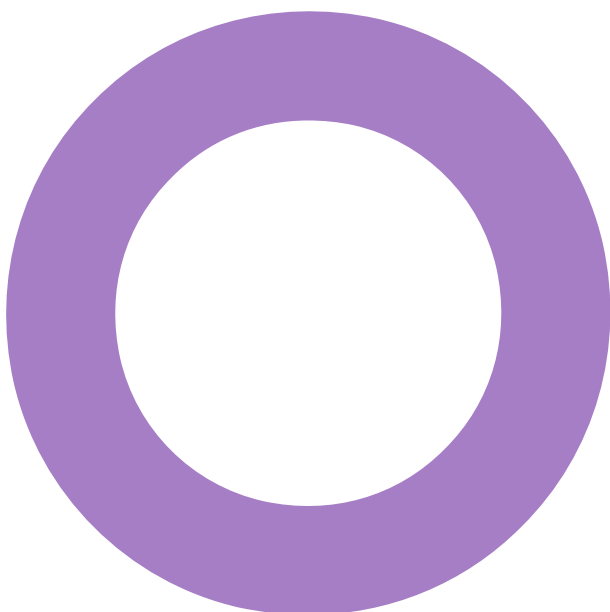


**Manchester Life, Poland Street
Zone - Jersey Wharf.
Manchester.**
**Manchester Life Development
Company 3 Limited.**

AIR QUALITY

AIR QUALITY ASSESSMENT

REVISION 01 – 04 MAY 2022



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	17/12/2021	First Draft	CS	LB	KW
01	04/05/2022	First Issue	ER	KW	CR

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Project number: 10/13661

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Executive Summary.

Hoare Lea have been commissioned by Manchester Life Development Company 3 Limited to undertake an air quality assessment to support the planning application for a proposed residential led development at land bound south of Jersey Street, Ancoats, Manchester (the 'Application Site').

The proposals comprise of the development of the Application Site to deliver up to 190 residential units, ground floor commercial floorspace and ancillary amenity space within a building up to 8-storeys (including ground), cycle parking provision, hard and soft landscaping, access and servicing and other associated works. As the proposals are for residential use with balconies proposed on all façades, the annual mean, 1-hour mean and 24-hour mean air quality objectives (AQO) for nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) apply.

The baseline assessment shows the Application Site is approximately 160 m south east at the closest point of the Manchester City Council (MCC) Air Quality Management Area (AQMA) declared for exceedances of the annual mean NO₂ AQO. Annual mean NO₂ concentrations have been in exceedance of the annual mean NO₂ AQO at the closest passive diffusion tube monitoring locations to the Application Site in recent years however short-term and long-term pollutant concentrations at the urban centre automatic monitoring station have been below the relevant AQOs in the last five years of representative monitoring data. Furthermore, Defra predicted background concentrations at the Application Site are below the relevant AQOs for all pollutants in the anticipated opening year of the Proposed Development.

The impacts of construction work on dust soiling and ambient fine particulate matter concentrations have been assessed. This assessment has identified that there is a medium risk of dust soiling impacts and a low risk of increases in particulate matter concentrations due to construction activities. The risk of dust causing a loss of local amenity and increased exposure to fine particulate matter concentrations has been used to identify appropriate mitigation measures. Provided these mitigation measures are implemented through good practice, the residual impacts are considered to be not significant.

The Proposed Development will include three disabled car parking bays and two loading bays however parking provision for residents will be made available at the nearby consented Mobility Hub where 60 spaces will be allocated representing 31.5% of parking provision at Mobility Hub. Additionally, 190 cycle spaces will be allocated at Mobility Hub for use by residents. The western part of the Application Site currently comprises a car park which is associated with the existing low-rise warehouse however the number of spaces is unknown. Despite this, the Proposed Development is expected to result in an overall decrease in vehicle trips when compared to the existing use. Therefore, the potential impact of the additional road traffic on local air quality is not significant and a detailed assessment is not required.

It has been confirmed by Buro Happold, the appointed Engineers for the project that the Proposed Development will meet its energy demand via an all-electric approach using zero-emission technologies. A back-up generator is proposed; however it has been confirmed that this will run for one hour per month for testing with an annual four hour test which is below the 18 hour threshold for exceeding the short-term AQOs. As such, there will be no impact on local air quality from the energy plant and mitigation measures are not required.

The site suitability assessment indicates no likely exceedances of the relevant AQOs for NO₂, PM₁₀ and PM_{2.5} at the Application Site. The Application Site is set back more than 245 m from major roads and therefore concentrations are likely to be nearer to background levels. Defra predicted background concentrations are predicted to be in compliance with the relevant AQOs in 2025, the anticipated opening year of the Proposed Development. In addition, the Defra NO₂ fall off with distance calculator indicates concentrations in locations set back more than 50m from the A665 Great Ancoats Street are in compliance with the annual mean NO₂ AQO. As such, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation measures.

Based on the results of the assessment, air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of the National Planning Policy Framework and the MCC Local Plan.

1. Introduction.

Hoare Lea have been commissioned by Manchester Life Development Company 3 Limited to undertake an Air Quality Assessment to support the planning application for a proposed residential led development at land bound south of Jersey Street, Ancoats, Manchester (hereafter referred to as the 'Application Site').

1.1 Proposed Development.

The Proposed Development will comprise up to 190 residential units, ground floor commercial floorspace, and ancillary amenity space within a building up to eight storeys (including ground), cycle parking provision, hard and soft landscaping, access and servicing and other associated works. The eastern portion of the Application Site is currently vacant with a low-rise warehouse and associated car park in the western portion.

As part of the proposals, there is no on-site parking provision for residents. There will be three disabled bays and two loading bay for servicing and deliveries. Parking provision for residents will be made available at the nearby consented Mobility Hub development (Manchester City Council planning ref: 130627/FO/2021), located approximately 120m north of the Application Site, where 60 spaces will be allocated representing 31.5% of car parking provision at the Mobility Hub. Additionally, 190 cycle spaces will be allocated for use by residents at the Mobility Hub.

It has been confirmed by Buro Happold, the appointed Engineers for the project that the Proposed Development will meet its energy demand for space and water heating via an all-electric approach using zero emission technologies. A back-up diesel generator is proposed; however it has been confirmed that the generator will run for only one hour per month for testing with an annual four hour test which is below the threshold criteria of 18 hours for exceeding the short-term air quality objectives (AQOs). As such, there will be no impact to local air quality from the energy plant and no mitigation measures are required. Furthermore, the ground floor commercial units are to be 'shell and core' level fitout therefore the heating and hot water systems will be installed by the tenant. As such, a detailed assessment of the impacts of emissions associated with the proposed energy plant has been screened out of this assessment.

1.2 Application Site Description and Location.

The Application Site is located within the administrative area of Manchester City Council (MCC) at approximate National Grid Reference (NGR) X 385250, Y 398760.

The Application Site is bound by Jersey Street to the north and the Rochdale Canal to the south. To the east of the Application Site is existing grassland and to the west, the Flint Glass Wharf/Works. Figure 1 shows the location of the Application Site.

