



EG On The Move Ltd

Markfield Services, Little Shaw Lane, Markfield

Air Quality Assessment

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1.0 INTRODUCTION

1.1 Appointment and Context

Dragonfly Consulting has been instructed by EG On The Move Ltd to undertake an Air Quality Assessment for the proposed commercial development, located at the former 'Moto Markfield Services', situated off Little Shaw Lane in Markfield (the 'Site').

It is proposed to construct a commercial development at the Site, which includes a petrol filling station (PFS) and two (2no.) drive-thru units, each with associated car parking facilities, including twelve (12no.) Electric Vehicle (EV) Charging Bays. Vehicle Site access will be from the A511 Little Shaw Lane to the north, with egress from Cliffe Lane to the southeast.

The Site is located in a mixed use commercial and residential area within the administrative jurisdiction of Hinckley and Bosworth Borough Council (HBBC).

With regard to nearby sensitive receptors, the closest residential dwellings are located to the north of the Site boundary. Therefore, consideration will need to be given to the potential impacts arising during the construction phase. Furthermore, the development has the potential to generate additional vehicle movements on the adjacent local road network and therefore, the trip generation of the scheme and associated distribution will therefore need to be reviewed to determine the potential impact at the closest sensitive receptors during the operational phase.

1.2 Scope of Assessment

This report assesses the potential air quality impacts associated with the proposed development, through considering existing baseline air quality conditions across, and in the vicinity of, the Site and determining its suitability for the proposed commercial end-use. Potential sources of emissions are identified and assessed in the context of existing air quality and emission sources and the nature and location of existing sensitive receptors. The assessment has concentrated on NO₂ and particulate matter with an aerodynamic diameter of less than 10µm and 2.5µm (PM₁₀ and PM_{2.5}), the pollutants most associated with traffic emissions and which can affect local amenity.

The assessment of air quality impacts associated with the construction phase activities has been undertaken in accordance with the Institute of Air Quality Management (IAQM) '*Guidance on the assessment of dust from demolition and construction*'¹ document, to determine the potential risk of dust soiling, human health and ecological impacts, where appropriate, at the closest sensitive receptors. The potential impacts of the operational phase traffic associated with the scheme have then been considered in accordance with the Environmental Protection UK (EPUK) and IAQM '*Land-Use Planning and Development Control: Planning for Air Quality*' guidance document², local air quality guidance, and the baseline air quality assessment undertaken, to inform the suitability of the Site for the proposed development.

Based on the results of the assessment, the most appropriate mitigation measures have been recommended.

A glossary of key air quality terminology is provided in Appendix A. The Site map and surrounding area is presented in Appendix B.

¹ IAQM (2024) Guidance on the assessment of dust from demolition and construction, Version 2.2, January 2024.

² IAQM (2017) Land-use Planning and Development Control: Planning for Air Quality, January 2017.

2.0 SITE DESCRIPTION

2.1 Existing Site Use

The Site is the former 'Moto Markfield Services', situated off Little Shaw Lane, west of the M1 motorway and south of the A511 Little Shaw Lane in Markfield.

The former 'Moto Markfield Services' included fast-food establishments and a petrol filling station (PFS), which are now permanently closed. Within the Site boundary, there is also a Travelodge Hotel to the southwest, which is still in active use and will remain as part of the new roadside services development. The Site is bound by the following:

- Greenfield land to the south and west of the Site;
- A511 Little Shaw Lane directly to the north with residential dwellings further afield;
- Cliffe Lane to the east, with Junction 22 of the M1 motorway further afield;
- A paintballing facility to the southeast, with a residential dwelling further afield; and
- Old Cliffe Hill Quarry circa 220m to the south of the Site.

The main potential sources of air pollution in the vicinity of the Site were identified as emissions from road transport using the A511 Little Shaw Lane and the wider local road network, including the M1 motorway. There are potential commercial sources identified within the vicinity of the Site that may affect local air quality through associated point source emissions; however, these would be characteristic of the area in which the Site is located.

2.2 Proposed Development

It is proposed to construct a new Motorway Services at the Site comprising a PFS and two (2no.) drive-thru units, each with associated car parking facilities, including twelve (12no.) Electric Vehicle (EV) Charging Bays and associated heavy goods vehicle (HGV) parking bays. Vehicle Site access will be from the A511 Little Shaw Lane to the north, with egress from Cliffe Lane to the southeast.

As the Site was formally a Moto Services, including fast-food establishments and a PFS, the development Site has already existing permitted use for a PFS and HGV access to the Site; however, for the purposes of this assessment, and given the development proposals are introducing further drive-thru units and repositioning the former PFS pumps, the assessment considers this to be a new application to make sure that the changes do not cause adverse impact upon nearby residential amenity.

The Proposed Site Layout Plan is shown in Figure 2.1 overleaf.

[illegible]

3.0 LEGISLATION, POLICY AND GUIDANCE

3.1 Legislation

3.1.1 *European Directive on Ambient Air Quality and Cleaner Air for Europe*

The EU Directive 2008/50/EC³ on ambient air quality and cleaner air for Europe (the CAFE directive) sets out the ambient air quality standards for a number of pollutants and the dates by which these objectives should be met. The Air Quality Standards (Amendment) Regulations 2016 amend the Air Quality Standards Regulations 2010⁴, which implements the requirements of the EU Directive 2008/50/EC into UK legislation. The Directive contains a series of limit values for the protection of human health and critical levels for the protection of vegetation. These limit values are legally binding, and the UK may incur infringement action if it does not meet the required objective limits within the agreed time limits. A recast EU Ambient Air Quality Directive 2024/2881⁵ was adopted by the European Union in October 2024, which supersedes the previous Directive 2008/50/EC and introduces more stringent limits for key pollutants, such as particulate matter (PM_{2.5} and PM₁₀) and nitrogen dioxide (NO₂), to reduce harmful effects on human health and the environment. These updated air quality standards are more closely aligned with the World Health Organisation's (WHO) recommendations, reflecting the latest scientific evidence on the health impacts of air pollution. Whilst the UK is not obligated to implement EU Directive 2024/2881, it may choose to adopt similar standards or draw from it as a benchmark in the future, especially as air quality is a shared concern and the EU's new limits are closely aligned with WHO recommendations, which the UK supports.

3.1.2 *Local Air Quality Management - The Environment Act 1995 and The Environment Act 2021*

Section 82 of the Environment Act 1995 originally required every local authority to conduct a regular review of air quality within the authority's area, determining whether standards are or will be met, identifying zones of non-compliance, designating Air Quality Management Areas (AQMA), and pinpointing responsible emission sources. The Environment Act 1995 was amended by the Environment Act 2021, which significantly enhances this framework by introducing new obligations. Local authorities now face stricter deadlines, declaring an AQMA within one year of identifying exceedances and publishing a corresponding action plan within 18 months. The DEFRA technical guidance, LAQM.TG22⁶, continues with the streamlined approach, whereby every authority must undertake and submit a single Annual Status Report/Annual Progress Report within its area of jurisdiction, to identify whether the air quality objectives (AQOs) have been or will be achieved at relevant locations by the applicable date. If the AQOs are not being met, an AQMA must be declared and an action plan prepared which identifies appropriate mitigation measures.

3.1.3 *Environmental Targets (Fine Particulate Matter) (England) Regulations 2023*

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁷ establish legally binding targets in England to reduce concentrations of fine particulate matter (PM_{2.5}), a key air pollutant harmful to human health and the environment.

³ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

⁴ Air Quality Regulations 2010 - Statutory Instrument 2010 No. 1001.

⁵ Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast).

⁶ Department for Environment, Food & Rural Affairs (DEFRA) (2022) Local Air Quality Management. Technical Guidance (LAQM.TG22).

⁷ Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, 2023 No. 96.

The regulations set two key objectives: achieving an annual mean PM_{2.5} concentration of 10 micrograms per cubic metre or lower by 2040 and reducing population exposure to PM_{2.5} by 35% compared to 2018 levels within the same timeframe, aiming to improve air quality, safeguard public health, and contribute to environmental sustainability. DEFRA are developing guidance for applicants and Planning Authorities in England to demonstrate that they have appropriately considered the PM_{2.5} targets when making planning applications and planning decisions. The new approach moves away from a requirement to assess solely whether a scheme is likely to lead to an exceedance of a legal limit and instead ensures that appropriate mitigation measures are implemented from the design stage, streamlining the process for planning and ensuring the minimum amount of pollution is emitted and that exposure is minimised.

Pending publication of the new guidance, applicants are advised to provide evidence in their planning applications that they have identified key sources of air pollution and taken appropriate action to minimise emissions of PM_{2.5} as far as is reasonably practicable. Key site considerations and mitigation measures and addressed within this report.

3.2 Policy

3.2.1 National Planning Policy

National Planning Policy Framework (2025)

The National Planning Policy Framework (NPPF)⁸ sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. It requires Local Plans to be consistent with the principles and policies set out in the NPPF with the objective of contributing to the achievement of sustainable development.

The NPPF states that the planning system has three overarching objectives in achieving sustainable development including a requirement 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.'* Under Section 15: Conserving and Enhancing the Natural Environment, the NPPF (paragraph 187) requires that *'planning policies and decisions should contribute to and enhance the natural and local environment by ...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible help to improve local environmental conditions such as air and water quality.'*

The NPPF (paragraph 110) states that *'Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health.'* Furthermore, 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.'*

⁸ Ministry of Housing, Communities and Local Government: National Planning Policy Framework, February 2025.

