



Defence Infrastructure Organisation

BULFORD, SLING ROAD

Air Quality Assessment



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EXECUTIVE SUMMARY

This air quality assessment was prepared by WSP on behalf of the Defence Infrastructure Organisation ('the Applicant') in support of the planning application for the proposed Service Family Accommodation (SFA) at Bulford, Sling Road (the "Site").

The proposals include the construction of 8 SFA houses to support the strategy to renew the estate at the Bulford Barracks site.

This report presents the findings of the assessment, which addresses the potential air quality impacts during both the construction phase of the Proposed Development. The type, source and significance of potential impacts were identified, and the measures that should be employed to minimise these proposed.

The main source of pollution in the area is road traffic, baseline air quality in the area is considered to be very good with concentrations in the area expected to be well below the relevant air quality objectives.

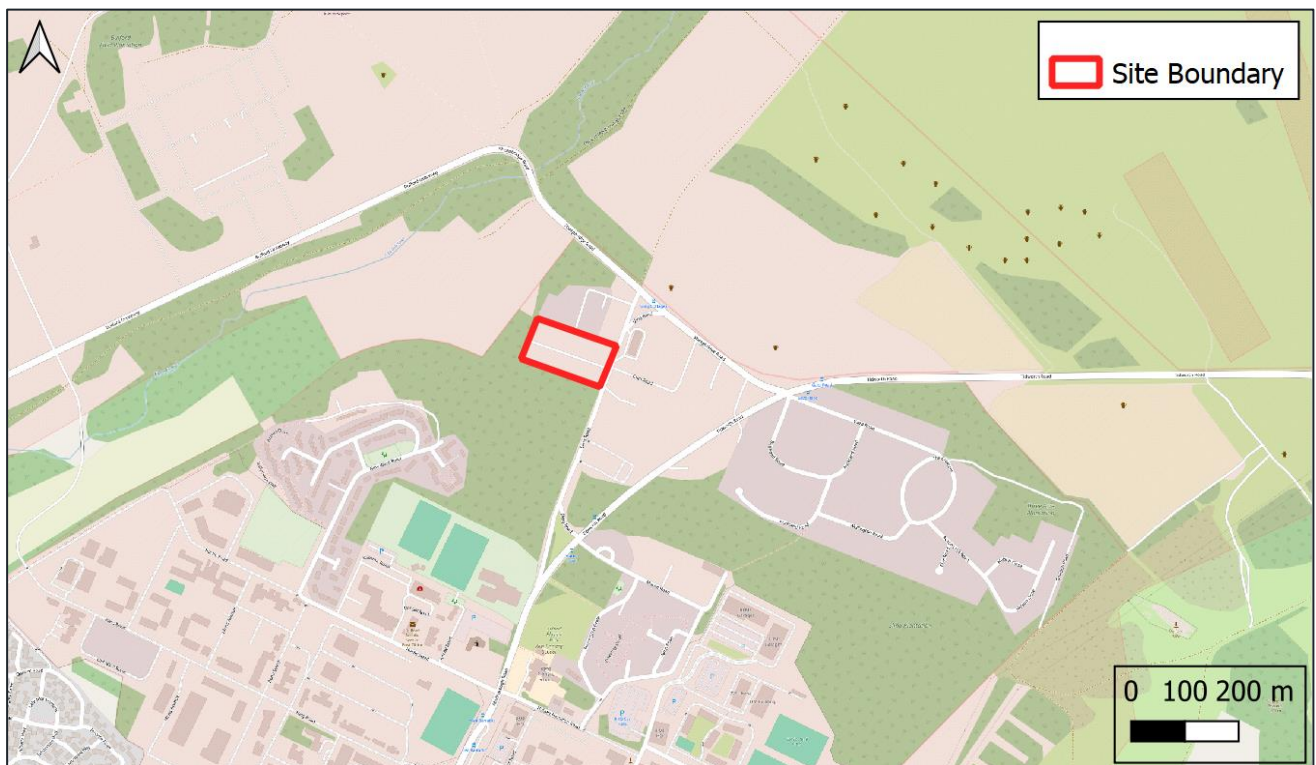
The assessment of impacts on local air quality from construction activities has been carried out for this phase of the Proposed Development using the IAQM methodology ('*Guidance on the assessment of dust from demolition and construction*'). This identified that there is a Low Risk of dust soiling impacts and a Negligible Risk of increases in particulate matter concentrations due to construction activities on human receptors. There is considered to be a Low Risk of dust soiling impacts on the nearby ecologically designated sites during trackout only. However, through good site practice and the implementation of suitable mitigation measures, the effect of dust and PM₁₀ releases would be significantly reduced. The residual effects of dust and PM₁₀ generated by construction activities on air quality are therefore considered to be not significant. The residual effects of emissions to air from construction vehicles and plant on local air quality will also be negligible and not significant.

Based on the assessment results, it is considered that the development proposals comply with relevant Wiltshire Council policy for air quality.

1. INTRODUCTION

- 1.1.1. This air quality assessment was prepared by WSP on behalf of the Defence Infrastructure Organisation ('the Applicant') in support of the planning application for the proposed Service Family Accommodation (SFA) at Bulford, Sling Road, hereafter referred to as the 'Proposed Development' or 'Site'.
- 1.1.2. The existing Site comprises an area of open land 1.13 ha in size located off Sling Road within the existing Bulford Barracks site approximately 2km north-east of Amesbury. The Site is bound by woodland to the south and residential properties directly to the north. The site location plan is shown in **Figure 1**.

