

AIR QUALITY ASSESSMENT

Proposed Residential Development

Land off Tan Yard Brow, Gorton

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QUALITY ASSURANCE & REPORT INFORMATION

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EXECUTIVE SUMMARY

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 earthworks, construction and trackout activities was predicted to be **not significant**.

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. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the local highway network both with and without the development in place. Results were subsequently verified using local monitoring data.

Review of the dispersion modelling results indicated that impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations as a result of traffic generated by the development were predicted to be **negligible** at all sensitive receptor locations.

The results of the dispersion modelling assessment also indicated that NO₂, PM₁₀ and PM_{2.5} concentrations were predicted to be below the relevant AQOs and Concentration Target at all sensitive locations across the development. As such, the site is considered suitable for the proposed use from an air quality perspective.

Following consideration of the relevant issues, air quality impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.

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

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1 INTRODUCTION

1.1 Appointment

- 1.1.1 This Air Quality Assessment has been prepared to support the planning application for a proposed residential development on land off Tan Yard Brow, Gorton.
- 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 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.

1.2 Site Location and Context

- 1.2.1 The site is located on land off Tan Yard Brow, Gorton, at approximate National Grid Reference (NGR): 389176, 395956. Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The proposals comprise of construction of 25 dwellings (Use Class C3), including a mix of apartments and cottages, creation of a new access point and provision of landscaping.
- 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 residents to any existing air quality issues at the site. 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 POLICY & 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 (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- 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 2023¹. 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 2023² 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/m ³)	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 ($\mu\text{g}/\text{m}^3$)	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 guidance³ 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 Framework⁴ (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:

"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 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."

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

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 Guidance⁵ (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 relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;*

⁵ <https://www.gov.uk/guidance/air-quality--3>.

⁶ Places for Everyone Joint Development Plan Document, GMCA, 2024.

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.

2.7.2 Review of the Core Strategy DPD indicated the following policies of relevance to the 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

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

[...]

⁷ Core Strategy DPD, MCC, 2012.

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 the 'Air Quality & Planning Technical Guidance' Document⁸ which provides guidance on assessing the impact of proposed development on air quality.

2.7.4 The above policies and guidance 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 NO₂ 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 NO₂ 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 proposals⁹ 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, 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 residents 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 three types to reflect their different potential impacts. These are:

- 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 PM₁₀.

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:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A);

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

- 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	Earthworks	• Total site area greater than 110,000m² • 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 75,000m³ • 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	Earthworks	• Total site area 18,000m² to 110,000m² • 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 12,000m³ to 75,000m³ • Potentially dusty construction material (e.g. concrete) • On site concrete batching
	Trackout	• 20 to 50 HDV trips per day • Moderately dusty surface material (e.g. high clay content) • Unpaved road length 50m to 100m
Low	Earthworks	• Total site area less than 18,000m² • 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 3m in height
	Construction	• Total building volume less than 12,000m³ • 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 PM₁₀. e.g. residential properties, hospitals, schools and residential care homes	• Internationally or nationally designated site e.g. Special Area of Conservation

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
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/m ³	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low

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
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	Less than 24µg/m ³	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 earthworks, construction and trackout activities.

Table 8. 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

- 3.2.16 Step 3 requires the identification of site specific mitigation measures within the IAQM guidance¹¹ 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

- 3.2.17 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 proposed development has the potential to affect existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site. Potential impacts have therefore been defined by predicting pollutant concentrations at sensitive locations using dispersion modelling for the following scenarios:

- 2023 - Verification;
- Opening year Do-Minimum (DM) (predicted traffic flows in 2027 should the proposal not proceed); and;
- Opening year Do-Something (DS) (predicted traffic flows in 2027 should the proposals be completed).

- 3.3.2 Reference should be made to Appendix 2 for assessment input data and details of the verification process.

- 3.3.3 Locations sensitive to potential changes in pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided within the 'Design Manual for Roads and Bridges' (DMRB)¹² on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance¹³ on where the AQOs apply, as summarised in Table 2, was utilised to determine worst-case receptor positions in the vicinity of links likely to be affected by changes in traffic flows as a result of the development.

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

¹² LA 105: Air Quality, National Highways, 2024.

¹³ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

3.3.4 The significance of predicted air quality impacts was determined in accordance with the guidance provided within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹⁴. Using this methodology impacts were defined based on the interaction between the predicted pollutant concentration from the DS scenario and the magnitude of change between the DM and DS scenarios, as outlined in Table 9.