In dealing specifically with air quality (paragraph 199), the NPPF also states that '*planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan*'. Paragraph 201 states that '*the focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively*'.

National Planning Practice Guidance - Air Quality (2019)

The National Planning Practice Guidance (NPPG) document for Air Quality⁹ provides tailored guidance on how planning can take account of the potential impact of new development on air quality. The document provides useful sources of information relating to the assessment of air quality, outlines when an Air Quality Assessment is likely to be required for planning purposes and provides an example of how such reports should be structured. With regard to mitigation measures, these are development specific, however, the guidance does provide a useful suite of typical measures that can be incorporated into the scheme's design to have a beneficial impact on air quality.

The Air Quality Strategy for England (2023)

The Air Quality Strategy for England (2023)¹⁰, is a strategic framework for local authorities and other partners and supersedes the Air Quality Strategy: Volume 1 in England only. This document sets out the actions that DEFRA expects local authorities to take in support of the long-term air quality targets. The Air Quality Strategy (AQS) sets standards and objectives for ten main air pollutants to protect health, vegetation, and ecosystems. The air quality standards are long-term benchmarks for ambient pollutant concentrations which represent negligible or zero risk to health, based on medical and scientific evidence reviewed by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO). These are general concentration limits, above which sensitive members of the public (e.g. children, the elderly and the unwell) might experience adverse health effects.

The air quality objectives (AQOs) are medium-term policy-based targets set by the Government which consider economic efficiency, practicability, technical feasibility and timescale. For some pollutants there is both a long-term (annual mean) standard and a short-term standard. In the case of NO₂, the short-term standard is for a 1-hour averaging period, whereas for PM₁₀ it is for a 24-hour averaging period. These reflect the varying impacts on health of differing exposures to pollutants (e.g. temporary exposure on the pavement adjacent to a busy road, compared with the exposure of residential properties adjacent to a road). Concentrations of nitrogen dioxide (NO₂), oxides of nitrogen (NO_x) and particulate matter (PM₁₀, PM_{2.5}) are particularly relevant to this project as these are the primary pollutants associated with vehicle emissions, the main source of pollutants in the vicinity of the Site.

⁹ Ministry of Housing, Communities and Local Government (2019) National Planning Practice Guidance - Air Quality, November 2019.

¹⁰ The Air Quality Strategy for England, August 2023.

In relation to PM_{2.5} the 2019 Clean Air Strategy¹¹ includes a commitment to set '*new, ambitious, long-term targets to reduce people's exposure to PM_{2.5}*' which the Environment Act 2021¹² commits the Secretary of State to setting. The Clean Air Strategy sets out policies to lower national emissions of pollutants to reduce background pollution and human exposure. It aims to create a strong framework to tackle air pollution and to reduce the number of people living in locations with PM_{2.5} concentrations exceeding 10µg/m³ by 50% by 2025. As discussed in LAQM.TG22 issued by DEFRA, local authorities are expected to work towards reducing PM_{2.5} in their area, setting this out as the current objectives within England for PM_{2.5}. Historically, limit values were established via the EU Directive with both a Stage 1 and Stage 2 limit value identified. For the purposes of this assessment the Stage 2 limit value for PM_{2.5} (as provided in Table 3.1) is considered to be appropriate to use for assessing impacts of development proposals. The current statutory standards and objectives for NO₂, PM₁₀ and PM_{2.5} in relation to human health, including those set under The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁷, are set out in Table 3.1 below.

Table 3.1
Relevant Air Quality Objectives

Pollutant	Concentrations	Measured As	Date to be Achieved By (and maintained thereafter)
Nitrogen Dioxide (NO ₂).	200 µg/m ³ not to be exceeded more than 18 times per year. 40 µg/m ³ .	1 hour mean. Annual mean.	31 st December 2005.
Particulate Matter (PM ₁₀).	50 µg/m ³ not to be exceeded more than 35 times per year. 40 µg/m ³ .	24-hour mean. Annual mean.	31 st December 2004.
Particulate Matter (PM _{2.5}).	20 µg/m ³ .	Annual mean.	1 st January 2020.
Particulate Matter (PM _{2.5}) Exposure Reduction.	Target of 15% reduction in concentrations at urban background.	Annual mean.	Between 2010 and 2020.
Particles (PM _{2.5}) (Population Exposure Reduction Target) ⁷ .	Target of 35% reduction in population exposure compared with the average population exposure baseline period (2016 - 2018).	Population exposure reduction.	31 st December 2040.
Particles (PM _{2.5}) (Annual Mean Concentration Target) ⁷ .	10 µg/m ³ not to be exceeded at any relevant monitoring station.	Annual mean.	31 st December 2040.

The statutory standards and objectives apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within LAQM.TG22 issued by DEFRA for Local Authorities on where the objectives apply, as detailed in Table 3.2 overleaf. The objectives do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (i.e. centre of roadways).

¹¹ Department for Environment, Food & Rural Affairs (DEFRA) (2019) Clean Air Strategy. London: HMSO.

¹² Secretary of State, The Environment Act 2021 HMSO.

Table 3.2
Locations Where Air Quality Objectives Apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care home etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-Hour Mean	All locations where the annual mean objective would apply together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside Sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend 1-hour or more. Any outdoor locations where the public might reasonably be expected to spend 1-hour or longer.	Kerbside sites where the public would not be expected to have regular access.

3.2.2 Local Planning Policy

Hinckley and Bosworth Local Plan 2020-2039 - Consultation Draft Plan Regulation 18 (2021)

Hinckley and Bosworth Borough Council (HBBC) are undergoing the process of developing a new Local Plan¹³ which will set out land allocations and planning policies for future development in the borough for 2020-2039. The Plan contains draft policies on various planning matters which are currently being reviewed through the consultation process. Whilst not adopted, a review of this document has identified the following policies that are relevant to this assessment:

'PMD01 High Quality Design

[...]

Development will be supported where it positively takes into consideration the adopted Hinckley & Bosworth Good Design Guide (SPD), the National Design Guide and National Model Design Code, any Design Guide contained in a made Neighbourhood Plan, and any other relevant national design guidance.

¹³ Hinckley and Bosworth Borough Council (2021) Hinckley and Bosworth Local Plan 2020-2039 - Consultation Draft Plan Regulation 18, June 2021.

Development will be supported where the following requirements are met:

[...]

b) The amenity and privacy of nearby residents are not adversely affected, including by matters of lighting, air quality, odour, noise, vibration and visual intrusion; [...]

'PMD03 Preventing Pollution

Adverse impacts from pollution will be prevented by ensuring that development proposals demonstrate that:

[...]

f) It will not adversely impact air quality; [...]

Local Development Framework Core Strategy (2009)

Until the Hinckley and Bosworth Local Plan 2020-2039 is adopted, the Core Strategy¹⁴ remains the key Development Plan Document for the borough, which sets out the overarching strategy and core policies to guide development of the borough up to 2026. However, a review of this document has identified no policies directly relevant to this assessment.

3.3 Air Quality Guidance Documents

3.3.1 DEFRA Technical Guidance, LAQM.TG22

LAQM.TG22⁶ sets out detailed guidance on how air quality should be assessed and monitored by local authorities. The document provides useful guidance on how air quality from specific sources should be screened and the approaches that should be used to undertake detailed assessment where potentially significant emissions are identified, including details on model verification and consideration of monitoring data for use in assessments.

Of particular relevance to this assessment, Table 7-3 of the guidance outlines the screening criteria for the assessment of petrol stations, which includes reviewing the petrol throughout, proximity to sensitive receptors and proximity to a busy road network, to determine whether detailed dispersion modelling is required to assess for benzene (C₆H₆). These criteria have been reviewed within this assessment.

3.3.2 IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024)

Guidance¹ produced by the IAQM on assessing impacts from construction and demolition activities includes a methodology for identifying the risk magnitude of potential dust sources associated with demolition, construction, earthworks and trackout. This is then used to identify the level of mitigation necessary in order for the impacts to be not significant.

3.3.3 IAQM Land-Use Planning and Development Control: Planning for Air Quality (2017)

The IAQM and EPUK have published joint guidance² on the assessment of air quality impacts for planning purposes. This includes information on when an air quality assessment is required, what should be included in an assessment and criteria for assessing the significance of any impacts.

¹⁴ Hinckley and Bosworth Borough Council (2009) Local Development Framework Core Strategy, December 2009.

Of relevance to this assessment, the criteria for determining whether an Air Quality Assessment is required relates to the scale of the development and the associated number of new trips generated by the scheme, that then has the potential to cause additional road traffic emissions on the local road network.

3.3.4 *Hinckley & Bosworth Borough Council - 2025 Air Quality Annual Status Report (ASR) (2025)*

Local Air Quality Management involves an annual assessment of local air quality in which an Annual Status Report is required to be submitted to DEFRA. This document, the HBBC 2025 Air Quality Annual Status Report (ASR)¹⁵, provides an overview of air quality in HBBC during 2024 and provides further information on the progress and impact of measures implemented to address air quality. The data within this report have been used to inform this assessment.

