

Report
Land at New Road Farm, Wiltshire
Air Quality Assessment

For Bloor Homes
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1 Introduction

- 1.1 This report describes the potential air quality impacts associated with the proposed residential development on land off New Road Farm, in Melksham, Wiltshire. The proposed development is described as:

"Outline planning application for residential development; public open space, including formal play space and allotments; sustainable drainage systems; and associated infrastructure; land safeguarded for a nursery and access points for pedestrians and cyclists. All matters reserved except for access, the principal point of access is to be provided from a new northern arm onto an improved arrangement of the Eastern Way/A3102 roundabout junction and an emergency access onto the A3102".

- 1.2 The proposed development lies within Wiltshire Council and is located approximately 8 km away from the closest Air Quality Management Area, 'Devizes AQMA', declared for exceedances of the annual mean nitrogen dioxide (NO₂) objective.
- 1.3 This report has been prepared taking into account all relevant local and national guidance and regulations.
- 1.4 The assessment also follows a methodology agreed with Wiltshire Council via an email correspondence between Peter Nobes (Senior Public Protection Officer at Wiltshire Council) and George Chousos (Air Quality Consultants) on 19th September 2024. Specifically, it was discussed and agreed that the assessment will be based on Wiltshire Council's draft Air Quality Supplementary Planning Document (SPD) (Wiltshire Council, 2023b), which was expected to be adopted by the end of 2024. Since the consultation, a subsequent version of the SPD has been published (Wiltshire Council, July 2025), which was adopted in October 2025.
- 1.5 Following the flow chart on page 11 of the SPD, the proposed development would be classified as a 'Type 2' site, as it will be over 100 residential dwellings, but it is not within 5 km of any areas with measured concentrations of over 36 µg/m³ and it will also not lead to a reduction in average speeds by more than 10 km/h or involve substantial infrastructure changes. Therefore, and based on the table on page 12 of the SPD, the air quality assessment comprises an exposure assessment and a construction dust risk assessment.

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 A2.

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

Local Policies

2.2 The Wiltshire Core Strategy (Wiltshire Council, 2015a) was adopted January 2015, and within this there is one main policy which refers to air quality. Core Policy 55 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, building 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 pollution."*

2.3 A new Local Plan for Wiltshire is currently under development, and the pre-submission Regulation 19 draft was published in September 2023 (Wiltshire Council, 2023a). The draft includes Policy 101 on Air Quality, which is similar to Core Policy 55 in the Wiltshire Core Strategy, and adds:

"The pollutants of particular concern that developers must have regard to are nitrogen dioxide, fine particulates (PM₁₀) and very fine particulates (PM_{2.5})."

- 2.4 To support Core Policy 55 of the Core Strategy, Wiltshire Council published the Air Quality Strategy (AQS) for Wiltshire in 2019 (Wiltshire Council, 2019). The strategy aims to “maintain progress with the improvement of air quality across all communities in Wiltshire”. To help achieve this, the Strategy outlines four strategic priorities:
- *“Strategic priority 1: Secure air quality objectives in the eight Air Quality Management Areas (AQMAs). 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 policy 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 policy 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 policy 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.”*
- 2.5 The Council has adopted an SPD dealing with Air Quality (Wiltshire Council, July 2025). It outlines the level of assessment required depending on the type and size of development proposed, along with the standard mitigation requirements, and has been followed in the production of this air quality assessment.

3 Pollutants of Concern

- 3.1 The main air pollutants of concern are nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}). These are the pollutants most related to road traffic emissions and known to have adverse health impacts. 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, 2025). 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 Defra has also recently 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, 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, with the interim target being a reduction of 22% by the start of 2028.
- 3.5 In November 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."*
- 3.6 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.

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.

- 3.7 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?"

- 3.8 The relevant air quality criteria for this assessment are provided in Table 1.

Table 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

^aThere 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.

4 Baseline Conditions

Relevant Features

- 4.1 The proposed development is located approximately 1.4 km to the northeast of Melksham town centre. The application site is bounded by residential dwellings to the west, Sandridge Common to the south, New Road to the east and agricultural fields to the north. It currently consists of mature hedgerows and vegetation, dividing the application site into six separate field parcels utilised for agricultural purposes.

Industrial Sources

- 4.2 No significant industrial or waste management sources have been identified that are likely to affect the proposed development, in terms of air quality.