Table 9. Significance of Road Vehicle Exhaust Emission Impact

Concentration at Receptor in Assessment Year	Predicted Concentration Change as Proportion of AQO/Concentration Target (%)			
	1	2 - 5	6 - 10	> 10
75% or less of AQO/Concentration Target	Negligible	Negligible	Slight	Moderate
76 - 94% of AQO/Concentration Target	Negligible	Slight	Moderate	Moderate
95 - 102% of AQO/Concentration Target	Slight	Moderate	Moderate	Substantial
103 - 109% of AQO/Concentration Target	Moderate	Moderate	Substantial	Substantial
110% or more of AQO/Concentration Target	Moderate	Substantial	Substantial	Substantial

3.3.5 The matrix shown in Table 9 is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which makes it clearer which cell the impact falls within. It should be noted that changes of 0%, i.e. less than 0.5%, are described as **negligible**.

3.3.6 Following the prediction of impacts at discrete receptor locations, the IAQM document¹⁵ provides guidance on determining the overall air quality impact significance of the operation of a development. The following factors are identified for consideration by the assessor:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and,
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

3.3.7 The IAQM guidance states that an assessment must reach a conclusion on the likely significance of the predicted impact. Where the overall effect is **moderate** or **substantial**, the effect is likely to be considered **significant**, whilst if the impact is **slight** or **negligible**, the impact is likely to be considered **not significant**. It should be noted that this is a binary judgement of either it is **significant** or it is **not significant**.

3.3.8 The determination of significance relies on professional judgement and reasoning has been provided as far as practicable. The IAQM guidance¹⁶ suggests the provision of details of the assessor's qualifications and experience. These may be provided on request.

Potential Future Exposure

3.3.9 The proposals have the potential to expose future residents to elevated pollution levels. In order to assess NO₂, PM₁₀ 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.

¹⁴ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁵ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁶ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

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

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 NO₂ concentrations are above the AQO within the city. As such a number of roads within Manchester have been included within the GMCA AQMA. This is described as follows:

"This is the part of the GMCA AQMA located within the Manchester 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 the exposure of future residents 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 AQMA's have been designated.

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by MCC throughout their area of jurisdiction. Recent annual mean NO₂ concentrations recorded in the vicinity of the development are shown in Table 10.

Table 10. Monitoring Results

Monitoring Site		Monitored NO ₂ Concentration (µg/m ³)			
		2020	2021	2022	2023
MA73NO	Hyde Road	27.3	31.6	31.5	29.5

4.3.2 As shown in Table 10, annual mean NO₂ concentrations were below the AQO of 40µg/m³ at the MA73NO - Hyde Road monitor in recent years. Reference should be made to Figure 3 for a map of the survey position.

4.3.3 It should be noted that pollutant concentrations recorded during 2020 and 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 IAQM¹⁷, 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 PM₁₀ or PM_{2.5} monitoring within the vicinity of the site.

¹⁷ Use of 2020 and 2021 Monitoring Datasets - IAQM Position Statement V1.1, IAQM, 2023.

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: 389500, 395500. Data for this location was downloaded from the DEFRA website¹⁸ 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)		
	2023	2025	2027
NO ₂	15.22	14.04	12.92
PM ₁₀	13.07	12.95	12.84
PM _{2.5}	8.03	7.89	7.77

4.4.2 As shown in Table 11, predicted background NO₂, PM₁₀ 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.

Construction Phase Sensitive Receptors

4.5.2 Receptors sensitive to potential dust impacts during 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. Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	1 - 10	0
Up to 50	10 - 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

¹⁸ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>.

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 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 indicated that an application for a residential development comprising 50 units (reference: 141520/FO/2024) approximately 130m east of the site has recently been submitted. It is therefore possible that there will be concurrent dust generation in the area should permission be granted and the construction phases overlap
Pre-existing screening between the source and the receptors	Trees are located beyond the northern, eastern and southern boundaries. These may act as a barrier between emission sources and 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 4, the predominant wind bearing at the site is from the south, with significant frequencies from the south and south-west. As such, receptors to the north and north-east 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 Dust sensitive receptors within 250m of the development site include places of work and residential dwellings. These are considered to be of **medium** and **high** sensitivity, respectively. It should be noted that only receptors of **medium** sensitivity are present within 20m of the boundary.

4.5.7 Dust sensitive receptors up to 50m of the site access route within 250m of the site entrance include residential properties. These are considered to be of **high** sensitivity.

