

AIR QUALITY ASSESSMENT

on behalf of

WATCH THIS SPACE (JEMBRANA) LTD.

for

**BRIDGEWATER HOUSE, GREAT JACKSON
STREET, MANCHESTER**

REPORT DATE: 31ST MAY 2022

REPORT NUMBER: 102821

Miller Goodall Ltd
Ground Floor
Ashworth House
Deakins Business Park
Blackburn Road
Egerton
Bolton
Lancashire
BL7 9RP

Tel: 01204 596166

www.millergoodall.co.uk

Company registration number 5201673



Summary

This air quality report has been prepared to accompany a planning application for a proposed car-free residential development at Bridgewater House, Great Jackson Street, Manchester. It assesses the potential changes in air quality due to the construction and operation of the proposed development and whether these potential changes would significantly alter air quality.

The assessment of dust soiling and human health impacts during the demolition and construction phase of the development results in the proposal of dust mitigation measures. The implementation of these will ensure that residual dust impacts during the demolition and construction phase are not significant.

Concentrations of NO₂ and PM₁₀ are likely to be below their respective long and short-term objectives at the proposed development site which is therefore considered suitable for residential use with regards to air quality. Concentrations of PM_{2.5} are expected to be below the annual mean target.

The proposed development is not expected to have a significant impact on local air quality.

There is, therefore, no reason for this application to be refused on the grounds of air quality.

Prepared By Unam Ejaz

Reviewed By Philip Walton

Signed



Signed



Date

31st May 2022

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1 Introduction

- 1.1 Miller Goodall Ltd has been instructed to prepare an air quality assessment to accompany a planning application for a proposed residential development at Bridgewater House, Great Jackson Street, Manchester. The site lies within the administrative boundary of Manchester City Council (MCC).
- 1.2 The report provides a review of the existing air quality in proximity to the proposed development site and assesses the potential impact of the proposed development on local air quality following Local Air Quality Management Technical Guidance¹ and EPUK and IAQM guidance².
- 1.3 The report provides an assessment of the potential air quality impacts associated with the construction and operational phases of the proposed development. The potential air quality changes from the development are considered and an assessment of the suitability of the site for the intended use is also assessed.
- 1.4 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO₂) and fine particulates, normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM₁₀) and 2.5 micrometres (PM_{2.5}) since these pollutants are most likely to approach their respective air quality objectives in proximity to major roads and congested areas. This assessment has therefore focused on the impact of the proposed development on concentrations of NO₂, PM₁₀ and PM_{2.5}.

2 Site Description

- 2.1 The site is currently occupied by a Grade II listed Bridgewater Canal Office building and a car park.
- 2.2 The development site is located in the Manchester City Air Quality Management Area (AQMA). The site location is shown in **Appendix A**.

3 Proposed Development

- 3.1 The proposed development is for the restoration and conversion of the abandoned Grade II listed Bridgewater Canal office building and redevelopment of car park area to provide 53 new homes, including landscaping to courtyard, bike storage and associated works.

4 Policy Context

4.1 Air Quality Objectives

- 4.1.1 The standards and objectives relevant to the LAQM framework have been prescribed through the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations 2002; the Air Quality

¹ Department for the Environment Food and Rural Affairs (2018) 'Local Air Quality Management Technical Guidance Document LAQM.TG (16)', London: Defra.

² EPUK and IAQM (January 2017) Land Use Planning and Development Control: Planning for Air Quality (v1.2)

Standards Regulations 2010 set out the combined Daughter Directive limit values and interim targets for Member State compliance.

- 4.1.2 The United Kingdom left the European Union on 31st January 2020 and is no longer a member state. However, the current framework of air quality legislation was converted into domestic law through the European Union (Withdrawal) Act 2018^[3].
- 4.1.3 The relevant air quality standards and objectives are presented in **Table 1**. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health.

