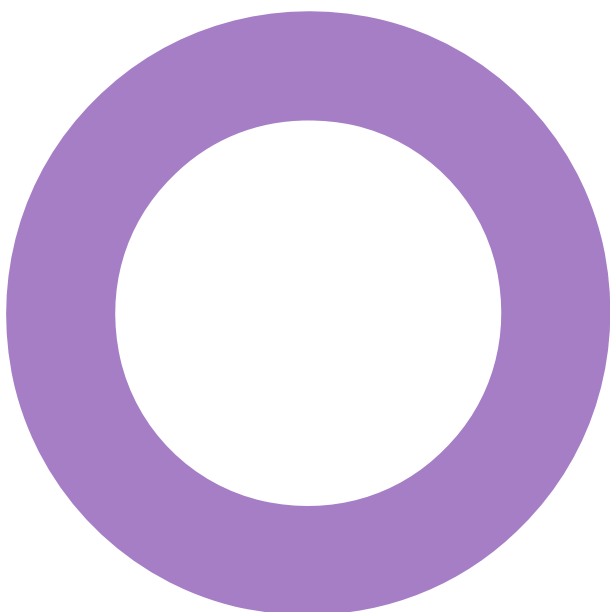


3 Circle Square. Manchester. **Bruntwood SciTech.**

AIR QUALITY
AIR QUALITY ASSESSMENT

REVISION 01 – 01 JULY 2022



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	24/06/2022	First Draft	ED	KW/AD	CR
01	01/07/2022	First Issue	ED	AD	KW

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Project number: 10/13942

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Executive Summary.

Hoare Lea have been commissioned by Bruntwood SciTech to undertake an Air Quality Assessment to support the planning application for the proposed office development at No.3 Circle Square, Manchester, M1 7ED (the 'Application Site').

This Air Quality Assessment has built upon the findings of the Air Quality Chapter written by RPS Group in 2016 as part of the Environmental Statement (ES) for the previous planning application (Reference: 111025/FO/2016/C1) (the 'Previous Development').

The plans for the Proposed Development comprise a new ground plus 14 storey building comprising office accommodation with ground floor commercial use classes, and associated new public realm space, with access and servicing routes to the areas surrounding the building. The Application Site is bound by Newman Street (formerly Brancaster Road) to the north, Princess Street to the east, Premier Inn and Multi Storey Car Park (MSCP) and Mancunian Way to the south and Manchester Technology Centre to the West.

The baseline assessment has shown that the Application Site is located within Greater Manchester Air Quality Management Area (AQMA). There have been widespread exceedances of the annual mean nitrogen dioxide (NO₂) Air Quality Objective (AQO) in recent years. However, there have been no exceedances of the 1-hour mean NO₂ AQO from 2017 onwards and no exceedances of the AQOs for fine particulate matter (PM₁₀ and PM_{2.5}) AQO from 2016 onwards. Defra background concentrations are well below the relevant AQOs for all pollutants and there are no nearby industrial/waste management sources of air pollution that are likely to affect the Application Site with regard to air quality.

The Site Suitability Assessment indicates no likely exceedance of the 1-hour mean NO₂ AQO. As such, the Proposed Development is considered suitable for office use and mitigation measures will not be required at this stage.

The traffic generated by the Proposed Development was supplied by Curtins, the project transport consultants. This was screened against the Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) guidance and was also compared to the traffic and operational phase impacts associated with the Previous Development. Given no exceedance of the EPUK and IAQM criteria, and no increase in traffic from the Previous Development, the impacts on air quality from operational phase traffic generation associated with the Proposed Development are considered to be not significant.

The energy strategy for the Proposed Development is proposed to be all electric, utilising zero emission technologies. Diesel generators are proposed for back-up use only. The generators will be tested for maintenance purposes for fewer than 18 hours per year with exhausts located at roof height. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

The impacts of demolition and construction work on dust soiling and ambient fine particulate matter concentrations have been assessed. This identified that there is a high risk of dust soiling impacts and a high 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 are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation, air quality should not be considered as a constraint to the planning consent and the Proposed Development conforms to the principles of the National Planning Policy Framework and the Manchester Core Strategy.

1. Introduction.

Hoare Lea have been commissioned by Bruntwood SciTech to undertake an Air Quality Assessment to support the planning application for the proposed office development at No.3 Circle Square, Manchester, M1 7ED (hereafter referred to as the 'Application Site').

1.1 Proposed Development.

This Air Quality Assessment has built upon the findings of the Air Quality Chapter¹ written by RPS Group in 2016 as part of the Environmental Statement (ES) for the previous planning application (Reference: 111025/FO/2016/C1), (the 'Previous Development') as described as:

"Blocks 2,3 and 4 - Erection of two buildings (18 and 14 storeys (Blocks 2 and 4)) comprising offices (Class B1) with ground and mezzanine floor commercial uses (Class A1 (shop), A2 (Financial and Professional Services), A3 (Restaurant and Cafe), A4 (Drinking Establishment), B1 (Offices), D1(Non-residential Institutions - Creche only) and D2 (Assembly and Leisure - Gym only)) and rooftop restaurant (Class A3) with associated external terrace (Block 4), creation of public green space with pavilion building (Block 3) for events space / uses within Classes A1, A3, A4, D1(Exhibition Hall / Public Hall only), D2(Concert Hall / Music Hall only)(Sui Generis) accessed from ground level within basement level below alongside creation of areas of public realm including tree planting and all associated access and servicing."

The plans for the Proposed Development comprise a new ground plus 14 storey building comprising office accommodation with ground floor commercial use classes, and associated new public realm space, with access and servicing routes to the areas surrounding the building. The Application Site is bound by Newman Street (formerly Brancaster Road) to the north, Princess Street to the east, Premier Inn and Multi Storey Car Park (MSCP) and Mancunian Way to the south and Manchester Technology Centre to the West.