Figure 1 - Site Location



- 1.1.3. The proposals include the construction of 8 SFA houses to support the strategy to renew the estate at the Bulford Barracks site.
- 1.1.4. This report provides a review of existing air quality conditions at and in proximity to the Proposed Development and an assessment of the potential impacts of the Proposed Development on local air quality during the construction and operational phases. For both phases, the type, the source and the significance of potential impacts are identified, and the measures that should be employed to minimise these described.
- 1.1.5. A glossary used in the assessment is provided in **Appendix A**.

2. LEGISLATION, POLICY AND GUIDANCE

2.1. LEGISLATION

ENVIRONMENTAL PROTECTION ACT 1990

- 2.1.1. Section 79 of the Environmental Protection Act 1990¹ gives the following definitions of statutory nuisance relevant to dust and particles:
- 2.1.2. *“Any dust, steam, smell or other effluvia arising on industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance”;* and
- 2.1.3. *“Any accumulation or deposit which is prejudicial to health or a nuisance.”*
- 2.1.4. Following this, Section 80 states that where a statutory nuisance is shown to exist, the local authority, in this case, the BBC, must serve an abatement notice. Failure to comply with an abatement notice is an offence, and if necessary, the local authority may abate the nuisance and recover the expenses.
- 2.1.5. Statutory nuisance provisions are relevant to, amongst other things, the control of dust from demolition and construction activities. There are no statutory limit values for dust above which ‘nuisance’ is deemed to exist. Nuisance is a subjective concept, and its perception is highly dependent upon the existing conditions and the changes that have occurred. The defence against statutory nuisance is Best Practicable Means.

ENVIRONMENT ACT 1995

- 2.1.6. Part IV of the Environment Act 1995² required the Secretary of State to publish a national Air Quality Strategy and set up a system of Local Air Quality Management (LAQM). The Environment Act 2021 was subsequently enshrined into law in November 2021³. Schedule 11 of this Act makes it clear that it remains a requirement for local authorities to periodically review and document local air quality within their area with the aim of meeting the air quality objectives defined in the Air Quality Regulations. Where the Air Quality Strategy objectives are not likely to be achieved, a local authority is required to designate and an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality.

ENVIRONMENT ACT 2021

- 2.1.7. Schedule 11 of the Environment Act 2021³ provides amendments to the Environment Act 1995 regarding the duty of the Secretary of State to report on air quality in England, as well as the

¹ The National Archives (1990) *Environmental Protection Act 1990* [online]. Available at: <https://www.legislation.gov.uk/ukpga/1990/43/contents> [Accessed November 2025].

² The National Archives (1995) *Environment Act 1995 - Statutory Instrument No.25* [online]. Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents> [Accessed November 2025].

³ The National Archives (2021) *Environment Act 2021* [online]. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted> [Accessed November 2025].

functions and duties of relevant public authorities, including but not limited to, the duty of a local authority to prepare an action plan for an AQMA “...for the purpose of securing that air quality standards and objectives are achieved...”

- 2.1.8. This Act also sets a legally binding duty on the Secretary of State to bring forward air quality targets into secondary legislation; with specific regard to the annual mean level of particulate matter, PM_{2.5}, in ambient air.

AIR QUALITY REGULATIONS

- 2.1.9. The Air Quality (England) Regulations 2000⁴ and the Air Quality (England) (Amendment)⁵ Regulations 2002 set objectives for ambient pollutant concentrations. The objective for human health applies where there is relevant exposure “...at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present...”.
- 2.1.10. The Air Quality Standards Regulations 2010⁶ (as amended)⁷, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019⁸, and the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020⁹ establish legally binding limit values for concentrations of major air pollutants that impact public health in outdoor air, such as particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂). The limit values for NO₂ and PM₁₀ are numerically equivalent to the objectives.
- 2.1.11. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023¹⁰ set long-term targets for PM_{2.5}, aiming to combat air pollution and safeguard public health:
- Annual Mean Concentration Target: By 2040, achieve of a maximum annual mean concentration of 10µg/m³ of PM_{2.5} across England. This target sets a clear benchmark for air quality improvement, ensuring that the air we breathe meets stringent standards for particulate matter.
- 2.1.12. Population Exposure Reduction Target: Aim for a substantial 35% reduction in population exposure to PM_{2.5} by 2040, compared to a base year of 2018. This reduction target emphasises the

⁴ The National Archives (2000) *The Air Quality (England) Regulations 2000 - Statutory Instrument 2000 No.928* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2000/928/contents/made> [Accessed November 2025].

⁵ The National Archives (2002) *The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2002/3043/contents/made> [Accessed November 2025].

⁶ The National Archives (2010) *The Air Quality Standards Regulations 2010 - Statutory Instrument 2010 No.1001* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2010/1001/contents/made> [Accessed November 2025].

⁷ The National Archives (2016) *The Air Quality Standards (Amendment) Regulations 2016 - Statutory Instrument 2016 No.1184* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2016/1184/contents/made> [Accessed November 2025].

⁸ The National Archives (2019) *The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 No.74* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2019/74/contents/made> [Accessed November 2025].

⁹ The National Archives (2020) *The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 - Statutory Instrument 2020 No.1313* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2020/1313/contents/made> [Accessed November 2025].

¹⁰ The National Archives (2023). *The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 – Statutory Instrument No. 96* [online]. Available at: <https://www.legislation.gov.uk/ukSI/2023/96/contents/made> [Accessed November 2025].

importance of minimising the health risks associated with prolonged exposure to fine particulate matter, thereby enhancing the well-being of communities nationwide.

- 2.1.13. Relevant air quality standards in terms of objectives, limit values and targets as set out in Government policy and legislation for the protection of human health are given in Table 1.