4.5.8 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		
	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	High
Human Health	Low	Low	Medium

Operational Phase Sensitive Receptors

4.5.9 Locations sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study and are summarised in Table 16.

Table 16. Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

Receptor		NGR (m)	
		X	Y
R1	Residential - A57 Hyde Road	389164.0	395861.6
R2	Residential - A57 Hyde Road	389219.0	395844.7
R3	Residential - A57 Hyde Road	389114.7	395874.6
R4	Residential - A57 Hyde Road	389074.6	395883.3
R5	Residential - A57 Hyde Road	388878.1	395945.6
R6	Residential - A57 Hyde Road	388777.1	396010.0
R7	Residential - A57 Hyde Road	388796.1	395974.1

4.5.10 Reference should be made to Figure 5 for a graphical representation of the road vehicle exhaust emission sensitive receptor locations.

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 residents 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 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

Earthworks

- 5.2.4 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The site covers an area of less than 18,000m². In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.
- 5.2.5 Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **medium**. In accordance with the criteria outlined in Table 8, the development is considered to be a **low** risk site for dust soiling as a result of earthworks.
- 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 earthworks.

Construction

- 5.2.7 The total proposed building volume to be constructed is estimated to be less than 12,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **small**.
- 5.2.8 Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **medium**. In accordance with the criteria outlined in Table 8, the development is considered to be a **low** risk site for dust soiling as a result of construction activities.
- 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 8, the development is considered to be a **negligible** risk site for human health impacts as a result of construction activities.

Trackout

- 5.2.10 Based on the site area, it is anticipated that the unpaved road length will be less than 50m. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.
- 5.2.11 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 8, the development is considered to be a **low** risk site for dust soiling as a result of trackout activities.
- 5.2.12 Table 15 indicates the sensitivity of the area to human health impacts is **medium**. In accordance with the criteria outlined in Table 8, 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

- 5.2.13 A summary of the risk from each dust generating activity is provided in Table 17.

Table 17. Summary of Potential Unmitigated Dust Risks

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

- 5.2.14 As indicated in Table 17, the potential risk of dust soiling is **low** from earthworks, construction and trackout. The potential risk of human health impacts is **low** from trackout and **negligible** from earthworks and construction.
- 5.2.15 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

- 5.2.16 The IAQM guidance¹⁹ 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 18. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan or similar if required by the LA.

Table 18. Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	- 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

¹⁹ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Issue	Control Measure
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	- 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 - Avoid site runoff of water or mud
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
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
Waste management	Avoid bonfires or burning of waste materials
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
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

5.2.17 Assuming the relevant mitigation measures outlined in Table 20 are implemented, the residual impact from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance²⁰.

5.3 Operational Phase Assessment

5.3.1 Vehicle movements associated with the operation of the proposal will generate exhaust emissions on the local and regional road networks. An assessment was therefore undertaken using dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the site.

5.3.2 The assessment considered the following scenarios:

- 2023 - Verification;
- 2027 - DM; and,
- 2027 - DS.

5.3.3 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth for the relevant assessment year. The DS scenario (i.e. with development) included baseline traffic data, inclusive of anticipated growth for the relevant assessment year, in addition to predicted vehicle trips associated with the operation of the proposals.

5.3.4 For the purpose of the assessment traffic data for 2027 was utilised as the development opening year. Air quality is predicted to improve in the future. However, in order to provide a robust assessment, emissions factors for 2023 were utilised within the dispersion model. The use of 2027 traffic data and 2023 emission factors is considered to provide a worst-case scenario and therefore a sufficient level of confidence can be placed within the predicted pollution concentrations.

5.3.5 Reference should be made to Appendix 2 for full assessment input details.

Predicted Concentrations

5.3.6 Annual mean NO₂ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 19.

Table 19. Predicted Annual Mean NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A57 Hyde Road	28.01	28.03	0.02
R2	Residential - A57 Hyde Road	27.66	27.68	0.02
R3	Residential - A57 Hyde Road	28.46	28.48	0.02
R4	Residential - A57 Hyde Road	28.41	28.44	0.03
R5	Residential - A57 Hyde Road	27.85	27.87	0.02
R6	Residential - A57 Hyde Road	35.97	36.00	0.03
R7	Residential - A57 Hyde Road	28.00	28.02	0.02

5.3.7 As indicated in Table 19, predicted annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all sensitive receptor locations in both scenarios.

5.3.8 Reference should be made to Figure 6 for graphical representations of predicted annual mean NO₂ concentrations throughout the assessment extents for the DM and DS scenarios.

5.3.9 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in in Table 20.

Table 20. Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A57 Hyde Road	15.29	15.29	0.01

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R2	Residential - A57 Hyde Road	15.16	15.16	0.01
R3	Residential - A57 Hyde Road	15.45	15.46	0.01
R4	Residential - A57 Hyde Road	15.43	15.44	0.01
R5	Residential - A57 Hyde Road	15.20	15.21	0.01
R6	Residential - A57 Hyde Road	17.43	17.44	0.01
R7	Residential - A57 Hyde Road	15.15	15.16	0.01

5.3.10 As indicated in Table 20, predicted annual mean PM₁₀ concentrations were below the AQO of 40µg/m³ at all sensitive receptor locations in both scenarios.

