PROFESSIONAL CONSULT
FUTURE ENVIRONMENTS

AIR QUALITY ASSESSMENT

Proposed Mixed-use Development

Lane End Rd, Burnage

Issue Date: 4 March 2026

QUALITY ASSURANCE & REPORT INFORMATION

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EXECUTIVE SUMMARY

Professional Consult Limited, working with our approved associate consultant Redmore Environmental Ltd, was instructed by Hasaza Estates Limited, to prepare an Air Quality Assessment to support the planning application for a proposed mixed-use development on land off Lane End Road, Burnage.

The proposals have the potential to cause air quality impacts at sensitive locations during the construction and operational phases, as well as expose future occupants to elevated pollution levels. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider location suitability and assess potential effects as a result of the scheme.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, construction and trackout activities. It is considered that the use of good practice control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed against the relevant screening criteria. Due to the low number of vehicles trips generated by the proposals, impacts were not predicted to be significant.

The proposal has the potential to expose future occupants to elevated pollution levels. Dispersion modelling was therefore undertaken in order to predict concentrations across the site as a result of emissions from the highway network. Results were subsequently verified using local monitoring data.

The results of the dispersion modelling assessment indicated that predicted pollutant concentrations were below the relevant criteria at all proposed locations of residential occupancy within the development. As such, the site is considered suitable for the proposed end use from an air quality perspective and mitigation is not required.

Based on the assessment results, air quality factors are not considered a constraint to planning consent for the development.

TABLE OF CONTENTS

1 INTRODUCTION 4

2 LEGISLATION & GUIDANCE 5

3 METHODOLOGY 11

4 BASELINE 18

5 ASSESSMENT 22

6 CONCLUSION 29

APPENDIX 1: GLOSSARY 30

APPENDIX 2: ASSESSMENT INPUT DATA 31

APPENDIX 3: FIGURES 39

1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Hasaza Estates Limited to prepare an Air Quality Assessment ('the Assessment') in support of a proposed mixed-use development ('the Development') on a parcel of land located off Lane End Road, Burnage, to be referred to hereafter as 'the Site'.

1.1.2 The proposals have the potential to cause air quality impacts at sensitive locations during the construction and operational phases, as well as expose future residents to existing air quality issues. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider location suitability and assess potential effects as a result of the scheme.

1.2 Site Location and Context

1.2.1 The site is located on land off Lane End Road, Burnage, at approximate National Grid Reference (NGR): 385934, 391545. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the demolition of existing structures and the subsequent construction of a residential-led, mixed-use development. This will comprise 56 apartments and ground floor retail units with associated landscaping and parking. The development description is as follows:

"Demolition of existing buildings and erection of a mixed-use development with retail (Use Class E) at the ground floor and residential development (Use Class C3) and roof terrace above, in addition to car parking, landscaping and associated infrastructure at the site."

1.2.3 The development has the potential to cause air quality impacts at sensitive locations. These may include fugitive dust emissions associated with construction works and road traffic exhaust emissions from vehicles travelling to and from the site during the operational phase. There is also the potential for exposure of future occupants to elevated polluted concentrations due to the proximity of the A34 and associated road vehicle emissions. An Air Quality Assessment was therefore undertaken in order to determine baseline and assess potential effects as a result of the proposals. This is detailed in the following report.

1.2.4 All acronyms used within this report are defined in the Glossary presented in Appendix 1.

1.3 Confidentiality

1.3.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 LEGISLATION & GUIDANCE

2.1 Legislation

2.1.1 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO_2);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10});
- Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$);
- Benzene; and,
- Carbon monoxide.

2.1.2 Air Quality Target Values were also provided for several additional pollutants. It should be noted that the AQLV for $PM_{2.5}$ stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023[1]. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2023[2] was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to $PM_{2.5}$. The Concentration Target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

2.1.5 Table 1 presents the AQOs, Interim Target and Concentration Target for pollutants considered within this assessment.

Table 1. Air Quality Objectives/Interim Target/Concentration Target

Pollutant	Air Quality Objective/Interim Target/Concentration Target	
	Concentration (µg/m³)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean

[1] AQS: Framework for Local Authority Delivery, DEFRA, 2023.
[2] Environmental Improvement Plan 2023, DEFRA, 2023.

Pollutant	Air Quality Objective/Interim Target/Concentration Target	
	Concentration (µg/m³)	Averaging Period
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum 50
$PM_{2.5}$	12[(a)]	Annual mean
	10[(b)]	Annual mean

Note: (a) Interim Target to be achieved by end of January 2028.
(b) Concentration Target to be achieved by 2040.

2.1.6 Table 2 summarises the advice provided in DEFRA guidance[3] on where the AQOs for pollutants considered within this report apply.

Table 2. Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes etc.	Building façades 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 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

2.2.1 Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

[3] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

2.3 Dust

2.3.1 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework[4] (NPPF) was published in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to air quality detailed in Section 2 '*Achieving Sustainable Development*':

"c) an environmental objective - to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

2.4.3 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[…]

e) 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 […]"

2.4.4 The NPPF specifically recognises air quality as part of delivering sustainable development and states, at paragraph 198, 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

[4] NPPF, Ministry of Housing, Communities and Local Government, 2024.

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."

2.4.5 The implications of the NPPF have been considered throughout this assessment.

2.5 National Planning Practice Guidance

2.5.1 The National Planning Practice Guidance[5] (NPPG) web-based resource was launched by the Department for Communities and Local Government to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

2.5.2 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.6 Regional Planning Policy

2.6.1 The 'Places for Everyone Joint Development Plan Document'[6] was adopted by the Greater Manchester Combined Authority (GMCA) on 21st March 2024. Review of the document indicated the following policies of relevance to this assessment:

"Policy JP-P1: Sustainable Places

We aim to become one of the most liveable city regions in the world, consisting of a series of beautiful, healthy and varied places, each having the following key attributes that all development, wherever appropriate, should be consistent with:

[…]

15. Comfortable and inviting, with indoor and outdoor environments:
A. Offering a high level of amenity that minimizes exposure to pollution; […]"

"Policy JP-S5: Clean Air

A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:
1. Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;
2. Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or

5 https://www.gov.uk/guidance/air-quality--3.
6 Places for Everyone Joint Development Plan Document, GMCA, 2024.

relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;
3. Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;
4. Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;
5. Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;
6. Implementing the Clean Air Plan and associated measures;
7. Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra-low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;
8. Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;
9. Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;
10. Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and
11. Development should be located in areas that maximise the use of sustainable travel modes and be designed to minimise exposure to high levels of air pollution, particularly for vulnerable users."

2.6.2 The above policies were taken into consideration throughout the undertaking of the assessment.

2.7 Local Planning Policy

2.7.1 The Manchester Local Development Framework consists of a series of planning documents of which the Core Strategy Development Plan Document (DPD)[7] is central. This was adopted by Manchester City Council (MCC) on 11th July 2012 and provides policies which guide the determination of planning applications within the city.

2.7.2 Review of the document indicated the following policy of relevance to this assessment:

"Policy EN 16

Air Quality

The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local effect of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the effects on air quality, alongside other plan objectives. This includes cumulative effects, particularly in Air Quality Management Areas.''

"Policy DM 1

Development Management

[7] Core Strategy DPD, MCC, 2012.

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:

[…]

Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise."

2.7.3 MCC has also produced an 'Air Quality & Planning Technical Guidance' Supplementary Planning Document (SPD)[8] which provides guidance on assessing the impact of proposed development on air quality.

2.7.4 The above policies and SPD were taken into consideration throughout the undertaking of the assessment.

2.8 Greater Manchester Clean Air Plan

2.8.1 The UK Government has instructed a number of LAs to take rapid action to reduce harmful roadside levels of NO_2 within their areas of jurisdiction in the quickest possible timeframe. The GMCA and Transport for Greater Manchester (TfGM) have collaborated to develop a Clean Air Plan (CAP) to ensure Greater Manchester achieves compliance with the relevant AQOs for NO_2 by 2026 at the latest. The initial CAP proposal included implementation of a Class C charging Clean Air Zone. The GMCA subsequently updated the CAP proposals[9] to comprise an investment-led, non-charging approach. This was approved by the UK Government on 23rd January 2025. The implications of the CAP were taken into account during the undertaking of this assessment.