¹⁵ Hinckley & Bosworth Borough Council (2025) 2025 Air Quality Annual Status Report (ASR), June 2025.

4.0 METHODOLOGY

4.1 Baseline Assessment

To provide a suitable baseline assessment of air quality across, and in the vicinity of, the Site the following factors were considered:

- Proximity of the Site to any Air Quality Management Areas (AQMAs);
- Review of local emission sources, including nearby road traffic emissions;
- Review of local air quality monitoring data contained within the latest available Air Quality Annual Status Report (ASR) prepared by Hinckley & Bosworth Borough Council (HBBC)¹⁵; and
- Review of the predicted background pollutant concentrations, obtained from DEFRA's UK Air Information Resource (UK-AIR) website¹⁶, using the 2021 based Background Mapping Data for the Local Authority in which the Site is located.

4.2 Construction Phase Assessment

4.2.1 Construction Phase Vehicle Emissions

During the construction phase of the proposed development, heavy goods vehicles (HGVs) will require access to the Site to deliver and remove materials; there is the potential that other non-road mobile machinery (NRM), such as earthmoving plant, may also work on-site including generators and cranes. These machines produce exhaust emissions; of particular concern are emissions of NO₂ and PM₁₀. The IAQM air quality planning guidance sets out criteria to determine when significant effects are likely to occur, and a more detailed assessment of traffic emissions is required. The criteria indicates that significant impacts on air quality are unlikely to occur where a development results in less than 25 HGV movements per day in locations within or adjacent to an AQMA and less than 100 HGV movements outside of an AQMA. The anticipated HGV movements associated with the proposed development were therefore reviewed against the IAQM criteria to inform the assessment approach.

4.2.2 Construction Phase Fugitive Dust Emissions

Construction phase activities associated with the proposed development may result in the generation of fugitive dust emissions (i.e. dust emissions generated by site-specific activities that disperse beyond the construction site boundaries), which if transported beyond the site boundary, can have an adverse impact on local air quality. The IAQM guidance provides information on the assessment of demolition and construction phase impacts. The guidance document considers the potential for dust nuisance and impacts to human health and ecosystems to occur due to activities carried out during the following stages of construction:

- Demolition (removal of existing structures);
- Earthworks (soil-stripping, ground-levelling, excavation and landscaping);
- Construction (activities involved in the provision of a new structure); and
- Trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

¹⁶ DEFRA (undated) UK Air Information Resource - Background Mapping Data for Local Authorities - 2021 [Online] Available at: <https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2021> [Accessed on 04/06/2026].

A qualitative assessment of air quality impacts due to the release of fugitive dust and particulates (PM₁₀) during the construction phase was undertaken in accordance with the methodology detailed in the IAQM guidance. A summary of the IAQM Construction Phase Risk Assessment methodology is provided in Appendix C.

The assessment considers the nature and scale of the activities undertaken for each source and the sensitivity of the area to an increase in dust and PM₁₀ levels, thus enabling a level of risk to be assigned. 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.

4.2.3 Screening Criteria

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 250m from the site entrance(s);
- 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).

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. A review of the Site location was therefore undertaken to identify the number of sensitive receptors located within the screening distances detailed above.

4.2.4 Sensitivity of Receptors

Receptor sensitivity is defined the IAQM guidance as 'Low', 'Medium' and 'High', with further detail on the descriptors for each category provided in Appendix C. For residential dwellings, these would be categorised as 'high sensitivity' and for commercial units, 'medium sensitivity'. The sensitivity of the area is then defined for dust soiling, human health (PM₁₀) and ecological receptors as 'Low', 'Medium' or 'High'. The sensitivity of the area takes into account the following factors:

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

Where there are 'high', 'medium' and 'low' sensitivity receptors located within the relevant screening distance from the site, then the highest level of area sensitivity, determined from the matrices in Appendix C, is used to inform the assessment, as this provides the most robust approach.

4.2.5 Significance Criteria

The IAQM assessment methodology recommends that significance criteria are only assigned to the identified risk of dust impacts occurring from a construction activity following the application of appropriate mitigation measures. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effects will normally be **negligible**.

4.3 Operational Assessment

4.3.1 EPUK/IAQM Screening Criteria

The air quality planning guidance published by EPUK and IAQM² sets out the criteria to be used in identifying whether a Simple or Detailed Air Quality Assessment is required.

Stage 1 Criteria

An Air Quality Assessment is required if any of the Stage 1 criteria apply:

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

Coupled with any of the following:

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

This stage is intended to screen out smaller developments, where impacts can be considered to have insignificant effects. However, it should be noted that consideration should still be given to the potential impacts of neighbouring sources on the site, through an exposure assessment, even if an assessment of impacts of the development on the surrounding area is screened out.

Stage 2 Criteria

The Stage 2 criteria provide more specific guidance as to when a Detailed Air Quality Assessment is likely to be required to assess the impacts of the proposed development on the local area. Of relevance to this assessment, where the following criteria are exceeded, along road links where sensitive human receptors are located, a more detailed assessment may be required:

- An increase in light goods vehicles (LGV) of more than 100 vehicles per day within or adjacent to an AQMA, or an increase of more than 500 annual average daily traffic (AADT) flows per day elsewhere; and
- An increase in HGV of more than 25 vehicles per day within or adjacent to an AQMA, or an increase of more than 100AADT per day elsewhere.

With regard to ecological receptors, the screening criteria for a quantitative assessment is if the development has a daily trip generation exceeding 1,000 new vehicles or 200 heavy duty vehicles (HDVs) and is within 200m of the road source¹⁷. There are no ecological designations within the relevant screening distances and therefore, ecological receptors are not applicable to this development.

Furthermore, should any point source emissions be associated with the development, then these sources should be reviewed to determine whether there is a risk of impacts at relevant receptor locations. A review of the proposals indicates that there will be no point source emissions associated with the development and therefore, this is not applicable to this development.

¹⁷ IAQM (2020) A guide to the assessment of air quality impacts on designated nature conservation sites, Version 1.1, May 2020.

It should be noted that exceeding a screening criterion would not automatically lead to the requirement for a Detailed Assessment. The guidance states:

'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.'

4.3.2 Review of Traffic Data

Trip generation data was prepared by the Project Transport Consultant, Dynamic Transport Planning, for the purposes of this planning application. It is noted within the accompanying Transport Assessment that given the nature of the proposed development and the location of the Site, 20% of the trips would be considered new to the road network, 30% would be considered 'pass-by' trips, 40% would be diverted trips and 10% would be linked trips between the proposed uses at the Site.

For the purposes of the Air Quality Assessment, the distribution of 'new' trips on the local road network are of importance. This was calculated by taking an average of the weekday AM and PM peak periods detailed within 'Traffic Figure 5' of the Transport Assessment and applying these percentages to the number of arrivals and departures accordingly, to provide a suitable representation of traffic flows throughout the day. The number of 'new' trips on each road link in the vicinity of the Site were then assessed against the EPUK/IAQM Stage 2 criteria and considered against the location of sensitive human receptors.

LAQM.TG22 - Petrol Filling Stations

Due to the nature of the proposed development, including a PFS, additional screening criteria are required to be considered in line with the LAQM.TG22 guidance. This document states that petrol stations were previously identified as potential sources of concern, due to potential elevated emissions of C₆H₆, especially if combined with higher levels from nearby busy roads. However, with no AQMA having been declared for this source since 2010 (when the last AQMA for C₆H₆ was revoked), new assessments are now unlikely to be required.

In case of significant changes (new population exposure near the source), further detailed dispersion modelling would be required for C₆H₆ should the proposed PFS meet all the criteria outlined below:

- Petrol throughput >2,000m³ or 2 million litres per year;
- Near a busy road (>30,000 vehicles/day); and
- Exposure within 10m from the pumps.

With regard to the throughput of petrol, whilst the final volume is not confirmed for this Site, this is likely to be comparable to other local PFS sites, which would be in a range of 300-400m³. It is acknowledged by the client that if the PFS exceeds 500m³ of petrol throughout, an environmental permit would be applied for, as required.

The closest road to the Site, the A511 Little Shaw Lane, had an AADT flow of 36,907 (14.17% HDV) in 2025, based on the most recently available count point data presented on the Department for Transport (DfT) website¹⁸ (ref: 6527), which is above the criteria of 30,000 AADT. However, the layout of the Site will result in the closest exposure being >10m from the pumps and therefore, not all of the above criteria have been met for this development.

¹⁸ <https://roadtraffic.dft.gov.uk/count-points/6527>

It should be noted that regardless of the criteria above, if the proposed PFS is fitted with a Stage 2 vapour recovery system no further assessment is required, allowing potential C₆H₆ (benzene) emissions be screened out as being **not significant**. Considering that it is now a mandatory requirement for Stage 1 and Stage 2 vapour recovery systems to be installed at the proposed PFS, this thereby excludes the requirement for detailed dispersion modelling of C₆H₆ (benzene) emissions.

Potential C₆H₆ (benzene) emissions are therefore considered to be **not significant**.

5.0 BASELINE ASSESSMENT

5.1 Introduction

To provide a suitable baseline review of the area in which the Site is located, existing air quality conditions were reviewed, with the findings presented in the sections below.