5.3.11 Reference should be made to Figure 7 for graphical representations of predicted annual mean PM₁₀ concentrations throughout the assessment extents for the DM and DS scenarios.

5.3.12 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 21.

Table 21. Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A57 Hyde Road	9.10	9.10	0.00
R2	Residential - A57 Hyde Road	9.03	9.04	0.00
R3	Residential - A57 Hyde Road	9.19	9.19	0.01
R4	Residential - A57 Hyde Road	9.18	9.18	0.01
R5	Residential - A57 Hyde Road	9.06	9.06	0.00
R6	Residential - A57 Hyde Road	10.26	10.26	0.01
R7	Residential - A57 Hyde Road	9.03	9.03	0.00

5.3.13 As indicated in Table 21, predicted annual mean PM_{2.5} concentrations were below the Interim Target of 12µg/m³, to be achieved by 2028, at all sensitive receptor locations. Levels were above the Concentration Target of 10µg/m³, to be achieved by 2040, at one sensitive receptor and below at six locations in both scenarios. It should be noted that there are no new predicted exceedences in the DS scenario when compared with the DM.

5.3.14 Reference should be made to Figure 8 for graphical representations of predicted annual mean PM_{2.5} concentrations throughout the assessment extents for the DM and DS scenarios.

Predicted Impacts

5.3.15 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 22.

Table 22. Predicted Impacts - NO₂

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R2	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R3	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R4	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R5	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R6	Residential - A57 Hyde Road	76 - 94% of AQO	0	Negligible
R7	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible

5.3.16 As indicated in Table 22, impacts on annual mean NO₂ concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

5.3.17 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 23.

Table 23. Predicted Impacts - PM₁₀

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R2	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R3	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R4	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R5	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R6	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible
R7	Residential - A57 Hyde Road	Below 75% of AQO	0	Negligible

5.3.18 As indicated in Table 23, impacts on annual mean PM₁₀ concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

5.3.19 Predicted impacts on annual mean PM_{2.5} concentrations at the sensitive receptor locations are summarised in Table 24.

Table 24. Predicted Impacts - PM_{2.5}

	Receptor	Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of Concentration Target (%)	Impact Significance
R1	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible
R2	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible
R3	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible
R4	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible
R5	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible
R6	Residential - A57 Hyde Road	103 - 109% of Concentration Target	0	Negligible
R7	Residential - A57 Hyde Road	76 - 94% of Concentration Target	0	Negligible

5.3.20 As indicated in Table 24, impacts on annual mean PM_{2.5} concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

Potential Future Exposure

5.3.21 The proposed development has the potential to expose future residents 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 6, 7 and 8 for graphical representations of predicted annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.

5.3.22 As shown in Figure 6, annual mean NO₂ concentrations were predicted to be below the AQO of 40µg/m³ at the proposed residential units. The maximum level was 25.05µg/m³.

5.3.23 As shown in Figure 7, annual mean PM₁₀ concentrations were predicted to be below the AQO of 40µg/m³ at the proposed residential units. The maximum level was 14.21µg/m³.

5.3.24 As shown in Figure 8, annual mean PM_{2.5} concentrations were predicted to be below the Concentration Target of 10µg/m³ at the proposed residential units. The maximum level was 8.53µg/m³.

5.3.25 Based on the assessment results, future residents 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.

Overall Impact Significance

5.3.26 The overall significance of operational phase road traffic emission impacts was determined as **negligible**. This was based on the overall predicted impacts at discrete receptor locations and the considerations outlined previously. Further justification is provided in Table 25.

Table 25. Overall Road Vehicle Exhaust Emissions Impact Significance

Guidance	Comment
The existing and future air quality in the absence of the development	Predicted annual mean NO ₂ and PM ₁₀ concentrations were below the relevant AQOs at all locations in the DM scenario

Guidance	Comment
	Predicted annual mean PM_{2.5} concentrations were above the Concentration Target at one receptor and below at six locations in the DM scenario It is considered unlikely that future air quality conditions will change significantly in the absence of the development given the relatively established nature of the area
The extent of current and future population exposure to the impacts	The development is not predicted to affect the population exposed to exceedences of the AQOs or Concentration Target
The influence and validity of any assumptions adopted when undertaking the prediction of impacts	The assessment assumed that vehicle exhaust emission rates and background concentrations will not reduce in future years. This provides worst-case results when compared with DEFRA and National Highways methodologies Due to the adopted assumptions it is considered the presented results are sufficiently robust for an assessment of this nature

5.3.27 The IAQM guidance²¹ states that only if the impact is greater than **slight**, the effect is considered **significant**. As impacts were predicted to be **negligible**, overall effects are considered **not significant**, in accordance with the stated methodology.