The proposed energy strategy all electric during normal operation. Diesel generators are proposed for back-up use only. The generators will be tested for maintenance purposes for fewer than 18 hours per year with exhausts located at roof height. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

The Proposed Development will be ventilated mechanically using Mechanical Ventilation with Heat Recovery (MVHR) with air intakes located at the facades of the Proposed Development.

1.2 Application Site Description and Location.

The Application Site is located within Manchester City Council's (MCC) administrative area at the approximate National Grid Reference (NGR): X 384345 Y 397305.

The Application Site is currently vacant, having been so since 2015. The Application Site was formerly occupied by the BBC's Manchester HQ, before its demolition. The land was then used for surface level parking. The location of the Application Site is illustrated in Figure 1.

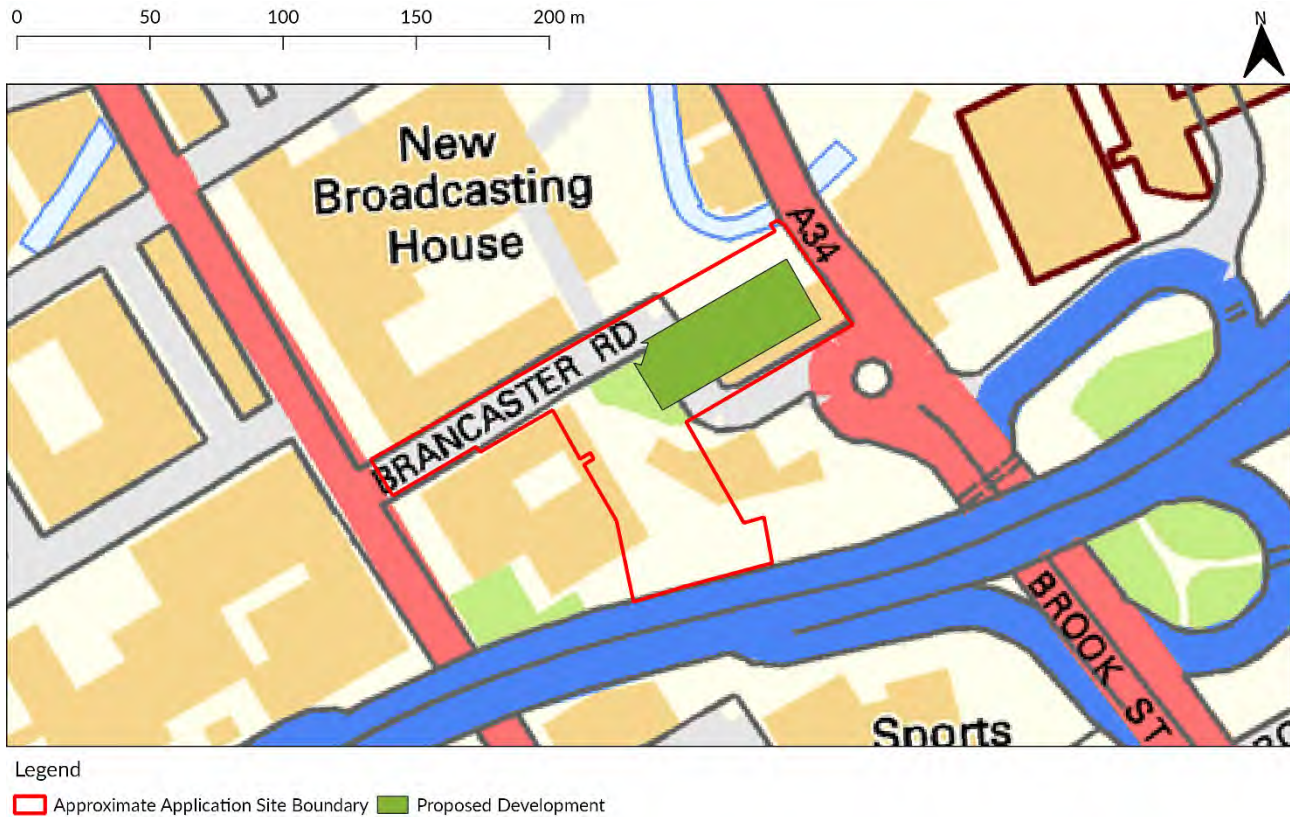


Figure 1: Location of the Application Site and Proposed Development at No. 3 Circle Square. Contains OS Data © Crown Copyright and Database rights 2022.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to MCC on the 9th June 2022. A response has been received from the Environmental Protection Officers at MCC and their comments have been taken into account in this report. 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;
- Assessment of potential air quality impacts during the operational phase;
- Assessment of the suitability of the Application Site for the Proposed Development; and
- Identification of required mitigation measures.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)² 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 Strategy (AQS)³ 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 2000⁴, and the Air Quality (England) (Amendment) Regulations 2002⁵.

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
Notes: [†] 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 Defra's Local Air Quality Management Technical Guidance (LAQM.TG(16))⁶ 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, carparks 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 2010⁷ and The Air Quality Standards (Amendment) Regulations 2016⁸.

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 10 µm 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 Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.4 Clean Air Strategy.

The Clean Air Strategy (CAS)⁹, 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.

2.5 Planning Policy.

2.5.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021¹⁰ 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)¹¹.

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.”

2.6 Local Policy.

2.6.1 Manchester Core Strategy

MCC’s Core Strategy¹² 2021-2017, was adopted on the 11th July 2012 and is the key document in the Manchester Local Plan. It sets the out the long term strategic policies for Manchester’s future development and forms the framework that planning applications are assessed against.

The following policies relating to air quality are contained within the Core Strategy.

Policy CC5. Transport.

“The Transport Strategy for Manchester City Centre will be delivered to ensure that transport is managed in a way which supports the projected growth of the City Centre.

Developers should work with public transport providers to ensure that all users are able to access development by sustainable means, especially taking account of times when developments are likely to be busiest.