5.2 Hinckley & Bosworth Borough Council LAQM Review

In accordance with the latest available Air Quality Annual Status Report¹⁵ (ASR) and DEFRA's UK Air Information Resource (AIR) website¹⁹, HBBC has no declared AQMAs within their area of jurisdiction.

5.3 Local Emission Sources

The Site is located in a mixed-use commercial and residential area where the main potential sources of air pollution in the vicinity of the Site were identified as emissions from road transport using the A511 Little Shaw Lane and the wider local road network, including the M1 motorway. There are potential commercial sources identified within the vicinity of the Site that may affect local air quality through associated point source emissions; however, these would be characteristic of the area in which the Site is located.

With regard to road traffic on the adjacent road network, the A511 Little Shaw Lane is adjacent to the Site to the north and is classified as an A-road with an AADT flow of 36,907 (14.17% HDV) in 2025, based on the most recently available count point data presented on the DfT website¹⁸ (ref: 6527). The Site is also located in close proximity to the M1 motorway, with an AADT flow of 110,322 (13.79% HDV) in 2025²⁰. The traffic flow on the local road network is therefore considered to be highly trafficked; however, it is unlikely to contribute significantly to elevated pollutant concentrations away from the roadside within the Site boundary as pollutant concentrations will decrease with distance away from the source.

5.4 Air Quality Monitoring

5.4.1 Automatic Monitoring

HBBC do not undertake any automatic monitoring within their area of jurisdiction.

5.4.2 Non-Automatic Monitoring

HBBC monitored NO₂ concentrations at 16 non-automatic (passive) diffusion tube sites during 2024. Diffusion tubes, due to their relative in-expense, allow for a much greater spatial coverage than automatic monitoring sites. To allow the results to be reliably compared against the AQO, the data should be bias corrected using data collected from diffusion tubes co-located with continuous monitoring sites. Data from the closest diffusion tube monitoring site are set out in Table 5.1 overleaf, having been adjusted by HBBC using the national bias adjustment factor obtained from the DEFRA LAQM website²¹.

¹⁹ <https://uk-air.defra.gov.uk/aqma/list>

²⁰ <https://roadtraffic.dft.gov.uk/count-points/6005>

²¹ <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/>

Table 5.1
Diffusion Tube Annual Mean NO₂ Concentrations (µg/m³)

Site ID	Description	Site Type	Monitoring Year				
			2020	2021	2022	2023	2024
10, 12, 14	6 Shaw Lane	Rural	26.8	28.8	27.1	26.1	24.2

As presented in Table 5.1, there were no exceedances of the annual mean AQO for NO₂ at the closest diffusion tube monitoring location, during any of the most recent monitoring years, with concentrations below the AQO limit of 40µg/m³ at this location.

The diffusion tube located at '6 Shaw Lane' is approximately 0.7km northwest of the Site boundary, and is therefore considered representative of the Site location, also being located in close proximity to the A511 road network.

It should be noted that data for 2020 have been included for consistency purposes only. Due to the prevailing travel restrictions as a result of the COVID-19 pandemic, and the associated changes in travel behaviour, pollutant levels during this year are therefore, not considered to be representative.

With no exceedances recorded at the closest monitoring location, it is considered that pollutant concentrations within the Site boundary would be similar to those presented in Table 5.1. Furthermore, the Site is set back from the road network with proposed buildings located a greater distance from the road than the diffusion tubes themselves, with concentrations of NO₂ known to drop with increasing distance from the roadside.

In accordance with the LAQM.TG22 guidance, with pollutant concentrations below 60µg/m³, it may be assumed that exceedances of the 1-hour mean objective are therefore unlikely. It is therefore considered that there is no predicted risk of the proposed development exposing sensitive receptors to elevated air pollutant concentrations, even when considering any additional traffic generated by the scheme.

5.5 Background Concentrations

In addition to the review of monitored pollutant data in the vicinity of the Site, additional information on estimated background pollutant concentrations at the Site has been obtained from the DEFRA background maps provided on the UK-AIR website¹⁶.

Estimated air pollutant concentrations for oxides of nitrogen (NO_x), NO₂ PM₁₀ and PM_{2.5} have been sourced from the 2021 based background maps for the UK for the current assessment year of 2026 and for a predicted opening year of the proposed development of 2028, to consider future air quality conditions in the vicinity of the Site. These maps are available in 1km x 1km grid squares. The Site is located within grid square NGR: 447500, 311500. Predicted pollutant concentrations for this location are provided in Table 5.2 below.

Table 5.2
Background Air Pollutant Concentrations

OS Grid Reference (X, Y; m)	Pollutant Concentrations for 2026				Pollutant Concentrations for 2028			
	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
447500, 311500	9.8	12.8	14.1	7.3	9.0	11.6	14.0	7.1

As shown in Table 5.2, there were no exceedances of the annual mean AQOs for NO₂, PM₁₀ or PM_{2.5} in 2026 at the Site location, with background concentrations predicted to decrease by 2028. For PM_{2.5}, the predicted background concentration was also below the annual mean PM_{2.5} concentration target of 10µg/m³, implemented at the end of January 2023 under the Environment Act 2021 and in accordance with the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁷.

It is worth noting that the second target within the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁷ is to reduce population exposure to PM_{2.5} by 35% compared to 2018 concentrations, which should be achieved by 2040. To consider this for the Site location, estimated PM_{2.5} pollutant concentrations have been obtained for 2018 and 2040, utilising the 2018 and 2021 based DEFRA background maps for the UK respectively. The data are presented in Table 5.3 below.

Table 5.3
Background PM_{2.5} Concentrations at the Site (µg/m³)

OS Grid Reference: 447500, 311500		
	PM _{2.5} Concentration for 2018	PM _{2.5} Concentration for 2040
PM _{2.5} background concentration	9.9	6.4
35% of 2018 PM _{2.5} concentration		3.5
Target PM _{2.5} concentration for 2040		6.4

As shown in Table 5.3, the target background PM_{2.5} concentration for 2040 for the grid square in which the Site is located, based on a 35% reduction from the 2018 baseline levels, would equate to 6.4µg/m³.

The modelled background concentration across the grid square for 2040 is predicted to meet the 35% reduction target, with 6.4µg/m³ predicted at this location. It is noted, however, that this reduction target is a national-level, population exposure target and is not intended to be applied rigidly to individual developments. The purpose of this regulation is to drive broader national air quality improvements rather than constrain development which does not contribute to a significant increase in emissions.

Furthermore, the predicted background PM_{2.5} concentration at the Site in 2040 remains below the statutory PM_{2.5} concentration limit of 10µg/m³ set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. Concentrations are also forecast to continue declining over time, reflecting ongoing national and regional emissions reductions. This information is provided for completeness, rather than because it is directly relevant to the assessment of this planning application.

It should be noted that DEFRA state on the UK AIR website¹⁶ that only the most recent mapped data should be used for new air quality assessments whilst older data can continue to be used for research.

Based on the data presented above, there is no predicted risk of the proposed development exposing future Site users to elevated air pollutant concentrations, even when considering reasonable additional road traffic emission contributions.

5.6 Site Suitability

The proposed development will not introduce any new sensitive receptors (i.e. residential, educational or health receptors). Due to the transient nature of users of the Site the annual mean and 24-hour objective limits do not apply. However, the short-term objective limits such as the 1-hour NO₂ objective are considered relevant to the Site. Exposure at the Site should therefore be considered in relation to the 1-hour NO₂ objective but not in relation to the PM objective limits.

Guidance set out in LAQM.TG22 indicates that where annual mean NO₂ concentrations exceed 60µg/m³ there is a risk that the 1-hour objective is also being exceeded. The monitoring data presented in Table 5.1 and background data presented in Table 5.2, indicates that annual mean concentrations of NO₂ in the area are well below 60µg/m³. It is therefore considered that pollutant concentrations at the Site are likely to be below 60µg/m³. Short-term NO₂ concentrations at the Site are therefore expected to be meeting the 1-hour objective limit for this pollutant.

For PM₁₀, the short-term objective of 50µg/m³ should not be exceeded more than 35 times per year. As presented in Table 5.2, predicted background concentrations of PM₁₀ were significantly below 50µg/m³ and therefore, even when considering any road traffic emission contribution, short-term concentrations are expected to meet the short-term AQO at the Site.

There is no short-term AQO for PM_{2.5}, and therefore, these concentrations are compared against the AQO for PM₁₀. Based on this, there is no predicted risk of exceedance for PM_{2.5} at the Site.

It is therefore considered that the proposed development will not introduce future occupants into a location of poor air quality, and as such, the impact of the proposals in terms of new exposure is therefore considered to be **negligible**.

6.0 ASSESSMENT OF IMPACTS

6.1 Construction Phase Assessment

6.1.1 Construction Phase Vehicle Emissions

During the construction phase of the proposed development, HGVs will require access to the Site to deliver and remove materials; there is the potential that other mobile machinery, such as earthmoving plant, may also work on-site including generators and cranes. These machines produce exhaust emissions; of particular concern are emissions of NO₂ and PM₁₀.

Based on the development proposals, it is anticipated that there would be no more than 100 HDV generated on any one road link on any given day during the construction phase, based on the Site being located outside of an AQMA. It is therefore anticipated that construction traffic generated by the proposed development would result in a **negligible** impact on local NO₂ and PM₁₀ concentrations and therefore, has not been considered any further in this assessment.

