

Report

Land East of Spitfire Road, Wiltshire

Air Quality Assessment

For Robert Hitchins Ltd

6 May 2025

Document Control

Project Title:	Land East of Spitfire Road, Wiltshire
Project Number:	J10/15212A/10
Client:	Robert Hitchins Ltd
Principal Contact:	Kirsty Maguire
Document Title:	Air Quality Assessment
Document Number:	J10/15212A/10/1/F2
Prepared By:	Ben Collier and Dr Helen Robinson
Reviewed By:	Dr Denise Evans

Revision History

01	02/05/2025
02	06/05/2025



Logika Group is a trading name of Air Quality Consultants Limited (Companies House Registration No: 02814570), Noise Consultants Limited (Companies House Registration No: 10853764) and Logika Consultants Limited (Companies House Registration No: 12381912).

This document has been prepared based on the information provided by the client. Air Quality Consultants Ltd, Noise Consultants Ltd or Logika Consultants Ltd do not accept liability for any changes that may be required due to omissions in this information. Unless otherwise agreed, this document and all other Intellectual Property Rights remain the property of Air Quality Consultants Ltd, Noise Consultants Ltd and/or Logika Consultants Ltd. When issued in electronic format, Air Quality Consultants Ltd, Noise Consultants Ltd or Logika Consultants Ltd do not accept any responsibility for any unauthorised changes made by others.

The Logika Group all operate a formal Quality Management System, which is certified to ISO 9001:2015, a formal Environmental Management System, certified to ISO 14001:2015, and an IT system certified to Cyber Essentials Plus.

When printed by any of the three companies, this report will be on Evolve Office, 100% Recycled paper.

Registered Office: 3rd Floor St Augustine's Court, 1 St. Augustine's Place Bristol BS1 4UD Tel: +44(0)117 974 1086

24 Greville Street, Farringdon, London, EC1N 8SS Tel: +44(0)20 3873 4780

First Floor, Patten House, Moulders Lane, Warrington WA1 2BA Tel: +44(0)1925 937 195

8-9 Ship St, Brighton and Hove, Brighton BN1 1AD Tel: +44(0)20 3873 4780

Avenue du Port, 86c Box 204, 1000 Bruxelles Tel: +44(0)20 3873 47840

Contents

1	Introduction	1
2	Policy Context	3
3	Pollutants of Concern	4
4	Baseline Conditions	6
5	Operational Phase Assessment	9
6	Mitigation	10
7	Achieving Compliance with the PM _{2.5} Targets	11
8	Conclusions	12
9	References	13
10	Glossary	15
11	Appendices	17
A1	Policy	18
A2	EPUK & IAQM Planning for Air Quality Guidance	22
A3	Professional Experience	27

Tables

Table 3-1: Air Quality Criteria for Nitrogen Dioxide, PM ₁₀ and PM _{2.5}	4
Table 3-2: Environment Act PM _{2.5} Targets	5
Table 4-1: Summary of Annual Mean NO ₂ Monitoring (2019-2023) (µg/m ³)	6
Table 4-2: Summary of Annual Mean PM ₁₀ and PM _{2.5} Monitoring (2019-2023) (µg/m ³)	8
Table 4-3: Number of Days With PM ₁₀ Concentrations Above 50 µg/m ³	8
Table 4-4: Estimated Annual Mean Background Pollutant Concentrations in 2025 (µg/m ³)	8

Figures

Figure 1: Proposed Development Setting in the Context of Air Quality	1
Figure 2: Monitoring Locations	7

1 Introduction

- 1.1 This report has been prepared by Air Quality Consultants Ltd | Part of Logika Group (AQC). It describes the potential air quality impacts associated with the proposed residential development on land east of Spitfire Road in Wiltshire. The proposed development will consist of up to 20 new dwellings.
- 1.2 The site is located approximately 1.2 km from Calne Air Quality Management Area (AQMA), declared for exceedances of the annual mean nitrogen dioxide (NO₂) objective. The location and setting of the proposed development are shown in Figure 1, along with the nearby AQMA.