Table 1: Air Quality Strategy Objectives (England) for the Purposes of Local Air Quality Management

Pollutant	Air Quality Objective	
	Concentration	Measured As
Nitrogen dioxide (NO ₂)	200 µg/m ³	1-hour mean not to be exceeded more than 18 times per year
	40 µg/m ³	Annual mean
Particles (PM ₁₀)	50 µg/m ³	24-hour mean not to be exceeded more than 35 per year
	40 µg/m ³	Annual mean
Particles (PM _{2.5})	25 µg/m ³	Annual mean (target)

- 4.1.4 Where an air quality objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as Air Quality Management Areas (AQMA) and take action to work towards meeting the objectives. Following the designation of an AQMA, local authorities are required to develop an Air Quality Action Plan (AQAP) to work towards meeting the objectives and to improve air quality locally.
- 4.1.5 Possible exceedances of air quality objectives are generally assessed in relation to those locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.

³ UK Parliament (2018): <http://www.legislation.gov.uk/ukpga/2018/16/contents/enacted>

4.2 Manchester City Council Air Quality & Planning Technical Guidance

4.2.1 MCC has published the Air Quality & Planning Technical Guidance, 2022 ^[4] to assist developers with air quality matters. The Guidance provides a summary of local air quality, the department overseeing air quality matters, local policy, but broadly for air quality it considers three overarching topics:

- Construction & demolition – assessment of dust and particulate matter emissions. The Guidance refers to assessment using the Institute of Air Quality Management ‘Guidance on the assessment of dust from demolition and construction’ 2014. Concerning Non-Road Mobile Machinery (NRMM) emissions, the Guidance specifies “MCC recommends that NRMM used on the site of any major development within Manchester city centre for the purpose of construction or demolition works should meet Stage IV of EU directive 97/68/EC, and Stage IIIA as a minimum.”
- Development Planning – assessment of air quality change to existing residents and predictions of air quality concentrations for future receptors. The Guidance refers to an assessment using the Environmental Protection UK ‘Land-use Planning & Development Control: Planning for Air Quality’ 2017.

4.2.2 As a member of the World Health Organisation (WHO), Climate and Clean Air Coalition, and UN Environment-led ‘BreatheLife’ cities network, MCC has pledged to achieve the 2005 WHO air quality guideline for PM_{2.5} of 10 µg/m³ by 2030.

4.3 Greater Manchester Action Plan 2016-2021

4.3.1 The Greater Manchester Combined Authority (GMCA) Air Quality Action Plan 2016-2021 ^[5] provides information in respect of the actions planned by the Greater Manchester Authorities in relation to declared AQMAs. Action Plans are the mechanism by which the local authorities, in collaboration with national agencies and others, outline their plans for working towards achieving the air quality objectives through the powers available to them. In relation to managing new development, the action plan states that:

“Action 1.1

Greater Manchester (GM)councils to adopt the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction as current best practice to assess and mitigate emissions from construction sites.
i. Where a key priority area is affected by a proposed scheme, a high level of mitigation control will be requested.

Action 1.2

GM local authorities will adopt the most recent IAQM/EPUK guidance for air quality assessment as current best practice, to help ensure that planning applications consider potential local air quality impacts and opportunities to improve air quality are realised. i. Where a Key Priority Area is significantly adversely affected by a proposed scheme, a high level of mitigation control will be requested. ii. The IAQM/EPUK guidance will also be used to screen and assess industrial sources, such as boilers or large stationary engines. GM local authorities to recommend mitigation controls in accordance with the most recent guidance and the other actions in this document for new developments that contribute to a deterioration of air quality in Air Quality Management Areas (AQMAs). Where an air quality assessment is triggered, it should include a review of monitoring data. Where

⁴ Manchester City Council, 2022. Air Quality & Planning Technical Guidance

⁵ GMCA (2016) Greater Manchester Air Quality Action Plan 2016-2021

monitoring is not currently undertaken, it may be requested to inform the application or to confirm the effects.”

- 4.3.2 Greater Manchester has commenced the process of updating the Action Plan. The following information has been obtained from Clean Air Greater Manchester:

The Greater Manchester Air Quality Administration Committee will begin the process of reviewing the evidence and options for a new Clean Air Plan that can improve public health without hurting jobs and businesses when it meets next week (Wednesday 23 March).