Table 1 - Air Quality Limit Values and Objectives

Pollutant	Concentration in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$)	Measured as	Requirement
Nitrogen dioxide (NO_2)	40	Annual mean	Objective and limit value not to be exceeded.
NO_2	200	1-hour mean	Not to be exceeded more than 18 times a year.
Particulate matter less than 10 micrometres in diameter (PM_{10})	40	Annual mean	Limit value not to be exceeded.
PM_{10}	50	24-hour mean	Not to be exceeded more than 35 times a year.
Particulate matter less than 2.5 micrometres in diameter ($\text{PM}_{2.5}$)	20	Annual mean	Limit value not to be exceeded.
$\text{PM}_{2.5}$	12	Annual mean	Interim non-statutory target concentration not to be exceeded by the end of January 2028.
$\text{PM}_{2.5}$	10	Annual mean	Target concentration not to be exceeded by the end of 2040.

2.2. POLICY

NATIONAL PLANNING POLICY FRAMEWORK

- 2.2.1. The Government's overall planning policies for England are outlined in the National Planning Policy Framework (NPPF)¹¹. Paragraph 199 concerns air quality considerations:
- 2.2.2. *"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*

¹¹ Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework* [online]. Available at: <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf> [Accessed November 2025].

areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

CLEAN AIR STRATEGY

- 2.2.3. The Department for Environment, Food and Rural Affairs (Defra) published the Government’s Clean Air Strategy in 2019¹². This Strategy outlines measures aimed at reducing emissions from all sources of air pollution, thereby improving air quality, safeguarding natural environments, and stimulating economic growth. Additionally, the Strategy sets specific goals to reduce public exposure to airborne particulate matter in alignment with recommendation made by the World Health Organisation.
- 2.2.4. Moreover, the Strategy affirms the Government’s commitment to enacting new legislation to *“create a stronger and more coherent framework for action to tackle air pollution...in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanism.”*

AIR QUALITY STRATEGY FRAMEWORK FOR LOCAL AUTHORITY DELIVERY

- 2.2.5. The Government’s policy on air quality within the England is outlined in the Air Quality Strategy for Framework for local authority delivery¹³. This Strategy establishes a framework for reducing air pollution across the England to meet its objectives.

ENVIRONMENTAL IMPROVEMENT PLAN

On 31st January 2023, the Government published its Environment Improvement Plan¹⁴ which includes the objective to attain clean air in the UK by reducing overall air pollution. This is to be achieved by addressing major sources of emissions, targeting specific hotspots, and decreasing NH₃ emissions.

WILTSHIRE CORE STRATEGY

- 2.2.6. The Wiltshire Core Strategy¹⁵ contains Core Policy 55: Air Quality which states that:

¹² Department for Environment, Food and Rural Affairs (2019) *Clean Air Strategy 2019* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf [Accessed November 2025].

¹³ Department for Environment, Food and Rural Affairs and the Devolved Administrations (2023) *Air quality strategy: framework for local authority delivery* [online]. Available at: <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england>. [Accessed November 2025].

¹⁴ Department for Environment, Food and Rural Affairs and the Devolved Administrations (2023) *Environmental Improvement Plan 2023* [online]. Available at: <https://www.gov.uk/government/publications/environmental-improvement-plan> [Accessed November 2025].

¹⁵ Wiltshire Council (2015) Wiltshire Core Strategy Adopted January 2015

‘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...’

AIR QUALITY STRATEGY FOR WILTSHIRE

- 2.2.7. The Air Quality Strategy for Wiltshire¹⁶ sets out how the council will reduce traffic-related pollution within its area focusing on improving concentrations of NO₂. It sets out the targeted Air Quality Action Plan which covers the declared AQMAs and also county wide measures to improve air quality conditions.

2.3. GUIDANCE

NATIONAL PLANNING PRACTICE GUIDANCE

- 2.3.1. This guidance¹⁷ provides several guiding principles on how the planning process can consider the impact of new development on air quality. It also explains the level of detail required in air quality assessments for proposed developments, and how impacts on air quality can be mitigated. This guidance also offers information on how local authorities account for air quality in both the broader planning context of Local Plans and neighbourhood planning, as well as in individual cases where air quality is a factor in a planning decision.

LOCAL AIR QUALITY MANAGEMENT REVIEW AND ASSESSMENT TECHNICAL GUIDANCE

- 2.3.2. Defra has published technical guidance for use by local authorities in their review and assessment work. This guidance, referred to in this document as LAQM.TG(22)¹⁸, has been utilised in the assessment presented here.

LAND-USE PLANNING AND DEVELOPMENT CONTROL: PLANNING FOR AIR QUALITY

- 2.3.3. Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published joint guidance¹⁹ that provides comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of

¹⁶ Wiltshire Council (2019) Air Quality Strategy for Wiltshire 2019-2024

¹⁷ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). *National Planning Practice Guidance – Air quality* [online]. Available at: <https://www.gov.uk/guidance/air-quality--3> [Accessed November 2025].

¹⁸ Department for Environment, Food and Rural Affairs (2022). Part IV of the *Environment Act 1995 as amended by the Environment Act 2021 Environment (Northern Ireland) Order 2002 Part III Local Air Quality Management Technical Guidance (TG22)* [online]. Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-December-22-v1.0.pdf> [Accessed November 2025].

¹⁹ EPUK and IAQM (2017) Land-Use Planning & Development Control: Planning for Air Quality [online]. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> [Accessed July 2025].

any air quality impacts associated with a development; and the possible mitigation measures that may be implemented to minimise these impacts.

GUIDANCE ON THE ASSESSMENT OF DUST FROM DEMOLITION AND CONSTRUCTION

- 2.3.4. This document²⁰ published by the IAQM and hereafter referred to as the 'IAQM Construction Dust Guidance' was produced to provide guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM₁₀ impacts on public exposure and impact upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified.

²⁰ IAQM (2024) *Guidance on the assessment of dust from demolition and construction Version 2.2* [online]. Available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf> [Accessed July 2025].