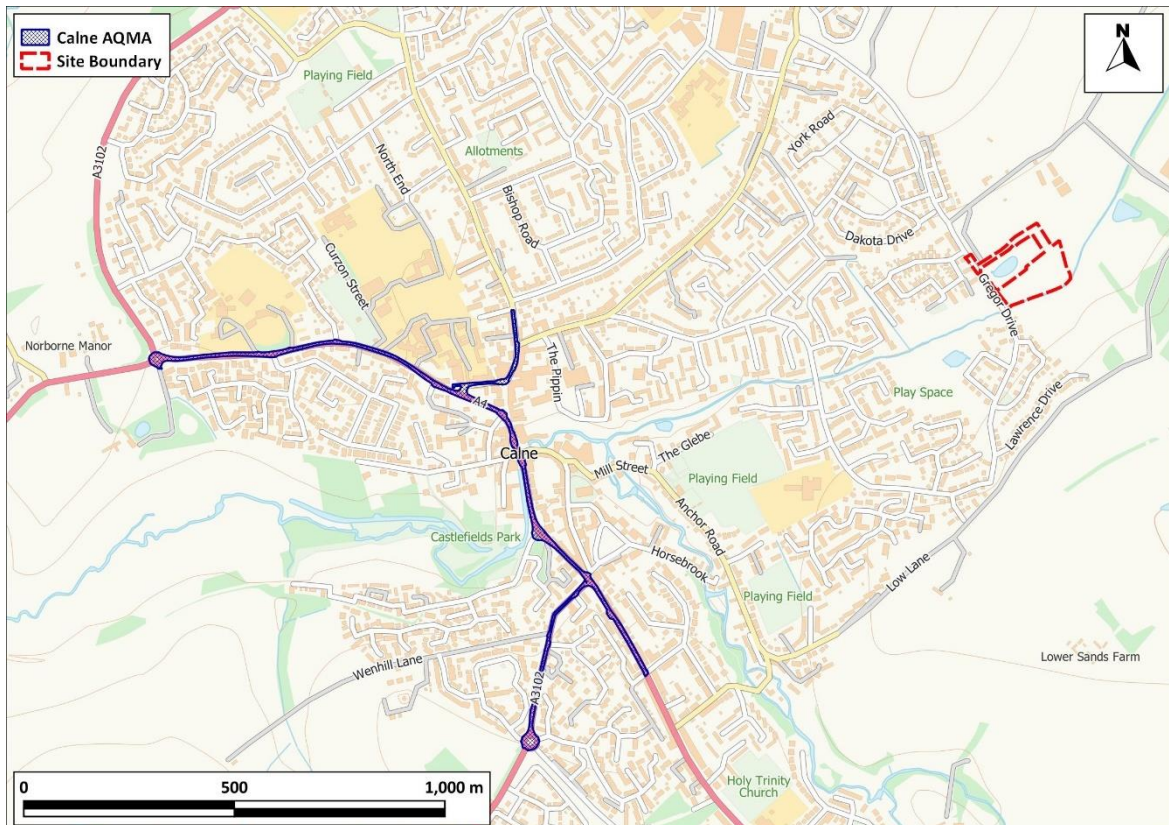


Figure 1: Proposed Development Setting in the Context of Air Quality

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

- 1.3 Air quality needs to be considered to ensure that the development does not generate any unacceptable adverse impacts off-site, and to ensure that new residents are not exposed to exceedances of the air quality objectives. The proposed development will generate additional traffic on local roads, which may impact on air quality at existing residential properties along the affected road network. The main air pollutants of concern related to road traffic emissions are nitrogen dioxide and fine particulate matter (PM₁₀ and PM_{2.5}).
- 1.4 This report has been prepared taking into account all relevant local and national guidance and regulations.

Consultation

1.5 The assessment follows a methodology agreed with Wiltshire Council via email correspondence between Peter Nobes (Senior Public Protection Officer at Wiltshire Council) and Ben Collier (AQC) on 23 January 2025. Specifically, the following key points were discussed and agreed:

- the proposed development does not exceed the Site Land Use and Development Thresholds outlined in Appendix B of the Wiltshire Council Air Quality Supplementary Planning Document (SPD) (Wiltshire Council, 2023b);
- it is not considered to be an 'exposure sensitive site';
- it is appropriate to class the proposed development as a 'Type 1' site, as defined in the Wiltshire Air Quality Supplementary Planning Document (SPD) (Wiltshire Council, 2023b);
- a qualitative assessment is appropriate to determine the impact of traffic generated by the proposed development on existing residential properties, and the air quality conditions that future residents will experience; and
- a construction dust risk assessment is not required.

2 Policy Context

2.1 All European legislation referred to in this report is written into UK law and remains in place. The following Policy, Legislation and Guidance has been followed when preparing this document. For details of each, please see Appendix A1

- Air Quality Strategy 2007
- Air Quality Strategy 2023
- Clean Air Strategy 2019
- Environment Act 2021
- Environmental Improvement Plan 2023
- National Planning Policy
- Local Transport Plan
- Local Policies
- Air Quality Action Plans
 - i) National Air Quality Plan
 - ii) Local Air Quality Action Plan

3 Pollutants of Concern

- 3.1 The main air pollutants of concern in relation to road traffic are nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}). UK-wide objectives for nitrogen dioxide and PM₁₀ were to have been achieved by 2005 and 2004 respectively, and continue to apply in all future years thereafter.
- 3.2 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. Defra explains where these objectives will apply in its Local Air Quality Management Technical Guidance (Defra, 2022). The annual mean objectives for nitrogen dioxide and PM₁₀ are considered to apply at the façades of residential properties, schools, hospitals etc.; they do not apply at hotels. The 24-hour mean objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for nitrogen dioxide applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations and pavements of busy shopping streets.
- 3.3 For PM_{2.5}, the objective set by Defra for local authorities is to work toward reducing concentrations without setting any specific numerical value. In the absence of a numerical objective, it is convention to assess local air quality impacts against the limit value¹, originally set at 25 µg/m³ and currently set at 20 µg/m³.
- 3.4 The relevant air quality criteria for this assessment are provided in Table 3-1.

Table 3-1: Air Quality Criteria for Nitrogen Dioxide, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Value
Nitrogen Dioxide	1-hour Mean	200 µg/m ³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
PM ₁₀	24-hour Mean	50 µg/m ³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
PM _{2.5}	Annual Mean	20 µg/m ³ ^a

^a There is no numerical PM_{2.5} objective for local authorities (see Paragraph 3.3.) Convention is to assess against the UK limit value which is currently 20 µg/m³.

- 3.5 Defra has also set two new targets, and two new interim targets, for PM_{2.5} concentrations in England. One set of targets focuses on absolute concentrations. The long-term target is to achieve an annual mean PM_{2.5} concentration of 10 µg/m³ by the end of 2040 (referred to as the annual mean concentration target or AMCT), with the interim target being a value of 12 µg/m³ by the start of 2028². The second set of targets relate to reducing overall population exposure to PM_{2.5}. By the end of 2040, overall population exposure to PM_{2.5} should be reduced by 35% compared with 2018 levels (referred

¹ EU Directive 2008/50/EC sets limit values for NO₂, PM₁₀ and PM_{2.5}, and is implemented in UK law through the Air Quality Standards Regulations (2010). The limit values for NO₂ and PM₁₀ are the same numerical concentrations as the UK objectives, but achievement of the limit values is a national obligation rather than a local one and concentrations are reported to the nearest whole number. In the UK, only monitoring and modelling carried out by UK Central Government meets the specification required to assess compliance with the limit values.

² Meaning that it will be assessed using measurements from 2027. The 2040 target will be assessed using measurements from 2040. National targets are assessed against concentrations expressed to the nearest whole number, for example a concentration of 10.4 µg/m³ would not exceed the 10 µg/m³ target.

to as the population exposure reduction target or PERT), with the interim target being a reduction of 22% by the start of 2028 (Table 3-2).

3.6 In 2024 Defra published Interim Planning Guidance on the PM_{2.5} targets (Defra, 2024). This states that:

"The purpose of the targets is to improve air quality by reducing levels of PM_{2.5} across the country, therefore improving public health. While achievement of the targets will be assessed at relevant monitoring sites, the targets apply to ambient (outdoor) air throughout England. Applicants and Local Planning Authorities should therefore consider the impact of developments on air quality in all ambient air, whether a monitor is present or not."

3.7 In order to address the new targets it is not sufficient to assess solely whether a scheme is likely to lead to an exceedance of a legal limit. Instead, developments need to implement appropriate mitigation measures from the design stage, ensuring the minimum amount of pollution is emitted and that exposure is minimised.