The committee will consider the scope of the options available as Greater Manchester works with government to deliver a new plan by 1 July 2022, to bring harmful nitrogen dioxide (NO₂) levels within legal limits as soon as possible and by 2026 at the latest.

5 Methodology

5.1 Data Sources

- 5.1.1 The air quality assessment has been undertaken and prepared with reference to information from several sources, as detailed in **Table 2**.

Table 2: Key Information Sources

Data Source	Reference
Manchester City Council (MCC) & Greater Manchester Combined Authority (GMCA)	MCC / GMCA (2016) <i>Greater Manchester Air Quality Action Plan 2016-2021</i>
	MCC (2020) <i>2020 Air Quality Annual Status Report</i>
	(2022) <i>Air Quality & Planning Technical Guidance</i>
	MCC / GMCA Clean Air Greater Manchester (website)
Institute of Air Quality Management (IAQM)	IAQM (2014) <i>Assessment of Dust from Demolition and Construction (v1.1)</i>
Department for Environment Food and Rural Affairs (Defra)	Defra <i>Local Air Quality Management Technical Guidance TG(16), updated 2021</i>
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) <i>Land Use Planning and Development Control: Planning for Air Quality (v1.2)</i>
Ministry of Housing, Communities & Local Government	Planning Practice Guidance: Air Quality, November 2019 National Planning Policy Framework (NPPF), July 2021
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps NO _x to NO ₂ Calculator

SK Transport Planning

Traffic Data

Air Pollution Services

Meteorological data from Manchester Airport for the year 2019

5.2 Consultation

5.2.1 The proposed air quality assessment methodology was discussed and agreed with Ms Laura Miller (Environmental Protection Officer) of MCC⁶.

5.2.2 It was agreed that both a construction phase assessment and an assessment of road traffic emissions across the site would be undertaken for the proposed development. The types of assessments to be undertaken, meteorological data to be used, assessment roads, approach to verification and baseline data sources were also agreed upon and are detailed in Sections 5.4 and the appendices of this report.

5.3 IAQM Construction Dust Assessment

5.3.1 The IAQM has produced guidance⁷ on the assessment of air quality impacts arising from dust associated with construction and demolition activities and provides a methodology by which to complete such assessments. The IAQM methodology provides a risk assessment structure to determine the likely impact of the development on nearby receptor locations and recommends mitigation measures that should be implemented to reduce any such impact. The methodology for the assessment is shown in **Appendix B**. The study area in relation to dust and the zones of interest used within the assessment (<20 m, 20 m – 50 m and 50 – 100 m from the site) are shown in **Appendix C**. The dust assessment informed the recommended mitigation outlined in **Appendix D**.

5.4 Road Traffic Emissions Assessment

Air Dispersion Model

5.4.1 The validated Atmospheric Dispersion Modelling System for Roads (ADMS-Roads) v5.0.1 was used to assess the site suitability of the development on concentrations of NO₂, PM₁₀ and PM_{2.5} at proposed sensitive receptors at locations in the development footprint where residential occupation is proposed.

5.4.2 The proposed development will produce a worst-case increase in vehicles to the road network of 59 AADT and 2 HGV as it is car-free. This is below the requirement for a detailed assessment of the air quality change to existing sensitive receptors. The EPUK 2017 Guidance² states an assessment of air quality change should be considered when there is more than 100 AADT light-duty vehicle (LDV) trip generation in an AQMA. An assessment of air quality change to existing sensitive receptors has been screened out and concluded as not significant.

Assessment Scenarios

⁶ Email Miller Goodall Ltd. to MCC between 25th May 2022 to 27th May 2022.

⁷ IAQM "Assessment of dust from demolition and construction" v1.1 2014

5.4.3 The assessment considered the following scenarios:

- Scenario 1: 2019 - base year;
- Scenario 2: 2023 - opening year

5.4.4 A future year 'without development' scenario is not required as the air quality change does not require calculation. Proposed sensitive receptors would only exist in the 'with development' scenario.

Traffic Data

5.4.5 The spatial scope for the assessment focused on those routes affecting the proposed development and the roads surrounding the monitors used for model verification. The traffic data used in the assessment and a map of the road network is provided in **Appendix E**.