3. SCOPE AND METHODOLOGY

3.1. SCOPE

3.1.1. The scope of the assessment was determined in the following way:

- Review of the latest Air Quality Annual Status Report (ASR) published by Wiltshire Council and air quality monitoring data for the area surrounding the Application Site.
- Desk study to confirm the locations of nearby existing human and ecological receptors²¹ that may be sensitive to changes in local air quality.
- Review of the indicative trip data provided by the project's Transport Planners for the proposed use.

3.1.2. Impacts scoped in or out of the assessment are given in Table 2.

Table 2 - Impacts Scoped In or Out of the Assessment

Impact	Scoped in or out?	Justification
Construction Phase		
Fugitive dust emissions from construction activities affecting amenity.	In	With reference to assessment screening criteria in IAQM Construction Dust Guidance ^{Error! Bookmark not defined.} , there are sensitive human receptors within 250m of construction activities and within 50m of the routes to be used by construction vehicles on the public highway, up to 250m from the Application Site entrance. The determination of the risk of dust impacts from the Proposed Development will guide the identification of proposed mitigation measures proportionate to the identified risk. Dust risk beyond 250m of construction activities is expected to be negligible and any effects deemed insignificant.
Emissions of NO _x , PM ₁₀ and PM _{2.5} from non-road mobile machinery (NRMM) affecting local air quality at existing receptors.	Out	As operation of NRMM will be limited to working hours and where required within the Application Site, the exhaust emissions are unlikely to have a substantial impact on pollutant concentrations at receptors. In line with paragraph 7.30 of LAQM.TG(22) ¹⁸ , a quantitative assessment of this impact has been scoped out.
Emissions of NO _x , PM ₁₀ and PM _{2.5} from construction traffic affecting	Out	Given the size of the Proposed Development, it is anticipated that the change in traffic flows

²¹ Defra (2025). Multi-Agency Geographic Information for the Countryside' (MAGIC) [online]. Available at: <https://magic.defra.gov.uk/> [Accessed July 2025]

Impact	Scoped in or out?	Justification
local air quality at existing human and ecological receptors.		during the construction phase do not exceed the EPUK/IAQM guidance ²⁰ indicative scoping criteria for air quality assessment. Therefore, a quantitative dispersion modelling assessment has been scoped out
Operational Phase		
Emissions of NO _x from combustion plant on local air quality.	Out	The Proposed Development does not include any combustion plant within the design.
Emissions of NO _x , PM ₁₀ and PM _{2.5} from operational traffic affecting local air quality at existing and future human receptors.	Out	The WSP Transport Consultants have confirmed that there will be minimal traffic associated with the operation of the Proposed Development and the predicted change in traffic flows during the operation phase will not exceed the EPUK/IAQM guidance ²⁰ indicative scoping criteria for air quality assessment. Baseline concentrations are well below the relevant objectives and therefore the Site is considered suitable for residential use. Any additional assessment of the operational phase has been scoped out.

3.2. METHODOLOGY

BASELINE DATA COLLECTION

3.2.1. The following information has been used to define baseline conditions at the Application Site:

- Wiltshire Council's ASR²²;
- Environment Agency's Public Registers: Installation Permits;
- National forecasts for background pollutant concentrations published by Defra; and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website²³ for locations of statutory designated sites including SSSI, Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar sites, National Nature Reserves (NNR) and Local Nature Reserves (LNR) and Ancient Woodland (AW).

CONSTRUCTION PHASE

Dust and Particulate Emissions from On-site Construction Activities

3.2.2. A qualitative assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust and PM₁₀ during the construction phase has been undertaken using: the

²² [Air quality annual reports - Wiltshire Council](#) Accessed December 2025

²³ Natural England (2024) MAGIC [online]. Available at: <https://magic.defra.gov.uk/> [Accessed November 2025].

relevant assessment methodology published by the IAQM; the available information for this phase of the Proposed Development provided by the Client and Project Team; and professional judgement.

- 3.2.3. Dust comprises particles typically in the size range 1-75 micrometres (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. The larger dust particles fall out of the atmosphere quickly after initial release and therefore tend to be deposited in proximity to the source of emission. Dust is therefore unlikely to cause long-term or widespread changes to local air quality; however, its deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints through amenity loss or perceived damage caused, which is usually temporary.
- 3.2.4. The smaller particles of dust (less than $10\mu\text{m}$ in aerodynamic diameter) are known as particulate matter (PM_{10}) and represent only a small proportion of total dust released; this includes a finer fraction, known as $\text{PM}_{2.5}$ (with an aerodynamic diameter less than $2.5\mu\text{m}$). As these particles are at the smaller end of the size range for dust particles they remain suspended in the atmosphere for longer periods of time than the larger dust particles and can therefore be transported by wind over a wider area. PM_{10} and $\text{PM}_{2.5}$ are small enough to be drawn into the lungs during breathing, which in sensitive members of the public could have a potential impact on health. However, it is worth noting that, according to the IAQM guidance, the majority of fugitive particulate emissions arising from construction sites are expected to relate to the coarser fractions (i.e. $\text{PM}_{2.5-10}$) with approximately 10%, on average, comprising $\text{PM}_{2.5}$. The IAQM guidance therefore focusses on PM_{10} for the purposes of assessment.
- 3.2.5. The IAQM methodology assesses the risk of potential dust and PM_{10} impacts from the following four sources: demolition; earthworks; general construction activities and track-out. It takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the surrounding area to an increase in dust and PM_{10} levels to assign a level of risk. Risks are described in terms of there being a low, medium or high risk of dust impacts. Once the level of risk has been ascertained, then site specific mitigation proportionate to the level of risk is identified, and the significance of residual effects determined.
- 3.2.6. The IAQM assessment is undertaken where there are:
- 'Human receptors' within 250m of the site boundary, or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s); and/or
 - 'Ecological receptors' within 50m of the site boundary, or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).
- 3.2.7. It is within these distances that the impacts of dust soiling and increased particulate matter in the ambient air will have the greatest impact on local air quality at sensitive receptors.
- 3.2.8. Human receptors have been identified within 250m of the site boundary and have therefore been considered within the assessment. However, there are no relevant ecologically designated sites, therefore ecological receptors have not been considered in the assessment.
- 3.2.9. A summary of the IAQM assessment methodology is provided in Appendix B.
- 3.2.10. The IAQM assessment methodology recommends that significance criteria are only assigned to the identified risk of dust impacts occurring from a construction activity with appropriate mitigation measure in place. For almost all construction activities, the application of effective mitigation should

prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible.

3.3. LIMITATIONS AND ASSUMPTIONS

- 3.3.1. Detailed construction traffic data was not available at the time of the assessment, therefore, the impact from construction traffic is assessed based on professional judgement.
- 3.3.2. The baseline information that has been collected and used in the assessment has been based on the most up to date information currently available in the public domain.
- 3.3.3. The dust risk assessment relies on assumptions made about vehicle numbers on paved and/or unpaved roads during the construction. Professional judgement was used where information was unavailable.

4. BASELINE CONDITIONS

4.1. REVIEW AND ASSESSMENT OF AIR QUALITY

- 4.1.1. Wiltshire Council is responsible for Local Air Quality Management and periodically reviews and assesses the status of air quality within its area. Wiltshire Council publicly reports on this annually in its ASR²². Wiltshire Council currently has eight Air Quality Management Areas declared for exceedances of the annual mean NO₂ objective. However, these are all over 10km from the Application Site and the Proposed Development is unlikely to have an impact on the air quality within the AQMAs.

4.2. LOCAL EMISSIONS SOURCES

- 4.2.1. The Site is located within the northern section of the Bulford Camp. The main source of pollutants in the area will be emissions from vehicles using the onsite roads. There are no industrial processes surrounding the Application Site.

4.3. LOCAL AUTHORITY AIR QUALITY MONITORING DATA

- 4.3.1. Wiltshire Council undertakes monitoring of NO₂, PM₁₀ and PM_{2.5} using a combination of automatic continuous analysers and passive diffusion tubes. There are no monitoring sites within the vicinity of the Application Site. NO₂ monitoring results from diffusion tubes considered to represent similar conditions to those expected at the Site are provided in Table 3.

Table 3 - NO₂ Monitoring Data, Diffusion Tube Sites

Site ID	Site Name	Site Type	Annual Mean NO ₂ Concentration (µg/m ³)*				
			2020	2021	2022	2023	2024
19	Rowde Mead	Urban Background	8.5	8.8	9.5	8.3	7.8
38	Chapmanslade	Roadside	-	-	-	-	11.0
63	12 West Street, Wilton	Roadside	21.0	22.4	21.8	19.4	17.7

*Data taken from annual monitoring reports available at: [Air quality annual reports - Wiltshire Council](#) Accessed December 2025.

- 4.3.2. Table 3 illustrates that measured NO₂ concentrations have been well below the annual mean objective of 40µg/m³ in all years presented. Concentrations across the Site are expected to be low as the Site is away from any major roads.

4.4. BACKGROUND AIR QUALITY

- 4.4.1. Table 4 presents the background pollutant concentrations for NO₂, PM₁₀ and PM_{2.5} relevant to the Application Site in 2025.

Table 4 - Defra Background Concentrations

Grid Coordinate		Annual Mean Background Concentrations for 2025 ($\mu\text{g}/\text{m}^3$)		
x	y	NO ₂	PM ₁₀	PM _{2.5}
418500	144500	5.0	10.6	6.3

- 4.4.2. Table 4 shows that all annual mean background concentrations are below the relevant annual mean air quality objectives. Also, the annual mean background PM_{2.5} concentration is compliant with both the interim target concentration of 12 $\mu\text{g}/\text{m}^3$, and the stricter target of 10 $\mu\text{g}/\text{m}^3$ to be achieved by 2040.

4.5. SUMMARY

- 4.5.1. The Site is located in an area where air quality is mainly influenced by emissions from road transport on the local network.
- 4.5.2. A review of air quality monitoring data recorded at similar locations to the Application Site shows that all concentrations are below the relevant air quality objectives.

5. ASSESSMENT OF IMPACTS

5.1. CONSTRUCTION PHASE

DUST AND PM₁₀ FROM ON-SITE ACTIVITIES

- 5.1.1. Construction activities that have the potential to generate and/or re-suspend dust and PM₁₀ include:
- Site clearance and preparation including demolition activities;
 - Preparation of temporary access/egress to the Site and haulage routes;
 - Earthworks: This includes excavation and soil movement;
 - Materials handling, storage, stockpiling, spillage and disposal;
 - Movement of vehicles and construction traffic within the Site;
 - Use of crushing and screening equipment/plant;
 - Exhaust emissions from site plant, especially when used at the extremes of their capacity and during mechanical breakdown;
 - Construction of buildings, roads and areas of hardstanding alongside fabrication processes;
 - Internal and external finishing and refurbishment; and
 - Landscaping: Site landscaping after construction completion can also generate dust.
- 5.1.2. The majority of the releases are likely to occur during the 'working week' (Monday to Friday and half day Saturday). However, for some potential release sources (e.g. exposed soil produced from significant earthwork activities) in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

ASSESSMENT OF POTENTIAL DUST EMISSION MAGNITUDE

- 5.1.3. The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM₁₀ sources: earthworks; construction; and trackout. There is no requirement for demolition activities. The findings of the assessment are presented below.