8 Air Quality & Planning Technical Guidance SPD, MCC, 2022.
9 Case for a New GM Clean Air Plan, GMCA and TfGM, 2022.

3 METHODOLOGY

3.1 Introduction

3.1.1 The proposed development has the potential to cause air quality impacts during the construction and operational phases, as well as expose future occupants to elevated pollution levels. These have been assessed in accordance with the following methodology.

3.2 Construction Phase Assessment

3.2.1 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'[10].

3.2.2 Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and,
- Trackout.

3.2.3 The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors;
- The risk of health effects due to a significant increase in exposure to PM_{10}.

3.2.4 The assessment steps are detailed below.

Step 1

3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the boundary or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route up to 250m from the site entrance, then the assessment also proceeds to Step 2.

3.2.6 Should sensitive receptors not be present within the relevant distances then **negligible** impacts would be expected and further assessment is not necessary.

Step 2

3.2.7 Step 2 assesses the risk of potential dust impacts. A site is allocated a risk category based on two factors:

[10] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A);
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

3.2.8 The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

3.2.9 Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 3.

Table 3. Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total volume of building to be demolished greater than 75,000m^3 • Potentially dusty material (e.g. concrete) • On-site crushing and screening • Demolition activities more than 12m above ground level
	Earthworks	• Total site area greater than 110,000m^2 • Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • More than 10 heavy earth moving vehicles active at any one time • Formation of bunds greater than 6m in height
	Construction	• Total building volume greater than 75,000m^3 • On site concrete batching • Sandblasting
	Trackout	• More than 50 Heavy Duty Vehicle (HDV) trips per day • Potentially dusty surface material (e.g. high clay content) • Unpaved road length greater than 100m
Medium	Demolition	• Total volume of building to be demolished between 12,000m^3 and 75,000m^3 • Potentially dusty construction material • Demolition activities 6m to 12m above ground level
	Earthworks	• Total site area 18,000m^2 to 110,000m^2 • Moderately dusty soil type (e.g. silt) • 5 to 10 heavy earth moving vehicles active at any one time • Formation of bunds 3m to 6m in height
	Construction	• Total building volume 12,000m^3 to 75,000m^3 • Potentially dusty construction material (e.g. concrete) • On site concrete batching
	Trackout	• 10 to 50 HDV trips per day • Moderately dusty surface material (e.g. high clay content) • Unpaved road length 50m to 100m
Low	Demolition	• Total volume of building to be demolished less than 12,000m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities less than 6m above ground and during wetter months
	Earthworks	• Total site area less than 18,000m^2 • Soil type with large grain size (e.g. sand) • Less than 5 heavy earth moving vehicles active at any one time • Formation of bunds less than 6m in height
	Construction	• Total building volume less than 12,000m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	• Less than 20 HDV trips per day • Surface material with low potential for dust release • Unpaved road length less than 50m

3.2.10 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The sensitivities of specific receptors are shown in Table 4.

Table 4. Construction Dust - Sensitivities of Human and Ecological Receptors

Receptor Sensitivity	Examples	
	Human Receptors	**Ecological Receptors**
High	• Users expect high levels of amenity • High aesthetic or value property • People expected to be present continuously for extended periods of time • Locations where members of the public are exposed over a time period relevant to the AQO for PM_{10}. e.g. residential properties, hospitals, schools and residential care homes	• Internationally or nationally designated site e.g. Special Area of Conservation
Medium	• Users expect to enjoy a reasonable level of amenity • Aesthetic or value of their property could be diminished by soiling • 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	• Nationally designated site e.g. Sites of Special Scientific Interest
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, shopping streets, playing fields, farmland, short term car parks and roads	• Locally designated site e.g. Local Nature Reserve

3.2.11 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5. Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	**Less than 50**	**Less than 100**	**Less than 250**
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

3.2.12 Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6. Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
High	Greater than 32µg/m³	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m³	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28µg/m³	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m³	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m³	More than 10	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low
	24 - 28µg/m³	More than 10	Low	Low	Low	Low
		1 -10	Low	Low	Low	Low
	Less than 24µg/m³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low

3.2.13 Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7. Construction Dust - Sensitivity of the Area to Ecological Impacts

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

3.2.14 Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

3.2.15 Table 8 outlines the risk category from demolition activities.

Table 8. Construction Dust - Dust Risk Category from Demolition Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Medium
Medium	High	Medium	Low
Low	Medium	Low	Negligible

3.2.16 Table 9 outlines the risk category from earthworks, construction and trackout activities.

Table 9. Construction Dust - Dust Risk Category from Earthworks, Construction and Trackout Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Step 3

3.2.17 Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance[11] to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4

11 Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

3.2.18 Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

3.3 Operational Phase Assessment

Potential Development Impacts

3.3.1 The development has the potential to increase concentrations of NO_2, PM_{10} and $PM_{2.5}$ as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. A screening assessment was therefore undertaken using the criteria contained within the IAQM 'Land-Use Planning & Development Control: Planning for Air Quality' guidance to determine the potential for trips generated by the development to affect local air quality.

3.3.2 The following criteria are provided to help establish when an assessment of potential road traffic impacts on the local area is likely to be considered necessary:

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha; or,
- More than 1,000m^2 of floor space for all other uses or a site area greater than 1ha.

B. Couple with any of the following:

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

3.3.3 Should these criteria not be met, then the IAQM guidance[12] considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required.

3.3.4 Where the above criteria are met, then the assessor should proceed to assess the development proposals against the following Stage 2 screening criteria:

- The development leads to a change of Light Duty Vehicle (LDV) flows of:
  - More than 100 Annual Average Daily Traffic (AADT) within an AQMA;
  - More than 500 AADT outside of an AQMA;
- The development leads to a change of HDV flows of:
  - More than 25 AADT within an AQMA;
  - More than 100 AADT outside of an AQMA;
- Introduce a new junction that would cause traffic flow to change behaviour with respect to acceleration/deceleration or introduce queueing traffic where there previously wasn't any (such as a roundabout or traffic lights); and,

[12] Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

- Introduce one or more significant combustion processes where there is a risk of impact to relevant receptors.

3.3.5 Should these criteria not be met, then the IAQM guidance[13] considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required. Where the screening criteria is met, further assessment including atmospheric dispersion modelling of impacts may be required.

Potential Future Exposure

3.3.6 The proposals have the potential to expose future occupants to elevated pollution levels. In order to assess NO_2, PM_{10} and $PM_{2.5}$ concentrations across the development site, detailed dispersion modelling was undertaken. Reference should be made to Appendix 1 for a full description of the assessment input data.

3.3.7 The dispersion modelling results were compared against the relevant AQOs and Interim Target in order to determine the potential for exposure of future residents to elevated pollutant concentrations and identify any requirement for mitigation.

13 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

4 BASELINE

4.1 Introduction

4.1.1 Existing air quality conditions in the vicinity of the proposed development site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

4.2.1 As required by the Environment Act (1995), as amended by the Environment Act (2021), MCC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO_2 are above the AQO within the city. As such, a number of roads within Manchester have been included within the Greater Manchester Combined Authority (GMCA) AQMA. This is described as follows:

"This is the part of the GMCA AQMA located within the Manchester City Council area."

4.2.2 The development is partially located within the AQMA. As such, there is the potential for vehicles travelling to and from the site to increase pollution levels in this sensitive area, as well as exposure of future occupants to elevated pollutant concentrations. This has been considered throughout the assessment.

4.2.3 MCC concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMAs have been designated.

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by MCC throughout their area of jurisdiction. Data has also been collected by the GMCA to inform the CAP. Recent NO_2 concentrations recorded in the vicinity of the development, as provided in the 'Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2023'[14] spreadsheet, are shown in Table 10. Exceedences of the relevant AQO are shown in **bold**.

Table 10. Monitoring Results

Monitoring Site	Monitored NO_2 Concentration (µg/m^3)			
	2021	**2022**	**2023**	**2024**
MA74NO[(c)]	23.3	25.6	25.4	-
MA75NO	39.0	38.8	39.6	37.2
MA80NO[(c)]	25.7	25.7	25.3	-
MA81NO	18.1	18.8	17	16.3
ST3NO	19.5	19.4	19.6	17.3
ST17NO	20.2	19.0	19.4	18.2
ST34NO	35.8	36.0	32.9	30.5
CAP_MANC_125[(a)]	-	**51.4**	**48.02**	**47.5**
CAP_MANC_126[(a)]	-	**41.1**	**42.42**	**40.7**

[14] Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2022, GMCA, 2024.