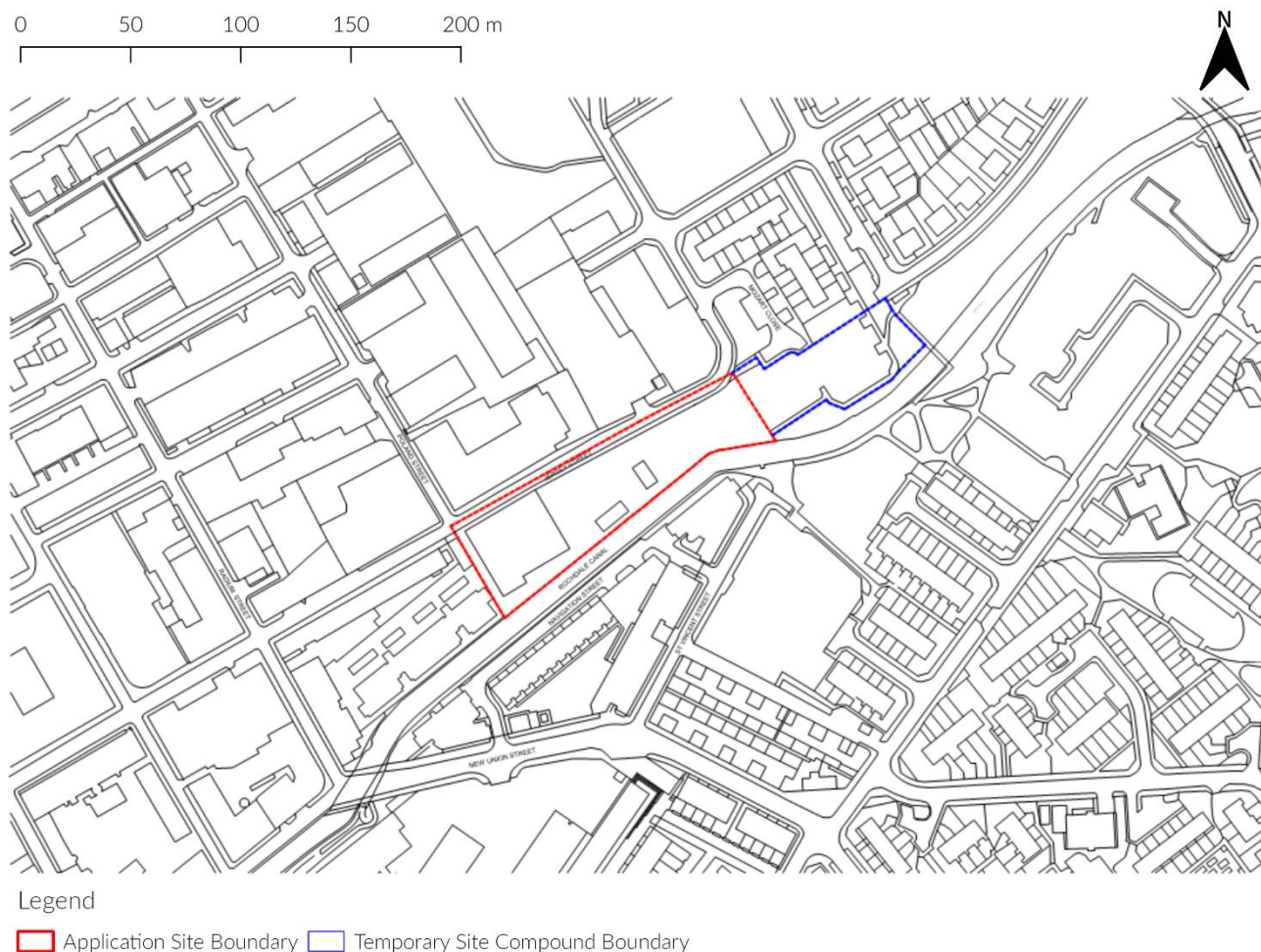


Figure 1: Location of the Application Site. Contains Ordnance Survey Data © Crown Copyright 2022.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to MCC on the 3 December 2021. A response was received on 10 December 2021 from Laura Miller of the Environmental Protection Section at MCC. A copy of the correspondence with MCC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Determination of baseline scenario, using MCC monitoring data;
- Assessment of potential air quality impacts during the construction phase;
- An assessment of the suitability of the Application Site for the proposed residential use
- Assessment of potential air quality impacts during the operational phase; and
- Identification of required mitigation measures.

As part of the response, MCC stated that the Greater Manchester Combined Authority (GMCA) have committed to reducing annual mean PM_{2.5} concentrations to the World Health Organisation (WHO) guideline of 10 µg/m³ by 2030 as part of their commitment to become a “BreatheLife” city and this has been considered within this assessment.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)¹ requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy² provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these air quality objectives (AQOs).

Local authorities are required to identify whether the objectives have been, or will be, achieved at relevant locations. If the objectives are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an Air Quality Action Plan (AQAP) within 12 months. The action plan must identify appropriate measures and policies that can be introduced to help achieve the objective(s).

The AQOs set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations 2000³, and the Air Quality (England) (Amendment) Regulations 2002⁴.

The objectives for nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}) are given in Table 1. The target dates for meeting the NO₂ and PM₁₀ objectives were 2005 and 2004, respectively. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of PM_{2.5}.

Table 1: Air Quality Objectives for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO ₂)	1-hour Mean	200 µg/m ³ Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
Fine Particulate Matter (PM ₁₀) [†]	24-hour Mean	50 µg/m ³ Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
Fine Particulate Matter (PM _{2.5}) [†]	Annual Mean	25 µg/m ³
<u>Notes:</u> [†] Measured gravimetrically.		

The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in LAQM.TG(16)¹⁶ and include building facades of residential properties, schools, hospitals. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, nor kerbsides nor gardens.

The 24-hour objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels.

The 1-hour objective for NO₂ also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, car parks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values.

The European Union has also set limit values for NO₂, PM₁₀ and PM_{2.5}; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010⁵ and The Air Quality Standards (Amendment) Regulations 2016⁶.

The limit values for NO₂, PM₁₀ and PM_{2.5} are the same as the English objectives (given in Table 1), but applied from 2010 for NO₂, 2005 for PM₁₀ and 2015 for PM_{2.5}. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 General Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10µm in diameter (i.e. greater than PM₁₀) typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.4 UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations.

The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations⁷ was published in 2017. This sets out roles and responsibilities and measures for bringing NO₂ levels within the mandatory limit values in the shortest possible time. Under the UK Plan, local authorities with roadside concentrations of NO₂ forecast by the Defra as exceeding legal limits are identified; MCC has been identified as one of these local authorities.

2.5 Clean Air Strategy.

The Clean Air Strategy (CAS)⁸, published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air to help meet EU limit values for the five most damaging air pollutants: NO_x (including NO₂), PM_{2.5}, NH₃, sulphur dioxide (SO₂), non-methane volatile organic compounds (NMVHC).

The immediate challenge is to reduce NO_x emissions due to non-compliance with the limit value for annual mean NO₂ (as given in Table 1). Targets for action include road traffic to reduce ambient NO₂ concentrations, and domestic coal and wood burning to improve ambient PM_{2.5} concentrations.

2.6 Planning Policy.

2.6.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021⁹ sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

Paragraph 55: "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

Paragraph 104: "...c) opportunities to promote walking, cycling and public transport use are identified and pursued; d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account - including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains... ."

Paragraph 105: "Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health."

Paragraph 174: “Planning policies and decisions should contribute to and enhance the natural and local environment by: preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.”

Paragraph 185: “Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.”

Paragraph 186: “Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

Paragraph 188: “The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

The NPPF is supported by Planning Practice Guidance (PPG)¹⁰.

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): “Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified.”

Paragraph 002 (Reference ID: 32-002-20191101): Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable”.

Paragraph 005 (Reference ID: 32-005-20191101): “Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): “Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned”.

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): “Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact.”

2.7 Local Policy.

2.7.1 Manchester City Council Core Strategy Development Plan

The Manchester Core Strategy Development Plan was adopted in July 2012 and covers the years 2012-2027. The following policies are relevant to this assessment:

Policy EN16

“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 impact 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 developments the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas”

And;

Policy EN 7 Energy Infrastructure Opportunities

“There will be a general presumption in favour of low and zero carbon decentralised energy schemes, subject to the following considerations:

- The cumulative impact of energy schemes will be taken into account when considering applications, to include modelled impacts on air quality and landscape character, with reference to Policy EN16 Air Quality.”

2.8 Local Air Quality Management in Manchester.

An Air Quality Management Area (AQMA) was declared in Greater Manchester in 2016 for exceedances of the annual mean NO₂ AQO. The AQMA covers the 10 districts of Greater Manchester, including arterial routes, district centres, and the airport. Consequently, an Air Quality Action Plan was published in 2016 to set out actions and measures to bring about an improvement in air quality, to benefit the health of the population¹¹. The proposed actions cover three main themes:

- Reduce Traffic - for instance by encouraging modal shift from private vehicle use to public transport, cycling and walking.
- Increasing Efficiency - of traffic movement by reducing congestion and stop-start travel to achieve a smoother emission profile and overall lower emissions, which may be particularly significant at peak hours.
- Improve Fleet - by incentivising the replacement of older, more polluting vehicles with newer, smaller, cleaner, lower-emissions vehicles.

Alongside the Air Quality Action Plan, the Greater Manchester Low Emission Strategy¹² presents a long-term approach to carbon emissions and air quality in the period up to 2040. The key aims of the strategy are to:

- Support the UK Government in meeting all EU thresholds for key pollutants at the earliest date;
- Contribute to reducing Greater Manchester’s carbon footprint, in line with the Greater Manchester Climate Change Strategy; and
- Reduce air pollution as a contributor to ill-health in Greater Manchester.

A Clean Air Zone (CAZ) covering Greater Manchester, for which an outline business case¹³ was submitted in March 2019, will no longer go ahead as planned. Instead, the GMCA are now working with government to deliver a new Clean Air Plan for Greater Manchester by July 2022, which will outline how the GMCA will achieve compliance with legal levels of NO₂ in the shortest possible time, and by no later than 2026.

