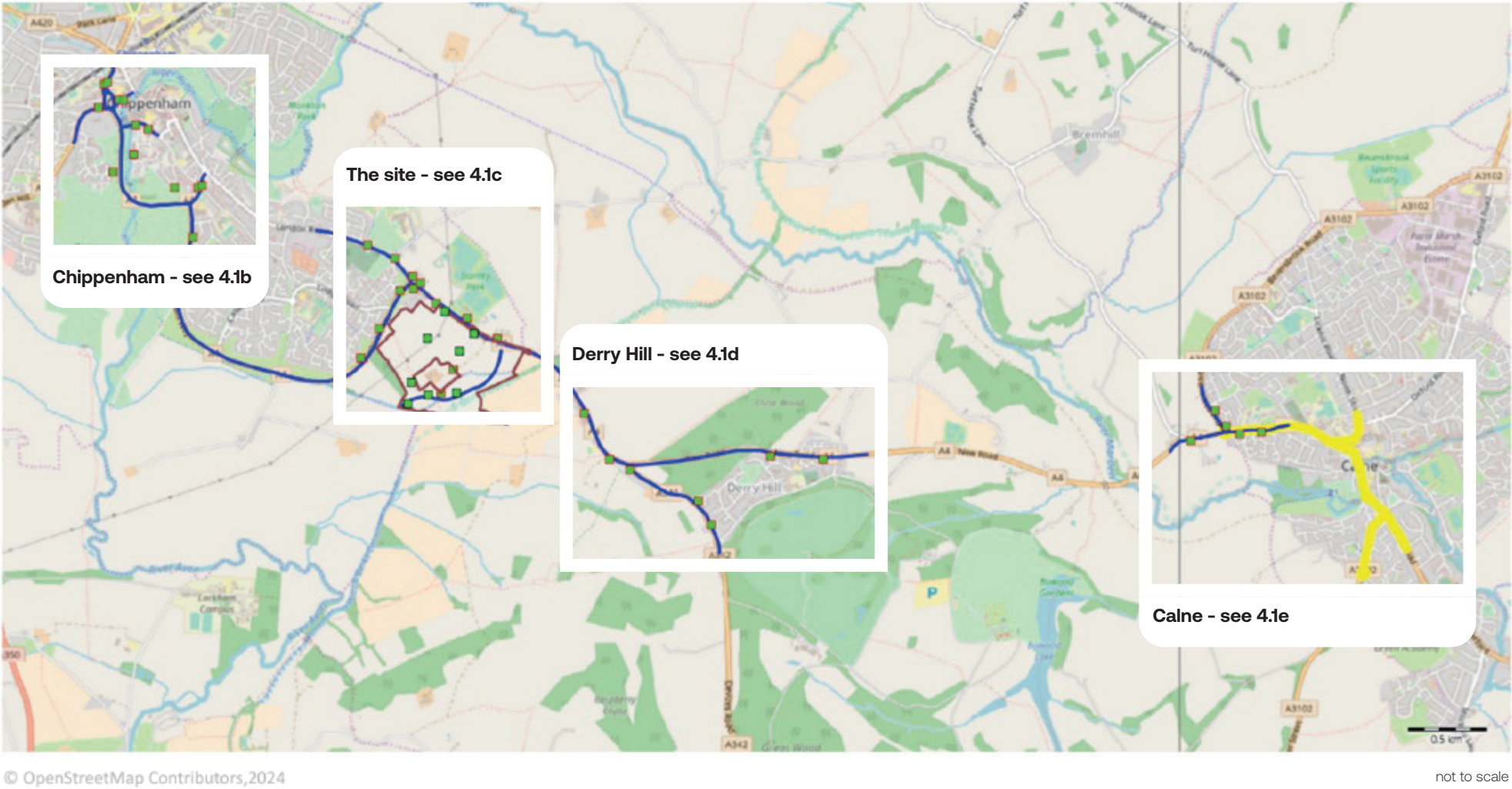
4.28 As no significant adverse effects were predicted, no mitigation measures or monitoring are required. As discussed in chapter 9, a sustainable transport

strategy for the proposed development will be implemented through a travel plan to minimise traffic generation.