Monitoring Site	Monitored NO_2 Concentration (µg/m³)			
	2021	2022	2023	2024
CAP_MANC_127(b)	-	27.4	-	
CAP_MANC_128(b)	-	28.0	-	
CAP_MANC_129(b)	-	33.2	-	
CAP_STOC_001	35.3	36.3	34.9	31.3
CAP_STOC_002	33.1	32.9	31.7	29.0
CAP_STOC_003	31.8	30.2	26.5	26.0

Note: (a) Monitor commissioned in 2022.
(b) Monitor commissioned in 2022 and decommissioned in 2023.
(c) Monitor decommissioned in 2023.

4.3.2 As shown in Table 10, annual mean NO_2 concentrations were above the AQO of 40µg/m³ at the CAP_MANC_125 and CAP_MANC_126 monitors in 2022, 2023 and 2024. As these survey sites are situated at the roadside within an AQMA, elevated results are to be expected. Annual mean NO_2 concentrations were below the AQO of 40µg/m³ at all other monitoring locations within the vicinity of the site in recent years. Reference should be made to Figure 2 for a map of the survey positions.

4.3.3 It should be noted that pollutant concentrations recorded during 2021 were affected by changes to travel patterns and associated emissions caused by the COVID-19 pandemic. The results should therefore be viewed with caution. However, monitoring data for 2022 and beyond is now considered representative of post-pandemic conditions. This is supported by the IAQM[15], who have adopted the following position:

"ambient air quality monitoring data for the year 2022 and beyond is generally considered to represent the current post-pandemic baseline."

4.3.4 MCC does not undertake monitoring of PM_{10} or $PM_{2.5}$ within the vicinity of the site.

4.4 Background Pollutant Concentrations

4.4.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square NGR: 385500, 391500. Data for this location was downloaded from the DEFRA website[16] for the purpose of the assessment and is summarised in Table 11.

Table 11. Background Pollutant Concentration Predictions

Pollutant	Predicted Background Pollutant Concentration (µg/m³)		
	2024	2026	2027
NO_2	14.15	13.11	12.56
PM_{10}	12.38	12.26	12.21

15 Use of 2020 and 2021 Monitoring Datasets - IAQM Position Statement V1.1, IAQM, 2023.
16 https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021.

Pollutant	Predicted Background Pollutant Concentration (µg/m³)		
	2024	2026	2027
$PM_{2.5}$	7.54	7.42	7.36

4.4.2 As shown in Table 11, predicted background NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the relevant AQOs and Concentration Target at the development site.

4.5 Sensitive Receptors

4.5.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for dust and road vehicle exhaust emission impacts in the following Sections.

4.5.2 Receptors sensitive to potential dust impacts during demolition, earthworks and construction were identified from a desk-top study of the area up to 250m from the development boundary. These are summarised in Table 12.

Table 12. Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 - 100	0
Up to 50	More than 100	0
Up to 100	More than 100	-
Up to 250	More than 100	-

4.5.3 Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 250m of the site access. These are summarised in Table 13.

Table 13. Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0

4.5.4 There are no ecological receptors within 50m of the development boundary or the access route within 250m of the site entrance. As such, ecological impacts have not been assessed further within this report.

4.5.5 A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised These are summarised in Table 14.

Table 14. Additional Area Sensitivity Factors to Potential Dust Impacts

Guidance	Comment
Whether there is any history of dust generating activities in the area	The baseline study did not indicate any dust generating activities in the local area
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal did not indicate any additional development proposals likely to result in concurrent dust generation in the vicinity of the site

Guidance	Comment
Pre-existing screening between the source and the receptors	There is no pre-existing screening between the source and the receptors
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	As shown in Figure 3, the predominant wind bearing at the site is from the south. As such, receptors to the north of the boundary are most likely to be affected by dust releases
Conclusions drawn from local topography	There are no significant topographical constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently it is unclear as to the duration of the construction phase. However, it is possible that it will extend over one year. The sensitivity of nearby receptors is unlikely to change during this time
Any known specific receptor sensitivities which go beyond the classifications given in the document	No specific receptor sensitivities identified during the baseline assessment

4.5.6 Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors included educational facilities and residential properties.

4.5.7 The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria shown in Section 3.2, is shown in Table 15.

Table 15. Sensitivity of the Surrounding Area to Potential Dust Impacts

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Medium

5 ASSESSMENT

5.1 Introduction

5.1.1 There is the potential for air quality impacts as a result of the construction and operation of the proposed development, as well as exposure of future occupants to poor air quality. These factors are assessed in the following Sections.

5.2 Construction Phase Assessment

Step 1

5.2.1 The undertaking of activities such as demolition, excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.

5.2.2 The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

5.2.3 The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 250m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

Step 2

Demolition

5.2.4 Demolition will be undertaken at the start of the construction phase and will involve clearance of the existing buildings on site. It is estimated that the total building volume to be demolished is less than 12,000m^3. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **small**.

5.2.5 Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 8, the development is considered to be a **medium** risk site for dust soiling as a result of demolition activities.

5.2.6 Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 8, the development is considered to be a **negligible** risk site for human health impacts as a result of demolition activities.

Earthworks

5.2.7 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The proposed development site covers an area less than 18,000m^2. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.

5.2.8 Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of earthworks.

5.2.9 Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of earthworks.

Construction

5.2.10 Due to the size of the development the total building volume is likely to be between 12,000m^3 to 75,000m^3. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **medium**.

5.2.11 Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **medium** risk site for dust soiling as a result of construction activities.

5.2.12 Table 15 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for human health impacts as a result of construction activities.

Trackout

5.2.13 Based on the site area, it is anticipated that the unpaved road length will less than 50m. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.

5.2.14 Table 15 indicates the sensitivity of the area to dust soiling effects to people and property is **high**. In accordance with the criteria outlined in Table 10, the development is considered to be a **low** risk site for dust soiling as a result of trackout activities.

5.2.15 Table 15 indicates the sensitivity of the area to human health impacts is **medium**. In accordance with the criteria outlined in Table 10, the development is considered to be a **low** risk site for human health impacts as a result of trackout activities.

Summary of the Risk of Dust Effects

5.2.16 A summary of the risk from each dust generating activity is provided in Table 16.

Table 16. Summary of Potential Unmitigated Dust Risks

Potential Impact	Risk			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	Medium	Low	Medium	Low
Human Health	Negligible	Negligible	Low	Low

5.2.17 As indicated in Table 16, the potential risk of dust soiling is **medium** from demolition and construction and **low** from earthworks and trackout. The potential risk of human health impacts is **low** from construction and trackout and **negligible** from demolition and earthworks.

5.2.18 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

Step 3

5.2.19 The IAQM guidance[17] provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 17. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan (CEMP) or similar if required by the LA.

Table 17. Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LA
Site management	• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken • Make the complaints log available to the LA upon request • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book
Monitoring	• Undertake daily on-site and off-site inspection to monitor dust, record inspection results, and make the log available to the LA upon request • Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the LA upon request • Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions
Site preparation	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible • Fully enclose site or specific operations where there is a high potential for dust production and they are active for an extensive period • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used • Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicle/machinery and sustainable travel	• Ensure all vehicles switch off engines when stationary - no idling vehicles • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable • Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques • Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips • Minimise drop heights and use fine water sprays wherever appropriate • Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods
Waste management	• Avoid bonfires or burning of waste materials
Demolition	• Ensure effective water suppression is used during demolition operations • Avoid explosive blasting, using appropriate manual or mechanical alternatives • Bag and remove any biological debris or damp down such material before demolition
Construction	• Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos

[17] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Issue	Control Measure
Trackout	• Use water-assisted dust sweeper on access and local roads, if required • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving site are covered to prevent escape of materials • Implement a wheel washing system, if required

Step 4

5.2.20 Assuming the relevant mitigation measures outlined in Table 17 are implemented, the residual impact from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance[18].