Earthworks

Earthworks including excavation, haulage, tipping and stockpiling are likely at locations across the Application Site. The total Application Site area is around 12,000m². The underlying soil is loamy²⁴ and so particles could easily be mobilised into the air when exposed to the wind or disturbed by on-site activities. Taking into account the size of the Application Site the potential dust emission magnitude resulting from the earthworks is estimated to be **small**.

Construction

- 5.1.4. Information on the total volume of buildings to be constructed is currently unavailable. The total new build volume is estimated to be less than 12,000m³ to include the construction of 6-8 brick dwellings
-

²⁴ Cranfield University (2023) *Soilscapes Map*. [online] Available from: <https://www.landis.org.uk/soilscapes/#> [Accessed: November 2025].

and associated infrastructure with potentially dusty construction materials like bricks and block materials being used. The potential dust emission magnitude is classed as **small** for construction activities.

Trackout

- 5.1.5. Information on the number of HDVs associated with this phase of the Proposed Development is not available and therefore professional judgement has been used. It is assumed that there will be less than 20 HDV (>3.5t) outward movements in any one day. The unpaved road length within the Application Site is likely to be less than 50m. Therefore, the potential dust emission magnitude is classed as **small** for trackout.
- 5.1.6. Table 5 provides a summary of the potential dust emission magnitude determined for each construction activity considered.

Table 5 - Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Small
Construction Activities	Small
Trackout	Small

Assessment of Sensitivity of the Study Area

- 5.1.7. A wind rose using 2024 meteorological data from the Yeovilton meteorological site is provided in Appendix C. This shows that the prevailing wind direction is from the south and west. Therefore, receptors located to the north and east of the Site are more likely to be affected by dust and particulate matter emitted and re-suspended during the construction phase.
- 5.1.8. Under low wind speed conditions, it is likely that most of the dust would be deposited in the area immediately surrounding the source. There are existing residential dwellings directly to the north of the Site, all within 80m of the site boundary, 4 of these dwellings are within 20m. Therefore, a high sensitivity has been assigned to increased dust deposition and for those receptors along routes for the trackout.
- 5.1.9. The Salisbury Plain SPA, SAC and SSSI is located approximately 100m north of the Application Site and therefore is not likely to be impacted by construction activities occurring at the Application Site. Salisbury Plain is, however, within 50m of roads to be used by construction vehicles and therefore the sensitivity of the area has been defined as high for trackout.
- 5.1.10. Current background PM₁₀ concentrations (see Table 4) are well below 24µg/m³ and therefore the overall sensitivity of the surrounding area to changes in PM₁₀ concentrations is classed as 'low'.
- 5.1.11. Taking the above into account and following the IAQM assessment methodology, the sensitivity of the area, including along routes for trackout, to changes in dust and PM₁₀ has been derived for each of the construction activities considered. The results are shown in Table 6.

Table 6 - Sensitivity of the Study Area

Potential Impact	Sensitivity of the Surrounding Area		
	Earthworks	Construction	Trackout
Dust Soiling	High	High	High
Human Health	Low	Low	Low
Ecological	N/A	N/A	High

Risk of Impacts

- 5.1.12. The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. Table 7 below provides a summary of the risk of dust impacts for the Proposed Development. The risk category identified for each construction activity has been used to determine the level of mitigation required.

Table 7 - Summary Dust Risk Table to Define Site Specific Mitigation

Potential Impact	Risk		
	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Low Risk	Low Risk
Human Health	Negligible	Negligible	Negligible
Ecological	N/A	N/A	Low Risk

6. MITIGATION AND RESIDUAL EFFECTS

6.1. CONSTRUCTION PHASE

MITIGATION

- 6.1.1. Based on the assessment results, mitigation will be required. Recommended mitigation measures are given below. These measures should be incorporated in a Construction and Environmental Management Plan (CEMP) and implemented by the appointed contractor for the duration of the works.

General Communication

- A stakeholder communications plan that includes community engagement before work commences on Site should be developed and implemented.
- The name and contact details of person(s) accountable for air quality and dust issues should be displayed on the Site boundary. This may be the environment manager/engineer or the Site manager. The head or regional office contact information should also be displayed.

General Dust Management

- A Dust Management Plan (DMP), which may include measures to control other emissions, in addition to the dust and PM₁₀ mitigation measures given in this report, should be developed and implemented, and approved by Wiltshire Council. The DMP may include a requirement for monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.

Site Management

- All dust and air quality complaints should be recorded, and causes identified. Appropriate remedial action should be taken in a timely manner with a record kept of actions taken including of any additional measures put in-place to avoid reoccurrence.
- The complaints log should be made available to Wiltshire Council on request.
- Any exceptional incidents that cause dust and/or air emissions, either on- or offsite should be recorded, and then the action taken to resolve the situation recorded in the logbook.
- Off-site fabrication, or cutting to size, shall be employed to avoid cutting materials on site whenever possible.

Monitoring

- Daily on-site and off-site inspections should be undertaken, where receptors (including roads) are nearby to monitor dust. The inspection results should be recorded and made available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Application Site boundary, with cleaning to be provided if necessary.
- Regular Site inspections to monitor compliance with the DMP should be carried out, inspection results recorded, and an inspection log made available to the local authority when asked.
- The frequency of Site inspections should be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

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 practicable, with wind direction taken into consideration.
- Where practicable, erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on Site.
- Where practicable, 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 appropriately.
- Where practicable, cover, seed or fence stockpiles to prevent wind whipping.
- Dusty material and activities should be dampened down in dry weather.