5.4 Interim Planning Guidance for PM_{2.5}

5.4.1 Interim Planning Guidance²² 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 26, along with the development response.

Table 26. Overall Road Vehicle Exhaust Emissions Impact Significance

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 approximately 175m east of the proposals The main pollution source of concern is the A57 Hyde Road, which is adjacent to the southern development boundary. However, as outlined in Section 5.3, PM_{2.5} concentrations at all sensitive locations 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
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 set back from the A57 Hyde Road. The units are located approximately 50m from the main pollution source. This will help to reduce PM_{2.5} exposure for future residents In order to reduce emissions of PM_{2.5} with associated impacts at nearby receptors, the following measures covered cycle parking for 26 bicycles will be included to encourage the use of alternative modes of travel 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

²¹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

²² <https://uk-air.defra.gov.uk/pm25targets/planning>.

- 5.4.2 Based on the responses provided in Table 26 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 MITIGATION

6.1.1 A number of mitigation measures have been included within the development to encourage the use of sustainable transport modes, manage vehicle flow and reduce pollution around the site. These are in accordance with MCC's 'Air Quality and Planning Technical Guidance'²³, which is based upon the Good Practice Design Principles outlined in the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'²⁴. Table 27 describes the good practice principles along with how each has been addressed with regards to the proposals.

Table 27. Overall Road Vehicle Exhaust Emissions Impact Significance

Phase	Principle	Action
Design Phase	New developments should not contravene the Council's AQAP ²⁵ , or render any of the measures unworkable	It is confirmed that the proposals 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 or a building configuration that inhibits effective dispersion
	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 proximity to public transport and amenities
Operational Phase	The provision of at least 1 EV "rapid charge" point per 10 residential dwellings and/or 1,000m ² of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made	The number of EV charging points to be included within the scheme was not known at the time of reporting. This can be secured via planning condition, if required
	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 can be secured via condition, if required by MCC
	All gas-fired boilers to meet a minimum standard of <40mgNO _x /kWh	Any boilers to be included in the development will be provisioned in accordance with the relevant requirements

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

²³ Air Quality & Planning Technical Guidance, MCC, 2022.

²⁴ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

²⁵ Greater Manchester AQAP 2016-2021, GMCA, 2016.

7 CONCLUSION

- 7.1.1 Professional Consult Limited, working with our approved associate consultant Redmore Environmental Ltd, was instructed by John Stephens & Co, to prepare an Air Quality Assessment to support the planning application for a proposed residential development on land off Tan Yard Brow, Gorton.
- 7.1.2 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 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.
- 7.1.3 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 earthworks, construction and trackout activities was predicted to be **not significant**.
- 7.1.4 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. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the local highway network both with and without the development in place. Results were subsequently verified using local monitoring data.
- 7.1.5 Review of the dispersion modelling results indicated that impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations as a result of traffic generated by the development were predicted to be **negligible** at all sensitive receptor locations.
- 7.1.6 The results of the dispersion modelling assessment also indicated that NO₂, PM₁₀ and PM_{2.5} concentrations were predicted to be below the relevant AQOs and Concentration Target at all sensitive locations across the development. As such, the site is considered suitable for the proposed use from an air quality perspective.
- 7.1.7 Following consideration of the relevant issues, air quality impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.
- 7.1.8 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
AQAP	Air Quality Action Plan
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
CAP	Clean Air Plan
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DM	Do-Minimum
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
DS	Do-Something
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
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
SP	Slow Phase
TfGM	Transport for Greater Manchester

APPENDIX 2: ASSESSMENT INPUT DATA

Introduction

The proposed development has the potential to cause air quality impacts as a result of vehicles travelling to and from the site, as well as expose future residents to elevated pollution levels. In order to assess NO₂, PM₁₀ and PM_{2.5} concentrations at sensitive locations, detailed dispersion modelling was undertaken in accordance with the following methodology.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.0.1.3). 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 were predicted over the area NGR: 388740, 395810 to 389310, 396080. 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 9 for a graphical representation of the assessment area.