5.3 Operational Phase Assessment

Potential Development Impacts

5.3.1 The Transport Statement[19] for the scheme prepared by Curtins Ltd, the Transport Consultants for the project, indicates the development is predicted to generate 134 daily vehicle trips. These will be distributed across the local road network as shown in the Table below.

Table 18. Trip Generation and Distribution

Road Link	Development Trips (AADT)
Kingsway - north of the Site	66
Kingsway - south of the Site	30
Wider road network	36

5.3.2 Based on the above information, the proposal is not predicted to result in a daily increase of LDV flows of more than 100 AADT within an AQMA or 500 AADT elsewhere. Additionally, the proposals do not include significant highway realignment or the introduction of a junction and there will not be more than 25 HDV movements per day. As such, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be not significant, in accordance with the IAQM[20] screening criteria shown in Section 3.3.

Potential Future Exposure

5.3.3 The proposed development has the potential to expose future occupants to elevated pollution levels. Dispersion modelling was therefore undertaken with the inputs described in Appendix 1 to quantify air quality conditions at the site. Reference should be made to Figures 5, 6 and 7 for graphical representations of predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations.

5.3.4 It should be noted that the proposals comprise commercial land use at ground floor. This is not considered a location of relevant exposure for comparison with the relevant AQOs in accordance with the DEFRA guidance[21], as summarised in Table 2. As such, concentrations have only been considered at first floor level and above, where residential units are located.

18 Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.
19 Lane End Road, Burnage, Transport Statement, Curtins, 2025.
20 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.
21 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

5.3.5 As shown in Figure 5, annual mean NO_2 concentrations were predicted to be below the AQO of 40µg/m^3 at the building façade at first floor level. The maximum level was 21.38µg/m^3.

5.3.6 As shown in Figure 6, annual mean PM_{10} concentrations were predicted to be below the AQO of 40µg/m^3 at the building façade at first floor level. The maximum level was 15.82µg/m^3.

5.3.7 As shown in Figure 7, annual mean $PM_{2.5}$ concentrations were predicted to be below the Concentration Target of 10µg/m^3 at the building façade at first floor level. The maximum level was 9.28µg/m^3.

5.3.8 It should be noted that pollutant levels decrease with distance from road sources. As NO_2, PM_{10} and $PM_{2.5}$ concentrations were predicted to be below the relevant AQOs at first floor level, further assessment above this height was not considered necessary.

5.3.9 Based on the assessment results, future occupants are not predicted to be exposed to pollutant concentrations above the relevant AQOs and Concentration Target. As such, the site is considered suitable for the proposed use from an air quality perspective.

5.4 Mitigation

5.4.1 As air quality impacts associated with the proposals were predicted to be **not significant**, further mitigation to control effects is not considered necessary. However, a number of mitigation measures have been included within the development in accordance with the requirements of the IAQM document 'Land-Use Planning & Development Control Planning for Air Quality'[22], as outlined in MCCs 'Air Quality & Planning Technical Guidance'[23] SPD, to encourage the use of sustainable transport modes, manage vehicle flow and reduce pollution around the site. Table 19 describes the good practice principles detailed in the IAQM guidance[24] along with how each has been addressed with regards to the proposals.

Table 19. Good Practice Design Principles

Phase	Principle	Comment
Design Phase	New developments should not contravene the Council's Air Quality Action Plan[25] , or render any of the measures unworkable	It is confirmed that the proposed development will not contravene MCC's AQAP, or render any of the measures unworkable
	Wherever possible, new developments should not create a new "street canyon", or a building configuration that inhibits effective pollution dispersion	The development will not create a new street canyon
	Delivering sustainable development should be the key theme of any application	The proposals have been designed to encourage sustainable behaviours, such as active and public transport, due to its close proximity to local public transport facilities and amenities
	New development should be designed to minimise public exposure to pollution sources, e.g. by locating habitable rooms away from busy roads, or directing combustion generated pollutants through or chimney stacks	As shown previously, exposure of future occupants to exceedances of the relevant AQOs or Concentration Target is not anticipated
Operational Phase	The provision of at least 1 Electric Vehicle (EV) "rapid charge" point per 10 residential dwellings and/or 1,000m2 of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made	Each car parking space will provide EV charging provision

22 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.
23 Air Quality & Planning Technical Guidance SPD, MCC, 2022.
24 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.
25 Greater Manchester Air Quality Action Plan (GMAQAP) 2016-2021, GMCA, 2016.

Phase	Principle	Comment
	Where development generates significant additional traffic, provision of a detailed Travel Plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety	A Travel Plan has been produced to support the scheme[26]
	All gas-fired boilers to meet a minimum standard of <40mgNO_x/kWh. All gas-fired CHP plant to meet a minimum emissions standard of: • Spark ignition engine: 250mgNO_x/Nm^3; • Compression ignition engine: 400mgNO_x/Nm^3; • Gas turbine: 50mgNO_x/Nm^3. A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of: Solid biomass boiler: 275mgNO_x/Nm^3 and 25mgPM/Nm^3	Any boilers to be included in the development will be provisioned in accordance with the relevant requirements

5.4.2 It is considered the above methods would further reduce potential impacts associated with the proposals. Specific mitigation suited to the development may be stipulated as a planning condition if deemed necessary by the LA.

5.5 Interim Planning Guidance for $PM_{2.5}$

5.5.1 Interim Planning Guidance[27] on the consideration of the $PM_{2.5}$ targets identified in the Environment Act (2021) in planning decisions has been produced by DEFRA. This requires evidence that the key sources of air pollution within a development have been identified and appropriate action to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable be provided in support of planning applications. To assist the process, two questions and associated considerations are provided. These are summarised in Table 20, along with the development response.

Table 20. Interim Planning Guidance

Question	Response
How has exposure to $PM_{2.5}$ been considered when selecting the development site? Factors to consider include: • Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these • Site proximity to pollution sources and the impact of these on users of the development • Exposure and emissions during both construction and in-use	The site is located in a predominantly residential area. There are no schools, hospitals or care homes within the vicinity of the site Due to the established residential nature of the area, there are good bus links to encourage sustainable travel. The nearest bus stop is adjacent to the proposals along the A34 Kingsway The main pollution source of concern is the A34 Kingsway, which is adjacent to the western development boundary. However, as outlined in Section 5.3, $PM_{2.5}$ concentrations at the building façade were predicted to be below the Concentration Target As outlined in Table 17, a number of mitigation measures will be used throughout the construction phase in order to reduce fugitive dust emissions as far as practicable. This will control potential exposure at off-site locations

[26] Lane End Road, Burnage, Framework Travel Plan, Curtins, 19 December 2025
[27] https://uk-air.defra.gov.uk/pm25targets/planning.

Question	Response
What actions and/or mitigations have been considered to reduce $PM_{2.5}$ exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of $PM_{2.5}$ and its precursors? • Site layout • The development's design • Technology used in the construction or installed for use in the development • Construction and future use of the development	The site is designed so that dwellings are located from first floor, with commercial space at ground floor level. This will help to reduce $PM_{2.5}$ exposure for future occupants A number of mitigation measures have been incorporated into the design of the scheme in order to reduce emissions of $PM_{2.5.}$ These include the following: • 56 secure cycle spaces to encourage the use of alternative modes of travel • A framework Travel Plan will be produced to encourage the use of sustainable modes of travel • All car parking spaces will be fitted with Electric Vehicle chargers to encourage the uptake in low emission vehicles Further to the above, in order to reduce emissions during the construction phase, a number of mitigation measures will be used to minimise dust generation from associated activities

5.5.2 Based on the responses provided in Table 20 and the results of the assessment, as outlined in Sections 5.2 and 5.3, it is considered that the development has identified key sources of air pollution and taken appropriate action to minimise emissions of $PM_{2.5}$.

6 CONCLUSION

6.1.1 Professional Consult Limited, working with our approved associate consultant Redmore Environmental Ltd, was instructed by Hasaza Estates Limited, to prepare an Air Quality Assessment to support the planning application for a proposed mixed-use development on land off Lane End Road, Burnage.

6.1.2 The proposals have the potential to cause air quality impacts at sensitive locations during the construction and operational phases, as well as expose future occupants to elevated pollution levels. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions and assess potential effects as a result of the scheme.