Proposals will be supported that improve pedestrian safety, improve air quality and increase the scope for accessible public realm improvements, for example improvements to:

[...]

- create a new pedestrian priority zone initially the area bounded by Deansgate, Peter Street / Oxford Street, Portland Street, Piccadilly North, Manchester Arndale, Corporation Street and Exchange Square*

[...]”

Policy EN7. 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.*

[...]”

Policy EN16. 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 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 development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.”

Policy DM1. 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:-

[...]

- 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 Local Air Quality Management in Manchester.

Since 2016, a single AQMA has covered the entirety of Greater Manchester (the Greater Manchester AQMA), declared for exceedance of the annual mean NO₂ AQO. The Greater Manchester AQAP¹³ covers the actions intended to be taken to tackle air pollution in the administrative area between 2016-2021.

Key performance indicators have been defined to help categorise improvement actions. Policies and interventions have been subsequently identified and divided into the following broad subjects:

- Development Management and Planning Regulation.
- Freight and Heavy Goods Vehicles.
- Buses;
- Cycling;
- Travel Choices;
- Cars; and
- Information and Resources.

2.8 Assessment Guidance.

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

2.8.1 Defra Local Air Quality Management Technical Guidance

Defra LAQM.TG(16)⁶ 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.

2.8.2 EPUK-IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance¹⁴ 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.

2.8.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM¹⁵. 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.

2.8.4 Greater Manchester Clean Air Plan

The Greater Manchester Clean Air Plan will be delivered by July 2022 and this new plan will outline how compliance with clean air legislation in Greater Manchester can be delivered as soon as possible and by no later than 2026.

2.8.5 MCC Air Quality and Planning Technical Guidance

The MCC Air Quality and Planning Technical Guidance¹⁶ is focused on reducing air pollution from road transport as the major source of emissions in Manchester. The guidance seeks to support the planning system in lowering transport emissions and improving local air quality. The approach set out within this document is based on that provided by the EPUK and IAQM¹⁴. This document has been reviewed as part of this assessment and has been considered throughout.

2.8.6 Greater Manchester Low Emissions Strategy

The Greater Manchester Low Emissions Strategy¹⁷ (2016) takes a long-term, integrated approach to carbon emissions and air quality in the period up to 2040, allowing focus on investment to greatest effect. It establishes a framework within which detailed action plans can be developed to reduce carbon emissions and improve air quality. The aims of this 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 Implementation Plan (now superseded by the above Climate Change Framework); and
- Reduce air pollution as a contributor to ill-health in Greater Manchester.

2.8.7 Manchester Climate Change Framework

Manchester Climate Change Framework¹⁸ (2020) is Manchester's high-level strategy for meeting climate change commitments. The Framework is built on eight key principles that are embedded throughout the Framework.

3. Assessment Methodology.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the MCC for review. A response has been received from the Environmental Protection Officers at MCC and their comments have been taken into account in this report. A copy of the correspondence with MCC 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 MCC¹⁹ air quality reports and local monitoring data;
- The UK Pollutant Release and Transfer Register²⁰;
- Background pollution maps taken from Defra's LAQM website²¹;
- Pollution Inventory from the Environment Agency²²
- The UK Ambient Air Quality Interactive Map²³;
- Ordnance Survey data and aerial photography from Google Maps;
- Air Quality ES Chapter¹ written by RPS Group in 2016 for the previous planning application (Reference: 111025/FO/2016/C1).

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

- Earthworks;
- Construction; and
- Trackout

It has been confirmed by Bridge Architects that there will be no demolition activities and as such, dust impacts in regard to demolition have not been assessed.

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 Application Site 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;
- An 'ecological receptor' is located within 50 m of the boundary of the Application Site 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 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 guidance¹⁵ 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:

- a change of Light Duty Vehicle (LDV) flows of more than 100 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)⁶.

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Impacts

The screening assessment has been undertaken with reference to the following documents:

- Defra's LAQM.TG(16)⁶; and
- EPUK and IAQM guidance indicative criteria, i.e.:
 - a change of LDV flows of more than 100 AADT (within an AQMA); and/or
 - a change of HDV flows of more than 25 AADT (within an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that "the criteria provided are precautionary and should be treated as indicative", and "it may be appropriate to amend them on the basis of professional judgement".

Where impacts can be screened out there is no need to progress to a more detailed assessment.

The traffic associated with the Proposed Development has also been compared to that of the Previous Development, assessed in the Previous Air Quality ES Chapter by RPS. This has been carried out to ensure that no worsening of impacts will occur from those assessed as part of the Previous Development.

3.4.2 Combustion Plant Screening of Impacts

The proposed energy strategy all electric during normal operation. Diesel generators are proposed for back-up use only. The generators will be tested for maintenance purposes for fewer than 18 hours per year with exhausts located at roof height. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

3.4.3 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.

Site Suitability will be assessed qualitatively using monitoring data from MCC in the locale of the Proposed Development. The findings of Air Quality ES Chapter produced for the Previous Development (Reference number: 111025/FO/2016/C1) will also be reviewed.

3.5 Assessment of Significance.

3.5.1 Construction Phase Impacts

The IAQM guidance¹⁵ 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 guidance¹⁴ 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 Significance of Effect – Site Suitability Assessment

To determine the significance of predicted air quality impacts based upon a Site Suitability Assessment, the EPUK and IAQM guidance states:

“Where the air quality is such that an air quality objective 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 Site Setting.

The Application Site is located within MCC's area of administration at approximate NGR: X 384345 Y 397305 and within the Greater Manchester AQMA. The area surrounding the application Site is largely occupied by commercial premises and residential dwellings. To the east of the Application Site is Princess Street (A34) and to the west Oxford Road (A34), with Newman Street (formerly Brancaster Road) directly north and Mancunian Way (A57(M)) to the south.

The Application Site is currently vacant, having been so since 2015. The Application Site was formerly occupied by the BBC's Manchester HQ, before its demolition. The land was then used for surface level parking.