3.8 Pending publication of the new guidance, Defra advises applicants to provide evidence that they have identified key sources of air pollution within the scheme and taken appropriate action to minimise emissions of PM_{2.5} and its precursors as far as possible. More detailed assessment is expected for development closer to populations and/or having higher emissions. Defra has posed two questions to be used as prompts to support the interim assessment process:

"How has exposure to PM_{2.5} been considered when selecting the development site?; and

What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of PM_{2.5} and its precursors?"

Table 3-2: Environment Act PM_{2.5} Targets

Metric	Target	Target year
AMCT	Interim target: 12 µg/m ³	2028
	Legally binding target: 10 µg/m ³	2040
PERT	Interim target: 22% reduction in exposure compared to 2018	2028
	Legally binding target: 35% reduction in exposure compared to 2018	2040

4 Baseline Conditions

Relevant Features

- 4.1 The proposed development is located on the eastern outskirts of Calne, and is bounded by Spitfire Road to the west and Gregor Drive to the southwest. The site currently consists of agricultural land, with existing residential properties to the west and southwest. There is currently agricultural land to the north, south, and east of the site. Land adjacent to the proposed development has been granted planning permission for residential development (application reference PL/2022/07893) and a Local Centre (application reference PL/2023/10421). The proposed development is located approximately 1.2 km from the Calne AQMA, as highlighted in Figure 1.

Industrial Sources

- 4.2 Industrial and waste management sources that may affect the area have been identified using Defra's Pollutant Release and Transfer Register (Defra, 2025a) and through examination of the Council's Air Quality Review and Assessment reports.
- 4.3 The proposed development is located to the south of Abberd Fields Farm, to the southwest of Sand's Farm Recycling Facility (operated by Hills Waste Solutions Ltd), to the west of a mineral/gravel extraction/quarry site associated with Calne Quarry (operated by Hills UK Ltd), to the south of Abberd Lane Piggery, and to the southeast of Benham Bodyworks. Additionally, a wood and waste recycling facility is located at the same site as Abberd Lane Piggery. Abberd Fields Farm, Abberd Lane Piggery, Benham Bodyworks, and the storage and sorting of household waste at Sand's Farm Recycling Facility are potential sources of odour. Abberd Fields Farm, the wood and waste recycling facility, mineral/gravel extraction/quarry, and management of inert or extractive waste at Calne Quarry, are potential sources of nuisance dust. The potential dust and odour impacts of these sources have been assessed separately by AQC (Report No. J10/15212A/10/2/F2) and have been shown to be not significant.

Local Air Quality Monitoring

- 4.4 Wiltshire Council operates three automatic nitrogen dioxide monitoring stations within its area, however, none of these are within the study area. The Council also operates a number of nitrogen dioxide monitoring sites using diffusion tubes prepared and analysed by Somerset Scientific Services (using the 20% TEA in water method). These include five deployed in Calne: two on the A4, one on Horsebrook, and two on Curzon Street. Annual mean results for the years 2019 to 2023 are summarised in Table 4-1. Exceedances of the objectives are shown in bold. The monitoring locations are shown in Figure 2. The monitoring data have been taken from Wiltshire Council's 2024 Air Quality Annual Status Report (Wiltshire Council, 2024b).

Table 4-1: Summary of Annual Mean NO₂ Monitoring (2019-2023) (µg/m³)

Site No.	Site Type	Location	2019	2020	2021	2022	2023
13	Urban Background	Horsebrook, Calne	9.3	7.8	7.8	7.4	6.2
14	Roadside	34 New Road, Calne (King George)	48.7	40.8	42.6	33.9	28.4
15	Roadside	30 London Road, Calne	27.8	23.4	25.7	21.7	19.8

Site No.	Site Type	Location	2019	2020	2021	2022	2023
16	Roadside	57 Curzon St, Calne	23.8	19.5	20.9	19.9	16.7
17	Roadside	18 Curzon St, Calne	-	-	32.9	31.1	27.6
Objective			40				

^a Exceedances of the objectives are shown in bold.