6.1.3 During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM methodology. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities was predicted to be **not significant**.

6.1.4 Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed against the relevant screening criteria. Due to the low number of vehicle trips generated by the proposals, impacts were not predicted to be significant.

6.1.5 The proposal has the potential to expose future occupants to elevated pollution levels. Dispersion modelling was therefore undertaken in order to predict concentrations across the site as a result of emissions from the highway network. Results were subsequently verified using local monitoring data.

6.1.6 The results of the dispersion modelling assessment indicated that NO_2, PM_{10} and $PM_{2.5}$ concentrations were predicted to be below the relevant AQOs and Concentration Target at all proposed locations of residential occupancy within the development. As such, the site is considered suitable for the proposed use from an air quality perspective.

6.1.7 Based on the assessment results, air quality factors are not considered a constraint to the development.

APPENDIX 1: GLOSSARY

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQAP	Air Quality Action Plan
AQO	Air Quality Objective
AQS	Air Quality Strategy
CEMP	Construction Environmental Management Plan
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMP	Dust Management Plan
DPD	Development Plan Document
EB	Eastbound
EV	Electric Vehicle
GMCA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
MCC	Manchester City Council
NB	Northbound
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10µm
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5µm
SB	Southbound
SP	Slow Phase
SPD	Supplementary Planning Document
WB	Westbound
Z_0	Roughness Length

APPENDIX 2: ASSESSMENT INPUT DATA

Introduction

The proposed development has the potential to expose future occupants to elevated pollutant levels. In order to assess NO_2, PM_{10} and $PM_{2.5}$ concentrations across the development site, detailed dispersion modelling was undertaken in accordance with the following methodology.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.1.0.2). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

The model requires input data that details the following parameters.

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

These are detailed in the following Sections.

Assessment Area

The assessment area was defined based on the site location and anticipated vehicle trip distribution from the development. Ambient concentrations at first floor level were predicted over the area NGR: 385810, 391460 to 386030, 391680. One cartesian grid was included within the model to product data suitable for contour plotting using the Surfer software package.

Reference should be made to Figure 4 for a graphical representation of the assessment area.

Traffic Flow Data

Baseline traffic data for use in the assessment, including 24-hour AADT flows and fleet composition as HDV proportion, was obtained from the Department for Transport (DfT)[28]. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads, in Great Britain for the years 1999 to 2024. It should be noted that the DfT web tool is referenced in DEFRA guidance[29] as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the

[28] https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints.
[29] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

vicinity of the site.

The baseline traffic data was converted to the site opening year utilising a factor obtained from TEMPro (version 8.0). This software package has been developed by the DfT to calculate future traffic growth throughout the UK.

A summary of the traffic flows is provided in Table A.1. Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards.

Table A.1: Traffic Data

Link		24-hour AADT Flow		HDV Prop. of Fleet (%)	Road Width (m)	Speed (km/h)
		2024	2027			
L1	A5145 Wilmslow Road	27,023	27,894	3.2	10.4	45
L2	A5145 Wilmslow Road, Slow Phase (SP)	27,023	27,894	3.2	13.8	20
L3	A5145 Parrs Wood Lane, east of Wilmslow Road, SP	10,253	10,583	6.9	11.0	20
L4	A5145 Parrs Wood Lane, west of Kingsway Road, SP	9,620	9,930	7.2	11.5	20
L5	A5145 Parrs Wood Lane, west of Kingsway Road, Eastbound (EB), SP	4,810	4,965	7.2	11.7	20
L6	A5145 Parrs Wood Lane/A34 Kingsway Junction	14,810	15,286	3.1	11.7	20
L7	A5145 Parrs Wood Lane, EB, SP	14,810	15,286	3.1	14.8	20
L8	A5145 Parrs Wood Lane, Westbound (WB), SP	3,702	3,822	3.1	5.8	20
L9	A5145 Parrs Wood Lane	18,512	19,108	3.1	10.6	45
L10	A34 Kingsway, Southbound (SB), SP towards Parrs Wood Lane junction	22,071	22,781	1.9	11.7	20
L11	A34 Kingsway, SB between Parrs Wood Lane junction SP and Lane End Road junction	22,071	22,781	1.9	7.7	65
L12	A34 Kingsway, Northbound (NB) between Mauldeth Road junction and Lane End Road junction	22,071	22,781	1.9	7.7	65
L13	A34 Kingsway, NB, between Parrs Wood Lane and Wilmslow Road junction, north	26,047	26,886	2.7	9.6	35
L14	A5145 Parrs Wood Lane, west of Kingsway Road, WB, SP	4,810	4,965	7.2	4.8	20
L15	A34 Kingsway, NB, between Wilmslow Road junction, north and Wilmslow Road junction, south	26,047	26,886	2.7	9.4	35
L16	A34 Kingsway, SB	26,047	26,886	2.7	9.9	35
L17	A5145, SB, SP	9,974	10,295	1.5	14.9	20
L18	A34 Kingsway, NB, between B5095 Wilmslow Road EB and A5145 Wilmslow Road WB, SP	26,007	26,845	2.3	7.6	20
L19	A34 Kingsway, NB, south of A5145, SP	33,974	35,068	1.7	9.5	20

Link		24-hour AADT Flow		HDV Prop. of Fleet (%)	Road Width (m)	Speed (km/h)
		2024	2027			
L20	A34 Kingsway, NB, between Gawsworth Avenue and B5095 Wilmslow Road	25,612	26,436	1.7	12.7	30
L21	A34 Kingsway, NB, between Oakway and Gawsworth Avenue	25,612	26,436	1.7	6.8	65
L22	A34 Kingsway, SB, between Fairmile Drive and Gawsworth Avenue	25,612	26,436	1.7	6.8	65
L23	A34 Kingsway, SB, between Gawsworth Avenue and Wilmslow Road	25,612	26,436	1.7	7.2	65
L24	A34 Kingsway, SB, adjacent to B5095 Wilmslow Road, SP	33,974	35,068	1.7	6.7	20
L25	A34 Kingsway, SB, south of A5145	33,974	35,068	1.7	11.9	35
L26	B5095, Wilmslow Road, SB	12,694	13,103	1.3	6.5	45
L27	A34 Kingsway NB, to B5095 Wilmslow Road Junction, SP	4,316	4,455	1.3	6.8	20
L28	B5095, Wilmslow Road to A34 Kingsway Junction NB, SP	4,316	4,455	1.3	6.9	20
L29	B5095, Wilmslow Road to A34 Kingsway Junction SB, SP	4,316	4,455	1.3	5.3	20
L30	B5095, Wilmslow Road, between Nuffield Health access point and A34 Kingsway junction	25,388	26,205	1.3	15.7	45
L31	B5095, Wilmslow Road	25,388	26,205	1.3	14.0	45
L32	A5145, NB	9,974	10,295	1.5	14.6	40
L33	A5145	19,949	21,870	1.4	11.7	45
L34	A34 Kingsway, SB from Mauldeth Road junction, SP	14,874	15,360	1.8	8.3	20
L35	A34 Kingsway, SB towards Mauldeth Road junction, SP	14,874	15,360	1.8	10.6	20
L36	A34 Kingsway, SB between Mauldeth Road junction SP and Talbot Road junction SP	14,874	15,360	1.8	7.5	65
L37	A34 Kingsway, SB from Talbot Road junction, SP	13,948	14,404	1.7	6.9	20
L38	A34 Kingsway to Mauldeth Road Junction NB, SP	13,948	14,404	1.7	6.3	20
L39	A34 Kingsway, north of Mauldeth Road Junction NB, SP	13,948	14,404	1.7	6.0	20
L40	A34 Kingsway NB, north of Mauldeth Road junction	13,948	14,404	1.7	7.6	65
L41	A34 Kingsway NB, approach to Talbot Road junction, SP	13,948	14,404	1.7	9.7	20
L42	A34 Kingsway NB, north of Talbot Road, SP	13,948	14,404	1.7	6.0	20
L43	A34 Kingsway NB, north of Talbot Road	13,948	14,404	1.7	6.5	65