5.4.6 Vehicles within the study area have been modelled at posted speed limits apart from the approach to junctions where queuing traffic sections are included in the model at 5 to 15 kph where appropriate following Defra guidance.

5.4.7 LAQM.TG (16) recommends temporal variations to be considered within air quality modelling. Therefore, a 7-day profile based on the Department for Transport's statistics was used within the model.

Meteorological Data

5.4.8 Meteorological data for 2019 from the Manchester Airport recording station was used in the ADMS-Roads model. This is the most representative recording station for the development site.

5.4.9 The wind rose for 2019 from Manchester Airport recording station is provided in **Appendix E**. Dispersion values for the site and meteorological station have been used. The factors applied for surface roughness (m) and the minimum monin-obukhov length (m) are outlined in **Appendix E**.

Sensitive Receptors

5.4.10 The proposal is to introduce a residential development with no parking spaces as it is car-free. SK Transport Planning has been appointed as transport consultant to this project and advise that the development will have very minor increase in trip generation once the existing vehicles are considered. An assessment of the air quality change and impact to existing sensitive receptors can be screened out and concluded as not significant.

5.4.11 Contour plots, at 1.5 m modelled heights, have been produced to show how pollution disperses at the development site. Pollution reduces with distance and height from the source, therefore, if concentrations are acceptable at the ground level, then the concentrations at the floors above are deemed to be suitable.

Conversion of NO_x to NO₂

5.4.12 Oxides of nitrogen (NO_x) concentrations were predicted using the ADMS-Roads model. The modelled road contribution of NO_x at the identified receptor locations was then converted to NO₂ using the NO_x to NO₂ calculator (v8.1, 2020) ^[8] following Defra guidance.

⁸ [Background maps. Tools. Local Air Quality Management Support - Defra, UK](#)

Emission Factors

- 5.4.13 Defra's Emission Factor Toolkit (EFT)⁹ (V11.0, 2021) was used within the ADMS-Roads model to predict emissions from road vehicles for all scenarios.

Background Concentrations

- 5.4.14 The ADMS model requires the derivation of background pollutant concentration data that are factored to the year of assessment, to which the contributions from the assessed roads are added.
- 5.4.15 There are no background monitoring locations in the vicinity of the proposed development and receptor locations, therefore background NO_x, NO₂, PM₁₀ and PM_{2.5} concentrations were obtained from the Defra LAQM support tools for the 1 km x 1 km grid squares covering the proposed development site and receptor locations for the years of assessment (2019 and 2023).

Model Verification

- 5.4.16 Model verification is the process of adjusting model outputs to improve the consistency of modelling results with respect to available monitored data. The verification procedure considers the diffusion tubes MAN95 and MAN97. The location of these diffusion tubes are shown in **Appendix A** and the results are provided in **Section 6.1.1**. The verification procedure and associated calculations are shown in **Appendix E**.
- 5.4.17 There is no PM₁₀ or PM_{2.5} monitoring undertaken within the study area; therefore it was not possible to undertake verification for particulate matter concentrations.

Relevant Objectives

- 5.4.18 As the development is for residential use, both the annual mean and the short-term objectives apply.
- 5.4.19 LAQM.TG(16) provides a qualitative screening approach to determine whether there is a risk of exceedance of the one-hour NO₂ air quality objective. If the ambient NO₂ annual mean concentration is above 60 µg/m³ there is a risk that the one-hour objective (200 µg/m³) may be exceeded. A qualitative comparison to this screening method has been undertaken for this assessment.

6 Baseline Air Quality

6.1 Local Air Quality

- 6.1.1 Baseline air quality at the proposed development has been established by examining monitoring data produced by MCC (provided on the Clean Air Greater Manchester website) and background concentration maps provided by Defra for the grid squares covering the proposed development.
- 6.1.2 The site is located within the Greater Manchester AQMA which has been declared for exceedance of the NO₂ annual mean air quality objective. The site location and its relationship to the AQMA are shown in **Appendix A**.