4.2 Local Air Quality Management Review and Assessment.

A review of the most recent Annual Status Report¹⁹ (ASR) (2021) from the Greater Manchester Authority, which represents the ten authorities that constitute Greater Manchester and includes the city of Manchester, has shown that monitored NO₂ concentrations are generally decreasing across MCC's administrative area at both automatic and passive diffusion tube monitoring locations. PM₁₀ concentrations are only seen to be decreasing at one automatic station within MCC. Since 2016, a single AQMA has covered Greater Manchester and key road links into the city, declared for exceedance of the annual mean NO₂ AQO.

Additionally, based on the available monitoring data, during the onset of the COVID-19 pandemic, there has been a decrease in pollutant concentrations recorded at monitoring locations in MCC. The reduction in NO₂ concentrations from 2019 to 2020 was 29% at passive diffusion tubes monitoring locations within MCC and this is directly attributable to reduced traffic levels as a result of Government implemented lockdowns. As such, the pollutant concentrations recorded at monitoring stations 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 shown in Section 4 for information. Monitoring data from 2021 is not yet publicly available but would also be unrepresentative of "normal" air quality conditions.

4.3 Local Air Quality Monitoring.

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 is one AURN within central Manchester, and this is Manchester Piccadilly (UKA00248). Manchester Piccadilly automatic station is located approximately 940 m to the north of the Application Site and monitoring data from this location has been included in Table 2 below.

In total within MCC, there are three automatic monitoring stations in operation. The closest automatic monitoring station to the Application Site is Manchester Oxford Road, located approximately 120 m to the east of the Application Site.

Recent monitoring data from 2015 to 2020 for the automatic monitoring stations is detailed in Table 2 and a visual representation of the locations of the automatic monitoring stations is shown in Figure 2.

Table 2: Automatic Monitoring Locations

Monitoring site and distance (km) from site boundary (approx.)	Objective	2015	2016	2017	2018	2019	2020
NO ₂							
	Annual mean (µg/m ³)	66	66	65	62	59	36

Monitoring site and distance (km) from site boundary (approx.)	Objective	2015	2016	2017	2018	2019	2020
Manchester Oxford Road, MAN1, Kerbside, 120 m	Number of hours with concentrations >200 µg/m ³	60	90	6	2	1	0
Manchester Piccadilly, Urban Centre, MAN3, 950 m	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							
Manchester Oxford Road, MAN1, Kerbside, 120 m	Annual mean (µg/m ³)	28	27	27	30	26	18
	Number of days with concentrations > 50 µg/m ³	25	16	15	15	18	5
Manchester Piccadilly, Urban Centre, MAN3, 950 m	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}							
Manchester Piccadilly, Urban Centre, MAN3, 950 m	Annual mean (µg/m ³)	10	10	8	11	12	8

*Concentrations shown in **bold** represent exceedances of the relevant AQO.

The monitoring results indicate that there have been exceedances of the annual mean NO₂ AQO at one automatic monitoring station in vicinity of the Application Site, at Manchester Oxford Road. There have been no exceedances of the 1-hour mean NO₂ AQO from 2017 onwards.

There have been no exceedances of the annual mean PM₁₀ or PM_{2.5} AQOs in recent years, and there have been no exceedances of the 24-hour mean PM₁₀ AQO from 2016 onwards.



Figure 2: Automatic Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2022.

Within MCC are 38 passive diffusion tube monitoring locations to monitor NO₂ concentrations. A review of the most recent monitoring data available indicated that there are 10 passive diffusion tube monitoring locations within 1.5 km of the Application Site. Recent monitoring results are shown in Table 3 and the passive diffusion tube monitoring locations are illustrated in Figure 3.

Table 3 details the monitoring results for all passive diffusion tube monitoring locations for the most recent years with available data.

Table 3: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)					
				2015	2016	2017	2018	2019	2020
MA82NO	Roadside	Manchester Oxford Road	120	<u>60.6</u>	<u>60.2</u>	56.2	54.0	52.0	33.9
MA29ANO	Roadside	Oxford Street	270	56.4	<u>66.2</u>	57.7	58.8	55.4	39.0
MA72NO	Urban Background	Lockton Close	350	34.8	40.0	34.6	33.4	32.8	24.5
MA77NO	Urban Background	Hewitt Street	750	37.5	<u>44.2</u>	38.8	<u>41.0</u>	<u>43.7</u>	26.9
MA24NO	Kerbside	Princess Street	800	<u>55.2</u>	<u>45.3</u>	<u>44.7</u>	<u>40.3</u>	<u>40.8</u>	26.8
MA96 BNO	Roadside	Ardwick Green	800	-	-	-	-	<u>46.0</u>	36.4
MA9NO	Roadside	Newton Street	940	<u>55.9</u>	<u>51.9</u>	<u>51.1</u>	<u>45.8</u>	<u>44.9</u>	32.5
MA59NO	Urban Background	Piccadilly Gardens	950	35.8	<u>40.8</u>	35.7	31.6	33.1	22.3

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³)					
				2015	2016	2017	2018	2019	2020
MA71NO	Roadside	Great Ancoats Street	1180	45.9	51.2	50.4	46.1	45.3	31.4
MA97BNO	Roadside	Chester Road	1460	-	-	-	-	32.3	23.4

*Concentrations shown in **bold** represent exceedances of the annual mean NO₂ AQO. Concentrations also underlined represent likely exceedances of the 1-hour mean NO₂ AQO.

As shown in Table 3 above, in 2019, the most recent year with available representative monitoring data, there have been exceedances of the annual mean NO₂ AQO at seven out of the ten nearby passive diffusion tube monitoring locations.

Regression analysis of monitored NO₂ concentrations within MCC at all automatic and passive diffusion tube monitoring locations with five years' worth of data between 2015 and 2019, showed a downward trend in NO₂ concentrations. The year-on-year average reduction in monitored annual mean NO₂ concentrations was 3.4 µg/m³. This trend was significant, with a P-value less than 0.05.

An annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO. There have been exceedances of 60 µg/m³ at two nearby automatic monitoring stations in recent years. However, there have been no recorded exceedances of 60 µg/m³ from 2017 onwards.



Figure 3: Passive Diffusion Tube Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2022.

4.4 Industrial Pollution.

A desk-based review of potential industrial sources using the UK Pollutant Release and Transfer Register²⁰ and the Pollution Inventory from the Environment Agency²² identified two potential sources of industrial or waste

management sources of air pollution. However, neither of these two sources have released pollutants to the air from 2015 onwards and are therefore unlikely to affect the Application Site with regard to air quality.

Table 4: Industrial/Waste Management Sources of Air Pollution within 2 km of the Application Site from 2015 onwards.

Source Name	Source Type	Air Pollutant Release
Operational Depot	Disposal of non-hazardous waste	None
Royal Brewery Manchester	Manufacture of beer	None

4.5 Defra Predicted Concentrations.

The 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 384500 Y 397500 and the predicted concentrations for this grid square for NO₂, PM₁₀ and PM_{2.5} are provided in Table 5 for 2022, the current year and for 2024, the earliest anticipated opening year for the Proposed Development.

Table 5: Predicted Background Concentrations for grid square X 384500 Y 397500

Year	Predicted Background Concentration (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
2022	24.7	13.8	8.7
2024	23.1	13.6	8.6

As shown in Table 5, background concentrations are well below the relevant AQOs for all pollutants.

4.6 Summary of Background Data.

The Application Site is located within Greater Manchester AQMA, declared for exceedances of the annual mean NO₂ AQO and the 24-hour mean PM₁₀ AQO.

At the nearby automatic monitoring stations, there have been exceedances of the annual mean NO₂ AQO in recent years. However, there have been no exceedances of the 1-hour mean NO₂ AQO from 2017 onwards. There has only been one exceedance of the 24-hour mean PM₁₀ AQO at one automatic monitoring station between 2015 and 2019. There have been no exceedances of the annual mean PM₁₀ or PM_{2.5} AQOs in recent years.

At the nearby passive diffusion tube monitoring locations, there have been widespread exceedances of the annual mean NO₂ AQO in recent years, but no likely exceedances of the 1-hour mean NO₂ AQO from 2017 onwards.

Defra background concentrations are well below the relevant AQOs for all pollutants.

There are no nearby industrial/waste management sources of air pollution that are likely to affect the Application Site with regard to air quality.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section. It has been confirmed by Bridge Architects that there will be no demolition activities and as such, dust impacts in regard to demolition have not been assessed.

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 Site entrance. The closest ecological receptor to the Application Site is Clayton Vale Nature Reserve, located approximately 3.5 km to the east of the Application Site.

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 earthworks, construction and trackout have been assessed, as identified in Table 6.

Table 6: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Earthworks	Medium	The area to be affected by earthworks will be 4300 m ² , as provided by Planit-IE Architects, and the soil type is moderately dusty (loamy and clayey ²⁴). As such, in line with IAQM guidance, the magnitude of dust emissions in relation to earthworks activities will be medium.
Construction	Large	As provided by Bridge Architects, the construction volume will be approximately 183,500 m ³ . The building materials are currently unknown, but it is expected that potentially dusty materials such as concrete will be used. As such, in line with IAQM guidance, the magnitude of dust emissions in relation to construction activities will be large.
Trackout	Medium	Initial information on the number of outward HDV trips generated during the construction phase per day was not available at the time of writing. Due to the size of the Application Site, the unpaved road length is likely to be between 50-100 m in length. Therefore, in line with IAQM guidance the potential dust emissions magnitude from trackout is considered to be medium.

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 7.

Table 7: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
Dust Soiling	Within 20 m of the Application Site Boundary are between 10-100 residential dwellings. Within 50 m of the Application Site boundary are further residential dwellings. These receptors are of high sensitivity to dust soiling. Furthermore, within 50 m of the Application Site boundary are between 1-10 commercial properties including a Premier Inn hotel, restaurants and retail premises. Within 50 m of the Application Site boundary are university premises including the Institute of Biotechnology and the Faculty of Science and Engineering. These receptors are of medium sensitivity to dust soiling. For trackout, the distances are measured from the side of the roads used by construction traffic. There are between 10-100 high sensitivity residential receptors within 20 m of the side of the roads, up to 200 m from the Application Site.	High	High
Human Health	Within 20 m of the Application Site Boundary are between 10-100 residential dwellings. The PM₁₀ concentration recorded at the closest automatic monitoring station to the Application Site (Manchester Oxford Road) in 2019 was 26 µg/m³. Since the worst case PM₁₀ concentration at the Application Site is expected to be between 24-28 µg/m³ and the receptors within 20 m of the Application Site boundary are of high sensitivity, the sensitivity of the area in respect to human health is high. For trackout, the distances are measured from the side of the roads used by construction traffic. There are between 10-100 high sensitivity residential receptors within 20 m of the side of the roads, up to 200 m from the Application Site.	High	High

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 8 details the risk of dust impacts for earthworks, construction and trackout activities.