Furthermore, Transport for Greater Manchester established the Greater Manchester Electric Vehicle (GMEV) Network in 2013. The network offers free electric vehicle charging for a nominal annual fee to help the mass adoption of electric vehicles across the region, playing a central role in improving air quality.¹⁴

2.8.1 Transport Strategy for Manchester City Centre 2040

The Transport Strategy for Manchester City Centre¹⁵ adopted in March 2021 sets out the strategy for Manchester to create a well-connected, zero-carbon centre offering residents, workers and visitors a place to live. The Transport Strategy, aims to promote residential and commercial developments within the city alongside 'greener' means of transportation. The Proposed Development does not include for any on-site parking, but includes capacity for 190 cycle spaces.

2.9 Assessment Guidance.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.9.1 Defra Local Air Quality Management Technical Guidance

Defra Local Air Quality Management Technical Guidance (LAQM.TG(16))¹⁶ was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.9.2 EPUK-IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance¹⁷ to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.9.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM¹⁸. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

3. Assessment Methodology.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to MCC for review. A response was received on 10 December 2021 from the Environmental Protection Section at MCC agreeing with the proposed scope of assessment and a copy of the correspondence has been included in Appendix 1.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site. This desk-top study was undertaken using the following sources:

- Air quality data for MCC, including a review of the MCC air quality reports¹⁹ and local monitoring data;
- The UK Pollutant Release and Transfer Register²⁰;
- Background pollution maps taken from Defra's Local Air Quality Management (LAQM) website²¹;
- The UK Ambient Air Quality Interactive Map²²;
- Ordnance Survey data and aerial photography from Google Maps and Quantum Geographical Information Systems (QGIS).

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the IAQM methodology. The eastern portion of the Application Site is currently vacant and comprises hardstanding however the western portion is currently occupied by a low-rise warehouse and associated car park. Activities on the proposed construction site have therefore been divided into four types to reflect their different potential impacts. These are:

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

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM₁₀.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the guidance¹⁸ available online.

3.3.2 Construction Traffic

3.3.2.1 Construction Traffic Emissions Screening

A screening assessment has been undertaken with reference to the following EPUK and IAQM guidance indicative criteria. Due to the close proximity of the GMCA AQMA which covers a number of roads which construction traffic would use to access the Application Site; the lower screening criteria has been used:

- a change of Light Duty Vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT) (within an AQMA); and/or
- a change of Heavy Duty Vehicle (HDV) flows of more than 25 AADT (within an AQMA).

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following the guidance in Defra's LAQM.TG(16).

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Impacts

The Proposed Development does not comprise any on-site residential parking and only provides three disabled access parking bays and two drop off loading bays. Parking for residents will be provided within the consented Mobility Hub development (MCC ref: 130627/FO/2021), located approximately 120 m north of the Application Site. As the Mobility Hub is consented, emissions from vehicles associated with the Proposed Development have already been assessed and therefore do not need to be considered as part of this Air Quality Assessment. This has been agreed with MCC as detailed in Appendix 1.

3.4.2 Site Suitability Assessment

A qualitative 'site suitability' assessment has been undertaken to consider the exposure of future occupants, introduced by the Proposed Development, to current air quality. As the Proposed Development is for residential use with balconies proposed along all façades, the long term and short term NO₂, PM₁₀ and PM_{2.5} AQOs apply. Site suitability will be assessed qualitatively using the following information:

- Nearby MCC monitoring data at MA71NO roadside passive diffusion tube located along the A665 Great Ancoats Street;
- Defra predicted background concentrations for the grid square containing the Application Site; and
- Defra NO₂ fall off with distance calculator²³.

3.5 Assessment of Significance.

3.5.1 Construction Phase Impacts

The IAQM guidance¹⁸ on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 2.

3.5.2 Operational Phase Impacts

The EPUK and IAQM guidance¹⁷ has been used to assess the potential for significant impacts as a result of vehicle emissions from traffic associated with the Proposed Development. The focus of the guidance is to assess traffic emission impacts and advises on how to describe the air quality impacts and their significance.

3.5.3 Site Suitability Significance of Effect

To determine the significance of predicted air quality impacts based upon a site suitability assessment, the EPUK/IAQM guidance states:

“Where the air quality is such that an AQO at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Application Site Setting.

The Application Site is located within MCC's administrative area at approximate National Grid Reference (NGR) X 385250, Y 398760.

The eastern part of the Application Site is currently vacant and comprises existing hardstanding. The western portion of the Application Site comprises a low-rise warehouse and associated parking and a mixture of small shrubs and trees. The Application Site is bound to the north by Jersey Street and to the south, Rochdale Canal. To the west lies the existing Flint Glass Wharf/Works and to the east lies existing grassland.

4.2 Local Air Quality Management Review and Assessment.

Greater Manchester Combined Authority (GMCA) have declared an AQMA for exceedances of the annual mean NO₂ AQO which covers Manchester City Centre, the area around Manchester Airport and the main arterial traffic routes into the city. The Application Site is not within this designated AQMA and is approximately 160 m south of the closest section of the AQMA covering Butler Street. Figure 2 shows the location of the Application Site in relation to the nearby GMCA AQMA.

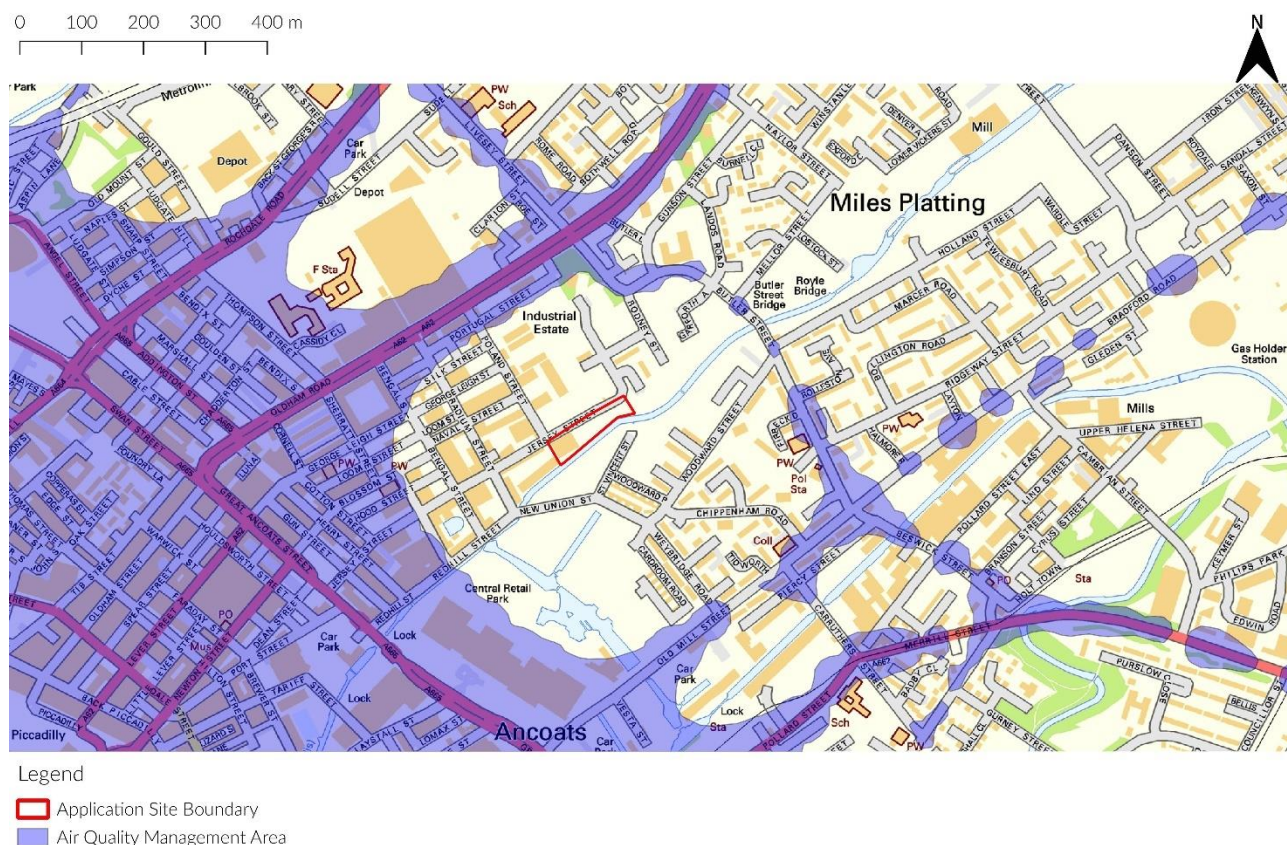


Figure 2: Location of the GMCA AQMA in the context of the Application Site Boundary. Contains OS Data Crown Copyright and Database Rights 2022.