Operating vehicle/machinery and sustainable travel

- Ensure all vehicle operators switch off 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.
- A Construction Logistics Plan or Construction Traffic Management Plan should be produced to manage the sustainable delivery of goods and materials.
- A Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) should be considered.

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.
- Rubber chutes should be used and drop heights minimised.
- Use enclosed 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.
- The site should be regularly inspected for spillages of dry spillage. 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

- No bonfires or burning of any material is permitted on-site.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas or soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Where practicable, only remove the cover in small areas during work and 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.
- 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.
- All construction plant and equipment should be maintained in good working order and not left running when not in use.

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 in frequent use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving Site 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 Application Site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the Application Site exit, wherever the Application Site size and layout permits.
- Access gates to be located at least 10m from receptors where possible

- 6.1.2. Detailed mitigation measures to control construction traffic should be discussed with Wiltshire Council to establish the most suitable access and haul routes for the Site traffic. The most effective mitigation will be achieved by ensuring that construction traffic does not pass along sensitive roads (residential roads, congested roads, via unsuitable junctions, etc.) where possible, and that vehicles are kept clean (through the use of wheel washers, etc.) and sheeted when on public highways. Timing of large-scale vehicle movements to avoid peak hours on the local road network will also be beneficial.

RESIDUAL EFFECTS

- 6.1.3. The residual impacts of dust and PM₁₀ generated by construction activities, following the application of the mitigation measures described above and good site practice, are classed as **negligible**.
- 6.1.4. The residual effects of emissions to air from construction phase activities on local air quality are therefore **not significant**.

7. SUMMARY AND CONCLUSIONS

- 7.1.1. An air quality assessment has been undertaken to support the planning application for the proposed Service Family Accommodation (SFA) at Bulford, Sling Road. The main source of pollution in the area is road traffic, baseline air quality in the area is considered to be very good and close to background levels which are well below the relevant AQS air quality objectives.
- 7.1.2. The proposals include the construction of 8 SFA houses to support the strategy to renew the estate at the Bulford Barracks site.
- 7.1.3. To inform the assessment, a desk study of publicly available information has been undertaken to establish the prevailing baseline air quality conditions at the Application Site and in the surrounding area. This identified that the Application Site is in an area where the primary influence on air quality is vehicle emissions from traffic using the local road network. No other significant air pollutant sources have been identified.
- 7.1.4. For the construction phase, a qualitative assessment using the IAQM Construction Dust Guidance methodology identified a low risk of dust soiling and a negligible risk to human health due to increased particulate matter concentrations from construction activities. There is considered to be a Low Risk of dust soiling impacts on the nearby ecologically designated sites during trackout only. However, the impact of dust, PM₁₀ and PM_{2.5} emissions can be significantly reduced through good site practices and the implementation of mitigation measures. The residual effects of dust, PM₁₀ and PM_{2.5} generated by construction activities on air quality will therefore be not significant
- 7.1.5. Furthermore, it is considered that the development proposals comply with relevant Wiltshire Council policies for air quality.

Appendix A

GLOSSARY

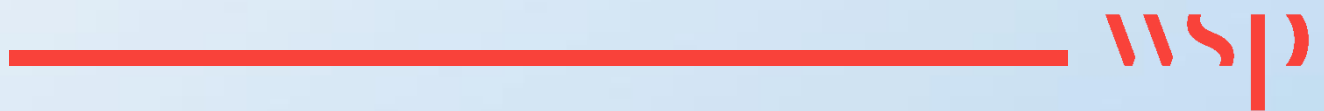
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Term	Definition
Annual Average Daily Traffic (AADT)	A daily total traffic flow (24 hrs), expressed as a mean daily flow across all 365 days of the year.
Air quality objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air quality standard (AQS)	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Ambient air	Outdoor air in the troposphere, excluding workplace air.
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
Defra	Department for Environment, Food and Rural Affairs.
Dust	Dust comprises particles typically in the size range 1-75 micrometres (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials
DMP	Dust Management Plan
EPUK	Environmental Protection United Kingdom
Exceedance	A period of time where the concentration of a pollutant is greater than the appropriate air quality standard.
Fugitive emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.
HDV	Heavy-Duty Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management.
LDV	Light-Duty Vehicle.
NO ₂	Nitrogen dioxide.
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.

Term	Definition
Trackout	The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.
$\mu\text{g}/\text{m}^3$	A measure of concentration in terms of mass per unit volume. A concentration of $1\mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Appendix B

IAQM CONSTRUCTION ASSESSMENT METHODOLOGY



STEP 1 – SCREENING THE NEED FOR A DETAILED ASSESSMENT

An assessment will normally be required where there are:

‘Human receptors’ within 250m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and/or ‘Ecological receptors’ within 50m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is “negligible”, and any effects will not be significant

STEP 2A – DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

The following are examples of how the potential dust emission magnitude for different activities can be defined. (Note that not all the criteria need to be met for a particular class). Other criteria may be used if justified in the assessment.

Table 2A: Definitions of Dust Emission Magnitudes

Dust Emission Magnitude	Activity
Large	Demolition >75,000m ³ building demolished, dusty construction material (e.g. concrete), on-site crushing/screening, demolition activities >12m above ground level.
	Earthworks >110,000m ² site area, dusty soil type (e.g. clay), >10 heavy earth moving vehicles active simultaneously, >6m high bunds formed.
	Construction >75,000m ³ building volume, on site concrete batching, sandblasting
	Trackout >50 HDVs out / day, dusty surface material (e.g. clay), >100m unpaved roads
Medium	Demolition 12,000m ³ – 75,000m ³ building demolished, dusty construction material (e.g. concrete), demolition activities 6-12m above ground level.
	Earthworks 18,000m ² – 110,000m ² site area, moderately dusty soil (e.g. silt), 5-10 heavy earth moving vehicles active simultaneously, 3m - 6m high bunds.