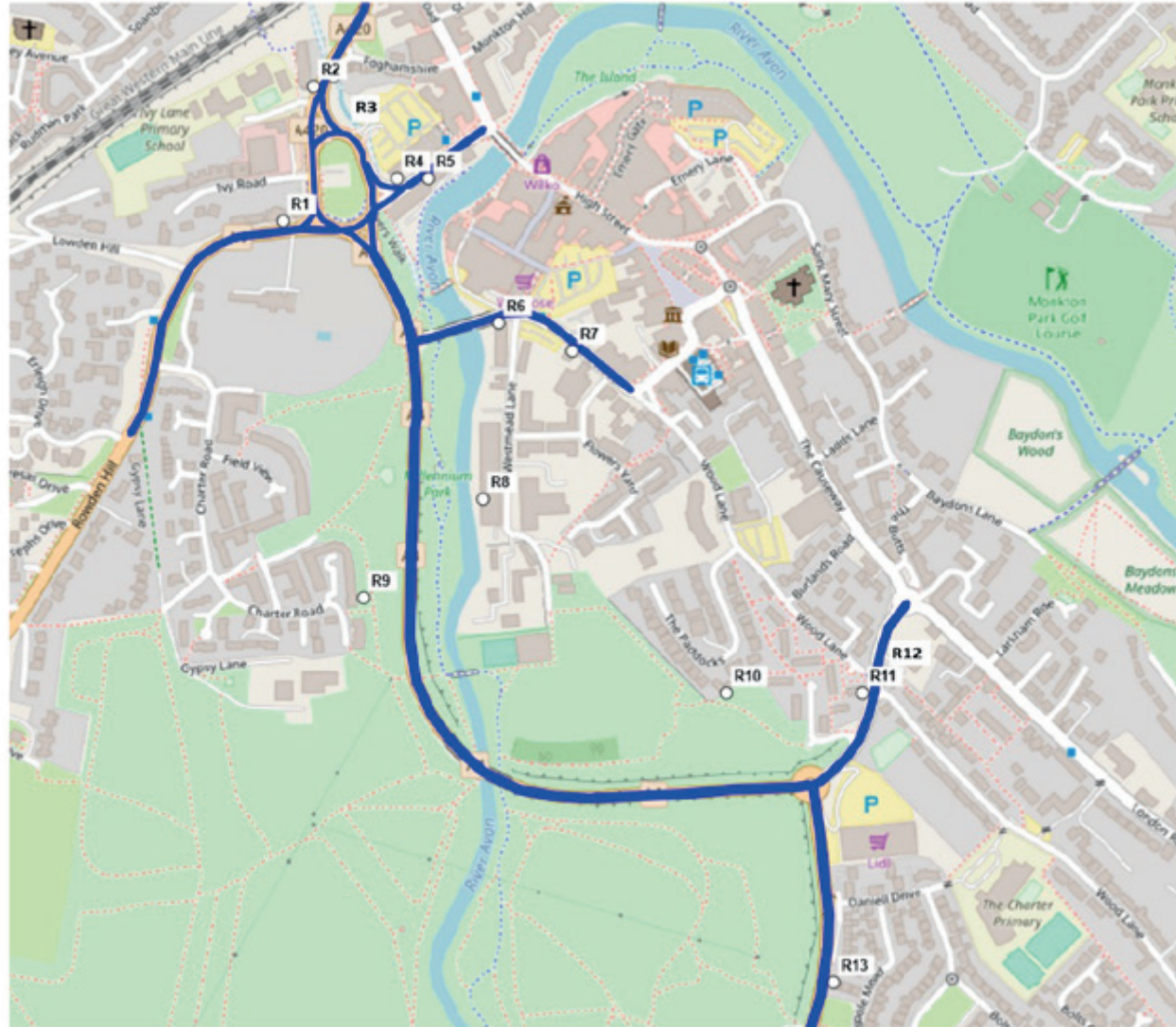
Residual effects

4.29 No significant residual effects are predicted.

Receptor location in relation with the modelled road links and AQMA



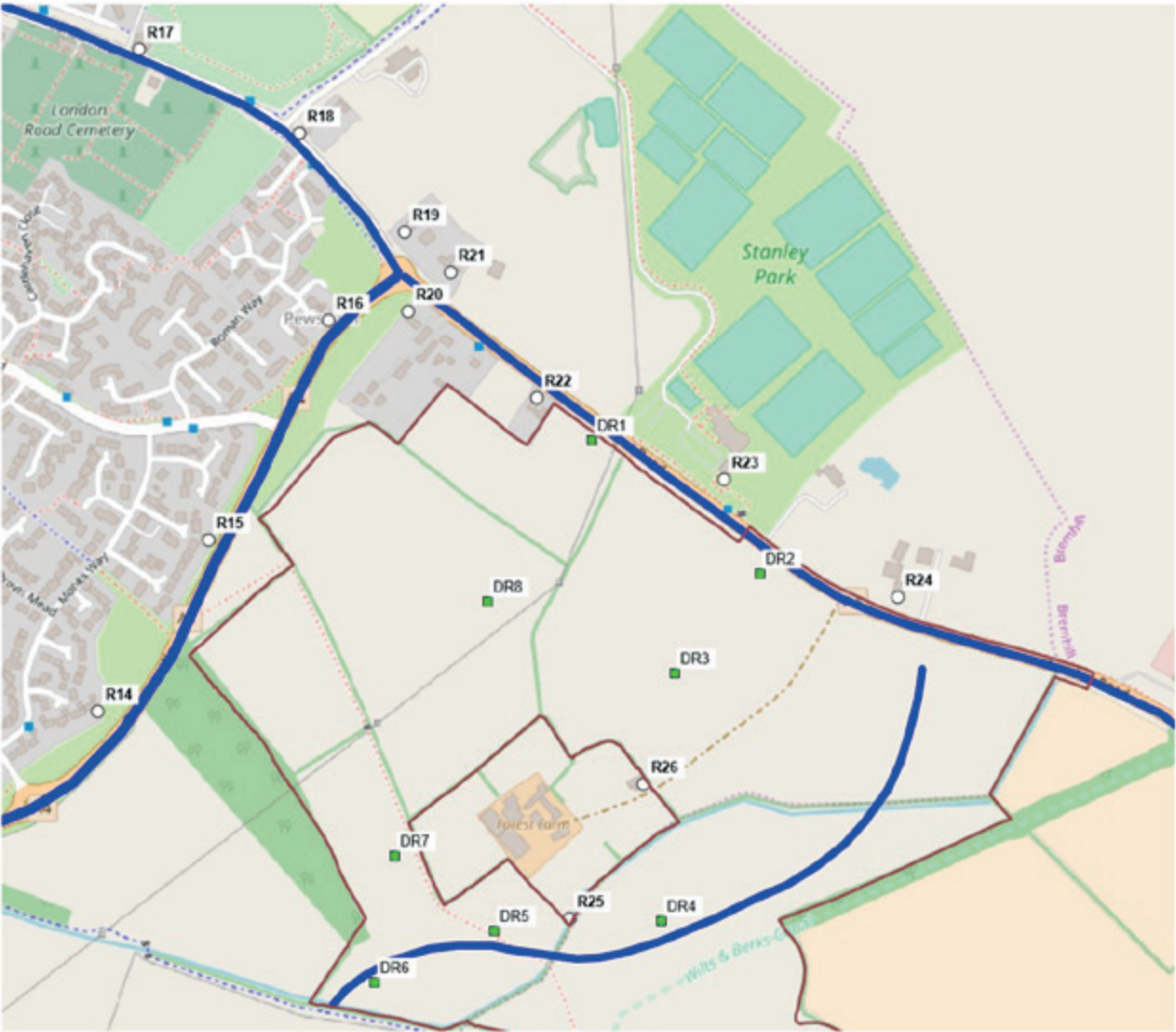
Chippenham



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not to scale

Site



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Figure 4.1c Locations of sensitive receptors