4.3 Local Air Quality Monitoring.

According to the MCC Annual Status Report (ASR)¹⁹, long term trends have shown that there has been improvement in air quality in Manchester, but areas still remain above the annual mean NO₂ AQO. During the onset of the COVID-19 pandemic, average reductions in pollutant concentrations of NO₂, PM₁₀ and PM_{2.5} were monitored throughout the UK. The reductions in pollutant concentrations during 2020 are directly attributable to reduced traffic levels as a result of Government implemented lockdowns. As such, the pollutant concentrations recorded at passive diffusion tube monitoring locations in 2020 are not considered to be representative of “normal” air quality conditions. Whilst it is expected that as a result of the COVID-19 pandemic that behaviours will change in the future, the impact of this on air quality long-term is currently unknown and therefore the use of 2020 data has been omitted from this assessment however has been included for information.

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of Defra. Monitoring data for AURN sites is available from the UK Air Information Resource website (UK-AIR). There are three AURN sites in operation across Greater Manchester with the nearest located approximately 1 km south west of the Application Site in Manchester city centre (MAN3 Piccadilly Gardens) which is classified as an urban centre. The other AURN sites are located 7.7 km and 13 km from the Application Site and MCC operate one other automatic monitor, located 1.8 km south on Oxford Road, a busy bus route into the city centre. Due to distance and differences in site characteristics, these automatic monitoring locations have not been considered further.

Recent monitoring data for MAN3 automatic monitoring station is presented in Table 2 and a visual representation of the location of the automatic monitoring station is shown in Figure 3 below.

Table 2: MAN3 Automatic Monitoring Station Results

Monitoring site and distance (km) from Application Site boundary (approx.)	Objective	2015	2016	2017	2018	2019	2020
NO₂							
MAN3 Manchester Piccadilly, 1 km	Annual mean (µg/m ³)	39	40	36	35	36	27
	Number of hours with concentrations >200 µg/m ³	1	0	1	0	0	0
PM₁₀							
MAN3 Manchester Piccadilly, 1 km	Annual mean (µg/m ³)	20	20	20	21	20	15
	Number of days with concentrations > 50 µg/m ³	3	3	3	2	7	1
PM_{2.5}							
MAN3 Manchester Piccadilly, 1 km	Annual mean (µg/m ³)	10	10	8	11	12	8

The automatic monitoring results presented in Table 2 show compliance with the annual mean NO₂, PM₁₀ and PM_{2.5} objectives in the most recent five-year monitoring period of available and representative data between 2015 and 2019. The short-term AQOs for NO₂ and PM₁₀ have not been exceeded in the latest five-years of available and representative monitoring data at MAN3.

MCC also utilises passive diffusion tubes to monitor annual mean NO₂ concentrations. A review of the most recent monitoring data available indicated that there are three passive diffusion tube monitoring locations within approximately 1km of the Application Site. Recent monitoring results are shown in Table 3 and a visual representation of the locations in Figure 3.

Table 3: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Distance (m) from Application Site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)					
			2015	2016	2017	2018	2019	2020
MA71NO	Roadside	430	45.9	51.2	50.4	46.1	45.3	31.4
MA9ANO	Kerbside	750	55.9	51.9	51.1	45.8	44.9	32.5
MA88NO	Kerbside	780	41.2	52.7	47.5	44.3	43.3	30.1
Notes: Data presented in bold represents exceedances of the annual mean NO ₂ AQO.								

As shown in Table 3 above, the annual mean NO₂ AQO has been exceeded in the last five years of available and representative monitoring data (2015-2019) at all three passive diffusion tube monitoring locations. All three of these passive diffusion tube monitoring locations are along major roads with high volumes of traffic and as such, higher NO₂ concentrations are expected than at the Application Site location. Furthermore, all three of the passive diffusion tube monitoring locations are within the GMCA AQMA declared for exceedances of the annual mean NO₂ AQO, unlike the Application Site.

An annual mean concentration of 60 µg/m³ is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO. Concentrations at all nearby passive diffusion tubes presented in Table 3 have not exceeded 60 µg/m³ in the most recent five-year monitoring period of available and representative monitoring data (2015-2019).

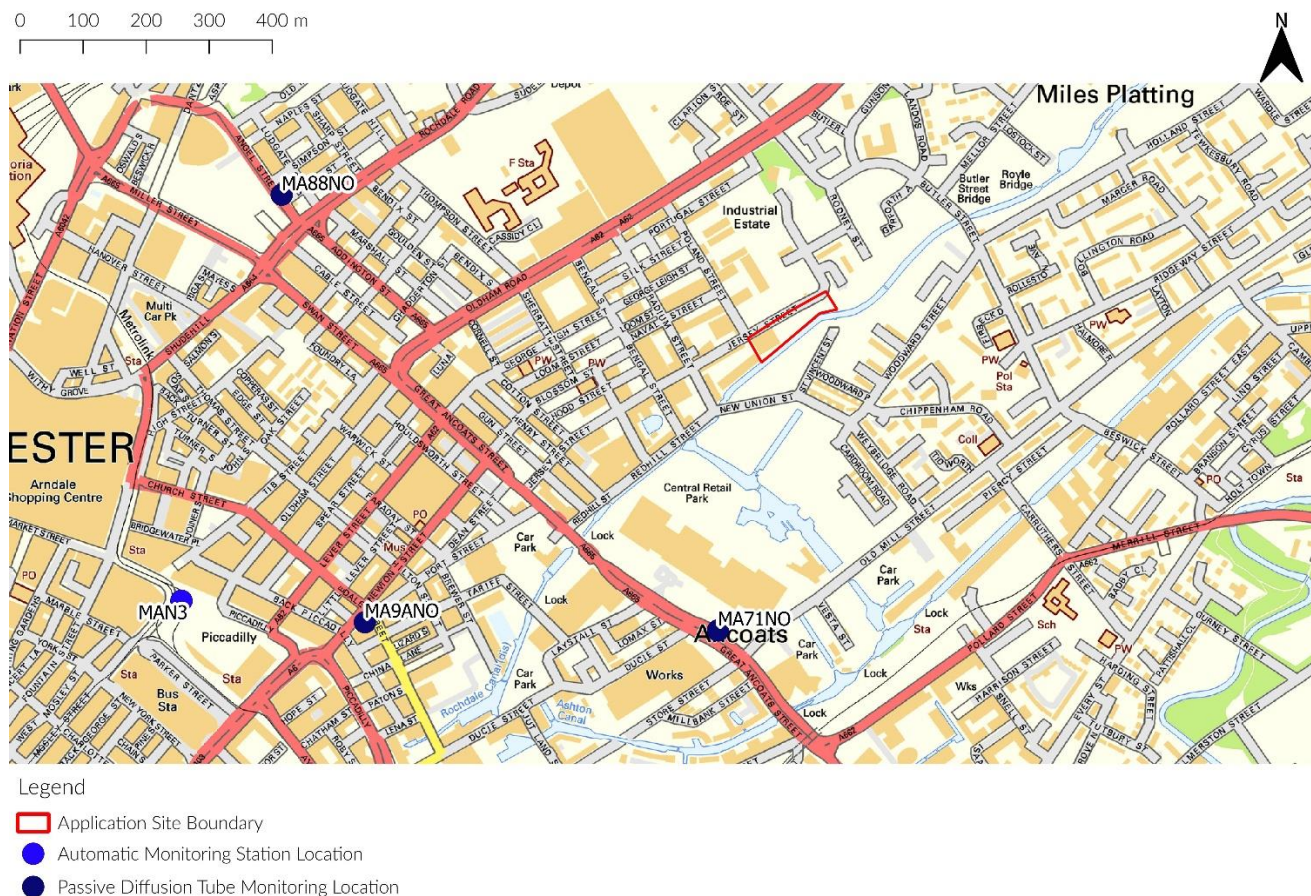


Figure 3: MCC Monitoring Locations. Contains OS Data Crown Copyright and Database Rights 2022.

4.4 Industrial Pollution.

There are industrial and commercial units within the immediate vicinity of the Application Site. A desk-based review of potential industrial sources using the UK Pollutant Release and Transfer Register and the Environment Agency's Pollution Inventory did not identify any significant industrial or waste management sources of air pollution that are likely to affect the Application Site with regard to air quality. Further to this, a review has been completed of publicly available sources such as Google Earth and Street View. No obvious signs of heavy industry such as flues and chimneys have been identified. As such, it is considered unlikely that the local air quality at the Application Site will be impacted by surrounding industrial and commercial units.

4.5 Defra Predicted Concentrations.

Background concentrations have been obtained from the national maps published by Defra²¹. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into grid square X 385500 Y 398500 and the predicted concentrations for this grid square for NO₂, PM₁₀ and PM_{2.5} are provided in Table 4 for 2019, the most recent year with available and representative monitoring data, 2021, the current year and for 2025, the anticipated opening year for the Proposed Development.