6.1.2 Construction Phase Fugitive Dust Emissions

Site and Surroundings

Step 1 - Screen the Need for a Detailed Assessment

A review of the Site location has identified the closest residential receptors located to the north and south of the Site, within 250m of the red line boundary. There is also an existing Travelodge within the Site boundary that will also require consideration. An assessment of construction related impacts in relation to human receptors has therefore been undertaken.

A review of the DEFRA MAGIC website²² has identified no ecological designations located within the relevant screening distance and therefore, this element of the assessment is not considered further in this report. It is therefore concluded that, the level of risk for ecological receptors is **negligible**.

Meteorological Data

The precise behaviour of the dust, its residence time in the atmosphere, and the distance it may travel before being deposited would depend upon a number of factors. These include wind direction and strength, local topography, and the presence of intervening structures (buildings, etc.) that may intercept dust before it reaches sensitive locations. Furthermore, dust would be naturally suppressed by rainfall. To consider the prevailing conditions at the Site, a review of historical weather data has been undertaken. The closest and most representative observation station with a suitable dataset is East Midlands Airport, located approximately 15.2km to the north of the Site. It is anticipated that meteorological conditions would be reasonably similar over a distance of this magnitude. Meteorological data were obtained for the period 1st January 2016 to 31st December 2025 (inclusive), and reference should be made to Appendix D for a wind rose of these data. A review of the wind rose has shown that any receptors located to the northeast through to the east of the Site have the greatest potential to be affected by dust and particulate matter emitted and re-suspended during the construction phase, as a result of the prevailing wind direction. However, under low wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source.

²² DEFRA (2025) MAGIC [Online] Available at: <https://magic.defra.gov.uk/MagicMap.html> [Accessed on 04/06/2025].

Risk Assessment of Dust Impacts

Step 2A - Defining the Potential Dust Emission Magnitude

With reference to the criteria detailed in Appendix C, the dust emission magnitude has been determined for each of the following categories: demolition, earthworks, construction and trackout, and adopts a robust approach. Based on the guidance criteria, these are summarised in Table 6.1.

Table 6.1
Dust Emission Magnitude

Activity	Criteria	Dust Emission Magnitude
Demolition	Whilst the volume of buildings to be demolished is <12,000m ³ , the existing structures comprise predominantly masonry and concrete materials with a high potential for dust generation, with demolition activities likely to be 6-12m above ground level.	Medium
Earthworks	Total Site area is between 18,000m ² and 110,000m ² .	Medium
Construction	The total volume of buildings to be constructed is <12,000m ³ , using construction material with a low dust potential (e.g. metal cladding or timber).	Small
Trackout	The unpaved road length within the Site boundary is <50m.	Small

Step 2B - Defining the Sensitivity of Surrounding Area

Using the criteria set out in Tables C2 to C4 in Appendix C, the sensitivity of the surrounding area to impacts from dust emissions has been determined and are set out in Table 6.2.

Dust Soiling

Following a review of the Site location, there is >1 commercial building (medium sensitivity) located within 20m of the Site boundary, with the existing Travelodge being located within the Site boundary. The closest residential receptors are located within 250m of the Site boundary. Therefore, to inform a robust assessment, given the proximity of the existing **medium sensitivity** receptor, the overall sensitivity of the surrounding area is considered to be **medium**.

Human Health Effects

As discussed in Section 5, the PM₁₀ concentrations taken from the DEFRA background maps, for the Site location, are predicted to be below the relevant AQO. The data in Table 5.2 indicates background concentrations <15µg/m³ and based on professional judgment, it is anticipated that PM₁₀ concentrations at the Site are unlikely to be much higher than background. This is because PM₁₀ concentrations are generally more spatially uniform than traffic-related pollutants such as NO₂, and mapped background levels are considered to provide a reliable representation of site conditions. In the absence of any significant local emission sources, it is therefore reasonable to conclude, based on professional judgment, that concentrations at the Site will not be materially higher than the background levels. Therefore, PM₁₀ concentrations are expected to be below 24µg/m³. The sensitivity of the area is therefore considered to be **low** for human health impacts.

Table 6.2
Sensitivity of Receptors

Potential Impact		Sensitivity at Site
Dust Soiling	Receptor Sensitivity	Medium
	Number of Receptors	>1 commercial receptor within 20m
	Sensitivity of the area	Medium
Human Health	Receptor Sensitivity	Medium
	Annual mean PM ₁₀ Concentrations	<24µg/m ³
	Number of Receptors	>1 commercial receptor within 20m
	Sensitivity of the area	Low

Step 2C - Defining the Risk of Impacts

The dust emission magnitude as set out in Table 6.1 is combined with the sensitivity of the area (Table 6.2) to determine the risk of both dust soiling and human health impacts, assuming no mitigation measures applied at Site. The risk of impacts associated with each activity is provided in Table 6.3 below.

Table 6.3
Summary of Effects Without Mitigation

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

Step 3 - Site Specific Mitigation

Table 6.3 indicates that the potential risk of dust soiling is **medium** for demolition and earthworks, and **low** for construction and trackout activities. The potential risk of human health impacts is **low** for demolition and earthworks, and **negligible** for construction and trackout activities.

The potential for dust soiling and human health impacts depends significantly on the distance between the dust generating activities and the receptor location. However, to inform a worst-case scenario, the maximum dust risk defined in Table 6.3 (**medium risk**) can be used to inform the required site-specific mitigation measures, which are set out in Appendix E. It is noted that not all mitigation measures will be applicable to every site and development, or across every stage of the construction process; however, all of those recommended by the IAQM have been provided for completeness. Professional judgement should therefore be used, taking into consideration the site location, scale and nature of the proposed works. Based on the IAQM guidance, where the risk is assigned as negligible, no mitigation measures beyond those required by legislation are required.

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 of a proposed development. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Following the application of all recommended best practice mitigation measures, the residual effect is likely to be **not significant**.

6.2 Operational Phase

6.2.1 Review of Traffic Data - Road Vehicle Exhaust Emissions

The total number of trips generated by the proposed development is predicted to be 5,256 AADT, with 16% HGV movements. The breakdown of these trips is shown in Table 6.4 below.

Table 6.4
Total Trip Generation

	AADT		Total AADT
	Arrival	Departure	
New (20%)	526	526	1,051
Pass-by (30%)	788	788	1,577
Diverted (40%)	1,051	1,051	2,102
Linked (10%)	263	263	526

In accordance with the guidance published by the IAQM and EPUK², screening of potential air quality effects has been undertaken based on the change in traffic flows on the surrounding road network.

This guidance indicates that a detailed assessment should normally be considered where changes in traffic flows exceed 500 AADT outside an AQMA, and it is recognised that consideration of potential exposure is required where sensitive receptors are located within approximately 20m of the affected road link.

The predicted distribution of new trips on the surrounding road network is presented in Table 6.5 below.

Table 6.5
New Trip Generation

Road Link	Total AADT of New Trips*
A511 Little Shaw Lane, West of Site Access	132
A511 Little Shaw Lane, East of Site Access	658
M1 North	300
A50	342
M1 South	116
Cliffe Lane (North of Site Egress)	526

* Exceedances of the EPUK/IAQM criteria of 500AADT are marked in **bold**.

Based on the average trip distribution applied to each road link in the vicinity of the Site, there are two road links that exceed the 500 AADT screening threshold: 'A511 Little Shaw Lane, East of Site Access' and 'Cliffe Lane (North of Site Egress)'. However, there are no sensitive receptors located within approximately 20m of these road links.

For the 'A511 Little Shaw Lane, East of Site Access', this is a dual carriageway and therefore, the 132 AADT travelling from the west to access the Site are required to utilise the roundabout junction and then travel back on the westbound carriageway of the A511 Little Shaw Lane to access the Site. The closest residential receptors are located approximately 80m north of the A511 Little Shaw Lane, and therefore, exceeding the applicable screening distance criteria.

In addition, the existing traffic flows along the A511 Little Shaw Lane were 36,907 (14.17% HDV) in 2025, meaning that the predicted increase of 658 AADT along this road link represents approximately a 1.8% increase in total traffic flow, which is not considered sufficient to materially affect local pollutant concentrations. Furthermore, the development traffic represents a small proportion of the total traffic using the nearby junction and therefore it is not expected to materially influence junction operation, vehicle queuing or associated emissions.

With regard to Cliffe Lane, the exceedance of 500 AADT applies to the section of the road north of the Site egress accessing the roundabout junction. Whilst there are sensitive receptors located to the south off Cliffe Lane, these will not be exposed to the emissions from additional vehicles in excess of the applicable criteria.

As such, impacts on local air quality across the local road network are concluded as being **negligible**, with further detailed assessment having been scoped out of the assessment.

Based on professional judgement and taking into account local monitoring showing NO₂ concentrations meeting the relevant AQOs at representative locations, the operational impact of the development is deemed to be **negligible**.

6.2.2 Baseline Assessment and Local Air Quality Context

As detailed within Section 5.0, there is one diffusion tube monitoring location situated in the vicinity of the Site near the A511 Little Shaw Lane, as detailed within the latest available Air Quality ASR. Monitoring data from 2024 indicate that the recorded bias adjusted annual mean NO₂ concentration at this locations was 24.2µg/m³, which is below 75% of the relevant AQO of 40µg/m³.