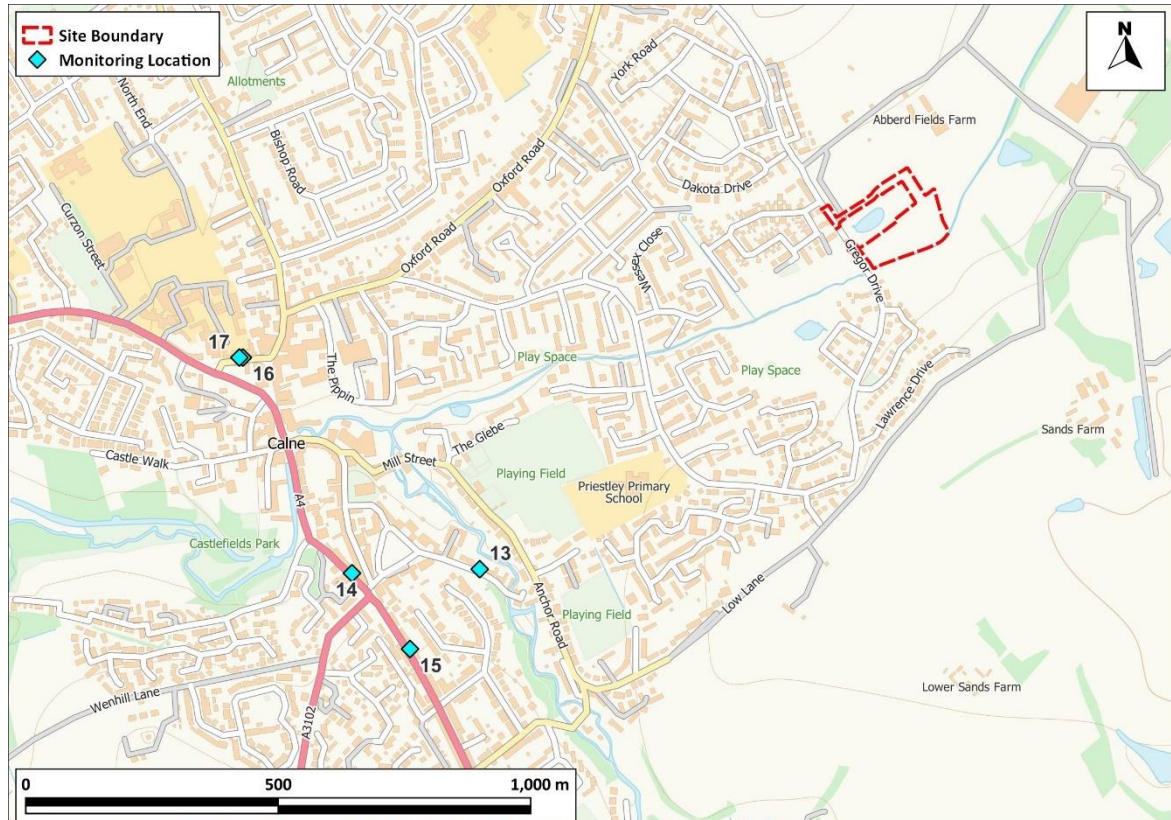


Figure 2: Monitoring Locations

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

- 4.5 Table 4-1 shows that there were no exceedances of the annual mean nitrogen dioxide objective recorded at any of the nearby diffusion tubes in 2023; the most recent exceedance was recorded in 2021 at site 14. Concentrations have also decreased across all nearby monitoring locations in the last five years.
- 4.6 Site 13 is considered the most representative of conditions at the proposed development as it is located well away from any major roads. Concentrations at this site have been well below the objective over the last five years.
- 4.7 While 2020 results have been presented in this Section for completeness, they are not relied upon in any way as they will not be representative of 'typical' air quality conditions due to the considerable impact of the Covid-19 pandemic on traffic volumes and thus pollutant concentrations.

- 4.8 The AM3 Devizes roadside automatic monitoring station, operated by Wiltshire Council, located adjacent to the A361 in Devizes approximately 10 km south of the proposed development, is the closest station which measured PM₁₀ concentrations in 2023. Annual mean results for the years 2019 to 2023 are summarised in Table 4-2, while results relating to the daily mean objective are summarised in Table 4-3. PM_{2.5} concentrations have been estimated by Wiltshire Council from the measured PM₁₀ concentrations.

Table 4-2: Summary of Annual Mean PM₁₀ and PM_{2.5} Monitoring (2019-2023) (µg/m³)

Site No.	Site Type	Location	2019	2020	2021	2022	2023
PM ₁₀							
AM3	Roadside	Sidmouth St, Devizes	21	19	18	20	17
Objective			40				
PM _{2.5}							
AM3	Roadside	Sidmouth St, Devizes	14.7	13.3	12.6	14.3	11.4
Objective/AMCT			20 ^a /10 ^b				

^a The 20 µg/m³ PM_{2.5} objective, which was to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

^b To be met by 2040.

Table 4-3: Number of Days With PM₁₀ Concentrations Above 50 µg/m³

Site No.	Site Type	Location	2019	2020	2021	2022	2023
AM3	Roadside	Sidmouth St, Devizes	8	3	1	6	0
Objective			35				

Background Concentrations

- 4.9 Background concentrations have been defined using Defra's 2021-based background maps (Defra, 2025b). These cover the whole of the UK on a 1x1 km grid. Estimated background concentrations at the proposed development are set out in Table 4-4 and are all well below the objectives.

Table 4-4: Estimated Annual Mean Background Pollutant Concentrations in 2025 (µg/m³)

Year	NO ₂	PM ₁₀	PM _{2.5}
2025	5.9	10.9	6.7
Objective	40	40	20 ^a
AMCT ^b	-	-	10

^a The 20 µg/m³ PM_{2.5} objective, which was to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

^b To be met by 2040

5 Operational Phase Assessment

Impacts at Existing Receptors

- 5.1 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM)³ recommend a two-stage screening approach (Moorcroft and Barrowcliffe et al, 2017) to determine whether emissions from road traffic generated by a development have the potential for significant air quality effects. The approach, as described in Appendix A2, first considers the size of a development; if the development is for fewer than ten homes or covers less than 1,000 m² of other land uses and will provide ten or fewer parking spaces, then there is no need to progress to a detailed assessment. The proposed development is above the development size, and therefore the potential impacts on air quality from traffic generated by the development needs to be considered. The IAQM have set out screening criteria, below which it can be assumed that there will not be significant impacts on air quality. The criteria for **outside** an AQMA are a change in traffic flows of more than 500 AADT of LDVs or more than 100 AADT of HDVs, whilst the criteria for **inside** an AQMA are a change in traffic flows of more than 100 AADT of LDVs or more than 25 AADT of HDVs.
- 5.2 The project's Transport Consultants (PFA Consulting) have determined that the development will generate a total of 120 daily vehicle trips, the vast majority of which will be LDVs. These daily trip rates are below the screening threshold of 500 LDVs recommended for use outside of an AQMA in the EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al, 2017). PFA Consulting have confirmed that the development traffic will distribute on the road network and will generate less than 100 LDV trips on roads within the Calne AQMA.
- 5.3 The proposed development will generate very few operational heavy vehicle trips. As such, it is judged that the relevant screening thresholds will not be exceeded and there is no requirement for a detailed assessment of road traffic impacts at existing receptors; it can be concluded that the proposed development will not have a significant impact on local roadside air quality.

Impacts of Existing Sources on Future Residents of the Development

- 5.4 The impacts of nitrogen dioxide, PM₁₀ and PM_{2.5} concentrations from the existing road network on new residents of the development have been assessed qualitatively, taking account of local air quality monitoring data and proximity to local roads.
- 5.5 Measured nitrogen dioxide concentrations at all monitoring sites within Calne town centre were well below the objective in 2023 (see Table 4-1). Additionally, PM₁₀ concentrations measured at a roadside site in Devizes were also well below the relevant objectives in 2023 (see Table 4-2 and Table 4-3).
- 5.6 Notwithstanding, the proposed development is located in an area where pollutant concentrations would be expected to be close to background levels; it is located well away from any busy roads. Background concentrations across the site have also been shown to be well below the objectives (see Table 4-4). Thus, it can be concluded that that future residents will experience acceptable air quality, and there is no need for more detailed assessment.

³ The IAQM is the professional body for air quality practitioners in the UK.

6 Mitigation

Good Design and Best Practice

- 6.1 The EPUK/IAQM guidance advises that good design and best practice measures should be considered, whether or not more specific mitigation is required.
- 6.2 The proposed development incorporates the following good design and best practice measures, which align with Type 1 measures presented in the Wiltshire Air Quality SPD:
- provision of EV infrastructure in line with Building Regulations;
 - it will not contravene the Wiltshire Council Air Quality Action Plan; and
 - it will not create any new "street canyons".