Table 4: Defra Predicted Background Concentrations

Year	Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)		
	NO ₂	PM ₁₀	PM _{2.5}
2019	23.4	12.6	8.3
2021	21.6	12.2	8.0
2025	19.1	11.7	7.7

As shown in Table 4, background concentrations are below the relevant AQOs for all pollutants in 2025, the anticipated opening year of the Proposed Development.

4.6 Summary of Baseline Data.

The baseline assessment has shown that the Application Site is not located within the GMCA AQMA and is approximately 160 m south at the closest point.

Annual mean concentrations recorded at the nearest automatic monitoring station shows that NO₂, PM₁₀ and PM_{2.5} concentrations have been below the relevant AQOs in the most recent five-year monitoring period of available and representative data (2015-2019). However, roadside and kerbside passive diffusion tube locations within 1 km of the Application Site have been in exceedance of annual mean NO₂ AQO between 2015 and 2019. These monitoring locations are along major roads and within the AQMA where higher NO₂ concentrations are expected.

The 1-hour NO₂ objective has not been exceeded at the nearest automatic monitoring site in the most recent five-year monitoring period with available and representative monitoring data. Concentrations at nearby passive diffusion tubes have not exceeded the annual mean concentration of 60 $\mu\text{g}/\text{m}^3$ used to inform compliance with the 1-hour mean AQO in recent years.

Defra predicted background concentrations are expected to be below the annual mean objectives for all considered pollutants at the Application Site in 2025, the anticipated opening year for the Proposed Development.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 350 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Application Site entrance. The nearest ecological site to the Application Site is the Clayton Vale Local Nature Reserve, approximately 2.6 km to the east.

Therefore, an assessment of construction dust on ecological receptors can be screened out from this assessment but an assessment of construction dust at human receptors is required.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from demolition, earthworks, construction and trackout have been assessed, as identified in Table 5.

Table 5: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Demolition	Small	The western part of the Application Site currently comprises a low-rise brick warehouse which will be demolished prior to construction of the Proposed Development. It has been confirmed by PRP, the appointed Architects for the project, that the estimated volume of the low-rise warehouse is 7,500 m ³ .
Earthworks	Medium	The eastern part of the Application Site currently comprises hardstanding however, the new building and structure require new foundations to be excavated. Furthermore, earthworks will be required following the demolition of the existing low-rise warehouse. The total Application Site area that could be subject to earthworks is approximately 5,400 m ² . The soil type at the Application Site is also potentially dusty e.g. loamy and clayey soils ²⁴).
Construction	Medium	The proposals are for an 8-storey building comprising of up to 190 residential units and commercial floorspace at ground level. It has been confirmed by PRP, the appointed Architects for the project, that the total building volume is approximately 74,400 m ³ . The building will be constructed using concrete frame with brick façade and aluminium cladding to the commercial ground floor units and top floor.
Trackout	Medium	The proposals are likely to result in less than 10 outward HDV movements in any one day. However, due to the size of the Application Site, there is potential for an unpaved road length of more than 100 m.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;

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

The sensitivity of the area and the factors considered are detailed in Table 6. Figure 4 shows the location of the Application Site within the wider context of Manchester and a series of distance bands used to inform the assessment as outlined in the EPUK and IAQM guidance¹⁸.

Table 6: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On-Site Activity	Trackout
Dust Soiling	There are between 10 and 100 existing residential properties within 100 m of the Application Site boundary which are considered to be high sensitivity receptors. However, the consented Eliza Yard residential development is located within 20 m of the Application Site boundary and there is the potential for between 10 and 100 future residential properties during the construction of the Proposed Development. Furthermore, there is a medium-term car park located with 50 m of the Application Site boundary as well as the consented Mobility Hub which is likely to be in use prior to the construction of the Proposed Development. For trackout, there are between 10 and 100 high sensitivity receptors, such as residential apartments and medium-term car parks along Jersey Street and Poland Street within 50 m of the routes likely to be used by construction traffic.	High	Medium
Human Health	Construction of the Proposed Development is predicted to be completed in the third quarter of 2025. the background PM₁₀ concentration for the location of the Application Site in the current year of 2021 is 12.2 µg/m³, based upon Defra 2018-based background estimates, as provided in Table 4. There is the potential for between 10 and 100 future residential receptors within 20 m of the Application Site boundary which are considered to be high sensitivity receptors during the construction of the Proposed Development. There are between 10 and 100 medium sensitivity receptors such as places of work along Jersey Street and Poland Street within 100m of routes likely to be used by construction traffic where people could be exposed to PM₁₀ for eight hours or more in one day. However, it is likely that the consented Eliza Yard located opposite the Application Site to the north will be completed prior to the construction of the Proposed Development and as such, there is the potential for between 10 and 100 highly sensitive receptors to be located within 50m of the routes to be used by construction traffic.	Low	Low

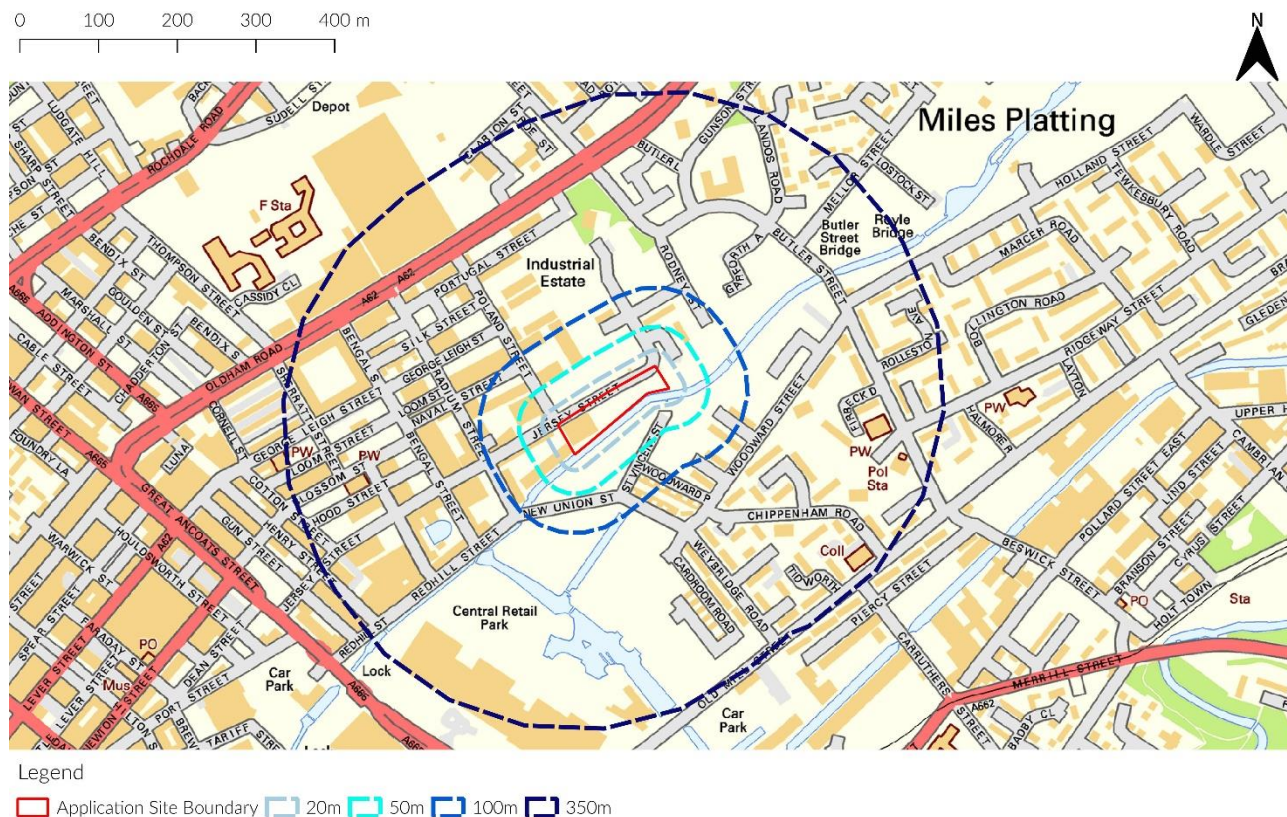


Figure 4: IAQM Demolition and Construction Distance Band Criteria from the Application Site Boundary. Contains OS Data © Crown Copyright and Database rights 2022.

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 7 details the risk of dust impacts for demolition, earthworks, construction and trackout activities.