Local Air Quality Monitoring

- 4.3 Wiltshire Council operates three automatic monitoring stations within its area, however, none of these are in close proximity to the proposed development, with the closest site ('AM3') located more than 9 km away to the southeast. 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) with two diffusion tube monitoring sites located within 2.2 km from the proposed development.
- 4.4 Annual mean results for the years 2019 to 2024 are summarised in Table 2. The monitoring locations are shown in Figure 1. The monitoring data have been taken from Wiltshire Council's 2024 and 2025 Annual Status Reports (Wiltshire Council, 2024a), (Wiltshire Council, 2025)

Table 2: Summary of Annual Mean NO₂ Monitoring (2019-2024) (µg/m³)

Site ID	Site Type	Location	2019	2020	2021	2022	2023	2024
35	Roadside	Melksham N	32.9	27.0	29.0	27.2	22.2	21.8
36	Roadside	Beanacre	-	14.7	17.9	17.8	15.3	-
Objective	40							

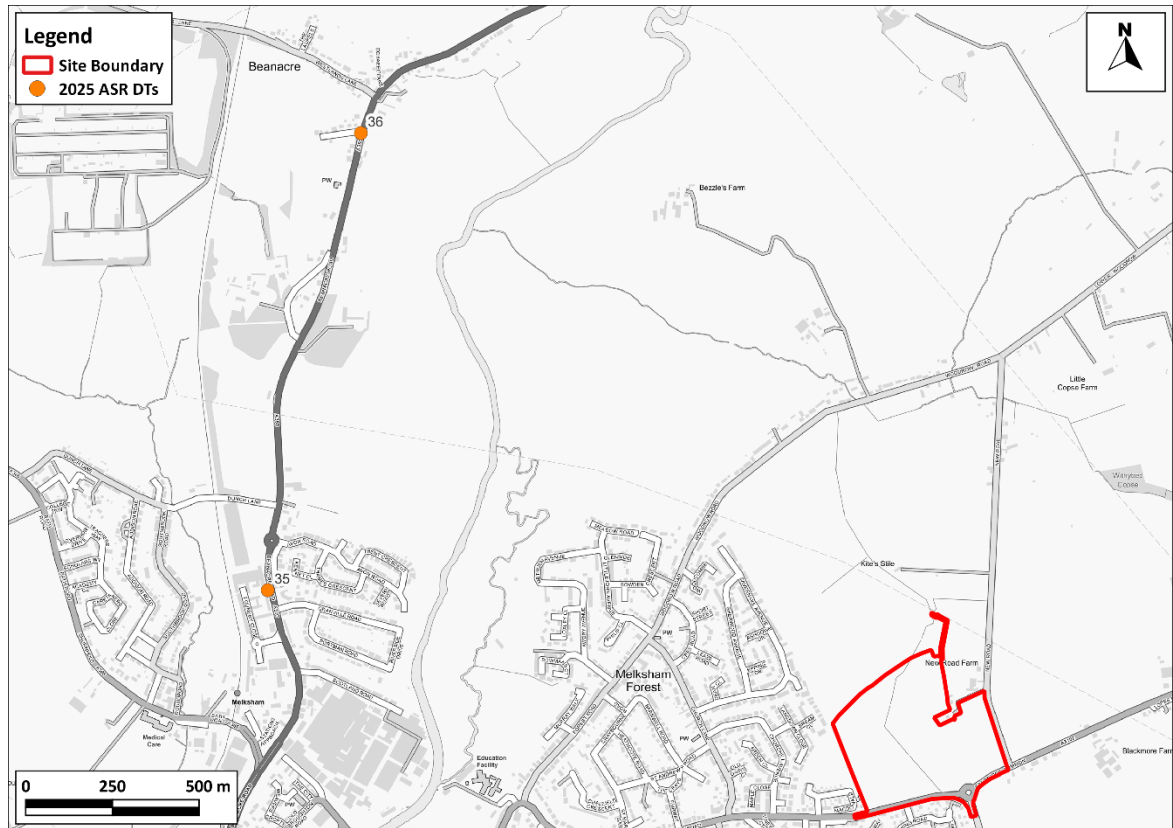


Figure 1: Monitoring Locations and the Application Site Boundary

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

- 4.5 As seen in Table 2, no exceedances of the annual mean NO₂ objective were observed at any of the presented monitoring locations, between 2019 and 2024.
- 4.6 While 2020 and 2021 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.
- 4.7 As discussed above, none of Wiltshire Council's three automatic monitors (measuring PM₁₀ concentrations) are located within a proximity to the proposed development. Monitoring of particulates is undertaken close to, or within, the declared AQMAs with the closest being more than 8 km away from the application site; as such, concentrations at these monitors are anticipated to be greater than at the proposed development. Between 2019 and 2024, annual mean and daily mean PM₁₀ concentrations measured at these sites have been consistently below the respective air quality objectives. It can, therefore, be assumed that PM₁₀ concentrations at the proposed development will also be below the respective objectives.
- 4.8 There are no monitors measuring PM_{2.5} concentrations in Wiltshire. However, Wiltshire Council has estimated PM_{2.5} concentrations from the measured PM₁₀ (in accordance with Defra guidance). Predicted annual mean PM_{2.5} concentrations across all of Wiltshire Council's automatic monitors between 2019 and 2024 have been below the objective and, therefore, would also be expected to be below the objective at the proposed development.