Recommended Mitigation

- 6.3 The assessment has demonstrated that the overall air quality effect of the proposed development will be 'not significant'; it will not introduce any new exposure into areas of unacceptable air quality, nor will the development-generated traffic emissions have a significant impact on local air quality. It is, therefore, not considered appropriate to propose further mitigation measures for this development.
- 6.4 Measures to reduce pollutant emissions from road traffic are principally being delivered in the longer term by the introduction of more stringent emissions standards, largely via European legislation (which is written into UK law). The Council's Air Quality Action Plan will also help to deliver improved air quality.

7 Achieving Compliance with the PM_{2.5} Targets

- 7.1 Defra have set out in their Interim Planning Guidance (Defra, 2024) two questions designed to consider whether a development supports the AMCT and PERT PM_{2.5} targets.
- 7.2 The first question is *“How has exposure to PM_{2.5} been considered when selecting the development site?”*, whilst the second question is *“What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of PM_{2.5} and its precursors?”*.
- 7.3 The background annual mean PM_{2.5} concentration at the proposed development is already well below the AMCT target (see Table 4-4). Exposure to PM_{2.5} has been considered in the design of the development as the site is in a rural area away from large populations of people and any major roads, where the exposure of new receptors to concentrations of PM_{2.5} will be minimised as far as possible; a separate assessment has considered the potential for dust from surrounding industrial and agricultural activities to affect future residents, and has found that the effects are not significant (paragraph 4.3).
- 7.4 The assessment has concluded that emissions generated during the operational phase will be insignificant, and therefore further mitigation is not considered to be necessary. Nearby receptors are also expected to experience similar conditions to those at the proposed development site, with PM_{2.5} concentrations expected to be well below the objective and already meeting the AMCT.
- 7.5 It is considered that the development complies with the requirements to deliver achievement of the AMCT and PERT by 2040 as appropriate action has been taken to minimise exposure to PM_{2.5} as far as is reasonably practicable.

8 Conclusions

- 8.1 The assessment has considered the impacts of the proposed development on local air quality in terms of emissions from road traffic generated by the completed and occupied development. It has also identified the air quality conditions that future residents will experience.

Operational Impacts

- 8.2 Air quality conditions for future residents of the proposed development have been shown to be acceptable, with concentrations well below the air quality objectives throughout the site.
- 8.3 The traffic generated by the proposed development will be below industry screening thresholds. Thus, the proposed development will have a negligible impact on air quality conditions at all existing receptors. Consequently, mitigation has not been deemed necessary.
- 8.4 The overall operational air quality effects of the proposed development are thus judged to be 'not significant'.

Policy Implications

- 8.5 Taking into account these conclusions, it is judged that the proposed development is consistent with Paragraph 198 of the NPPF, being appropriate for its location both in terms of its effects on the local air quality environment and the air quality conditions for future residents. It is also consistent with Paragraph 199, as it will not affect compliance with relevant limit values or national objectives. The proposed development is also consistent with Core Policy CS55: Air Quality of Wiltshire Council's Core Strategy, as it will not have a significant detrimental effect on air quality.
- 8.6 While the proposed development will generate additional traffic, it will not significantly affect air quality at nearby properties, thus it is judged not to affect the Council's ability to implement measures in its Air Quality Action Plan.
- 8.7 It is considered that the development complies with the requirements to deliver achievement of the AMCT and PERT by 2040 as appropriate action has been taken to minimise emissions of, and exposure to, PM_{2.5} as far as is reasonably practicable.

9 References

Defra (2007) *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, Defra.

Defra (2017) *Air quality plan for nitrogen dioxide (NO₂) in the UK*, Available: <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>.

Defra (2018a) *A Green Future: Our 25 Year Plan to Improve the Environment*, [Online], Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf.

Defra (2018b) *Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations*, Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746100/air-quality-no2-plan-supplement.pdf.

Defra (2019) *Clean Air Strategy 2019*, Available: <https://www.gov.uk/government/publications/clean-air-strategy-2019>.

Defra (2022) *Review & Assessment: Technical Guidance LAQM.TG22 August 2022 Version*, [Online], Available: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>.

Defra (2023a) *Environmental Improvement Plan 2023*, [Online], Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf.

Defra (2023b) *Air Quality Strategy: Framework for Local Authority Delivery*, [Online], Available: <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery>.

Defra (2024) *PM_{2.5} Targets: Interim Planning Guidance*, [Online], Available: <https://uk-air.defra.gov.uk/pm25targets/planning>.

Defra (2025a) *UK Pollutant Release and Transfer Register*, <http://prtr.defra.gov.uk/map-search>.

Defra (2025b) *Local Air Quality Management (LAQM) Support Website*, [Online], Available: <http://laqm.defra.gov.uk/>.

Environment Act 2021 (2021).

Ministry of Housing, Communities & Local Government (2019) *Planning Practice Guidance*, Available: <https://www.gov.uk/government/collections/planning-practice-guidance>.

Ministry of Housing, Communities & Local Government (2024) *National Planning Policy Framework*, [Online], Available: <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf>.

Moorcroft and Barrowcliffe et al (2017) *Land-Use Planning & Development Control: Planning For Air Quality v1.2*, IAQM, London, Available: <http://iaqm.co.uk/guidance/>.

Wiltshire Council (2011) *Wiltshire Local Transport Plan 2011-2026*.

Wiltshire Council (2015) *Wiltshire Core Strategy*.

Wiltshire Council (2019) *Air Quality Strategy for Wiltshire 2019-2024*.

Wiltshire Council (2023a) *Wiltshire Local Plan - Pre-Submission Draft 2020-2038 (Regulation 19)*, [Online], Available: https://www.wiltshire.gov.uk/media/11976/Wiltshire-Local-Plan-Pre-Submission-Draft-2020-2038-Regulation-19/pdf/Wiltshire_Local_Plan_Reg_19_web_accessible_version.pdf?m=1695730562743.

Wiltshire Council (2023b) *Air Quality Supplementary Planning Document (SPD)*.

Wiltshire Council (2024a) *Air Quality Action Plan for Wiltshire*.

Wiltshire Council (2024b) *2024 Air Quality Annual Status Report*.