Table 8: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity	Earthworks	Construction	Trackout
Magnitude		Medium	Large	Medium
Dust Soiling Impacts	High	Medium Risk	High Risk	Medium Risk
Human Health Impacts	High	Medium Risk	High Risk	Medium Risk

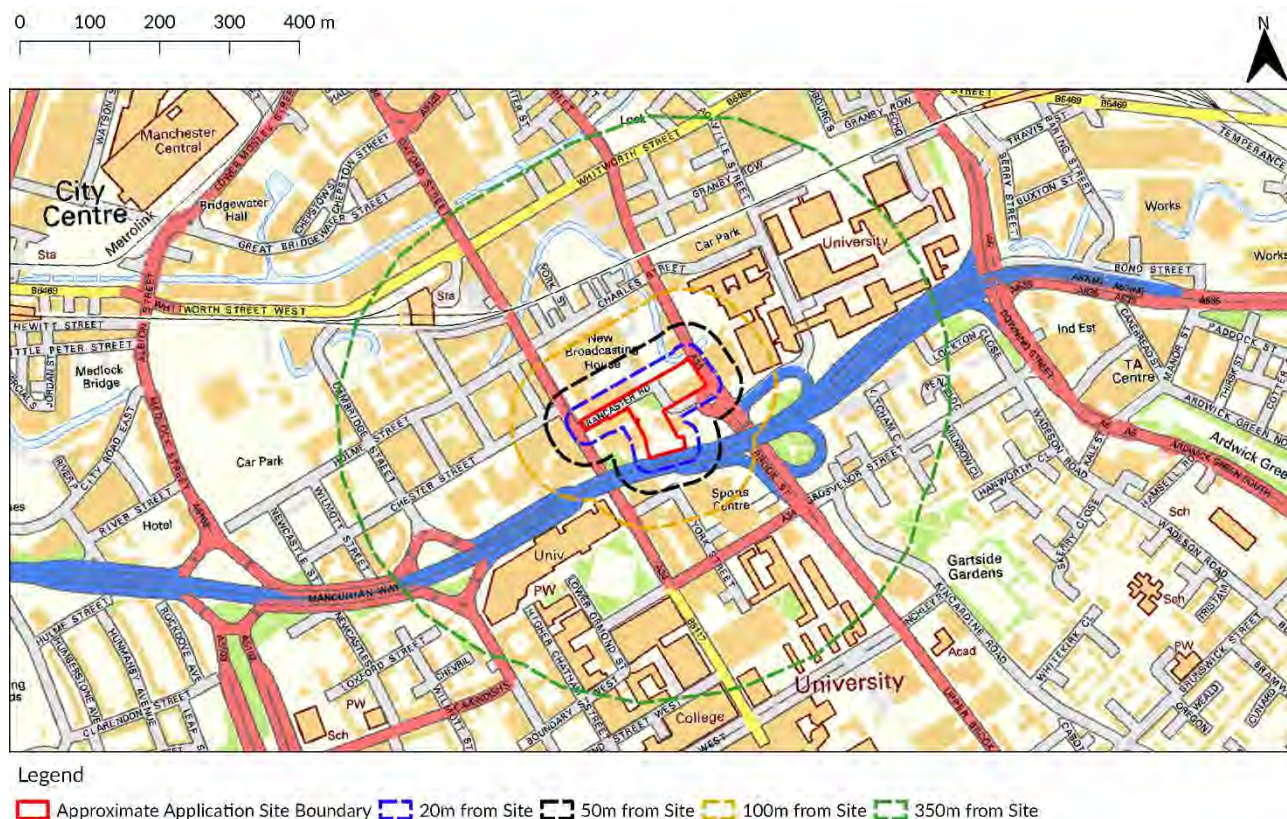


Figure 4: Distance band criteria from the Application Site boundary. Contains Ordnance Survey Data © Crown Copyright 2022.

5.2 Construction Phase – Vehicular Pollutants.

The Application Site is located within the Greater Manchester AQMA and therefore the lower screening criterion (i.e. 100 LDV and 25 HDV) would apply.

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)⁶ 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.

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

6.1 Road Traffic Emissions Screening Assessment.

The appointed transport consultants, Curtins, have confirmed that there will not be an increase in the number of LDV and/or HDV movements associated with the Proposed Development, when compared to the Previous Development. They have also confirmed that, owing to the nature of the Proposed Development, with no on site parking, traffic generation will be below the EPUK and IAQM criteria of a change of more than 100 AADT LDV or 25 HDV AADT for developments within an AQMA. As such, the potential impact of additional road traffic on local air quality is likely to be considered insignificant and a detailed assessment of the trip generation is not required.

The Previous Air Quality ES Chapter assessed the operational impact of the Previous Development on the surrounding area using detailed atmospheric dispersion modelling. The impacts were assessed for the year of 2019. The overall impact of the Previous Development on the surrounding area was considered to be 'negligible' at relevant receptors on all road links except on Princess Street, which was considered to be 'moderate adverse' overall. This 'moderate adverse' impact was based on the very conservative traffic data provided, combined with the high existing background pollution levels. It was therefore concluded that the Previous Development would not cause an exceedance where none existed before.

The Proposed Development will not lead to a generation of traffic over and above that of the Previous Development. Furthermore, the opening year of the Proposed Development is now expected to be 2024, whereas the Previous Air Quality ES Chapter utilised 2019 as the expected opening year. Emissions are expected to reduce in the future and therefore, the conclusions of the operation phase impacts assessment within the Previous Air Quality ES Chapter are likely to be worst-case in relation to the Proposed Development.

As such, the impacts on air quality from operational phase traffic generation are considered to be not significant.

6.2 Combustion Plant Screening Assessment.

The proposed energy strategy is all electric during normal operation. Diesel generators are proposed for back-up use only. The generators will be tested for maintenance purposes for fewer than 18 hours per year with exhausts located at roof height. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

6.3 Site Suitability.

This section presents a review of MCC monitoring and Defra background maps data in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for office use and identify any requirements for potential mitigation to be embedded into the Proposed Developments design. The findings of the Air Quality ES Chapter produced for the Previous Development (Reference number: 111025/FO/2016/C1) will also be used to assess Site Suitability.

As presented in section 2 in line with LAQM.TG(16)⁶, the 1-hour mean AQO applies to the Proposed Development due to its proposed use as an office development. As such, this section considers the predicted 1-hour mean NO₂ concentrations at the Application Site.

6.3.1 NO₂ Concentrations

A review of the NO₂ concentrations monitored within 1.5 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 2 and Table 3.