5 Exposure Assessment

- 5.1 The proposed development is located alongside Sandridge Common (A3102), with the proposed dwellings set back from this road by approximately 20 m. According to the Department for Transport (DfT), Sandridge Common experiences an approximate flow of 8,100 daily vehicles, as an AADT value (DfT, 2024) and is considered to be the main source of pollutants at the proposed development. New Road, located to the east of the application site, is a minor road serving only a few properties and hence carrying very few vehicles; as such, it is not expected to contribute significantly to pollutant concentrations at the proposed development.
- 5.2 Diffusion tube monitoring sites '35' and '36' are both located along Beanacre Road (A350), passing through Melksham town, which is a much busier road, compared to Sandridge Common, carrying approximately 19,800 daily vehicles (DfT, 2024). Both sites are located within 6 m from the kerbside, and as shown in Table 2, the measured annual mean NO₂ concentrations have been consistently below the air quality objective from 2019.
- 5.3 Taking into consideration the number of vehicles on both roads, as well as the distances of the monitoring stations and the proposed dwellings to their respective kerbsides, it is expected that the pollutant concentrations at the proposed development will be significantly lower than the measured concentrations at the monitoring sites (see Table 2)³, and consequently well below the air quality objectives.
- 5.4 In addition, as mentioned in paragraphs 4.7 and 4.8, Wiltshire Council's latest ASR (Wiltshire Council, 2025) references that measured PM₁₀ concentrations and estimated PM_{2.5} concentrations at the automatic monitoring stations within its administrative boundary, have been below the respective air quality objectives in recent years. For this reason, it can be assumed that PM₁₀ and PM_{2.5} concentrations will also be below the objectives within the proposed development.
- 5.5 It can be therefore considered that future users of the proposed development will experience acceptable air quality, and there is no need for more detailed assessment.

³ Concentrations reduce rapidly with distance from the emissions source (such as the edge of a road) (Defra, 2025).

6 Construction Dust Risk Assessment

Approach

- 6.1 The construction dust assessment considers the potential for impacts within 250 m of the site boundary, or within 50 m of roads used by construction vehicles. The assessment methodology is that provided by IAQM (2024). This follows a sequence of steps. Step 1 is a basic screening stage, to determine whether the more detailed assessment provided in Step 2 is required. Step 2a determines the potential for dust to be raised from on-site works and by vehicles leaving the site. Step 2b defines the sensitivity of the area to any dust that may be raised. Step 2c combines the information from Steps 2a and 2b to determine the risk of dust impacts without appropriate mitigation. Step 3 uses this information to determine the appropriate level of mitigation required to ensure that there should be no significant impacts. Appendix A3 explains the approach in more detail.
- 6.2 Guidance from IAQM (2024) is that, with appropriate mitigation in place, the effects of construction dust will be 'not significant'. The assessment thus focuses on determining the appropriate level of mitigation so as to ensure that effects will normally be 'not significant'.

Construction Traffic

- 6.3 Typical traffic volumes generated by the site during the construction works will be considerably lower than the operational traffic generation, and below the relevant screening criteria of 100 AADT for heavy vehicles and 500 AADT for light vehicles recommended by EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al, 2017). It is, therefore, not considered necessary to assess the impacts of traffic emissions during the construction phase and it can be concluded that the proposed development will not have a significant impact on local roadside air quality as a result of construction traffic emissions.

On-Site Exhaust Emissions

- 6.4 The IAQM guidance (IAQM, 2024) states:
- "Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur".*
- 6.5 The site is large and sensitive receptors are only located along the west and south boundaries of the site, thus NRMM emissions will mostly occur away from sensitive properties. The site layout will take account of the location of sensitive receptors, and the distance between NRMM and sensitive properties will be maximised, as far as possible, and all vehicles and plant will be switched off when not in use. It is judged that there is no risk of significant effects at existing receptors as a result of on-site machinery emissions.

Construction Dust and Particulate Matter Emissions

- 6.6 The construction works will give rise to a risk of dust impacts during demolition, earthworks and construction, as well as from trackout of dust and dirt by vehicles onto the public highway. Step 1 of the assessment procedure is to screen the need for a risk assessment. There are receptors within the distances set out in the guidance (see Appendix A3), thus a detailed assessment is required. The following section sets out Step 2 of the assessment procedure.

Potential Dust Emission Magnitude

Demolition

- 6.7 There is no requirement for demolition on site.

Earthworks

- 6.8 The characteristics of the soil at the site have been defined using the British Geological Survey's UK Soil Observatory website (British Geological Survey, 2024), as set out in Table 3. Overall, it is considered that, when dry, this soil has the potential to be moderately dusty.

Table 3: Summary of Soil Characteristics

Category	Record
Soil Layer Thickness	Deep
Soil Parent Material Grain Size	Argillaceous ^a
European Soil Bureau Description	Claystone / Mudstone
Soil Group	Medium to Heavy
Soil Texture	Clayey Loam ^b to Silty Loam

^a grain size < 0.06 mm.