Dust Emission Magnitude	Activity
Small	Construction 12,000 m ³ – 75,000m ³ building volume, dusty construction material (e.g. concrete), on site concrete batching
	Trackout 20 - 50 HDVs out / day, moderately dusty surface material (e.g. clay), 50 -100m unpaved roads
	Demolition <12,000m ³ building demolished, non-dusty material (e.g metal cladding or timber), demolition activities <6m above ground level, demolition during wetter months
	Earthworks <18,000m ² site area, soil with large grain size (e.g. sand), <5 heavy earth moving vehicles active simultaneously, <3m high bunds.
	Construction <12,000m ³ , non-dusty material (e.g. metal cladding or timber)
	Trackout <20 HDVs out / day, non-dusty soil, < 50m unpaved roads

STEP 2B – DEFINE THE SENSITIVITY OF THE AREA

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to dust soiling, human health and ecological impacts respectively. The IAQM guidance provides guidance to allow the sensitivity of individual receptors to dust soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

Table 2Ba: Sensitivity of the Area to Dust Soiling Effects

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 2Bb: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM10 Concentration (µg/m3)	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low

	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table 2Bc: Sensitivity of the Area to Ecological Impacts

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

STEP 2C – DEFINE THE RISK OF IMPACTS

The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

Table 2C: Risk of Dust Impacts

Sensitivity of surrounding 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 and 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

STEP 3 –SITE SPECIFIC MITIGATION

Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is considered to be a low, medium or high-risk site. The IAQM guidance details the mitigation measures required for high, medium and low risk sites as determined in Step 2C.

STEP 4 – DETERMINE SIGNIFICANT EFFECTS

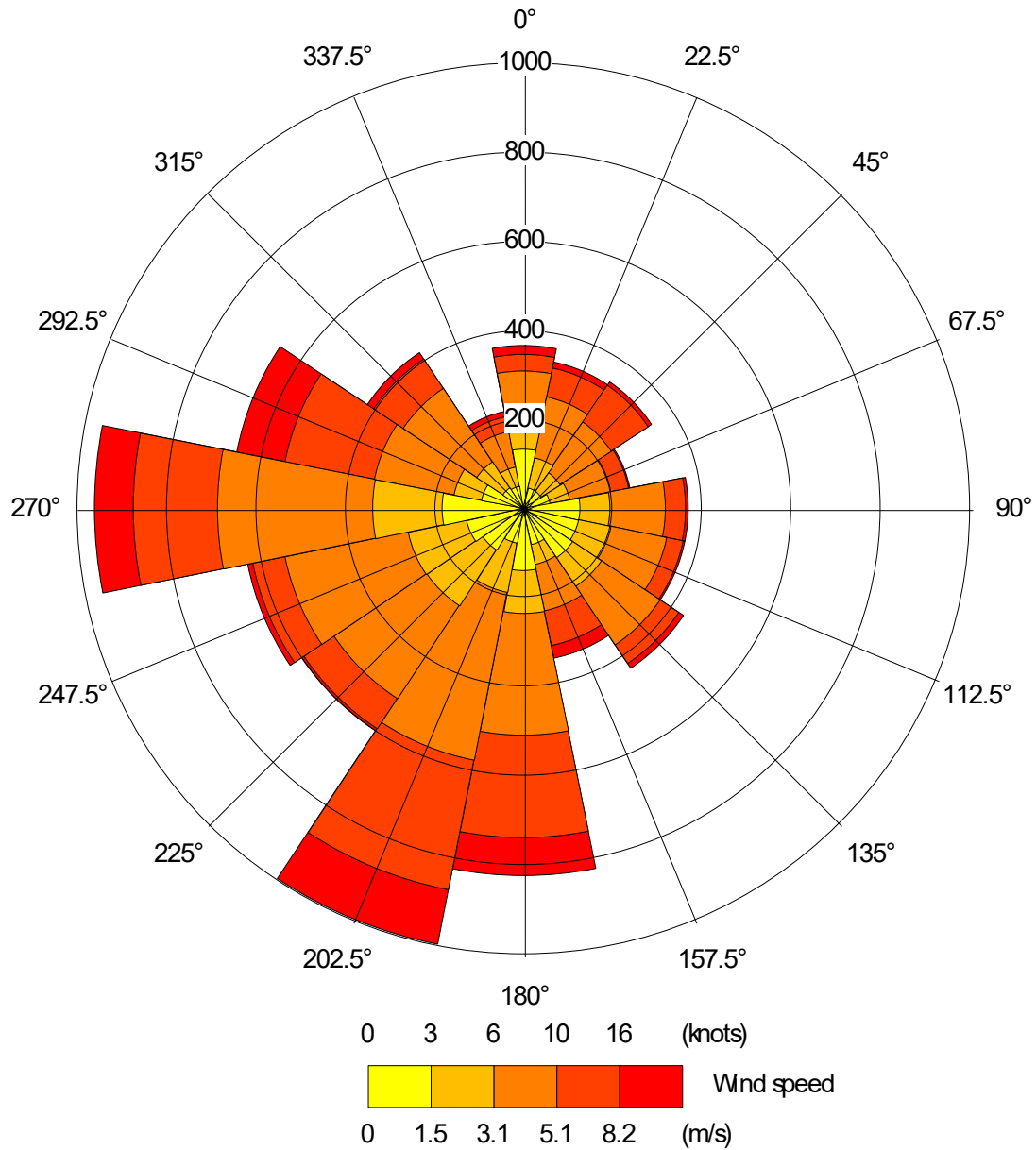
Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible.

Appendix C

WIND ROSE



WIND ROSE FOR YEOVILTON (2024)





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