10 Glossary

AADT	Annual Average Daily Traffic
AMCT	Annual Mean Concentration Target (for PM _{2.5})
AQC	Air Quality Consultants
AQMA	Air Quality Management Area
Defra	Department for Environment, Food and Rural Affairs
EPUK	Environmental Protection UK
EU	European Union
EV	Electric Vehicle
Exceedance	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
HDV	Heavy Duty Vehicles (> 3.5 tonnes)
HMSO	His Majesty's Stationery Office
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles (<3.5 tonnes)
LGV	Light Goods Vehicle
µg/m ³	Microgrammes per cubic metre
NO	Nitric oxide
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides (taken to be NO ₂ + NO)
NPPF	National Planning Policy Framework
OEP	Office for Environmental Protection
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PERT	Population Exposure Reduction Target (for PM _{2.5})
PM ₁₀	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
PM _{2.5}	Small airborne particles less than 2.5 micrometres in aerodynamic diameter

PPG	Planning Practice Guidance
SPD	Supplementary Planning Document
Standards	A nationally defined set of concentrations for nine pollutants based on assessment of the effects of each pollutant on human health, including the effects on sensitive sub-groups
TEA	Triethanolamine – used to absorb nitrogen dioxide

11 Appendices

A1 Policy

Air Quality Strategy 2007

- A1.1 The Air Quality Strategy (Defra, 2007) published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives.

Air Quality Strategy 2023

- A1.2 The Air Quality Strategy: Framework for Local Authority Delivery 2023 (Defra, 2023b) sets out the strategic air quality framework for local authorities and other Air Quality Partners in England. It sets out their powers and responsibilities, and actions the government expects them to take. It does not replace other air quality guidance documents relevant to local authorities.

Clean Air Strategy 2019

- A1.3 The Clean Air Strategy (Defra, 2019) sets out a wide range of actions by which the UK Government, in partnership with the Governments of Scotland, Wales and Northern Ireland, will seek to reduce pollutant emissions and improve air quality. Actions are targeted at four main sources of emissions: Transport, Domestic, Farming and Industry. At this stage, there is no straightforward way to take account of the expected future benefits to air quality within this assessment.

Environment Act 2021

- A1.4 The UK's new legal framework for protection of the natural environment, the Environment Act (2021) passed into UK law in November 2021. The Act gives the Government the power to set long-term, legally binding environmental targets. It also establishes an Office for Environmental Protection (OEP), responsible for holding the government to account and ensuring compliance with these targets.
- A1.5 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No. 96) sets two new targets for future concentrations of PM_{2.5}. These targets are described in Paragraph 3.5.

Environmental Improvement Plan 2023

- A1.6 Defra published its 25 Year Environment Plan in 2018 (Defra, 2018a). The Environment Act (2021) requires Defra to review this Plan at least every five years. The Environmental Improvement Plan 2023 (Defra, 2023a) is the first revision. This outlines the progress made since 2018 and adds detail to the goals defined in the 2018 Plan, including that of achieving clean air.
- A1.7 The Environmental Improvement Plan 2023 sets out the new air quality targets which have been set for concentrations of PM_{2.5}. These targets, which are described in more detail in Paragraph A1.5, include the long-term targets in the Statutory Instrument described in Paragraph A1.5, and interim targets to be achieved by 2028.
- A1.8 The 2023 Plan outlines the role of local authorities in helping it meet both its targets and existing commitments. It also outlines the respective roles of industry, agricultural sectors, and the Department for Transport in providing the coordinated action required to meet both its new, and pre-existing targets and commitments.

Planning Policy

National Policies

- A1.9 The National Planning Policy Framework (NPPF) (2024) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective:
- "to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".*
- A1.10 To prevent unacceptable risks from air pollution, Paragraph 187 of the NPPF states that:
- "Planning policies and decisions should contribute to and enhance the natural and local environment by...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans".*
- A1.11 Paragraph 198 states:
- "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".*
- A1.12 More specifically on air quality, Paragraph 199 makes clear 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.".*
- A1.13 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019), which includes guiding principles on how planning can take account of the impacts of new development on air quality.
- A1.14 The PPG sets out the information that may be required in an air quality assessment, making clear that:
- "Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".*

Local Transport Plan

- A1.15 The current Wiltshire Council Local Transport Plan (LTP3) (Wiltshire Council, 2011) runs until 2026, with the new document (LTP4) currently under consultation. LTP3 contains a 'goal' stating that Wiltshire Council will aim to "contribute to better health, security and safety"; with one of the 'challenges' within this being to "Improve local air quality".

Local Policies

Core Strategy

- A1.16 The Wiltshire Core Strategy (Wiltshire Council, 2015) was adopted in January 2015; within the strategy, Core Policy 55: Air Quality states that:

“Development proposals, which by virtue of their scale, nature or location are likely to exacerbate existing areas of poor air quality, will need to demonstrate that measures can be taken to effectively mitigate emission levels in order to protect public health, environmental quality and amenity. Mitigation measures should demonstrate how they will make a positive contribution to the aims of the Air Quality Strategy for Wiltshire and where relevant, the Wiltshire Air Quality Action Plan. Mitigation may include:

- i) landscaping, bunding or separation to increase distance from highways and junctions;*
- ii) possible traffic management or highway improvements to be agreed with the local authority;*
- iii) abatement technology and incorporating site layout / separation and other conditions in site planning*
- iv) traffic routing, site management, site layout and phasing*
- v) where appropriate, contributions will be sought toward the mitigation of the impact a development may have on levels of air pollutants.”*

- A1.17 A new Local Plan for Wiltshire covering the years to 2038 (Wiltshire Council, 2023a) is currently being developed. Within the Regulation 19 submission of the proposed Local Plan, Policy 101 states:

“Development proposals, which by virtue of their scale, nature or location are likely to exacerbate existing areas of poor air quality, will need to demonstrate that measures can be taken to effectively mitigate emission levels where air quality is a concern in order to protect public health, environmental quality and amenity.

Mitigation measures should demonstrate how they will make a positive contribution to the aims of the Air Quality Strategy for Wiltshire and where relevant, the Wiltshire Air Quality Action Plan. The pollutants of particular concern that developers must have regard to are Nitrogen dioxide, fine particulates (PM₁₀) and very fine particulates (PM_{2.5}).”

Wiltshire Air Quality Strategy

- A1.18 Wiltshire Council has also developed an Air Quality Strategy for the years 2019-2024 (Wiltshire Council, 2019), which states:

“We will work with Development Control and Developers to ensure development does not lead to future air quality problems. This may be through design and layout or through financial contributions to specific projects that promote better air quality.”