Traffic Flow Data

Baseline traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as HDV proportion, was obtained from the Department for Transport (DfT)²⁶. 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 2023. It should be noted that the DfT web tool is referenced in DEFRA guidance²⁷ as being a suitable source of data for air quality assessments and it is therefore considered to provide a

²⁶ <https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints>.

²⁷ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

reasonable estimate of traffic flows in the 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.

Development trip generation was provided by Focus Transport Planning, the Transport Consultants for the project. Flows were added to the relevant links to provide an estimation of traffic flows with the development in place.

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)
		Verif.	2027 DM	2027 DS			
L1	Hyde Road, west of Tan Yard Brow	27,084	28,311	28,388	5.20	14.7	35
L2	Hyde Road, east of Tan Yard Brow	27,084	28,311	28,427	5.20	14.7	35
L3	Hyde Road, west of Chapman Street	27,084	28,311	28,388	5.20	10.7	35
L4	Hyde Road, adjacent to Wellington Street, Slow Phase (SP)	27,084	28,311	28,388	5.20	11.3	20
L5	Hyde Road, adjacent to Crossfield Grove, SP	27,084	28,311	28,388	5.20	17.4	20
L6	Hyde Road	27,084	28,311	28,388	5.20	18.1	35
L7	Hyde Road, adjacent to Whitwell Way, SP	27,084	28,311	28,388	5.20	18.8	20

Reference should be made to Figure 9 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 (Version 12.1). This has been produced by DEFRA and incorporates COPERT 5.6 vehicle emission factors and fleet information.

There is uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2023 emission factors were utilised in preference to the development opening year in order to provide robust concentration predictions. As predictions for 2023 were verified, it is considered the results are a robust indication of worst case concentrations for the future year.

Meteorological Data

Meteorological data used in the assessment was taken from Manchester Airport meteorological station over the period 1st January 2023 to 31st December 2023 (inclusive). Manchester Airport is located at NGR: 381792, 384116, which is approximately 14km south-west 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 4 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 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

A review of DEFRA data and local monitoring results was undertaken in order to identify an appropriate background value for use in the assessment. This indicated that the annual mean NO_2 concentration at the TA3NO - Thompson Road diffusion tube during 2023 was $21.2\mu\text{g}/\text{m}^3$, higher than the DEFRA background concentration for the grid square containing the site of $14.04\mu\text{g}/\text{m}^3$. As such, the monitoring result was used to provide conservative predictions.

Monitoring of PM_{10} and $\text{PM}_{2.5}$ is not undertaken at a background location in the vicinity of the site. As such, the value used within the assessment was taken from the DEFRA background for the grid square containing the site, as shown in Table 11.

Similarly to emission factors, background concentrations from 2023 were utilised in preference to the development opening year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

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 guidance²⁸.

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.

²⁸ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

For the purpose of the assessment, model verification was undertaken for 2023 using traffic data, meteorological data and monitoring results from this year.

Monitoring of NO₂ concentrations was undertaken at one location within the vicinity of roads included within the model during 2023. The result was obtained and the road contribution to total NO_x concentration calculated following the methodology contained within DEFRA guidance²⁹. The monitored annual mean NO₂ concentration and calculated road NO_x concentration are summarised in Table A.2.

Table A.2: Verification - Monitoring Result

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
MA73NO	Hyde Road	29.50	19.95

The annual mean road NO_x concentration predicted from the dispersion model and the 2023 road NO_x concentration calculated from the monitoring result are summarised in Table A.3.

Table A.3: Verification - Modelling Result

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
MA73NO	Hyde Road	19.95	10.51