Table 7: Summary of Potential Unmitigated Dust Risks

Potential Impact	On-Site Sensitivity	Trackout Sensitivity	Demolition	Earthworks	Construction	Trackout
			Magnitude			
			Small	Medium	Medium	Medium
Dust Soiling Impacts	High	Medium	Medium Risk	Medium Risk	Medium Risk	Medium Risk
Human Health Impacts	Low	Low	Negligible Risk	Low Risk	Low Risk	Low Risk

5.2 Construction Phase – Vehicular Pollutants.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Proposed Development “can be considered to have insignificant effects” on air quality.

5.3 Construction Phase – Non-Road Mobile Machinery.

Exhaust emissions of NO_x and fine particulate matter (PM₁₀ and PM_{2.5}) from Non-Road Mobile Machinery (NRMM), associated with construction sites, may have a significant effect on local air quality. Typically, NRMM is and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

LAQM.TG(16) guidance states that, with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are “unlikely to make a significant impact on local air quality. In the vast majority of cases they will not need to be quantitatively assessed”.

6. Operational Phase Assessment.

This section presents the potential air quality impacts associated with the operational phase of the Proposed Development.

6.1 Road Traffic Emissions Screening Assessment.

Road traffic data has been provided by Hydrock, the appointed transport consultant for the scheme.

The Proposed Development does not include any on-site parking provision for residents. As part of the proposals three disabled car parking spaces and two loading bays for servicing and deliveries is to be included. The majority of trips associated with the Proposed Development are likely to be taxis and deliveries which would be minimal and occasional in nature. Parking provision for the residents of the Proposed Development will be made available at the nearby consented Mobility Hub where 60 spaces will be allocated representing 31.5% of car parking provision at the Mobility Hub and as such, the impacts from road traffic emissions associated with the Proposed Development have been considered within the Mobility Hub planning application and do not need to be considered as part of this application. In addition, the Mobility Hub includes an associated Delivery Hub which will minimise delivery traffic to the Application Site.

Furthermore, the western part of the Application Site comprises a car park associated with existing low-rise warehouse which will be removed as part of the Proposed Development. Therefore, there will be an overall net decrease in vehicle trips associated with the Proposed Development when compared to the existing use.

Based on the above, it is not anticipated that the indicative criteria set out in the EPUK and IAQM guidance will be exceeded (a change in AADT of 100 or more LDVs and/or 25 or more HDVs) as a result of the Proposed Development and therefore air quality impacts associated with road traffic emissions are not significant and no further assessment is required.

6.2 Site Suitability Assessment.

This section presents a review of MCC monitoring data in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for the proposed residential use and identify any requirements for potential mitigation measures to be embedded in the Proposed Development design.

As presented in Table 1, in line with LAQM.TG(16), the short-term and long-term AQOs for NO₂, PM₁₀ and PM_{2.5} apply to the Proposed Development due to the proposed residential units which include balconies. As such, this section considers the predicted annual mean, 24-hour mean, and 1-hour mean pollutant concentrations at the Application Site.

It should be noted that there is no residential use at ground floor due to the proposed commercial floorspace. As such, the residential use begins on the first floor at a height of approximately 4.5 m, away from possible pollutant sources (e.g. road traffic along Jersey Street and Poland Street).

6.2.1 NO₂ Concentrations

A review of the annual mean NO₂ concentrations monitored within 1 km of the Application Site has been completed as part of the baseline review with recent monitoring results, as presented in Table 2 and Table 3.

MA71NO, a roadside passive diffusion tube is located approximately 480 m south of the Application Site along the A665 Great Ancoats Street, the ring road around Manchester city centre and within the GMCA AQMA where higher NO₂ concentrations are expected. Annual mean NO₂ concentrations at this passive diffusion tube monitoring location have exceeded the AQO in the last five years of available and representative monitoring data, between 2015 and 2019. The Application Site is set back approximately 420 m from the A665 and approximately 245 m from the A62 Oldham Road, which is the closest major road to the Application Site. As such, annual mean NO₂ concentrations at the Application Site are likely to be significantly lower than those recorded at MA71NO.

Defra have produced an NO₂ fall off with distance calculator which estimates the annual mean NO₂ concentrations at a distance from a road using measurements made at a different distance from the same road²³. 2019 monitored concentrations at MA71NO have been used to predict the annual mean NO₂ concentration and

fall of with distance for a location set back from the road as this is the most recent year with available and representative monitoring data.

Table 8 provides the inputs and predicted concentration at a location set back from the A665 Great Ancoats Street. It must be noted the fall off with distance calculator can only be used for predicted the concentration at a receptor up to 50 m from the kerb as at this distance, it is considered that pollutant levels approach background levels.

Table 8: Defra NO₂ Fall of With Distance Calculator

Measurement Distance from Kerb (m)	Receptor Distance from Kerb* (m)	2019 NO ₂ Defra Background Concentration (µg/m ³)	Monitored Annual Mean NO ₂ Concentration (µg/m ³)	NO ₂ Fall of With Distance Calculator Predicted Concentration (µg/m ³)
3.3	50	23.4	45.3	29.5
Notes *the receptor must be within 50m of the kerb				

Results of the NO₂ fall off with distance calculator presented in Table 8 show the predicted annual mean NO₂ concentration at 50 m from the kerb of the A665 is below the annual mean NO₂ AQO.

The Application Site is set back approximately 420 m from the A665 and approximately 245 m from the A62. Based on this, it is likely that concentrations at the Application Site will be less than those predicted at 50 m from the kerb and would likely be nearer to background levels. The roads within the vicinity of the Application Site and around Ancoats are minor roads with significantly lower road traffic flows along them.

As presented in Table 4, the Defra predicted background concentrations for 2019 are below the annual mean NO₂ AQO and predicted to be below the annual mean AQO in 2025, the anticipated opening year of the Proposed Development. In addition, concentrations recorded at MAN3 Manchester Piccadilly (an Urban Centre automatic monitoring station) have been in compliance with the annual mean NO₂ AQO between 2015 and 2019, the most recent five year period with available and representative monitoring data. This automatic monitoring station is located approximately 480 m south of the A665 Great Ancoats Street, a similar distance that the Application Site is set back from the A665.

An annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ objective. The maximum annual mean NO₂ concentration monitored at MAN71NO in the last five years of available and representative monitoring data was 51.2 µg/m³ in 2016. Furthermore, annual mean NO₂ concentrations at all nearby diffusion tubes have not exceeded 60 µg/m³ between 2015 and 2019, indicating likely compliance with the 1-hour mean NO₂ AQO at the Application Site.

Therefore, based on the above, NO₂ concentrations in the locale of the Application Site are considered to be below the annual mean AQO and the 1-hour mean AQO. As such, the Application Site is considered suitable for residential use without the inclusion of mitigation measures against NO₂ concentrations.

6.2.2 PM₁₀ Concentrations

PM₁₀ concentrations recorded at MAN3, the closest automatic monitoring station to the Application Site, have been in compliance with the annual mean PM₁₀ AQO in the last five years of available and representative monitoring data between 2015 and 2019. Furthermore, the Defra predicted background concentrations as provided in Table 4, are below the annual mean PM₁₀ AQO in 2025, the anticipated opening year. Therefore, the Application Site is considered suitable for the proposed residential use without the inclusion of mitigation measures against PM₁₀ concentrations.

6.2.3 PM_{2.5} Concentrations

PM_{2.5} concentrations at MAN3, the closest automatic monitoring station to the Application Site, have been in compliance with the annual mean PM_{2.5} AQO in the last five years of available and representative monitoring data between 2015 and 2019. Furthermore, the Defra predicted background concentrations, as provided in Table 4, are below the annual mean PM_{2.5} AQO in 2025, the anticipated opening year. Therefore, the Application Site is considered suitable for the proposed residential use without the inclusion of mitigation measures against PM_{2.5} concentrations.

6.2.4 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, such as that undertaken as part of this assessment, the EPUK and IAQM guidance states:

“Where the air quality is such that an AQO at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual or 1-hour mean NO₂ AQO based upon a review of MCC NO₂ monitoring data and Defra predicted background concentrations at the Application Site;
- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual mean or 24-hour mean PM₁₀ AQO based upon a review of available MCC PM₁₀ monitoring data and Defra predicted background concentrations at the Application Site; and
- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual mean PM_{2.5} AQO based on a review of the available MCC monitoring data and Defra predicted background concentrations at the Application Site.

As no exceedances of the considered AQOs are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be ‘not significant’.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in the guidance¹⁸.

It is recommended that MCC approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. It is understood that GMCA have committed to reduce annual mean PM_{2.5} concentrations in MCC's area of administration to the WHO guideline of 10 µg/m³ by 2030 as part of their commitment to become a "BreatheLife" city. The Proposed Development is expected to be completed by 2025 and as such, it is not necessary to consider mitigation measures to reduce PM_{2.5} concentrations specifically during the construction phase.