- A1.19 The Strategy includes four strategic policies, which state that:

- *“Strategic priority 1: Secure air quality objectives in the eight Air Quality Management Areas (AQMA). The poorest areas of air quality have been identified and Wiltshire Council is committed to working with communities, partner agencies and other services to secure the necessary improvements within the Local Air Quality Management Framework.*

- *Strategic priority 2: Maintaining good air quality across the county. Preventing the deterioration of air quality in the first place is the most cost effective strategy to ensure a vibrant local economy, and that Wiltshire is a place where people wish to live, work and visit.*
- *Strategic priority 3: Wiltshire Council's own actions. The council recognises that in improving air quality, it has its own role to play in reducing emissions and also has the ability to influence policies that will contribute to an improvement in air quality.*
- *Strategic priority 4: Communication and information dissemination. Good communication and information dissemination are key to shaping policy and plans, keeping communities informed, and assisting those professionals tasked with planning new development."*

Air Quality Supplementary Planning Document

- A1.20 The Council has released a draft of their Air Quality Supplementary Planning Document (SPD) (Wiltshire Council, 2023b). It is understood that the SPD has undergone consultation and is due to be adopted in 2025, and it is therefore anticipated that this document will be adopted prior to commencement of works on the proposed development site. The Air Quality SPD:

"...seeks to assist developers in improving air quality and lowering transport emissions in line with national planning and the aims and objectives of Wiltshire's Air Quality Action Plan and Air Quality Strategy."

- A1.21 This SPD outlines the method of assessing the air quality impacts of a proposed development accepted by Wiltshire Council. The Proposed Development does not exceed the development size criteria detailed in Appendix B of the SPD and is not located in an area of poor air quality. The proposed development has therefore been classed as a Type 1 development and the approach for a Type 1 site has been followed for this report.

Air Quality Action Plans

National Air Quality Plan

- A1.22 Defra has produced an Air Quality Plan to tackle roadside nitrogen dioxide concentrations in the UK (Defra, 2017); a supplement to the 2017 Plan (Defra, 2018b) was published in October 2018 and sets out the steps Government is taking in relation to a further 33 local authorities where shorter-term exceedances of the limit value were identified. This assessment has principally been carried out in relation to the air quality objectives, rather than the limit values that are the focus of the Air Quality Plan.

Local Air Quality Action Plan

- A1.23 Wiltshire Council's Air Quality Action Plan (Wiltshire Council, 2024a) sets out a series of measures by which they will seek to achieve the air quality objectives in their AQMAs between 2024 and 2029. There are two measures within the plan that concern Calne AQMA. Measure A21 relates to re-routing the traffic in Calne town centre via High Street; to help ease delays and congestion. Measure A22 references reducing nitrogen dioxide concentrations in Calne AQMA via the upgrading of buses from Euro IV standard to Euro VI.

A2 EPUK & IAQM Planning for Air Quality Guidance

A2.1 The guidance issued by EPUK and IAQM (Moorcroft and Barrowcliffe et al, 2017) is comprehensive in its explanation of the place of air quality in the planning regime. Key sections of the guidance not already mentioned above are set out below.

Air Quality as a Material Consideration

“Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight, however, given to air quality in making a planning application decision, in addition to the policies in the local plan, will depend on such factors as:

- the severity of the impacts on air quality;
- the air quality in the area surrounding the proposed development;
- the likely use of the development, i.e. the length of time people are likely to be exposed at that location; and
- the positive benefits provided through other material considerations”.

Recommended Best Practice

A2.2 The guidance goes into detail on how all development proposals can and should adopt good design principles that reduce emissions and contribute to better air quality management. It states:

“The basic concept is that good practice to reduce emissions and exposure is incorporated into all developments at the outset, at a scale commensurate with the emissions”.

A2.3 The guidance sets out a number of good practice principles that should be applied to all developments that:

- include 10 or more dwellings;
- where the number of dwellings is not known, residential development is carried out on a site of more than 0.5 ha;
- provide more than 1,000 m² of commercial floorspace;
- are carried out on land of 1 ha or more.

A2.4 The good practice principles are that:

- New developments should not contravene the Council's Air Quality Action Plan, or render any of the measures unworkable;
- Wherever possible, new developments should not create a new “street canyon”, as this inhibits pollution dispersion;
- Delivering sustainable development should be the key theme of any application;
- New development should be designed to minimise public exposure to pollution sources, e.g. by locating habitable rooms away from busy roads;

- The provision of at least 1 Electric Vehicle (EV) "rapid charge" point per 10 residential dwellings and/or 1000 m² of commercial floorspace. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made available;
- Where development generates significant additional traffic, provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety;
- All gas-fired boilers to meet a minimum standard of <40 mgNO_x/kWh;
- Where emissions are likely to impact on an AQMA, all gas-fired CHP plant to meet a minimum emissions standard of:
 - iii) Spark ignition engine: 250 mgNO_x/Nm³;
 - iv) Compression ignition engine: 400 mgNO_x/Nm³;
 - v) Gas turbine: 50 mgNO_x/Nm³.

A2.5 A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of 275 mgNO_x/Nm³ and 25 mgPM/Nm³.

A2.6 The guidance also outlines that offsetting emissions might be used as a mitigation measure for a proposed development. However, it states that:

"It is important that obligations to include offsetting are proportional to the nature and scale of development proposed and the level of concern about air quality; such offsetting can be based on a quantification of the emissions associated with the development. These emissions can be assigned a value, based on the "damage cost approach" used by Defra, and then applied as an indicator of the level of offsetting required, or as a financial obligation on the developer. Unless some form of benchmarking is applied, it is impractical to include building emissions in this approach, but if the boiler and CHP emissions are consistent with the standards as described above then this is not essential".

A2.7 The guidance offers a widely used approach for quantifying costs associated with pollutant emissions from transport. It also outlines the following typical measures that may be considered to offset emissions, stating that measures to offset emissions may also be applied as post assessment mitigation:

- Support and promotion of car clubs;
- Contributions to low emission vehicle refuelling infrastructure;
- Provision of incentives for the uptake of low emission vehicles;
- Financial support to low emission public transport options; and
- Improvements to cycling and walking infrastructures.