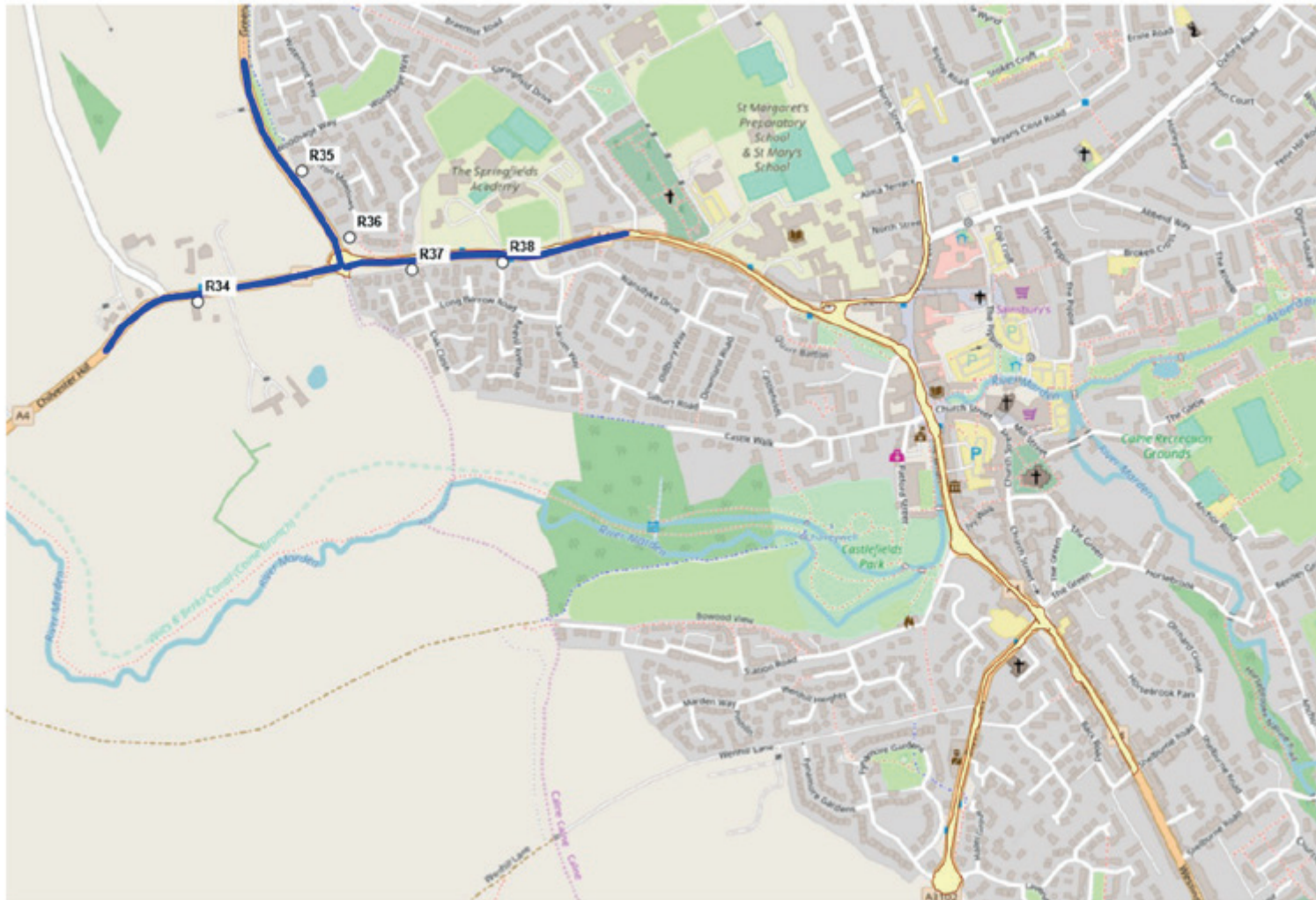
Derry Hill



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Air quality – impact descriptors for individual receptors

Long term average concentration at receptor in assessment year	Change in concentration relative to air quality assessment level (AQAL)			
	1%	2-5%	6-10%	>10%
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Note: The table is intended to be used by rounding the change in the percentage pollutant concentration to whole numbers, which then makes it clear which cell the impact falls within. Changes of 0% (i.e. less than 0.5%) will be described as negligible.

From: Environmental Protection UK and the Institute of Air Quality Management, 2017, Land-Use Planning & Development Control: Planning for Air Quality.