The closest monitoring stations to the Application Site are Manchester Oxford Road (an automatic monitoring station) and MA82NO (a passive diffusion tube monitoring location), which are in the same location, approximately 120 m to the west of the Application Site. The proposed office space at No.3 Circle Square is

located approximately 100 m away from the A34 (Oxford Road) and the eastern façade is set back by at least 7 m from the A34 (Princess Street). As such, NO₂ concentrations recorded at Oxford Road automatic monitoring station and MA82NO passive diffusion tube monitoring location are likely to represent the worst-case air quality conditions at the Application Site.

At Manchester Oxford Road automatic monitoring station, there have been no recorded exceedances of the 1-hour mean NO₂ AQO from 2017 onwards. Furthermore, an annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO. At passive diffusion tube monitoring location MA82NO, the NO₂ concentration recorded in 2019, was below 60 µg/m³.

Further to the discussion of Site Suitability above, the findings of the Air Quality ES Chapter produced for the Previous Development (Reference number: 111025/FO/2016/C1) have also been reviewed.

In the Previous Air Quality ES Chapter, detailed dispersion modelling was used to assess the Suitability of the Site for its proposed use. The pollutant concentrations were predicted to be above the annual mean NO₂ AQO at the façades of the Previous Development at: levels 01 to 02 of Building 5; levels 01 and 02 of Building 6; levels 01 to 04 of Buildings 7 and 8. Where exceedances of the AQO were predicted, mitigation measures were therefore suggested. These mitigation measures comprised of: provision of air tight (hermetically sealed) windows on the main road façades of the buildings, and the provision of mechanical ventilation with air intakes located at an elevated point beyond roof level.

In the Previous Air Quality ES Chapter, the impacts were assessed for the year of 2019, the anticipated opening year at the time of writing, using a verification year of 2014 for comparison. The opening year of the Proposed Development is now anticipated to be 2024. As described in Section 4.3 of this report, regression analysis of monitored NO₂ concentrations within MCC at all automatic and passive diffusion tube monitoring locations with five years' worth of data between 2015 and 2019, showed a downward trend in NO₂ concentrations. The year-on-year average reduction in monitored annual mean NO₂ concentrations was 3.4 µg/m³. This trend was significant, with a P-value less than 0.05. This shows that between 2015 and 2024, NO₂ concentrations are likely to decrease considerably. Furthermore, the maximum predicted NO₂ concentration in 2019 from the Previous Air Quality ES Chapter was 41.8 µg/m³ at Receptor 14, Building 8, Level 01. This was based on a verification year of 2014, when Oxford Road automatic monitoring station recorded an annual mean NO₂ concentration of 68 µg/m³. In comparison, in 2019 the Oxford Road automatic monitoring station recorded an annual mean NO₂ concentration of 59 µg/m³, 9 µg/m³ lower than in 2014. As such, NO₂ concentrations at any proposed receptors can be expected to be significantly lower than was predicted in the Previous Air Quality ES Chapter. As such, the Previous Air Quality ES Chapter represents a worst-case scenario for air quality at the Proposed Development and NO₂ concentrations are unlikely to exceed the AQOs for NO₂ in the opening year of the Proposed Development and beyond.

Based on our assessment of Site Suitability within this Air Quality Assessment, NO₂ concentrations in the locale of the Proposed Development are considered to be below the 1-hour mean NO₂ AQO. As such, mitigation measures to comply with the 1-hour mean NO₂ AQO will not be required at this stage.

6.3.2 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 air quality objective 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 1-hour mean NO₂ AQO based upon a review of NO₂ monitoring data within the development locale, as well as a review of the Previous Air Quality ES Chapter.

As no exceedance of the 1-hour mean NO₂ AQO is predicted, no mitigation measures are required at this stage.

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 Table 8 of this report.

It is recommended that the MCC approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. 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), high risk measures have been applied as these represent the highest risk category determined in Table 8. This approach is consistent with the IAQM guidance.

Table 9: Mitigation Measures

Issue	Mitigation Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux and 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.
	Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
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, window sills within 100 m of the site boundary.
	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.

Issue	Mitigation Measure
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	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.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)
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	Soft strip inside building before demolition.
	Ensure effective water suppression is used during demolition activities.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.
	Bag and remove any biological debris before demolition.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or 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.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in continuous use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	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 10 m 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

The potential air quality impacts associated with 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. Therefore, mitigation measures are not considered to be required.

7.2.2 Baseline Site Suitability Review

A review of MCC monitoring data in consideration of the Application Site, indicates no likely exceedance of the 1-hour mean NO₂ AQO. As such, the Proposed Development is considered suitable for office use and mitigation measures will not be required at this stage.

9. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed office development at No.3 Circle Square, Manchester, M1 7ED.

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;
- The baseline assessment that the Application Site is located within the Greater Manchester AQMA. There have been widespread exceedances of the annual mean NO₂ AQO in recent years. However, there have been no exceedances of the 1-hour mean NO₂ AQO from 2017 onwards and no exceedances of the 24-hour mean PM₁₀ AQO from 2016 onwards. There have been no exceedances of the annual mean PM₁₀ or PM_{2.5} AQOs in recent years. Defra background concentrations are well below the relevant AQOs for all pollutants and there are no nearby industrial/waste management sources of air pollution that are likely to affect the Application Site with regard to air quality;
- The results of the operational phase traffic screening assessment indicate that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required;
- The proposed energy strategy all electric during normal operation. Diesel generators are proposed for back-up use only. The generators will be tested for maintenance purposes for fewer than 18 hours per year with exhausts located at roof height. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment; and
- The Site Suitability Assessment indicates that pollutant concentrations are below the 1-hour mean NO₂ AQO. As such, the Proposed Development is considered suitable for office use and mitigation measures will not be required at this stage.

Based on the information above, 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 Manchester Core Strategy.

10. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
LDV	Light Duty Vehicles ($\leq$ 3.5 tonnes gross vehicle weight)
MCC	Manchester City Council
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
MVHR	Mechanical Ventilation with Heat Recovery
MSCP	Multi Storey Car Park
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

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Appendix 1 - EHO Consultation.