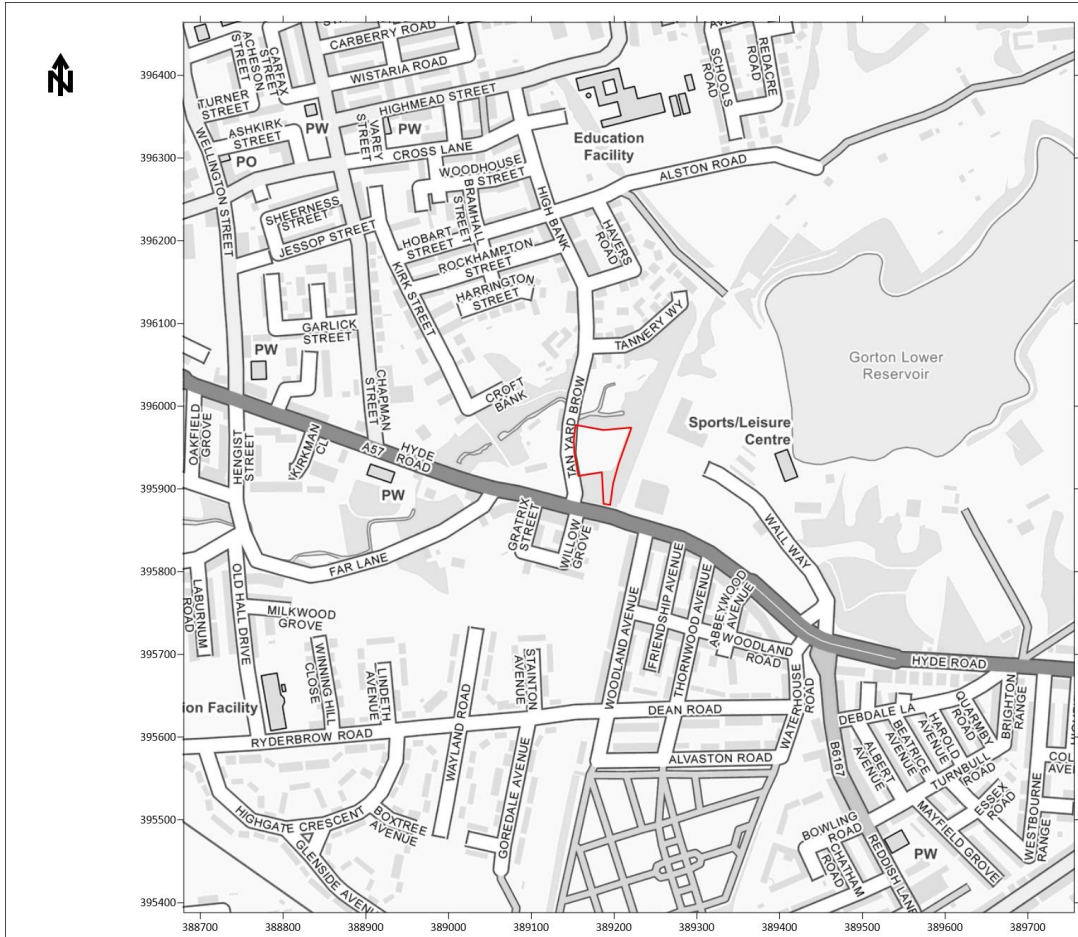
The monitored and modelled road NO_x concentrations were compared to calculate the associated ratio. This indicated a verification factor of 1.8984 was required to be applied to all modelling results.

Monitoring of PM₁₀ 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 guidance³⁰.

²⁹ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

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

APPENDIX 3: FIGURES



Legend

 Site Boundary

Title

Figure 1 - Site Location Plan

Project

Air Quality Assessment
Tan Yard Brow, Gorton

Contains Ordnance Survey Data
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Legend