^b a loam is composed mostly of sand and silt.

- 6.9 The site covers approximately 148,500 m² and most of this will be subject to earthworks. Dust will arise mainly from vehicles travelling over unpaved ground and from the handling of dusty materials (such as dry soil). Based on the example definitions set out in Table A3-1 in Appendix A1, the dust emission class for earthworks is considered to be *large*.

Construction

- 6.10 The proposed development involves the construction of up to 295 residential dwellings, with an approximate total building volume of between 12,000 m³ to 75,000 m³. Dust will arise from vehicles travelling over unpaved ground and the handling and storage of dusty materials. There will be no piling, onsite concrete batching or sandblasting. Based on the example definitions set out in Appendix A3, the dust emission class for construction is considered to be *medium*.

Trackout

- 6.11 Based on the current design, it is estimated that there will be a maximum of five heavy vehicles leaving the site in any one day, which may track out dust and dirt. Based on the example definitions set out in Table A3-1 in Appendix A3, the dust emission class for trackout is considered to be *small*.
- 6.12 Table 4 summarises the dust emission magnitude for the proposed development.

Table 4: Summary of Dust Emission Magnitude

Source	Dust Emission Magnitude
Demolition	Not Applicable

Source	Dust Emission Magnitude
Earthworks	Large
Construction	Medium
Trackout	Small

Sensitivity of the Area

- 6.13 This assessment step combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the site. It also considers additional site-specific factors such as topography and screening, and in the case of sensitivity to human health effects, baseline PM₁₀ concentrations.
- 6.14 The IAQM guidance explains that residential properties are 'high' sensitivity receptors to dust soiling (Table A3-2 in Appendix A3). Residential properties are also classified as being of 'high' sensitivity to human health effects, while places of work are classified as being of 'medium' sensitivity. There are approximately 30 residential properties within 20 m of the site (see Figure 2).

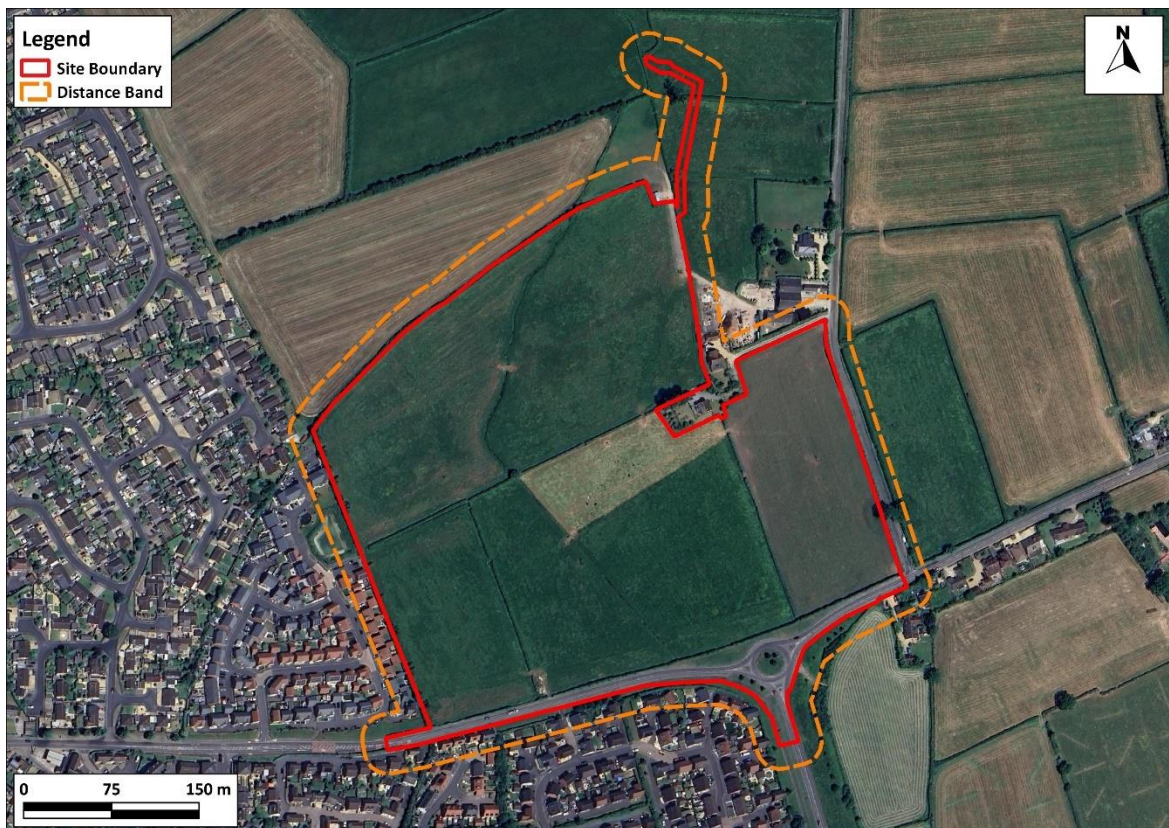


Figure 2: 20 m Distance Band around Application Site Boundary

Imagery ©2024 Airbus, Maxar Technologies, Map data ©2024

- 6.15 The IAQM guidance (IAQM, 2024) explains that there is a risk of material being tracked 250 m from the site exit. Since it is not known which roads construction vehicles will use, it has been assumed that all possible routes could be affected. There are approximately 50 residential properties within 20 m of the roads along which material could be tracked (see Figure 3).