Table 9 below details the measures that should be incorporated in the DMP. For general mitigation measures, which excludes those specifically targeted towards earthworks, construction and trackout (which are given towards the end of the table), 'medium risk' measures have been applied as these represent the highest risk category determined in Table 7. This approach is consistent with the IAQM guidance.

Table 9: Mitigation Measures

Issue	Mitigation 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
Dust Management Plan	Develop and implement a DMP, which may include measures to control emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken
	Make the complaints log available to the Local Authority when asked
	Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, windowsills within 100 m of the site boundary, with cleaning to be provided if necessary
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site

Issue	Mitigation Measure
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period
	Avoid site runoff of water or mud
	Keep site fencing, barriers and scaffolding clean using wet methods
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used cover as described below
	Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicles/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 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable)
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials
	Implement a Travel Plan that supports and encourages sustainable travel
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
	Use enclosed chutes and conveyors and covered skips
	Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods
Waste management	Avoid bonfires and burning of waste materials
Demolition	Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed
	Avoid explosive blasting, using appropriate manual or mechanical alternatives
	Bag and remove and biological debris or damp down such material before demolition
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable
	Use Hessian, mulches and trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable

Issue	Mitigation Measure
	Only remove the cover in small areas during work and not all at once
Construction	Avoid scabbling (roughening of concrete surfaces) if possible
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place
	For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use
	Avoid dry sweeping of large areas
	Ensure vehicles leaving entering and leaving sites are covered to prevent escape of materials during transport
	Inspect on-site haul roads for integrity and instigate necessary repairs to surfaces as soon as reasonably practicable.
	Inspect on-site routes for integrity, instigate necessary repairs and record in site log book
	Install hard surfaced haul routes which are regularly damped down
	Implement a wheel washing system at a suitable location near site exit
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits
	Access gates to be located at least 10m from receptors, where possible

Potential dust effects during the construction phase are considered to be both temporary and short-term in nature. The impacts are determined to be 'temporary' as they will only potentially occur throughout the construction phase and 'short term' because these will only arise at particular times when certain activities and meteorological conditions combine to create the predicted level. Notwithstanding this, with the application of the above dust control and mitigation measures, it is considered that residual effect at all receptors will be 'not significant' in accordance with the IAQM guidance.

7.1.1 Construction Phase Road Traffic Emissions

The need for further assessment of the potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out as they are considered to have an insignificant effect on air quality and mitigation measures are not required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM Control of Dust and Emissions guidance, all NRMM would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

Potential air quality impacts associated with the operational phase development trips have been screened out from further assessment as 'the impacts [on air quality from operational phase movements] can be considered to have insignificant effects' in accordance with the EPUK and IAQM Guidance. Therefore, no mitigation measures are required.

7.2.2 Site Suitability

A review of the MCC monitoring data in consideration of the Application Site, mapped Defra background concentrations at the Application Site and the Defra NO₂ fall off with distance calculator indicated no likely exceedance of the annual and 1-hour mean NO₂ or the annual and 24-hour mean PM₁₀ or the annual mean PM_{2.5} AQOs.

As no exceedance of any of the considered AQOs are predicted, this follows the 1st hierarchy principle of the IAQM guidance 'to prevent and avoid exposure'²⁵. Therefore, no embedded mitigation into the Proposed Development design (in the form of mechanical ventilation, for example) is required.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed residential led development at land bound south of Jersey Street, Ancoats, Manchester.

The findings of the assessment are as follows:

- A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature.
- Parking provision for the Proposed Development will be made available at the nearby consented Mobility Hub with only three disabled bays and two loading bays proposed at the Application Site. The results of the operational phase traffic screening assessment indicate that the Proposed Development will result in an overall reduction in vehicle trips when compared to the existing use. As such, air quality impacts are predicted to be insignificant, and no further assessment is required.
- The proposed energy strategy has been confirmed to comprise an all-electric approach using zero-emission technologies. A back-up generator is also proposed however this will only run for one hour per month for testing with an annual four hour test which is below the 18 hour threshold for exceeding the short-term AQOs. As such, there will be no impact on local air quality from the energy plant and mitigation measures are not required.
- The baseline site suitability review has been undertaken to assess the suitability of the Application Site for the proposed residential use. Based on monitored concentrations and Defra predicted background concentrations of NO₂, PM₁₀ and PM_{2.5}, both the short-term and long-term AQOs are not predicted to be exceeded at the Application Site. Therefore, the Application Site is considered suitable for the Proposed Development and mitigation measures such as filtration are not required.

Based on the information above, which considers the information available to date, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework and the MCC Local Plan.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
AQO	Air Quality Objective
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
GMCA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
HGV	Heavy Goods Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles ($\leq$ 3.5 tonnes gross vehicle weight)
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
MCC	Manchester City Council
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be $\text{NO}_2 + \text{NO}$)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
Trackout	The process involving the transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site
WHO	World Health Organisation

References.

- 1 The Environment Act 1995 (Part IV) - [online] Available: <http://www.legislation.gov.uk/ukpga/1995/25/part/IV> (Last accessed: 07/12/2021)
- 2 Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra
- 3 The Stationery Office (2000) Statutory Instrument 2000, No 928, The Air Quality (England) Regulations 2000, London
- 4 The Stationery Office (2002) Statutory Instrument 2002, No 3043, The Air Quality (England) (Amendment) Regulations 2002, London
- 5 The Stationery Office (2010) Statutory Instrument 2010, No 1001, The Air Quality Standards Regulations 2010, London
- 6 The Stationery Office (2016) Statutory Instrument 2016, No 1184, The Air Quality Standards (Amendment) Regulations 2016, London
- 7 Defra (2017) Air Quality Plan for Nitrogen Dioxide (NO₂) in UK – [online] Available: <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017> (Last Accessed: 07/12/2021)
- 8 Defra (2019) The Clean Air Strategy.
- 9 Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework, Department for Communities and Local Governments.
- 10 Ministry of Housing, Communities & Local Government (2019) Planning Practice Guidance.
- 11 Transport for Greater Manchester and Greater Manchester Combined Authority (2016) Greater Manchester Air Quality Action Plan 2016-2021 – [online], Available: manchester.gov.uk/download/downloads/id/24676/greater_manchester_air_quality_action_plan_-_2016-2021.pdf (Last accessed: 07/12/2021)
- 12 Transport for Greater Manchester and Greater Manchester Combined Authority (2016) Greater Manchester Low-Emission Strategy – [online], Available: greatermanchester-ca.gov.uk/media/1276/low-emission-strategy-dec-2016.pdf (Last accessed: 07/12/2021)
- 13 Transport for Greater Manchester (2019) Greater Manchester's Outline Business Case to tackle Nitrogen Dioxide Exceedances at the Roadside – [online] Available: assets.ctfassets.net/qwn52prjtij/1UTXtx1sZoj9ecwPzmKVCG/97077e8c2d4e1df2bbe0c7cd48388fbc/CAP_Exec_Summary_FINAL.pdf (Last accessed: 07/12/2021)
- 14 Transport for Greater Manchester, Greater Manchester Electric Vehicle Scheme – [online] Available: cleanaigrm.com/electric-vehicles (Last accessed: 07/12/2021)
- 15 Manchester City Council (2021) City Centre Transport Strategy to 2040 – [online] Available at: <https://tfgm.com/city-centre-transport-strategy> (Last accessed: 07/12/2021)
- 16 Defra (2021) Local Air Quality Management Technical Guidance (TG16)
- 17 Environmental Protection UK and Institute of Air Quality Management (2017), Land-Use Planning & Development Control: Planning For Air Quality – [online] Available: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> (Last accessed: 15/12/2021)
- 18 Institute of Air Quality Management (2016), IAQM Guidance on the Assessment of Dust from Demolition and Construction version 1.1 – [Online] Available: www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf (Last accessed: 15/12/2021).
- 19 Greater Manchester Combined Authority (2021) 2020 Air Quality Annual Status Report (ASR) – [online] Available: https://assets.ctfassets.net/tlpgbv1k6h2/4IY6QAZe4MdkqcdBlbgE8/a343eef4385f33f4710bb9f08c70f59f/GM_2020_Air_Quality_Annual_Status_Report.pdf (Last accessed: 15/12/2021)
- 20 Defra (2014) UK Pollutant Release and Transfer Register, Defra – [online], Available: <https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets> (Last accessed: 07/12/2021),
- 21 Defra (2018) Background Pollution Maps – [online], Available: <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html> (Last accessed: 15/12/2021)
- 22 Defra (n.d) UK Ambient Air Quality Interactive Map – [online], Available at: uk-air.defra.gov.uk/data/gis-mapping (Last accessed: 07/12/2021)
- 23 Defra (2008) Nitrogen Dioxide Fall Off With Distance Calculator – [online], Available at <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html> (Last accessed 15/12/2021)
- 24 Soilsclapes (2021) Cranfield Soil and Agrifood Institute – [online], Available at <http://www.landis.org.uk/soilsclapes/> (Last accessed: 15/12/2021)
- 25 IAQM (2018) Mitigation of Development Air Quality Impacts, Version 1.1. [online], Available at <https://iaqm.co.uk/position-statement-mitigation-of-development-air-quality-impacts/> (Last accessed 15/12/2021)

Appendix 1 – Environmental Health Officer Consultation.