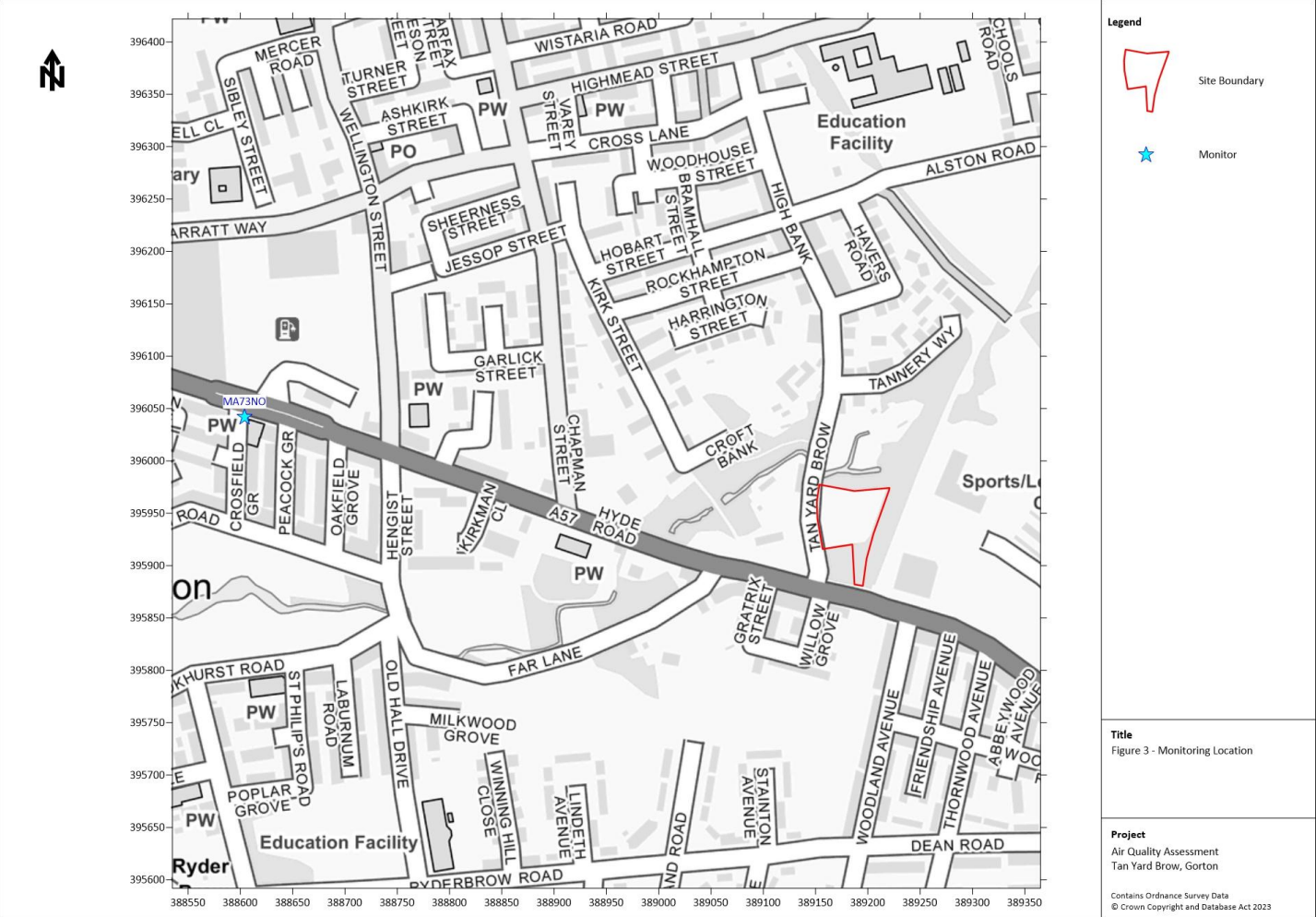
 Site Boundary

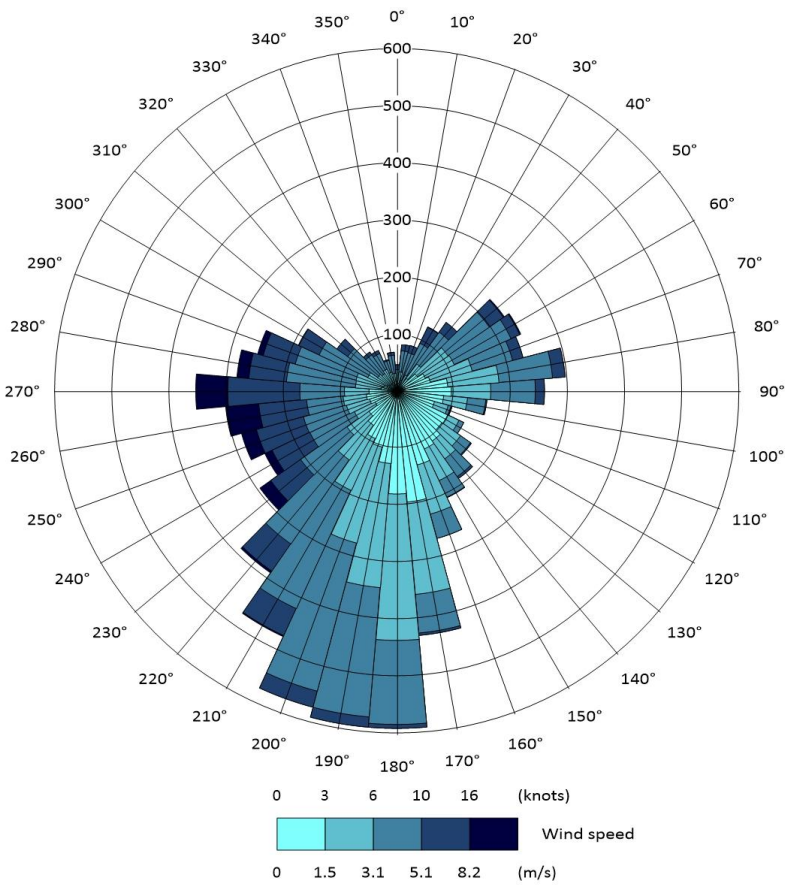
Title

Figure 2 - Site Layout Plan

Project

Air Quality Assessment
Tan Yard Brow, Gorton





Legend

Title
Figure 4 - Wind Rose of 2023
Manchester Airport Meteorological Data

Project
Air Quality Assessment
Tan Yard Brow, Gorton