⁹ [Emissions Factors Toolkit \(defra.gov.uk\)](https://www.defra.gov.uk/emissions-factors-toolkit/)

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO₂)

6.2.1 MCC operates an extensive air quality network of automatic and non-automatic monitors. MCC operates two non-automatic NO₂ diffusion tubes within 400 m of the site.

6.2.2 The results from the diffusion tube are shown in **Table 3** and the monitor locations are shown in **Appendix A**.

Table 3: Annual Mean NO₂ Concentrations Monitored by MCC within the Study Area

Site ID	Location		Annual Mean NO ₂ Concentrations (µg/m ³)				
			2016	2017	2018	2019	2020
MAN77	383576	397489	44.2	38.8	41.0	43.7	26.9
MAN95	386668	397566				43.4	31.5
MAN97	382886	397215	-	-	-	32.3	23.4
Annual Mean NO ₂ air quality objective					40 µg/m ³		

6.2.3 The monitoring results in **Table 3** indicate that annual mean concentrations of NO₂ have been above the NO₂ annual mean objective at MAN77 and below at MAN97 in 2019. Diffusion tube ID 'MAN77' is listed as an urban background monitor in the ASR which is located approximately 400 m to the east of the site. This monitor is located in a setting that is likely to experience higher concentrations due to its proximity within 15 m of the A5103 and the railway line. Diffusion tube ID 'MAN97' is at Chester Road which is located approximately 300 m to the east of the site monitoring the concentrations of similar road traffic levels.

6.2.4 Air quality monitoring data for 2020 is available. The Covid-19 pandemic caused significant traffic reductions on the UK road network during 2020. Consequently, air quality concentrations during 2020 experienced significant and noticeable reductions compared to the pre-2019 record.

6.2.5 The results indicate that the short-term objective for NO₂ was unlikely to be exceeded at the identified monitoring sites as monitored annual mean concentrations were well below the indicative screening concentration of 60 µg/m³ during the period shown.

Particulate Matter (PM₁₀ & PM_{2.5})

6.2.6 MCC does not undertake PM₁₀ or PM_{2.5} monitoring in the vicinity of the proposed development site.

6.3 Background Concentrations

6.3.1 There are no background monitoring locations in the vicinity of the proposed development site or at receptor locations included in the air quality assessment

6.3.2 Background concentrations of NO₂, PM₁₀ and PM_{2.5} obtained from the background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations¹⁰ are shown in **Table 4**.

Table 4: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site and Receptor Locations*

Grid Square	Pollutant	2019	2023
		(µg/m ³)	(µg/m ³)
383500, 397500	NO ₂	26.07	22.08
	PM ₁₀	13.47	12.80
	PM _{2.5}	8.69	8.22

* Background concentrations obtained from the latest 2018 based background maps

7 Construction Dust Impact Assessment

7.1 Step 1 – Requirement for a Detailed Assessment

7.1.1 There are sensitive receptors located within 350m of the site boundary, therefore, a detailed assessment of the construction phase of the development has been undertaken. There are no ecological designations within 50m of the site boundary or trackout routes which require assessment.

7.2 Step 2 – Assess the Risk of Dust Impacts

Step 2A Dust Emission Magnitude

7.2.1 The potential dust emission magnitude in relation to the development has been determined using the criteria detailed in **Table B1** in **Appendix B**. The scale and nature of works onsite were considered to determine the potential dust emission magnitude for demolition, earthwork activities, construction and trackout activities. Information to determine the classification has been estimated from the site plans, Google Earth and information provided by the Applicant. The dust emission magnitude is outlined in **Table 5**.

Table 5: Dust Emission Magnitudes for Each Activity

Activity	Dust Emission Magnitudes	Justification for Sensitivity Classification
Demolition	Small	The total building volume to be demolished is less than 20,000 m³
Earthworks	Small	the site area is < 2,500 m²
Construction	Medium	total building volume to be constructed is estimated to be >25,000 m³
Trackout	Small	there are likely to be between < 10 HDV outward movements in any one day

¹⁰ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

Step 2B Sensitivity of the Receptors to Dust Soiling and Health Effects

- 7.2.2 The land to the south of the site is currently undergoing construction for residential use. This will likely exist, or at least be partially occupied by the time of this development's own construction, therefore, they have been considered as part of the risk assessment.
- 7.2.3 Dwellings are located within a distance of 20 m from demolition, construction, and earthworks and within 20 m of road edges used by traffic associated with the site construction. In accordance with the criteria in **Table B2** in **Appendix B** and the IAQM guidance, the sensitivity of human receptors is **high**.