Charlotte Smith

From: Laura Miller <laura.miller@manchester.gov.uk>
Sent: 14 December 2021 15:34
To: Charlotte Smith
Subject: RE: Air Quality Methodology - Jersey Wharf

[External email]

Hi Charlotte.

Yes you are correct so this limit will only apply as construction is still ongoing after 2030 as this scheme will be car free.

Kind Regards

Laura

Laura Miller (MRes, MA, BSc(Hons))

Please note that due to working compressed hours Wednesdays are a non-working day for me, I will respond to your email when I return to the office

Environmental Protection Section
Environmental Health
Neighbourhoods Directorate
Manchester City Council

Telephone: 0161 234 1742/0161 234 5004
email: laura.miller@manchester.gov.uk
website: www.manchester.gov.uk

For the latest support and information about the coronavirus visit www.manchester.gov.uk/coronavirus

We are now on Twitter, for latest news and updates follow us [@EnvHealthMcr](https://twitter.com/EnvHealthMcr)

I ♥ MCR

Please consider the environment before printing an e-mail

From: Charlotte Smith <CharlotteSmith@hoarelea.com>
Sent: 14 December 2021 12:42
To: Laura Miller <laura.miller@manchester.gov.uk>
Subject: RE: Air Quality Methodology - Jersey Wharf

Hi Laura,

Many thanks for your response below.

Regarding the WHO guideline for PM2.5 under BreatheLife, I understand this is related to traffic impacts and general air quality across the GMCA boroughs and cities rather than achieving this target for indoor air quality? Could you please confirm however?

Kind Regards,

Charlotte

Charlotte Smith
Senior Air Quality Consultant

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Tel +44 161 834 4754
Mob +44 7831 038 704
Email charlottesmith@hoarelea.com



From: Laura Miller <laura.miller@manchester.gov.uk>
Sent: 10 December 2021 09:44
To: Charlotte Smith <CharlotteSmith@hoarelea.com>
Subject: RE: Air Quality Methodology - Jersey Wharf

[External email]

Good morning Charlotte,

I have read your proposals and have the following comments:

- Please consider the previous WHO guideline for PM2.5 of 10ug/m³ annual average, as we're signed up with GMCA to be a BreatheLife city by 2030 and achieve this limit (notwithstanding the latest WHO guideline updates). This would future proof the development.
- Please note that there is limited monitoring nearby for model verification - see <https://cleanairgm.com/data-hub/>. Some additional tube monitoring may therefore be required to avoid poor model performance, particularly if baseline levels are already close to the AQ objectives.
- I agree with the use of the 2020 report based on 2019 data due to the impacts of Covid19 on the 2020 monitoring data.

If you have any other questions please contact me.

Kind Regards

Laura

Laura Miller (MRes, MA, BSc(Hons))

From: Charlotte Smith <CharlotteSmith@hoarelea.com>

Sent: 03 December 2021 15:03

To: Laura Miller <laura.miller@manchester.gov.uk>

Subject: Air Quality Methodology - Jersey Wharf

Hi Laura,

I hope you don't mind me contacting you direct however you had previously been in touch with my colleague Benny Pygott regarding the Eliza Yard development and I understand you are the Environmental Protection Officer for the Ancoats ward.

Hoare Lea have been instructed to undertake an air quality assessment for a residential led development at land south of Jersey Street, Ancoats, Manchester. See below site boundary for reference. The Proposed Development will consist of up to 190 residential units, ground floor commercial floorspace, ancillary amenity space and cycle parking provision within an 8 storey building.



Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment will be undertaken using data from the Greater Manchester Combined Authority's most recent Annual Status Report (June 2020).
- Defra's predicted background pollution maps will be used to establish background concentrations in the area.
- The proposals are to form a 'car free' development with no on-site parking provision for residents. There will be No.3 disabled bays and No.3 loading bays included. Parking provision for 33% of the units will be made available at the nearby consented Mobility Hub (MCC planning ref: 130627/FO/2021) and therefore an assessment of operational phase impacts associated with road traffic emissions will be screened out.
- At this stage, the proposed energy strategy for the Proposed Development is for an all-electric approach with no on-site emissions associated with this plant. As such, an assessment of the impact of emissions from the Proposed Developments energy plant has been scoped out in line with the EPUK/IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.
- We propose to assess the suitability of the site qualitatively (without modelling) due to the location of the Application Site being set back approximately 250m from the nearest main road (A62 Oldham Road). It is therefore likely that pollutant concentrations will be nearer to background levels. NO₂, PM₁₀ and PM_{2.5} concentrations will be determined using:
 - Defra predicted background concentrations for the proposed opening year of the Proposed Development.
 - Monitored pollutant concentrations at MAN3 Piccadilly Gardens, an Urban Centre monitoring location
 - Monitored NO₂ concentrations at MA71NO.
 - Defra NO₂ fall of with distance calculator using monitored NO₂ concentrations at MA71NO
- The assessment will consider impacts during the construction phase of the development, using the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' 2014.
- The assessment will be undertaken in line with the EPUK and IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.

I would be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have.

Please do not hesitate to contact me if you would like to discuss anything further.

Kind Regards,

Appendix 2 - Professional Experience.

Chris Rush (Hoare Lea), BSc (Hons), MSc, PG Dip Acoustics, CEnv, MIOA, MIEMA, MIEEnvSc, MIAQM

Chris is an Associate Director Air Quality Consultant with Hoare Lea. He is a Chartered Environmentalist, a Member of the Institute of Acoustics, a Full Member of the Institute of Environmental Management and Assessment, a Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management (IAQM).

He has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Chris's expertise covers planning, noise and air quality, specifically in relation to residential developments, industrial fixed installations such as waste management centres and transportation environmental impact on developments including air traffic. Chris is involved in the testing and assessment of the impact of indoor air quality and how building design contributes to this. He also is a member of Chartered Institute of Building Services Engineers (CIBSE) Air Quality Working Group and a committee member of the IAQM.

Kathryn Woolley (Hoare Lea), BSc (Hons), AMIEEnvSc, MIAQM

Kathryn is an Associate of the Air Quality team with Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management.

She has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Kathryn's expertise covers planning, and air quality, specifically in relation to residential developments, industrial fixed installations such as district heating networks. Kathryn has completed over 50 EIA in the past 8 years throughout the UK and abroad including; St Johns Masterplan in Manchester (residential led), Leicester City Football club training facility north of Leister (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Lauren Buchanan (Hoare Lea), MSc, BSc (Hons), AMIEEnvSc, MIAQM

Lauren is a Senior Air Quality Consultant at Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management. She has worked on a range of projects gaining experience in many different aspects of air quality assessment, including monitoring and detailed dispersion modelling of dust, odour, roads and industrial emissions for a variety of sectors and to fulfil Local Air Quality Management (LAQM) duties on behalf of Local Authorities. Lauren has undertaken air quality assessments for permit requirements and planning applications, including stand-alone reports, Environmental Impact Assessments, Habitats Regulations Assessments and Development Consent Orders.

Charlotte Smith (Hoare Lea), BSc (Hons), AMIEEnvSc, MIAQM

Charlotte is a Senior Air Quality Consultant at Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management. She has worked on a range of projects across a number of industries including residential, healthcare, educational, commercial and industrial for site feasibility studies, planning applications, air quality monitoring and Environmental Impact Assessments as well as contributing to the design of a building in relation to air quality across the early RIBA stages and undertaking Indoor Air Quality Plans for BREEAM accreditation. She also has experience in qualitative odour studies and has been successfully tested for odour acuity.

Emma Rigler (Hoare Lea), MChem (Hons), AMIEEnvSc, AMIAQM

Emma is an Air Quality Consultant with Hoare Lea. She graduated from the University of York with a Chemistry degree focusing on Resources and the Environment. Emma's MChem project involved monitoring and mitigating pollutants released during the manufacture of antiperspirant sticks, to prevent adverse effects on human health and the environment.

Emma has worked on projects across a range of sectors including residential, commercial, hospitals, schools and film and television studios. She has experience preparing air quality, odour and environmental impact assessments, indoor air quality plans and Medium Combustion Plant Directive permitting reports. Emma's interests lie in the chemical and photochemical interactions of pollutants throughout the atmosphere.



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