It should be noted that this concentration was recorded at a location positioned close to the kerbside and therefore represents a conservative indication of pollutant concentrations adjacent to the road network. Sensitive receptors, such as residential dwellings, are generally set back further from the carriageway and would therefore be expected to experience lower pollutant concentrations than those measured at the roadside monitoring location.

In accordance with the impact descriptors presented within the IAQM/EPUK guidance², a 'moderate' and 'significant' air quality impact at a receptor location would typically require a change in pollutant concentration of greater than 10% of the Air Quality Assessment Level where baseline concentrations are 75% or less of the AQO.

Therefore, given the relatively low baseline concentrations recorded at the nearby monitoring location, together with the small increase in traffic flows predicted on the road links closest to the sensitive receptors, it is considered unlikely that the proposed development would result in a change in pollutant concentrations approaching this magnitude.

Therefore, the proposed development is not expected to result in a significant deterioration in local air quality, and the operational phase impacts are considered to be **negligible**. The development is also unlikely to materially influence vehicle queuing or traffic conditions at the nearby junction. Therefore, further detailed dispersion modelling has been scoped out of the assessment.

7.0 MITIGATION

7.1 Construction Phase

The control of dust emissions from construction phase site activities relies upon management provisions and mitigation techniques to reduce emissions of dust and limit dispersion. Where dust emission controls have been used effectively, large-scale operations have been successfully undertaken without impacts to nearby properties.

The potential risk of dust soiling is **medium** for demolition and earthworks, and **low** for construction and trackout activities. The potential risk of human health impacts is **low** for demolition and earthworks, and **negligible** for construction and trackout activities. The developer should therefore implement appropriate dust and pollution control measures as set out within the IAQM guidance. A summary of the IAQM mitigation measures is set out in Appendix E.

The proposed measures should be set out within an accompanying Construction Environmental Management Plan (CEMP) and approved by the Local Authority prior to commencement of any work on-site. Following the implementation of the recommended mitigation measures, the impact of emissions, including PM_{2.5}, during the construction phase of the proposed development would be **negligible**.

It is noted that not all mitigation measures will be applicable to every site and development, or across every stage of the construction process; however, all of those recommended by the IAQM have been provided for completeness. Professional judgement should therefore be used, taking into consideration the site location, scale and nature of the proposed works.

7.2 Operational Phase

The assessment has shown that the operational phase of the development would have a **negligible** impact on local air quality and therefore, will not expose nearby sensitive receptors to elevated pollutant concentrations.

However, with regard to mitigation measures, these are required to satisfy national and local planning policy. For example, a key theme of the NPPF is that developments should enable future Site users to make *'green vehicle choices'* and *'ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles'*. Therefore, as a minimum requirement, a new development scheme should include the provision of electric vehicle charging infrastructure. Therefore, to comply with this, and Building Regulations (Approved Document S), 12no. electric vehicle charging points will be installed at the Site.

The Site is also located in a sustainable location, within walking distance to the bus stops along the A511 Little Shaw Lane.

It is also noted that the layout of the Site will allow for the inclusion of landscaping around the Site boundary, which will comprise grassland, tree planting, hedgerow and shrubs, in addition to retaining some of the existing trees and shrubs. This allows for a greater distance for dispersion of pollutants from the associated road traffic emissions within the Site, thereby reducing potential exposure to PM_{2.5} from road traffic emissions for nearby receptors. This all has the potential to reduce pollutant concentrations within the Site boundary through natural air infiltration. These are beneficial mitigation measures and are referenced as good mitigation examples in the NPPG.

7.3 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁷ require applicants to provide evidence in their planning applications that they have considered potential exposure to PM_{2.5} when selecting their Site location and detail the actions and/or mitigations that have been considered to reduce PM_{2.5} exposure for development users and nearby receptors, as far as is reasonably practicable. A review of the Site location and planning application documents has therefore been undertaken, with the required evidence detailed in the sections below to address the requirements of the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

7.3.1 Site Location, Layout and Proximity to Pollution Sources

The Site is situated adjacent to the A511 Little Shaw Lane in a mixed-use commercial and residential area. The Site is the former 'Moto Markfield Services', and therefore, the development does not represent a change in the area's character or sensitivity. With regard to nearby high sensitivity receptors, the closest residential properties are located to the north and south of the Site boundary, exceeding 100m in distance.

With regard the layout of the Site, the proposed buildings and car parking areas are set back from the main road with soft landscaping and trees proposed to define the boundaries of the Site, defining the highway separation and Site boundary and which would have potential to absorb dust and other pollutants. This allows for a greater distance for dispersion of pollutants from the associated road traffic emission, thereby reducing potential exposure to PM_{2.5} from road traffic emissions for both occupants of the Site and the nearby receptors.

Whilst there are some commercial sources identified within the vicinity of the Site that may affect local air quality conditions, as shown in Table 5.2, background concentrations at the Site location were below the relevant AQOs and target value for PM_{2.5}.

This assessment has therefore considered potential transport emissions, any existing commercial activity, and other PM_{2.5} sources that may impact future Site users, with no significant impacts resulting from the scheme.

7.3.2 Background Air Quality

Background air quality data from DEFRA indicate that existing PM_{2.5} concentration for the Site is 7.2µg/m³, which is below the 10µg/m³ target set by the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. This is predicted to decrease further in future years. There is, therefore, no risk of the proposed development exposing users of the Site to elevated levels of pollution. The Site is in a good location, with regard to exposure to pollutant concentrations.

7.3.3 Exposure and Emissions During Both Construction and In-Use

A Construction Phase Risk Assessment has been undertaken in accordance with the IAQM guidance, which considered all identified risks that could lead to short-term elevated PM_{2.5} concentrations; these included: site clearance, earthworks, material handling and vehicle movements. The assessment indicates that the potential risk of dust soiling is **medium** for demolition and earthworks, and **low** for construction and trackout activities. The potential risk of human health impacts is **low** for demolition and earthworks, and **negligible** for construction and trackout activities. Relevant mitigation measures are detailed in Appendix E.

With regard to nearby high sensitivity receptors, the closest residential properties are located to the north and south of the Site boundary, at distances exceeding 100m. There is an existing Travelodge within the Site boundary, however, that has been considered within this assessment. It is acknowledged that during the construction phase of the development, there may be temporary dust impacts at these locations, subject to prevailing wind direction, and therefore, appropriate mitigation measures will be implemented throughout this period, as detailed in any accompanying Construction Environmental Management Plan (CEMP). This will be followed to make sure that the operations are in compliance with best practices for PM_{2.5} mitigation. Within this, construction-phase dust suppression measures (e.g., water sprays, wheel washing, dust barriers) will be implemented, where applicable or required. Furthermore, low emission non-road mobile machinery (NRMM) is recommended to be used during construction, which comply with Stage V emission standards to reduce diesel-related PM_{2.5}.

7.3.4 Sustainable Transport Initiatives

During the operational phase, the primary emission sources associated with the proposed development will be from road traffic; however, sustainable travel methods are being promoted through the scheme design, which include the provision of 12no. EV charging points and secure cycle storage, to support a reduction in transport-related PM_{2.5} emissions in the long term. The Site is also located in a sustainable location for its employees and users of the Site, within walking distance to bus stops located along the A511 Little Shaw Lane.

7.3.5 Green Infrastructure

With regard the layout of the Site, the proposed buildings and car parking areas are set back from the main road with soft landscaping and trees proposed to define the boundaries of the Site, with further details provided in the accompanying Landscape Management Plan. This will define the highway separation and Site boundary and will have potential to absorb dust and other pollutants. This allows for a greater distance for dispersion of pollutants from the associated road traffic emission, thereby reducing potential exposure to PM_{2.5} from road traffic emissions for both occupants of the Site and the nearby receptors. This all has the potential to reduce concentrations of PM_{2.5} within the Site boundary through natural air infiltration. These are beneficial mitigation measures and are referenced as good examples in the NPPG. The Site is therefore considered to be of a good basic design with regard to minimising air quality impacts, making the Site suitable for the development proposals.

7.3.6 Summary

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 require there to be a 35% reduction in population exposure to PM_{2.5} by 2040, compared to 2018 concentrations. Table 5.3 indicates that this target is likely to be met, with the concentrations also meeting the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 of 10µg/m³ with pollutant concentrations predicted to continue to decrease over time. The proposed development is considered to contribute to this target through incorporation of the above measures, which have been included in the intrinsic design of the scheme.

This scheme has been designed to reduce the ingress of pollution and includes a suitable stand-off distance and vegetation boundary between the development and neighbouring receptors. Therefore, when considering the evidence detailed in the sections above, the Site is considered to be in a good location and of a good design with regard to air quality impacts, making it suitable for the development proposals, and will minimise the impact of air quality on nearby receptor locations.

8.0 CONCLUSIONS

Dragonfly Consulting has been instructed by EG On The Move Ltd to undertake an Air Quality Assessment for the proposed commercial development, located at the former 'Moto Markfield Services', situated off Little Shaw Lane in Markfield. It is proposed to construct a commercial development at the Site, which includes a PFS and two drive-thru units, each with associated car parking facilities, including twelve (12no.) EV Charging Bays. Vehicle Site access will be from A511 Little Shaw Lane to the north, with egress from Cliffe Lane to the southeast.