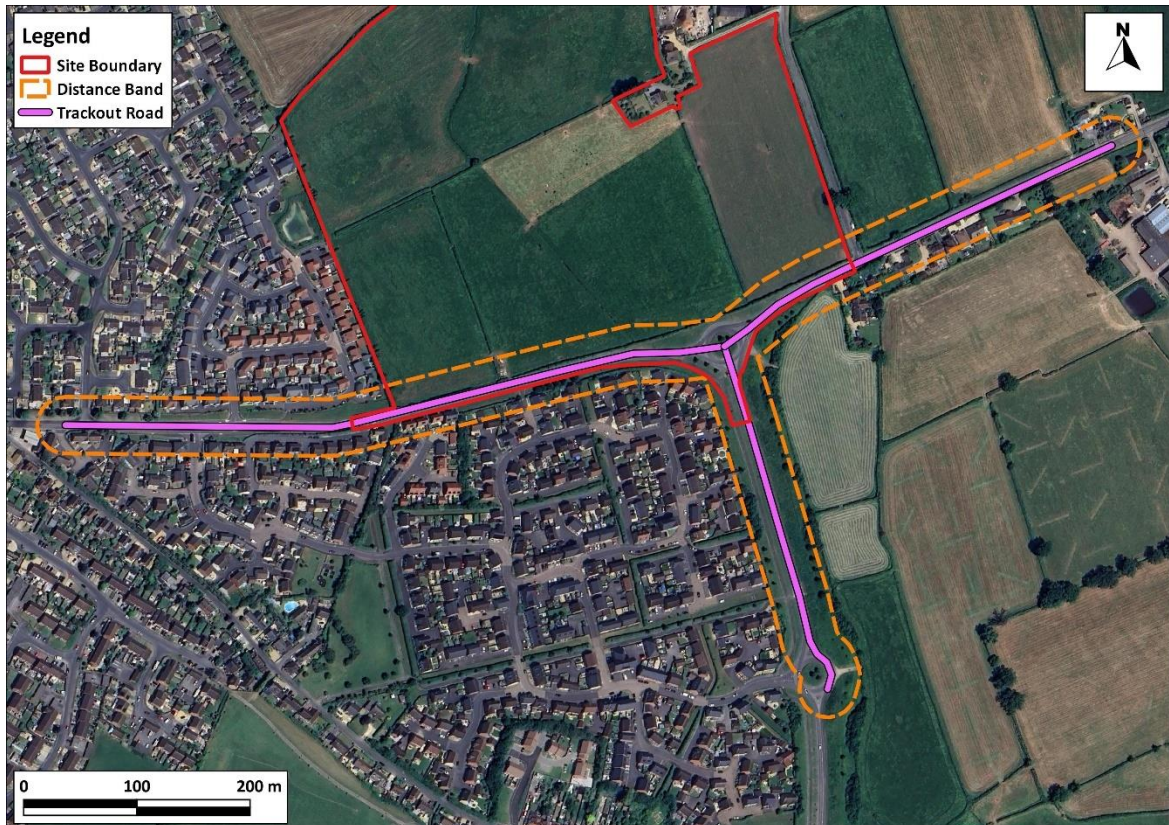


Figure 3: 20 m Distance Band around Roads Used by Construction Traffic Within 250 m of the Site Exits

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Sensitivity of the Area to Effects from Dust Soiling

- 6.16 Using the information set out in Paragraph 6.14 and Figure 2 alongside the matrix set out in Table A3-3 in Appendix A3, the area surrounding the onsite works is of 'high' sensitivity to dust soiling. Using the information set out in Paragraph 6.15 and Figure 3 alongside the same matrix, the area is also of 'high' sensitivity to dust soiling due to trackout.

Sensitivity of the Area to any Human Health Effects

- 6.17 The matrix in Table A3-4 in Appendix A3 requires information on the baseline annual mean PM₁₀ concentration in the area. As previously mentioned in paragraph 4.7, Wiltshire Council undertakes PM₁₀ monitoring at three automatic monitoring stations, located within the Council's declared AQMAs, where concentrations are expected to be significantly higher than compared to the near vicinity of the proposed development. In 2023, the highest concentration, which was measured at 'AM2' at Bradford-on-Avon, was 24 µg/m³; as such, it can be assumed that concentrations at the properties near the proposed development will be below this value.
- 6.18 Using the information set out in Paragraphs 6.14 and Figure 2 alongside the matrix in Table A3-4 in Appendix A3, the area surrounding the onsite works is of 'low' sensitivity to human health effects. Using the information set out in Paragraph 6.15 and Figure 3 alongside the same matrix, the area surrounding roads along which material may be tracked from the site is also of 'low' sensitivity.