Link		24-hour AADT Flow		HDV Prop. of Fleet (%)	Road Width (m)	Speed (km/h)
		2024	2027			
L44	A34 NB, to Moseley Road roundabout, SP	13,948	14,404	1.7	9.4	20
L45	Moseley Road roundabout	8,845	9,394	1.0	10.3	20
L46	Moseley Road, between Moseley Road roundabout and Birchfield Road	12,649	13,058	2.1	8.2	20
L47	Birchfields Road roundabout	6,065	6,442	2.2	8.7	20
L48	Birchfields Road	11,092	11,455	2.3	9.7	45
L49	B5093 Moseley Road, west of Birchfields Road roundabout	12,649	13,058	2.1	14	45
L50	A5079 north exit off Moseley Road roundabout	11,597	11,976	1.9	7.2	45
L51	B5093 Moseley Road, approach to Moseley Road roundabout, SP	12,649	14,230	2.1	9.5	20
L52	B5093 Moseley Road	12,649	14,230	2.1	9.5	45
L53	B5093 Moseley Road, west of Slade Lane junction, SP	12,194	12,593	2.3	11.3	20
L54	B5093 Moseley Road, east of Slade Lane junction, SP	12,194	12,593	2.3	7.7	20
L55	Albert Road	12,194	12,593	2.3	6.7	45
L56	Albert Road, west of A6 Stockport Road junction, SP	12,194	12,593	2.3	5.6	15
L57	A6 Stockport Road, north of Albert Road junction, SP	23,336	24,099	3.1	12.5	15
L58	A6 Stockport Road north of Albert Road junction	23,336	24,099	3.1	11.6	35
L59	A6 Stockport Road, south of Albert Road junction, SP	23,336	24,099	3.1	12.4	15
L60	A6 Stockport Road south of Albert Road junction	23,336	24,099	3.1	9.5	35
L61	A34 Kingsway SB from Moseley Road roundabout, SP	14,874	15,360	1.8	9.2	20
L62	A34 Kingsway SB, between Talbot Road junction SP and Moseley Road roundabout SP	14,874	15,360	1.8	8.0	65
L63	A34 Kingsway SB, approach to Talbot Road junction, SP	14,874	15,360	1.8	11.0	20
L64	A34 Kingsway, NB Lane End Road junction, SP	21,524	22,617	1.9	7.1	20
L65	A34 Kingsway, NB south of Lane End Road junction	21,524	22,617	1.9	7.1	65
L66	A34 Kingsway, SB Lane End Road junction, SP	21,524	22,617	1.9	7.1	20
L67	A34 Kingsway, SB north of Lane End Road junction	21,524	22,617	1.9	7.1	65

Link		24-hour AADT Flow		HDV Prop. of Fleet (%)	Road Width (m)	Speed (km/h)
		2024	2027			
L68	Lane End Rd SP	3,436	3,547	0.2	9.6	20
L69	Lane End Rd	3,436	3,547	0.2	9.6	45
L70	Fog Lane SP	10,183	10,511	1.3	10.3	20
L71	Fog Lane	10,183	10,511	1.3	10.3	45
L72	Matthews Lane	4,406	4,548	4.2	6.5	30
L73	Matthews Lane SP	4,406	4,548	4.2	7.0	15
L74	Cromwell Grove	4,406	4,548	4.2	5.8	30
L75	Cromwell Grove SP	4,406	4,548	4.2	5.8	15
L76	Chapel Street	4,406	4,548	4.2	5.8	30
L77	Chapel Street SP	4,406	4,548	4.2	5.8	15

Reference should be made to Figure 4 for a graphical representation of the road link locations.

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (EFT) (version 13.1). This has been produced by DEFRA and incorporates COPERT 5.8 vehicle emission factors.

Meteorological Data

Meteorological data used in the assessment was taken from Manchester Airport meteorological station over the period 1st January 2024 to 31st December 2024 (inclusive). Manchester Airport is located at NGR: 381792, 384116, which is approximately 8.4km south-east of the development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 3 for a wind rose of the utilised meteorological data.

Roughness Length

The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This value is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'parkland, open suburbia'.

A z_0 of 0.2m was used to describe the meteorological site. This value is considered appropriate for the morphology of the area due to the large expanse of surrounding flat land use, such as runways and surrounding grassland, and is suggested within ADMS-Roads as being suitable for 'agricultural areas (min)'.

Monin-Obukhov Length

The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 30m was used to describe the modelling extents and meteorological site. This value is considered appropriate for both areas and is suggested within ADMS-Roads as being suitable for 'cities and large towns'.

Background Concentrations

Annual mean NO_2, PM_{10} and $PM_{2.5}$ background concentrations for the opening year 2027 were used in this assessment and were obtained from the DEFRA mapping study for the grid square containing the site, as shown in Table 11.

NO_x to NO_2 Conversion

Predicted annual mean NO_2 concentrations were converted to NO_2 concentrations using the spreadsheet (version 9.1) provided by DEFRA, which is the method detailed within DEFRA guidance[30].

Verification

The results from a dispersion model may differ from measured concentrations for a large number of reasons, including.

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

For the purpose of the assessment, model verification was undertaken for 2024 using traffic data, meteorological data and monitoring results from this year.

An annual mean NO_2 background concentration of 17.3µg/m^3 was taken from the ST3NO monitor for use in the assessment. This value was chosen to represent annual mean NO_2 background concentrations in the vicinity of the site as it is derived from real world measurements rather than modelled estimates from the DEFRA mapping tool. As such, it is considered to provide the most accurate source of data and limit uncertainty in predicted pollutant concentrations.

Monitoring of NO_2 concentrations was undertaken at three locations within the vicinity of roads included within the model during 2024. Results were obtained and the road contributions to total NO_x concentrations calculated following the methodology contained within DEFRA guidance[31]. The monitored annual mean NO_2 concentrations and calculated road NO_x concentrations are summarised in Table A.3.

30 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.
31 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table A.3: Verification - Monitoring Results

Monitoring Location	Monitored NO_2 Concentration (µg/m³)	Calculated Road NO_x Concentration (µg/m³)
MA75NO	37.2	51.67
CAP_MANC_126	40.7	63.12
CAP_MANC_125	47.5	87.92

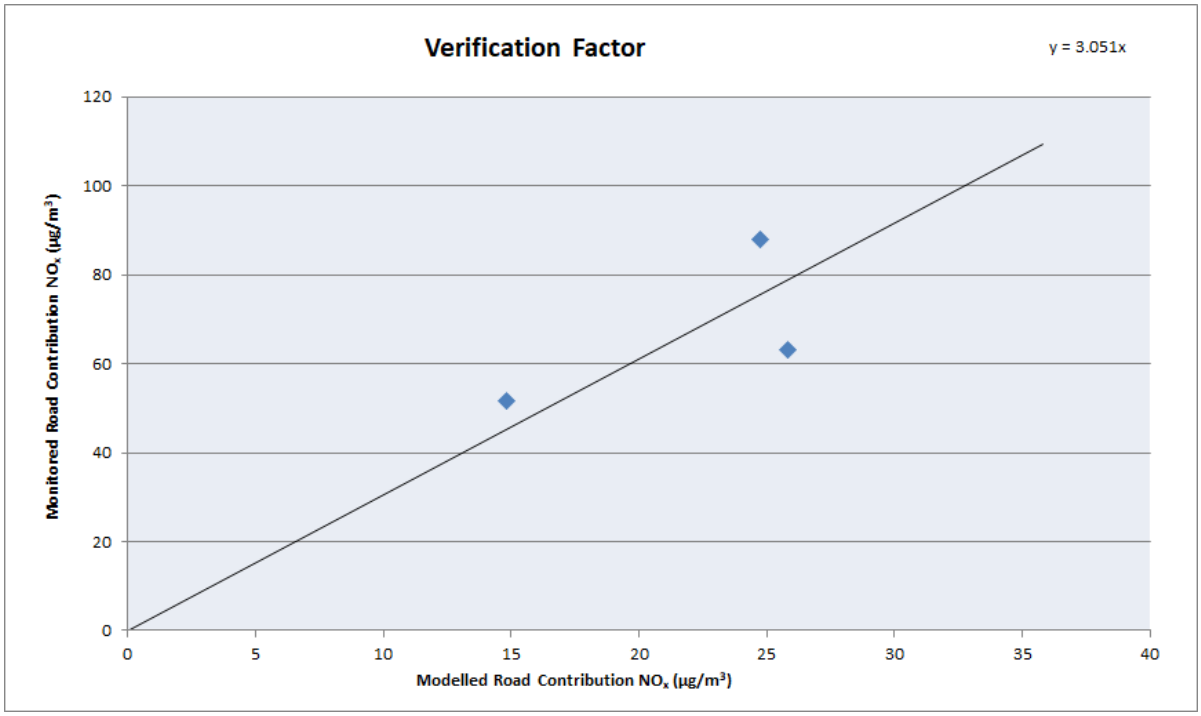
The annual mean road NO_x concentrations predicted from the dispersion model and the 2024 road NO_x concentrations calculated from the monitoring results are summarised in Table A.4.