The IAQM guidance has been used to inform the qualitative assessment of the potential impacts on local air quality from construction phase activities at the Site, with the results used to determine the level of mitigation required at the Site to reduce dust emissions and associated impacts.

Due to the proximity and number of nearby sensitive receptors, the potential risk of dust soiling is **medium** for demolition and earthworks, and **low** for construction and trackout activities. The potential risk of human health impacts is **low** for demolition and earthworks, and **negligible** for construction and trackout activities. However, through good site practice and the implementation of the recommended, appropriate mitigation measures, the effects of dust and PM₁₀ associated with the construction phase of the proposed development are considered to be **not significant**.

The baseline air quality assessment has predicted a **negligible** impact in terms of exposure to NO₂, PM₁₀ and PM_{2.5} concentrations. Furthermore, the proposed development would not generate new operational trips in excess of the EPUK/IAQM criteria once distributed onto the local road network where sensitive receptors are located, and therefore, the impact of the development on local air quality is considered to be **negligible**.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 require applicants to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of PM_{2.5} and its precursors as far as is reasonably practicable. Details have therefore been provided of the beneficial mitigation measures which have been included in the intrinsic design of the scheme and will be in operation during use of the development.

Based on the above, air quality does not pose a constraint to the development of the Site and the proposals meet the requirements of both national and local air quality planning policy.

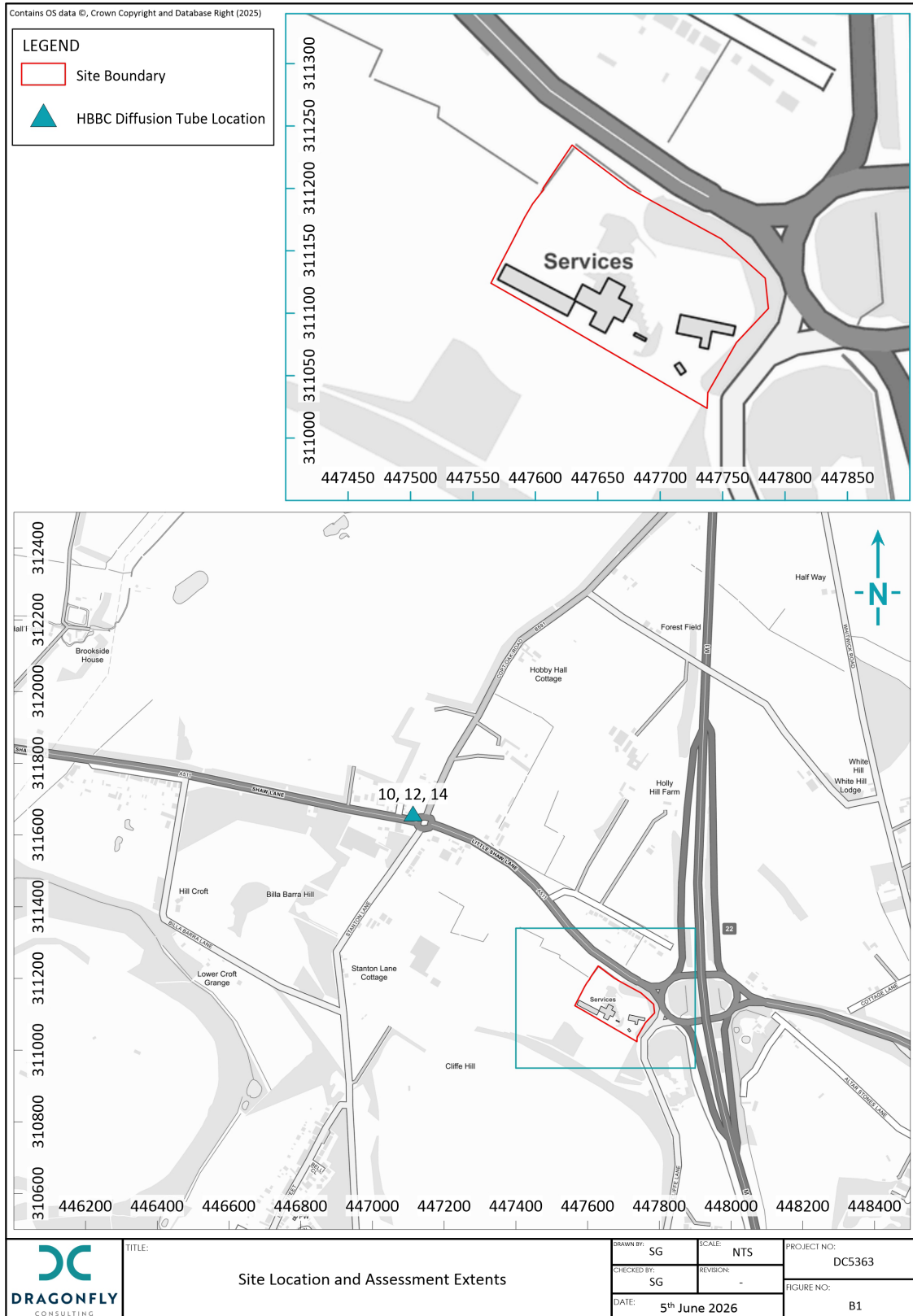
The Site is considered to be of a good design with regard to air quality impacts, making the Site suitable for the development proposals.

Appendix A - Glossary of Terminology

Term	Definition
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	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. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
AQMA	Air Quality Management Area.
C ₆ H ₆	Benzene.
DEFRA	Department for Environment, Food and Rural Affairs.
DfT	Department for Transport.
EV	Electric Vehicle.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
Fugitive emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.
HBBC	Hinckley and Bosworth Borough Council.
LAQM	Local Air Quality Management.
NO	Nitrogen monoxide, a.k.a. nitric oxide.
NO ₂	Nitrogen dioxide.
NO _x	Nitrogen oxides.
O ₃	Ozone.
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.
µgm ⁻³ micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m ³ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Appendix B - Site Location and Assessment Extents

Figure B1
Site Location and Assessment Extents



Appendix C - IAQM Construction Phase Dust Risk Assessment Methodology

In order to assess the potential impacts, the activities on construction sites are divided into four categories. These are:

- demolition (removal of existing structures);
- earthworks (soil-stripping, ground-levelling, excavation and landscaping);
- construction (activities involved in the provision of a new structure); and
- trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

For each activity, the risk of dust annoyance, health and ecological impact is determined using three risk categories: low, medium and high risk. The risk category may be different for each of the four activities. The risk magnitude identified for each of the construction activities is then compared to the number of sensitive receptors in the near vicinity of the site to determine the risks posed by the construction activities to these receptors.

Step 1 - Screen the Need for a Detailed Assessment

The first step is to screen the requirement for a more detailed assessment. An assessment is required where there is:

- a 'human receptor' within 250m of the boundary of the site or 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and/or
- an 'ecological receptor' within 50m of the boundary of the site; or 50m of the route(s) used by the construction vehicles on the public highway, up to 250m from the site entrance(s).

Step 2A - Define the Potential Dust Emission Magnitude

This is based on the scale of the anticipated works and the proximity of nearby receptors. The risk is classified as small, medium or large for each of the four categories.

Demolition: The potential dust emission classes for demolition are:

- Large: Total building volume $>75,000\text{m}^3$, potentially dusty construction material (e.g. Concrete), on site crushing and screening, demolition activities $>12\text{m}$ above ground level;
- Medium: total building volume $12,000\text{m}^3$ - $75,000\text{m}^3$, potentially dusty construction material, demolition activities 6-12m above ground level; and
- Small: total building volume $<12,000\text{m}^3$, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities $<6\text{m}$ above ground, demolition during wetter months.

Earthworks: This involves excavating material, haulage, tipping and stockpiling. The potential dust emission classes for earthworks are:

- Large: Total site area $>110,000\text{m}^2$, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds $>6\text{m}$ in height;

- Medium: Total site area 18,000 m² - 110,000m², moderately dusty soil (e.g. silt), 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height; and
- Small: Total site area <18,000m², soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3m in height.

Construction: The important issues here when determining the potential dust emission magnitude include the size of the building(s)/infrastructure, method of construction, construction materials, and duration of build. The categories are:

- Large: Total building volume >75,000m³, on site concrete batching, sandblasting;
- Medium: Total building volume 12,000m³ - 75,000m³, potentially dusty construction material (e.g. concrete), on site concrete batching; and
- Small: Total building volume <12,000m³, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout: The risk of impacts occurring during trackout is predominantly dependent on the number of vehicles accessing the Site on a daily basis. However, vehicle size and speed, the duration of activities and local geology are also factors which are used to determine the emission class of the Site as a result of trackout. The categories are:

- Large: >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m;
- Medium: 20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content, unpaved road length 50-100m; and
- Small: <20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

Step 2B - Define the Sensitivity of the Area

The sensitivity of the area is defined for dust soiling, human health (PM₁₀) and ecological receptors. The sensitivity of the area takes into account the following factors:

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

Table C1 is used to define the sensitivity of different types of receptors to dust soiling, health effects and ecological effects.