Sensitivity of the Area to any Ecological Effects

- 6.19 The guidance only considers designated ecological sites within 50 m to have the potential to be impacted by the construction works. There are no designated ecological sites within 50 m of the site boundary or those roads along which material may be tracked, thus ecological impacts will not be considered further.

Summary of the Area Sensitivity

- 6.20 Table 5 summarises the sensitivity of the area around the proposed construction works.

Table 5: Summary of the Area Sensitivity

Effects Associated With:	Sensitivity of the Surrounding Area	
	On-site Works	Trackout
Dust Soiling	High Sensitivity	High Sensitivity
Human Health	Low Sensitivity	Low Sensitivity

Risk and Significance

- 6.21 The dust emission magnitudes in Table 4 have been combined with the sensitivities of the area in Table 5 using the matrix in Table A3-6 in Appendix A3, in order to assign a risk category to each activity. The resulting risk categories for the four construction activities, without mitigation, are set out in Table 6. These risk categories have been used to determine the appropriate level of mitigation as set out in Section 6 (step 3 of the assessment procedure).

Table 6: Summary of Risk of Impacts Without Mitigation

Source	Dust Soiling	Human Health
Demolition	Not Applicable	Not Applicable
Earthworks	High Risk	Low Risk
Construction	Medium Risk	Low Risk
Trackout	Low Risk	Negligible Risk

- 6.22 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant' (IAQM, 2024).

7 Mitigation

Good Design and Best Practice

- 7.1 The EPUK/IAQM guidance advises that good design and best practice measures should be considered whether or not more specific mitigation is required. Furthermore, Defra have set out in their Interim Planning Guidance (2024) two questions designed to consider whether a development supports the targets for PM_{2.5} concentrations set under the Environment Act (2021) (see Section 3). 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?”.
- 7.2 The proposed development incorporates the following good design and best practice measures, including a number of measures recommended in the Air Quality SPD for Type 2 developments, which have been accounted for in the assessment as far as is possible:
- setting back of the development buildings from busier roads (A3102 Sandridge Common) by at least 20 m;
 - inclusion of electric vehicle charging points for all homes, meeting the Council's minimum standards;
 - promotion of car sharing;
 - provision of a detailed Travel Plan setting out measures to encourage sustainable means of transport (public, cycling and walking);
 - the appointment and funding of a Travel Plan Coordinator, to be responsible for the management and maintenance of the Travel Plan;
 - support local travel to school and school plan initiatives;
 - the provision of a Smarter Travel Information Pack and green travel vouchers for the future residents; and
 - provision of pedestrian and cycle access to the new development, including covered and secured cycle parking.

The development complies with EPUK/IAQM guidance that good design and best practice measures should be considered. It also complies with the requirements to deliver achievement of the Environment Act (2021) PM_{2.5} targets.

Recommended Mitigation

Construction Impacts

- 7.3 Measures to mitigate dust emissions will be required during the construction phase of the development in order to minimise effects upon nearby sensitive receptors.
- 7.4 The site has been identified as a *High Risk* site during earthworks, *Medium Risk* during construction and as *Low Risk* for trackout, as set out in Table 6. Comprehensive guidance has been published by IAQM (2024) that describes measures that should be employed, as appropriate, to reduce the impacts, along with guidance on monitoring during demolition and construction (IAQM, 2024). This reflects

best practice experience and has been used, together with the professional experience of the consultant who has undertaken the dust impact assessment and the findings of the assessment, to draw up a set of measures that should be incorporated into the specification for the works. These measures are described in Appendix A4.

- 7.5 The mitigation measures should be written into a dust management plan (DMP). The DMP may be integrated into a Code of Construction Practice or the Construction Environmental Management Plan and may require monitoring.
- 7.6 Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There should not be any excess to potentially contaminate local watercourses.

Road Traffic Impacts

- 7.7 The assessment has demonstrated that the overall air quality effect of the proposed development will be 'not significant'. It is, therefore, not considered appropriate to propose further mitigation measures for this development.