Step 2B Sensitivity of the Area to Dust Soiling and Human Health Effects of PM₁₀

- 7.2.4 The sensitivity of the area for dust soiling and human health effects has been determined using the criteria detailed in **Table B3** and **Table B4** respectively in **Appendix B**.
- 7.2.5 The sensitivity of the area to dust soiling and human health for each activity is summarised in **Table 6**.

Table 6: Outcome of Defining the Sensitivity of the Area

Pollution	Activity	Sensitivity of the Surrounding Area	Justification for Sensitivity Classification
Dust Soiling	Demolition	High	There are 10 – 100 highly sensitive residential receptors within 20 m of where demolition will occur
	Earthworks	High	There are 10 – 100 highly sensitive residential receptors within 20 m of the site boundary
	Construction	High	There are 10 – 100 highly sensitive residential receptors within 20 m of the site boundary
	Trackout	High	There are 10 – 100 highly sensitive residential receptors within 20 m of the trackout route, up to 500 m from the site exit.
Human Health	Demolition	Low	There are 10 – 100 highly sensitive residential receptors within 20 m of demolition. Background pollutant concentrations are below 24 µg/m ³
	Earthworks	Low	There are 10 – 100 highly sensitive residential receptors within 20 m of the site boundary. Background pollutant concentrations are below 24 µg/m ³
	Construction	Low	There are 10 – 100 highly sensitive residential receptors within 20 m of the site boundary. Background pollutant concentrations are below 24 µg/m ³
	Trackout	Low	There are 10 – 100 highly sensitive residential receptors within 20 m of the trackout route. Background pollutant concentrations are below 24 µg/m ³

Step 2C Risk of Impacts

- 7.2.6 The dust emission magnitude and sensitivity of the area were combined, and the risk of impacts have been determined using the criteria detailed in **Table B5** to **Table B8** in **Appendix B**.
- 7.2.7 A summary of the risks, before mitigation measures are applied, for dust soiling and human health are shown in **Table 7**.

Table 7: Risk of Dust Impacts

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

7.3 Step 3 – Site-Specific Mitigation

7.3.1 Step 3 of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to the site risk for each activity. Mitigation measures specific to earthworks, construction and trackout are proposed based on the risk classifications in **Table 7**. Recommended mitigation measures are shown in **Appendix D**.

7.3.2 The general mitigation measures (for site management, preparing and maintaining the site, operating vehicle/machinery, operations and waste management), are appropriate for a site with a ‘medium risk’ classification (in this instance the site is classified as “medium” risk due to demolition and construction)¹¹.

7.4 Step 4 – Determine Significant Effects

7.4.1 The characteristics of the site and the surrounding area suggest that mitigation would not be impracticable or ineffective. With the implementation of the mitigation measures, therefore, the residual impacts from the construction are considered to be not significant when considered following IAQM guidance.

8 Road Traffic Assessment

8.1 Baseline Assessment

8.1.1 A 2019 baseline scenario has been modelled to obtain the model verification adjustment factor.

8.1.2 There are no existing sensitive receptors that require consideration in this assessment and proposed sensitive receptor would not exist, therefore, no receptors require assessment for the baseline scenario.

8.2 Site Suitability Assessment

Contour Plots

8.2.1 Contour plots to show how pollutant concentrations disperse in the development site footprint have been prepared based on a modelled grid at a height of 1.5 m, which is representative of the breathing height for future sensitive receptors. Contour plots for NO₂, PM₁₀ and PM_{2.5} are provided in **Appendix F**.

¹¹ For those mitigation measures that are general, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high risk site should be applied.