Based on the sensitivities assigned to the different receptors surrounding the site and numbers of receptors within certain distances of the site, a sensitivity classification can be defined for each. Tables C2 to C4 indicate the criteria used to determine the sensitivity of the area to dust soiling, human health and ecological impacts.

Table C1
Examples of Factors Defining Sensitivity of an Area

Sensitivity of Area	Dust Soiling	Human Receptors	Ecological Receptors
High	Users can reasonably expect enjoyment of a high level of amenity. The appearance, aesthetics or value of their property would be diminished by soiling. 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. E.g. dwellings, museums and other important collections, medium and long term car parks and car showrooms.	10 - 100 dwellings within 20 m of site. Local PM₁₀ concentrations close to the objective (e.g. annual mean 36-40 µg/m³). E.g. residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling. Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red List for Great Britain. E.g. A Special Area of Conservation (SAC).
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. The appearance, aesthetics or value of their property could be diminished by soiling. 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. E.g. parks and places of work.	Less than 10 receptors within 20m. Local PM₁₀ concentrations below the objective (e.g. annual mean 30-36 µg/m³). E.g. office and shop workers but will generally not include workers occupationally exposed to PM₁₀ as protection is covered by the Health and Safety at Work legislation.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. Locations with a national designation where the features may be affected by dust deposition E.g. A Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	The enjoyment of amenity would not reasonably be expected. Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. 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. E.g. playing fields, farmland unless commercially sensitive horticultural, footpaths, short lived car parks and roads.	Locations where human exposure is transient. No receptors within 20m. Local PM₁₀ concentrations well below the objectives (less than 75%). E.g. public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. E.g. Local Nature Reserve with dust sensitive features.

Table C2
Sensitivity of the Area to Dust Soiling 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 C3
Sensitivity of the Area to Human Health

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

Table C4
Sensitivity of the Area to Ecological Impacts

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

Step 2C - Define the Risk of Impacts

The final step is to combine the dust emission magnitude determined in step 2A with the sensitivity of the area determined in step 2B to determine the risk of impacts with no mitigation applied. Tables C5 to C8 indicate the method used to assign the level of risk for each construction activity. The identified level of risk is then used to determine measures for inclusion within a site-specific Construction Environmental Management Plan (CEMP) aimed at reducing dust emissions and hence reducing the impact of the construction phase on nearby receptors. The mitigation measures are drawn from detailed mitigation set out within the IAQM guidance document.

Table C5
Risk of Dust Impacts from Demolition

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table C6
Risk of Dust Impacts from Earthworks

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table C7
Risk of Dust Impacts from Construction

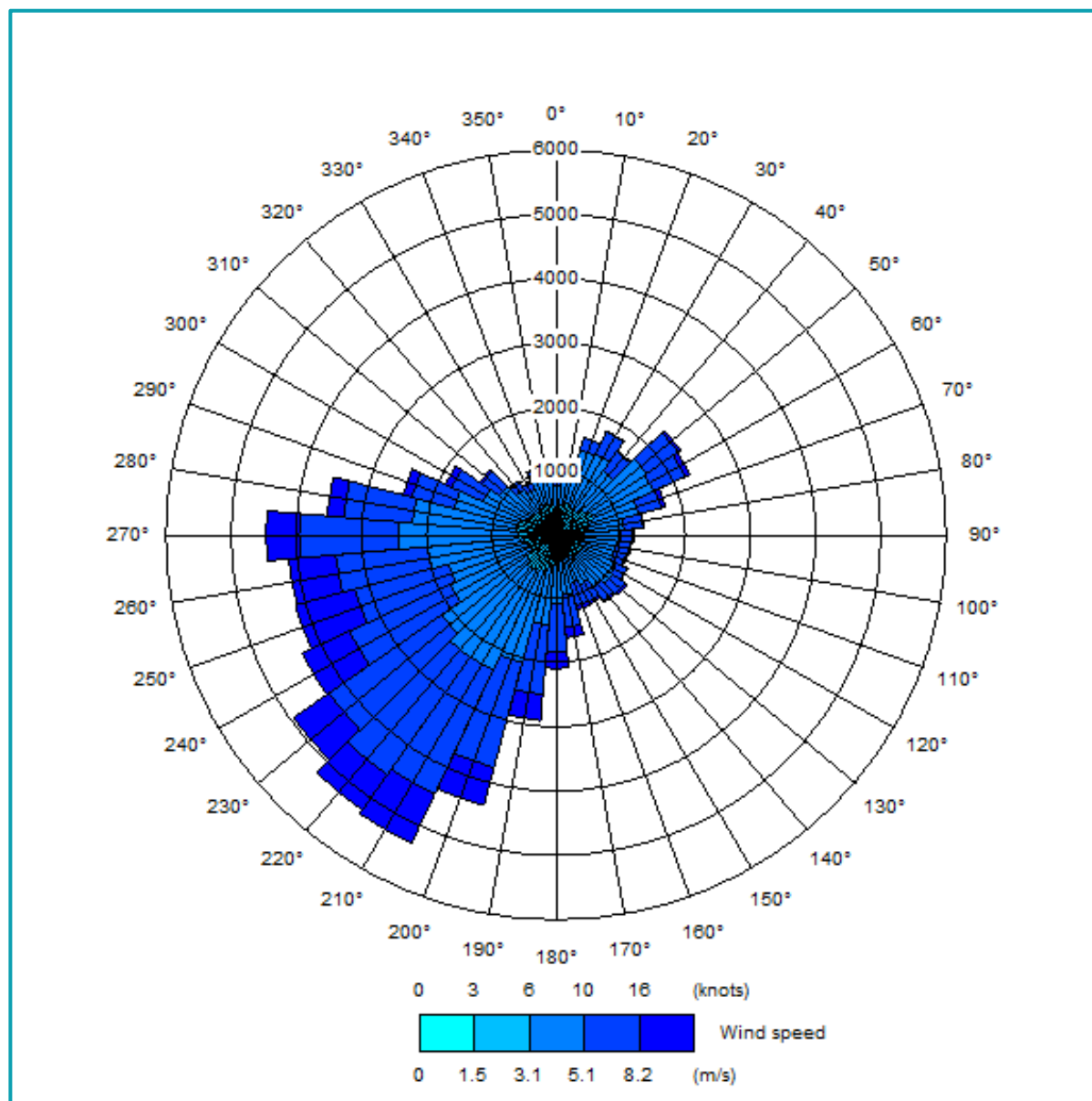
Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table C8
Risk of Dust Impacts from Trackout

Sensitivity of Area	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Appendix D - Wind Rose for East Midlands Airport (2016-2025)

Figure D1
Wind Rose for East Midlands Airport (2016-2025)



Appendix E - Construction Phase Mitigation Measures

The mitigation measures have been divided into general measures applicable to all sites and measures applicable specifically to demolition, earthworks, construction and trackout, for consistency with the IAQM assessment methodology.

The following table details the mitigation required for high, medium and low risk sites.

The potential risk of dust soiling is **medium** for demolition and earthworks, and **low** for construction and trackout activities. The potential risk of human health impacts is **low** for demolition and earthworks, and **negligible** for construction and trackout activities. Therefore, the IAQM Construction Phase Mitigation Measures for a 'Medium Risk' site are recommended.

It is noted that not all mitigation measures will be applicable to every site and development, however, all of those recommended by the IAQM have been provided for completeness. Professional judgement should therefore be used, taking into consideration the site location, scale and nature of the proposed works.

Key to Table:

H - Highly Recommended	D - Desirable	N - Not Required
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Table E1
IAQM Construction Phase Mitigation Measures

Mitigation Measure	Low Risk	Medium Risk	High Risk
Communication			
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H	H	H
3. Display the head or regional office contact information.	H	H	H
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections.	D	H	H
Site Management			
5. 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.	H	H	H
6. Make the complaints log available to the local authority when asked.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
7. 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.	H	H	H
8. Hold regular liaison meetings with other high risk construction sites within 500m 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.	N	N	H
Monitoring			
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log 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 site boundary, with cleaning to be provided if necessary.	D	D	H
10. 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.	H	H	H
11. 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.	H	H	H
12. 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 a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H
Preparing and Maintaining the Site			
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	D	H	H
16. Avoid site runoff of water or mud.	H	H	H
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H
18. 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.	D	H	H
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
Operating Vehicle/Machinery and Sustainable Travel			
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	H	H	H
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
23. Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work 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).	D	D	H
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	H
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	H
Operations			
26. 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.	H	H	H
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H
28. Use enclosed chutes and conveyors and covered skips.	H	H	H
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
30. 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.	D	H	H
Waste Management			
31. Avoid bonfires and burning of waste materials.	H	H	H
Measures Specific to Demolition			
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D	D	H
33. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	H	H	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
35. Bag and remove any biological debris or damp down such material before demolition.	H	H	H
Measures Specific to Earthworks			
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	H
38. Only remove the cover in small areas during work and not all at once.	N	D	H
Measures Specific to Construction			
39. Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
40. 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.	D	H	H
41. 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.	N	D	H
42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D
Measures Specific to Trackout			
43. 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.	D	H	H
44. Avoid dry sweeping of large areas.	D	H	H
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
47. Record all inspections of haul routes and any subsequent action in a site logbook.	D	H	H
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowzers and regularly cleaned.	N	H	H
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H	H
51. Access gates to be located at least 10m from receptors where possible.	N	H	H