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.
- 8.2 The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emissions. Appropriate measures have been recommended and, with these measures in place, it is expected that any residual effects will be 'not significant'.
- 8.3 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.
- 8.4 Measures to reduce emissions have also been incorporated, including a number of measures which are recommended for Type 2 developments in Wiltshire Council's Air Quality SPD. These measures include the provision of secure cycle storage, electric vehicle charging points for every new home within the proposed development, as well as the adoption of the Travel Plan, to encourage sustainable forms of travel for future residents.
- 8.5 The overall operational air quality effects of the proposed development are judged to be 'not significant'.
- 8.6 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.
- 8.7 The proposed development is also consistent with Core Policy 55 of the Wiltshire Core Strategy, as it will not exacerbate conditions in areas of poor air quality, and it will not interfere with the implementation of Wiltshire Council's Air Quality Action Plan.
- 8.8 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 PM_{2.5} and its precursors as far as is reasonably practicable.

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10 Glossary

AADT	Annual Average Daily Traffic
AQC	Air Quality Consultants
AQMA	Air Quality Management Area
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
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)
$\mu\text{g}/\text{m}^3$	Microgrammes per cubic metre
NO_2	Nitrogen dioxide
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
OLEV	Office for Low Emission Vehicles
PM_{10}	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
$\text{PM}_{2.5}$	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 below which health effects do not occur or are minimal
TEA	Triethanolamine – used to absorb nitrogen dioxide

11 Appendices

A1 EPUK & IAQM Planning for Air Quality Guidance

A1.1 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

A1.2 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”.

A1.3 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.

A1.4 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.

A1.5 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.

A1.6 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".

A1.7 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

A1.8 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.

A1.9 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.

A1.10 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.

A1.11 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.

A1.12 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".

A1.13 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".

A1.14 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".

A1.15 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

- A1.16 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.
- A1.17 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.
- A1.18 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.
- A1.19 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 A3.

A2 Policy

Air Quality Strategy 2007

- A2.1 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

- A2.2 The Air Quality Strategy: Framework for Local Authority Delivery 2023 (Defra, 2023a) 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

- A2.3 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

- A2.4 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.
- A2.5 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 3.6.

Environmental Improvement Plan 2023

- A2.6 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, 2023b) 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.
- A2.7 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 3.6, include the long-term targets in the Statutory Instrument described in Paragraph 2.16, and interim targets to be achieved by 2028.
- A2.8 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

- A2.9 The National Planning Policy Framework (NPPF) (Ministry for Housing, Communities & Local Government, 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".

- A2.10 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 quality".

- A2.11 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".

- A2.12 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.".

- A2.13 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.

- A2.14 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

- A2.15 The Wiltshire Local Transport Plan 4 (LTP4) was adopted in March 2025 and contains a number of strategic objectives for transport in Wiltshire (Wiltshire Council, 2025). The main policies of relevance are:

- Policy A1: Reduce the need to travel as often, and
- Policy A2: Enabling access to services, jobs and other destinations within closer reach.

Air Quality Action Plans

National Air Quality Plan

- A2.16 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

- A2.17 Wiltshire Council's Air Quality Action Plan 2024-2029 (Wiltshire Council, 2024b) sets out a series of measures by which they will seek to achieve the air quality objectives in their AQMAs.

A3 Construction Dust Assessment Procedure

A3.1 The criteria developed by IAQM (2024) divide the activities on construction sites into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

A3.2 The assessment procedure includes the four steps summarised below:

STEP 1: Screen the Need for a Detailed Assessment

A3.3 An assessment is required where there is a human receptor within 250 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s), or where there is an ecological receptor within 50 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

A3.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is *negligible* and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

STEP 2: Assess the Risk of Dust Impacts

A3.5 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
- the sensitivity of the area to dust effects (Step 2B).

A3.6 These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

Step 2A – Define the Potential Dust Emission Magnitude

A3.7 Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table A3-1.

Table A3-1: Examples of How the Dust Emission Magnitude Class May be Defined

Class	Examples
Demolition	
Large	Total building volume >75,000 m ³ , potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >12 m above ground level

Class	Examples
Medium	Total building volume 12,000 m ³ – 75,000 m ³ , potentially dusty construction material, demolition activities 6-12 m above ground level
Small	Total building volume <12,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months
Earthworks	
Large	Total site area >110,000 m ² , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.
Medium	Total site area 18,000 m ² – 110,000 m ² , moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height.
Small	Total site area <18,000 m ² , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	
Large	Total building volume >75,000 m ³ , on site concrete batching; sandblasting
Medium	Total building volume 12,000 m ³ – 75,000 m ³ , potentially dusty construction material (e.g. concrete), on site concrete batching
Small	Total building volume <12,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout ^a	
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m
Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

^a These numbers are for vehicles that leave the site after moving over unpaved ground.

Step 2B – Define the Sensitivity of the Area

A3.8 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM₁₀, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

A3.9 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in Table A3-2. These receptor sensitivities are then used in the matrices set out in Table A3-3, Table A3-4 and Table A3-5 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered

in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

Step 2C – Define the Risk of Impacts

- A3.10 The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the *risk* of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table A3-6 as a method of assigning the level of risk for each activity.

STEP 3: Determine Site-specific Mitigation Requirements

- A3.11 The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix A4.