Table A.4: Verification - Modelling Results

Monitoring Location	Calculated Road NO_x Concentration (µg/m³)	Modelled Road NO_x Concentration (µg/m³)
MA75NO	51.67	14.80
CAP_MANC_126	63.12	25.80
CAP_MANC_125	87.92	24.76

The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated that a verification factor of 3.051 was required to be applied to all NO_x modelling results, as shown in Graph 1.

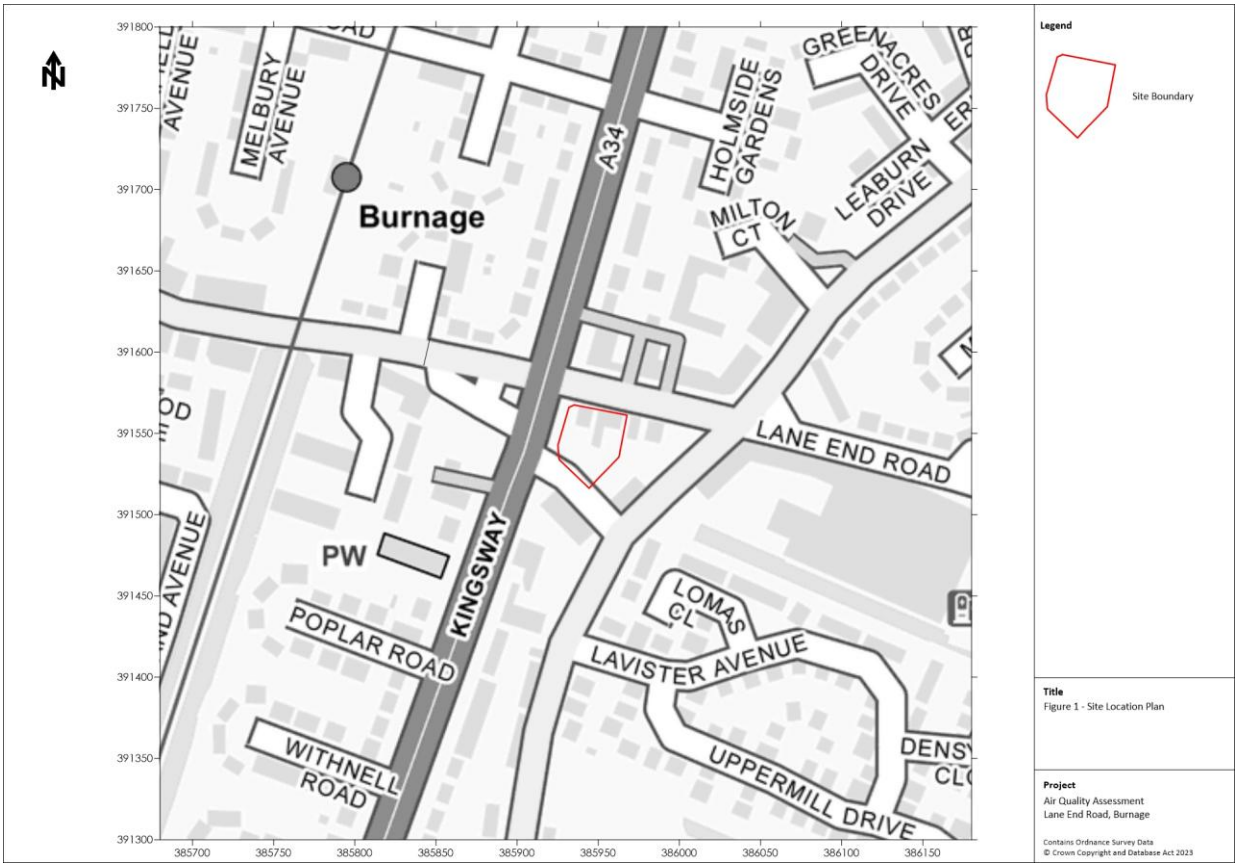
Graph 1 NO_x Verification Factor

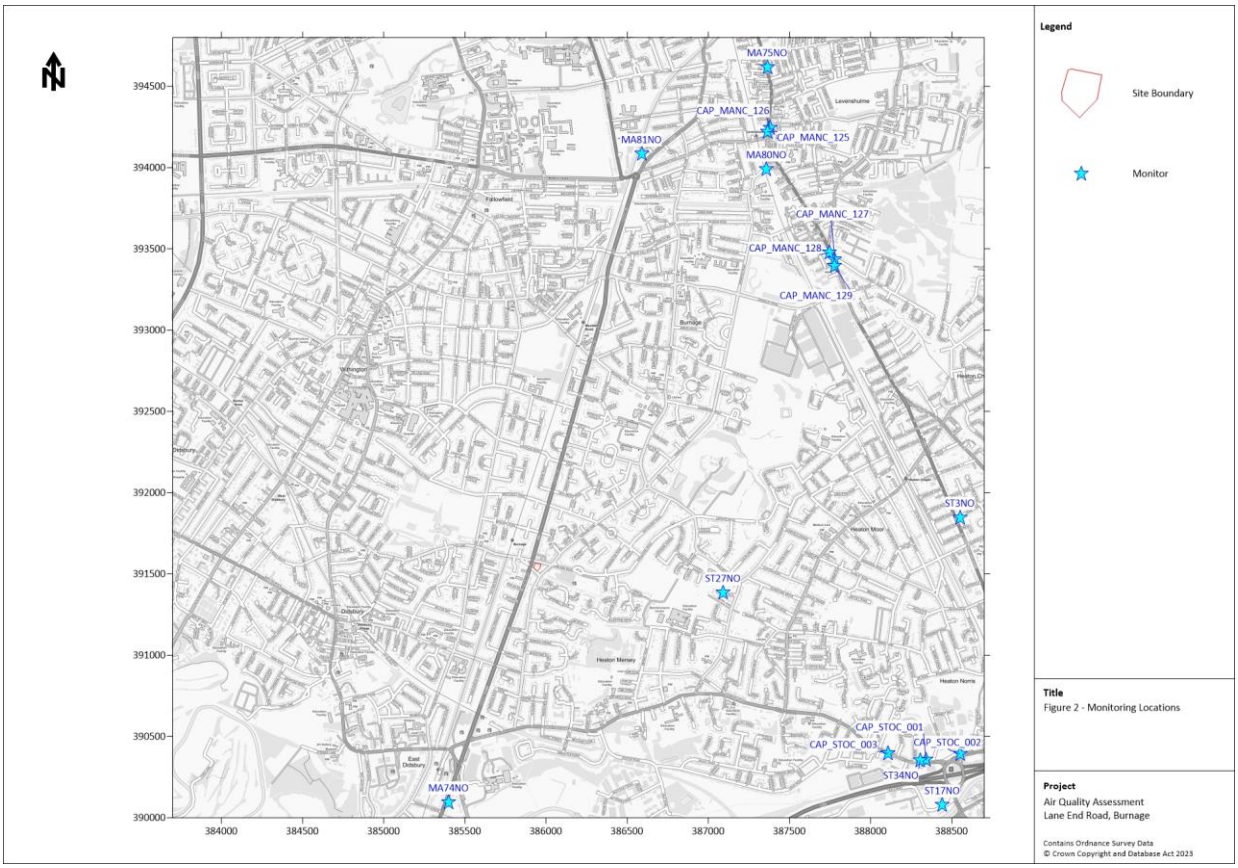


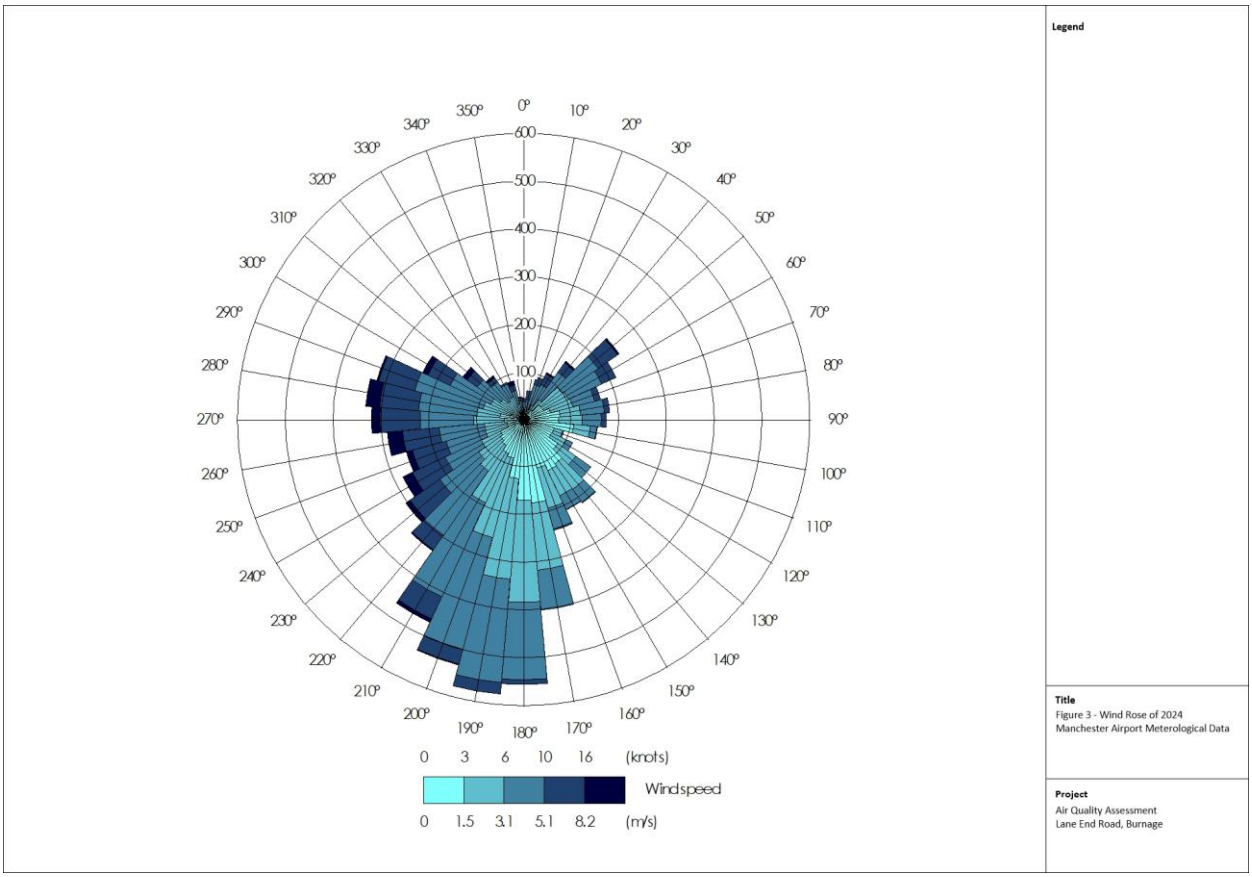
Monitoring of PM_{10} or $PM_{2.5}$ concentrations is not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with DEFRA guidance[32].

[32] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

APPENDIX 3: FIGURES



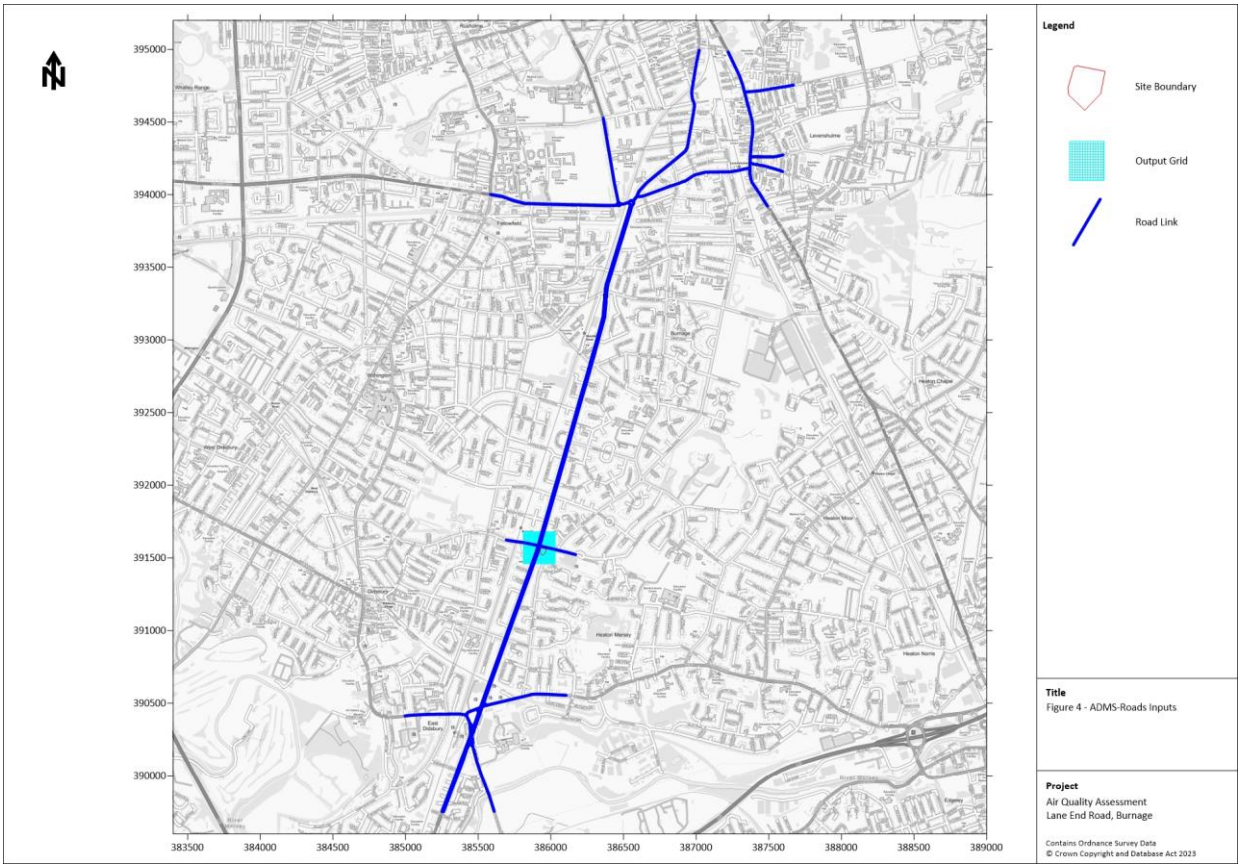




Legend

Title
Figure 3 - Wind Rose of 2024
Manchester Airport Meterological Data

Project
Air Quality Assessment
Lane End Road, Burnage



Legend

Site Boundary

Output Grid

Road Link

Title
Figure 4 - ADMS-Roads Inputs

Project
Air Quality Assessment
Lane End Road, Burnage

Contains Ordnance Survey Data
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Legend
Site Boundary
Annual Mean NO_2 Concentration (µg/m³)
Proposed Residential
Title
Figure 5 - Predicted Annual Mean NO_2 Concentrations (µg/m³) First Floor
Project
Air Quality Assessment
Lane End Road, Burnage
Contains Ordnance Survey Data © Crown Copyright and Database Act 2023
SWAY


Legend
Site Boundary
Annual Mean PM_{10} Concentration (µg/m³)
Proposed Residential
Title
Figure 6 - Predicted Annual Mean PM_{10} Concentrations (µg/m³) First Floor
Project
Air Quality Assessment
Lane End Road, Burnage
Contains Ordnance Survey Data © Crown Copyright and Database Act 2023
SWAY