Screening

Impacts of the Local Area on the Development

"There may be a requirement to carry out an air quality assessment for the impacts of the local area's emissions on the proposed development itself, to assess the exposure that residents or users might experience. This will need to be a matter of judgement and should take into account:

- the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;
- the presence and location of Air Quality Management Areas as an indicator of local hotspots where the air quality objectives may be exceeded;
- the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular nitrogen dioxide), that would cause unacceptably high exposure for users of the new development; and
- the presence of a source of odour and/or dust that may affect amenity for future occupants of the development".

Impacts of the Development on the Local Area

A2.8 The guidance sets out two stages of screening criteria that can be used to identify whether a detailed air quality assessment is required, in terms of the impact of the development on the local area. The first stage is that you should proceed to the second stage if any of the following apply:

- 10 or more residential units or a site area of more than 0.5 ha residential use; and/or
- more than 1,000 m² of floor space for all other uses or a site area greater than 1 ha.

A2.9 Coupled with any of the following:

- the development has more than 10 parking spaces; and/or
- the development will have a centralised energy facility or other centralised combustion process.

A2.10 If the above do not apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area. If they do apply then you proceed to stage 2, which sets out indicative criteria for requiring an air quality assessment. The stage 2 criteria relating to vehicle emissions are set out below:

- the development will lead to a change in LDV flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere;
- the development will lead to a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- the development will lead to a realigning of roads (i.e. changing the proximity of receptors to traffic lanes) where the change is 5m or more and the road is within an AQMA;
- the development will introduce a new junction or remove an existing junction near to relevant receptors, and the junction will cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights or roundabouts;

- the development will introduce or change a bus station where bus flows will change by more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere; and
- the development will have an underground car park with more than 100 movements per day (total in and out) with an extraction system that exhausts within 20 m of a relevant receptor.

A2.11 The criteria are more stringent where the traffic impacts may arise on roads where concentrations are close to the objective. The presence of an AQMA is taken to indicate the possibility of being close to the objective, but where whole authority AQMAs are present and it is known that the affected roads have concentrations below 90% of the objective, the less stringent criteria are likely to be more appropriate.

A2.12 On combustion processes (including standby emergency generators and shipping) where there is a risk of impacts at relevant receptors, the guidance states that:

"Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NO_x gas boiler or a 30kW CHP unit operating at <95mg/Nm³."

In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.

Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable".

A2.13 Should none of the above apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area, provided that professional judgement is applied; the guidance importantly states the following:

"The criteria provided are precautionary and should be treated as indicative. They are intended to function as a sensitive 'trigger' for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality".

A2.14 Even if a development cannot be screened out, the guidance is clear that a detailed assessment is not necessarily required:

"The use of a Simple Assessment may be appropriate, where it will clearly suffice for the purposes of reaching a conclusion on the significance of effects on local air quality. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence. Similarly, it may be possible to conduct a quantitative assessment that does not require the use of a dispersion model run on a computer".

A2.15 The guidance also outlines what the content of the air quality assessment should include, and this has been adhered to in the production of this report.

Assessment of Significance

- A2.16 There is no official guidance in the UK in relation to development control on how to describe the nature of air quality impacts, nor how to assess their significance. The approach within the EPUK/IAQM guidance has, therefore, been used in this assessment. This approach involves a two stage process:
- a qualitative or quantitative description of the impacts on local air quality arising from the development; and
 - a judgement on the overall significance of the effects of any impacts.
- A2.17 The guidance recommends that the assessment of significance should be based on professional judgement, with the overall air quality impact of the development described as either 'significant' or 'not significant'. In drawing this conclusion, the following factors should be taken into account:
- the existing and future air quality in the absence of the development;
 - the extent of current and future population exposure to the impacts;
 - the influence and validity of any assumptions adopted when undertaking the prediction of impacts;
 - the potential for cumulative impacts and, in such circumstances, several impacts that are described as '*slight*' individually could, taken together, be regarded as having a significant effect for the purposes of air quality management in an area, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a '*moderate*' or '*substantial*' impact may not have a significant effect if it is confined to a very small area and where it is not obviously the cause of harm to human health; and
 - the judgement on significance relates to the consequences of the impacts; will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as significant by health care professionals.
- A2.18 The guidance is clear that other factors may be relevant in individual cases. It also states that the effect on the residents of any new development where the air quality is such that an air quality objective is not met will be judged as significant. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure.
- A2.19 A judgement of the significance should be made by a competent professional who is suitably qualified. A summary of the professional experience of the staff contributing to this assessment is provided in Appendix A2.

A3 Professional Experience

Dr Denise Evans, BSc (Hons) PhD MEnvSc MIAQM

Dr Evans is a Technical Director with AQC, with more than 25 years' relevant experience. She has prepared air quality review and assessment reports for local authorities, and has appraised local authority air quality assessments on behalf of the UK governments, and provided support to the Review and Assessment helpdesk. She has extensive modelling experience, completing air quality and odour assessments to support applications for a variety of development sectors including residential, mixed use, urban regeneration, energy, commercial, industrial, and road schemes, assessing the effects of a range of pollutants against relevant standards for human and ecological receptors. Denise has acted as an Expert Witness and is a Member of the Institute of Air Quality Management.

Dr Helen Robinson, BSc (Hons) MSc PhD MEnvSc MIAQM

Dr Robinson is a Senior Consultant with AQC, having joined in September 2021. Prior to joining AQC she was based at the University of Birmingham, completing a BSc in Geography, MSc in Applied Meteorology and Climatology, and PhD in Air Quality. Her PhD research specialised in air quality modelling where she developed a range of tools to estimate real-time pollutant concentrations on Birmingham's road network, and to quantify the impacts of Low Traffic Neighbourhoods on residential population exposure. Additionally, she provided the air quality modelling expertise on the NERC-funded project, 'GI4RAQ' (Green Infrastructure for Roadside Air Quality), to quantitatively assess the impacts of 'green' interventions in street environments. She also has substantial experience in the field of air quality monitoring and assessment for a range of planning applications.

Ben Collier, BSc (Hons)

Mr Collier is an Assistant Consultant with AQC and joined the company in 2023. Throughout his BSc Environmental Science degree at the University of the West of England, he developed an interest in planetary processes and impacts, in particular those in relation to air quality. During his studies, Mr Collier completed several atmospheric-related projects, with topics varying from the impact of urban air pollution to the potential of renewable energy to improve air quality; many of these included GIS based analysis. Since joining AQC he has numerous air quality assessments, including road traffic modelling and construction dust risk assessments.



London • Bristol • Warrington • Brighton • Brussels