STEP 4: Determine Significant Effects

- A3.12 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant'.
- A3.13 The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be 'not significant'.

Table A3-2: Principles to be Used When Defining Receptor Sensitivities

Class	Principles	Examples
Sensitivities of People to Dust Soiling Effects		
High	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwelling, museum and other culturally important collections, medium and long term car parks and car showrooms
Medium	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land	parks and places of work
Low	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads
Sensitivities of People to the Health Effects of PM ₁₀		
High	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
Medium	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM ₁₀
Low	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
Sensitivities of Receptors to Ecological Effects		
High	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features
Medium	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or	Sites of Special Scientific Interest with dust sensitive features

Class	Principles	Examples
	locations with a national designation where the features may be affected by dust deposition	
Low	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

Table A3-3: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A3-4: Sensitivity of the Area to Human Health Effects

Receptor Sensitivity	Annual Mean PM ₁₀	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m ³	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m ³	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m ³	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m ³	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m ³	>10	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM ₁₀	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
	<24 µg/m ³	1-10	Low	Low	Low	Low
		>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table A3-5: Sensitivity of the Area to Ecological Effects

Receptor Sensitivity	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table A3-6: Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

A4 Construction Mitigation

A4.1 Table A4-1 sets out a list of best-practice measures from the IAQM guidance (IAQM, 2024) that should be incorporated into the specification for the works. These measures should ideally be written into a Dust Management Plan. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the Dust Management Plan.

Table A4-1: Best-Practice Mitigation Measures Recommended for the Works

Measure	Desirable	Highly Recommended
Communications		
Develop and implement a stakeholder communications plan that includes community engagement before and during work on site		✓
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environmental manager/engineer or the site manager		✓
Display the head or regional office contact information		✓
Dust Management Plan		
Develop and implement a Dust Management Plan (DMP) approved by the Local Authority which documents the mitigation measures to be applied, and the procedures for their implementation and management		✓
Site Management		
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken		✓
Make the complaints log available to the local authority when asked		✓
Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book		✓
Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes		✓
Monitoring		
Undertake daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust. Record inspection results, and make the log available to the		✓

Measure	Desirable	Highly Recommended
Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary		
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked		✓
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions		✓
Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction (IAQM, 2024).		✓
Preparing and Maintaining the Site		
Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible		✓
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site		✓
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period		✓
Avoid site runoff of water or mud		✓
Keep site fencing, barriers and scaffolding clean using wet methods		✓
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below		✓
Cover, seed, or fence stockpiles to prevent wind whipping		✓
Operating Vehicle/Machinery and Sustainable Travel		
Ensure all vehicles switch off their engines when stationary – no idling vehicles		✓
Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable		✓
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work		✓

Measure	Desirable	Highly Recommended
areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)		
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials		✓
Implement a Travel Plan that supports and encourages sustainable staff travel (public transport, cycling, walking, and car-sharing)		✓
Operations		
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems		✓
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate		✓
Use enclosed chutes, conveyors and covered skips		✓
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate		✓
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods		✓
Waste Management		
Avoid bonfires and burning of waste materials		✓
Measures Specific to Earthworks		
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable		✓
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable		✓
Only remove the cover from small areas during work, not all at once		✓
Measures Specific to Construction		
Avoid scabbling (roughening of concrete surfaces), if possible	✓	
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place		✓

Measure	Desirable	Highly Recommended
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery	✓	
For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust	✓	
Measures Specific to Trackout		
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use	✓	
Avoid dry sweeping of large areas	✓	
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport	✓	
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);	✓	

A5 Professional Experience

Penny Wilson, BSc (Hons) CSci MEnvSc MIAQM

Ms Wilson is a Technical Director with AQC, with more than 20 years' relevant experience in the field of air quality. She has been responsible for numerous assessments for a range of infrastructure developments including power stations, road schemes, ports, airports and residential/commercial developments. The assessments have covered operational and construction impacts, including dust and odour nuisance. She also provides services to local authorities in support of their LAQM duties, including the preparation of Review and Assessment and Action Plan reports, as well as audits of Air Quality Assessments submitted with planning and DCO applications. She has provided expert evidence to a number of Public Inquiries and civil court and is a Member of the Institute of Air Quality Management and a Chartered Scientist.

Julia Burnell, MEnvSci (Hons) MEnvSc MIAQM

Miss Burnell is a Principal Consultant with AQC with over eight years' experience in the field of air quality. She has experience of undertaking a range of air quality assessments for power, transportation, and mixed-use development projects both in the UK and internationally. She is also experienced at preparing environmental permit applications for medium combustion plant/specified generator sites and has commissioned and maintained numerous ambient air quality monitoring surveys. Prior to her work with AQC, Julia completed an MEnvSci (Hons) in Environmental Science (four-year integrated master's). She is a Member of both the Institute of Air Quality Management and the Institution of Environmental Sciences.



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