From: Rebecca Thripp (rebecca.thripp@bruntwoodscitech.com)
Sent: 18 June 2020 10:48
To: Craig Ellis (Craig.Ellis@bruntwoodscitech.com)
Cc: rebecca.thripp@bruntwoodscitech.com
Subject: RE: Hoare Lea - Air Quality Assessment - 3 Circle Square

Follow Up Flag: Follow Up
Flag Status: Flagged

You can manage email notifications by clicking on the 'Email' icon in the top right corner.

Hi Team

Please can you load the below request on Plans - as Linda BCTM - many thanks

Ellie - when you reply please email. The site owner will respond in due course to confirm whether they have any comments, pull in the main line, please see new [MCC's guidance](#) now available online. Please note that as long as your scope and methodology proposals comply with our guidance then you do not also need to consult us.

Regards

Rebecca

Rebecca Thripp - Project
Environmental Protection Officer
Environmental Protection
Environmental Team
Environmental Compliance
Environmental Compliance

Rebecca Thripp - Project

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For latest news on projects and services visit Twitter: [@BruntwoodScitech](#)

From: Draga, Ellie
Sent: 09 June 2022 12:41
To: R.Twigg@manchester.gov.uk
Cc: Kathryn Woolley
Subject: Hoare Lea - Air Quality Assessment- 3 Circle Square

Dear Rebecca,

Hoare Lea have been instructed to undertake an Air Quality Assessment to support the planning application for the proposed flexible office development at No. 3 Circle Square (Manchester), M1 TED, which supersedes the Previous Committed Development at this site.

I have set out our proposed assessment approach below and would invite any comments or local air quality considerations you may have. The site is located at the below location (red outline).



The proposed development consists of a new 15 storey building, comprising new build conventional office space, reception, site office, meeting and lounge facilities with outdoor roof terrace, independent food and beverage retail units, and associated ancillary accommodation and plant spaces. The Proposed Development supersedes the Previous Committed Development at this site.

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

- A baseline assessment will be undertaken using Greater Manchester monitoring data, taken from the most recently available Annual Status Report (2021).
- A review of the Manchester Core Strategy and Air Quality Action Plan.
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- An assessment of the construction impacts on air quality and dust using the EPUF (IAQ) methodology, in compliance with The Control of Dust and Emissions During Construction and Demolition.
- The appointed transport consultants have confirmed that there will be no net increase in LDVs and/or HDVs associated with the Proposed Development, when compared to the Previous Committed Development. They have also confirmed that, owing to the nature of the Proposed Development with no on site parking, traffic

generation will be below the EPUK/AQM criteria of a change of more than 100 ASDT LDW or 25 HDV/AADT for developments within an AQM14. As such, the potential impact of additional road traffic on local air quality is likely to be considered insignificant and a detailed assessment of the trip generation is unlikely to be required.

- An assessment of Site Suitability will be undertaken qualitatively with both a review of the previous air quality assessment undertaken for the Former BBC Site (Reference number: 111025/FO/2015/CU) and a post-posed review of the existing baseline air quality undertaken to inform the exposure of future users of the development.
- Local air quality monitoring will be used to understand concentrations at the Application Site.
- The energy strategy for the Proposed Development is proposed to be all electric, utilising zero emission technologies with diesel generators for back-up use only. As no combustion sources are proposed during normal operation, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

I would also be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me on the number below.

Please let me know if there are any additional guidance documents that aren't publicly available that you would like us to consider.

In the meantime, if you have any questions, do not hesitate to contact me.

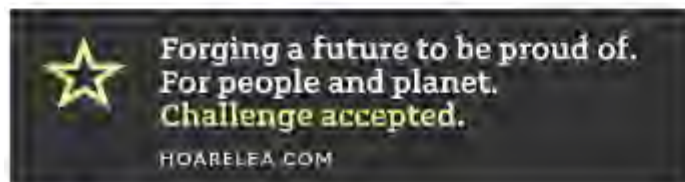
Many thanks

Ellie Drage

Consultant Air Quality & Noise

Tel: +44 20 3860 7130

Email: elliedrage@hoarelea.com



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 Leicester (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Andy Day (Hoare Lea), BSc (Hons), MSc, AMIEEnvSc, MIAQM

Andy is a Senior Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institution of Environmental Sciences and an Associate Member of the Institute of Air Quality Management. He is a chemistry graduate with a Master's specialising in the catalysed removal of harmful volatile organic compounds (VOCs) often generated from the combustion of fuel in car engines.

Andy has worked on a range of projects of varying size across a number of different sectors. His experience focusses on work up to and through planning for Air Quality Assessments and environmental impact assessments. Andy also has experience in detailed dispersion modelling of road traffic and energy combustion plant, emission mitigation statements, damage cost calculations, indoor and outdoor air quality monitoring and assessing the air quality impact at ecologically sensitive sites.

Andy has a particular interest in reducing emissions for the benefit of human health and the environment through the life cycle of a building.

Ellie Drage (Hoare Lea), MEarthSci, AMIEEnvSc, AMIAQM

Ellie is a Graduate Air Quality Consultant with Hoare Lea. She graduated from the University of Oxford with an Earth Sciences degree focusing on Climate and Ocean Systems. Ellie's MEarthSci project involved reconstructing ocean circulation, climate, and the carbon cycle approximately 100 million years ago, to better understand Earth's past environment.

Ellie has worked on a range of projects across various sectors including residential, industrial, office, education, commercial and laboratory. Ellie has experience preparing Air Quality Assessments for planning including detailed assessment using dispersion modelling. She has also completed indoor air quality plans for both BREEAM and WELL accreditation, odour risk assessments for kitchen extract systems, and has undertaken outdoor air quality monitoring within London. Ellie's interests lie in the mitigation of pollution and air quality control.



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