- 8.2.2 The contour plot indicate there are no exceedances of the annual mean air quality objectives and target level for the proposed opening year. Pollution decreases with distance and height from a source, therefore, as the ground level concentrations are below the air quality objectives it can be concluded that concentrations at the floors above ground level will also be below the air quality objectives and target level.
- 8.2.3 LAQM.TG(16) provides a qualitative screening approach to determine whether there is a risk of exceedance of the one-hour NO₂ air quality objective. If the ambient NO₂ annual mean concentration is above 60 µg/m³ there is a risk that the one-hour objective (200 µg/m³) may be exceeded.
- 8.2.4 The predicted NO₂ concentrations are all well below 60 µg/m³ and, therefore, when considered in light of guidance in LAQM.TG (16), the 1-hour mean objective is unlikely to be exceeded.
- 8.2.5 The site is therefore considered suitable for residential use with regard to air quality.

9 Mitigation

- 9.1 The air quality assessment has predicted the site will not have a significant impact on local air quality. Future occupants will not be exposed to adverse air quality concentrations. Mitigation in relation to vehicular emission impacts is not deemed to be required to protect existing or proposed sensitive receptors.
- 9.2 Mitigation to control construction emissions is identified and outlined in in **Appendix D**.

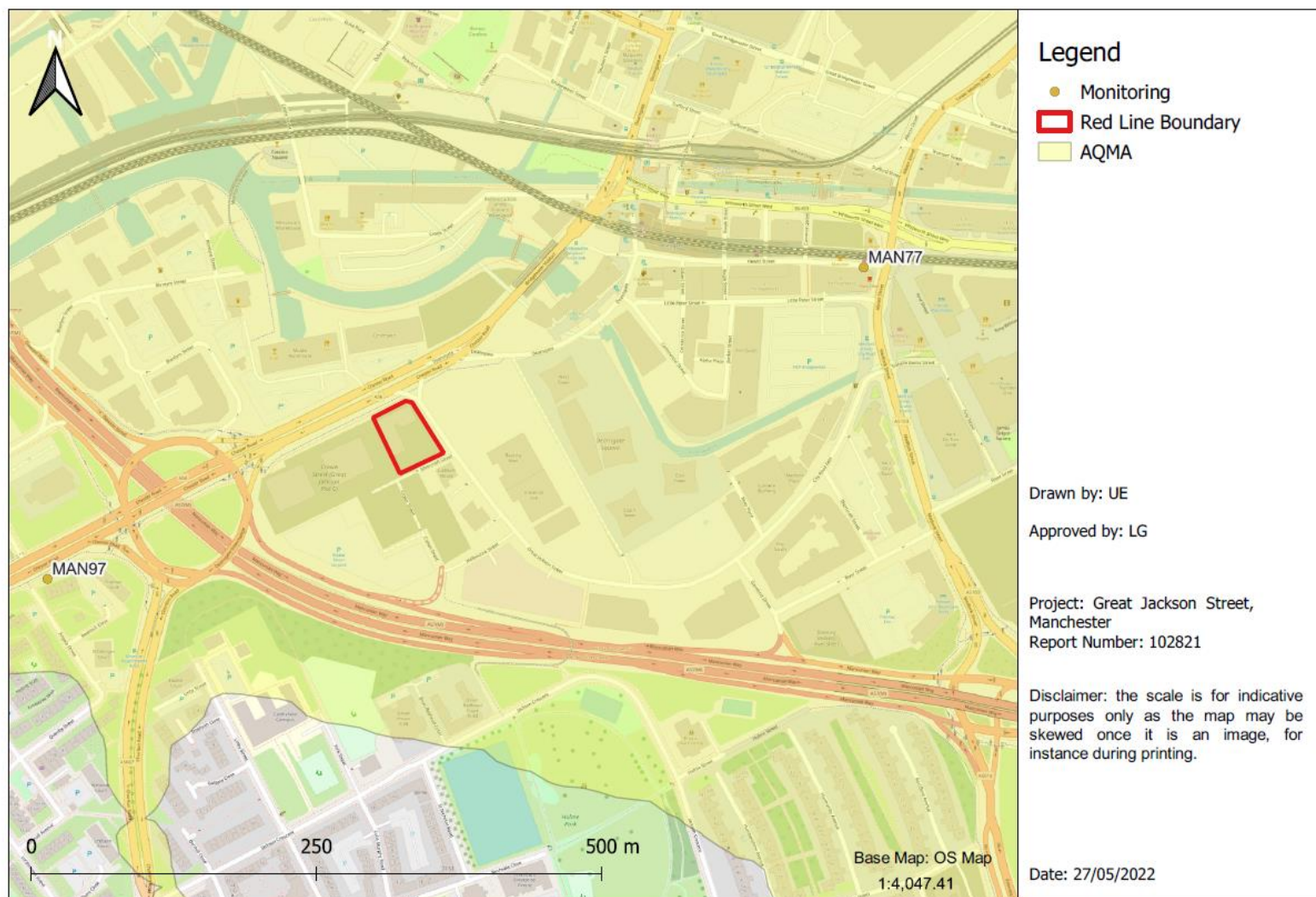
10 Summary of Impacts and Conclusion

- 10.1 This air quality report assesses the potential changes in air quality due to the construction and operation of the proposed development and whether these potential changes would significantly alter air quality.
- 10.2 The assessment of dust soiling and human health impacts during the demolition and construction phase of the development results in the proposal of dust mitigation measures. The implementation of these will ensure that residual dust impacts during the demolition and construction phase are not significant.
- 10.3 Concentrations of NO₂ and PM₁₀ are likely to be below their respective long and short-term objectives at the proposed development site which is therefore considered suitable for residential/ commercial use with regards to air quality. Concentrations of PM_{2.5} are expected to be below the annual mean target.
- 10.4 The proposed development is not expected to have a significant impact on local air quality.
- 10.5 There is, therefore, no reason for this application to be refused on the grounds of air quality.

APPENDICES

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Appendix A: Location of site, AQMA, and monitoring



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Appendix B: IAQM Dust Risk Assessment Methodology

The following section outlines criteria developed by the IAQM for the assessment of air quality impacts arising from construction and demolition activities⁷. The assessment procedure is divided into four steps and is summarised below:

Step 1: Screen the Need for a Detailed Assessment

An assessment will normally be required where there are human receptors within 350 m of the site boundary and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s). Ecological receptors within 50 m of the 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(s), are also identified at this stage. An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Specific Scientific Interest (SSSI), Special Area of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate.

Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible' and any effects will not be significant.

Step 2: Assess the Risk of Dust Impacts

In step two, a site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (construction, demolition, earthworks and trackout). A site can be divided into zones, for example on a large site where there are differing distances to the nearest receptors.

Step 2A: Define the Potential Dust Emission Magnitude

Dust emission magnitude is based on the scale of the anticipated works and is classified as Small, Medium or Large. The IAQM guidance recommends that the dust emission magnitude is determined separately for demolition, earthworks, construction and trackout. **Table B1** describes the potential dust emission class criteria for each outlined activity.

Table B1: Criteria Used in the Determination of Dust Emission Magnitude

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Demolition	Total building volume <20,000 m ³ , construction materials with low potential for dust release.	Total building volume 20,000 m ³ – 50,000 m ³ , potential dusty construction material.	Total building volume >50,000 m ³ , potentially dusty construction material.
Earthworks	Total site area <2,500 m ² , soil type with large grain	Total site area 2,500 – 10,000 m ² , moderately dusty soil type	Total site area >10,000 m ² , potentially dusty soil type
Construction	Total building volume <25,000 m ³ .	Total building volume 25,000 – 100,000 m ³ .	Total building volume >100,000 m ³ .

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Trackout	<10 outward HDV trips in any one day. Unpaved road length <50 m.	10-50 outward HDV trips in any one day. Unpaved road length 50-100 m.	>50 outward HDV trips in any one day. Unpaved road length >100 m.

Step 2B: Define the Sensitivity of the 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 receptors;
- the local background PM₁₀ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

The criteria detailed in **Table B2** is used to determine the sensitivity of the receptor in relation to dust soiling, health effects and ecological effects.

Table B2: Criteria for Determining Sensitivity of Receptors

Sensitivity of Receptor	Criteria for Determining Sensitivity		
	Dust Soiling Effects	Health Effects of PM ₁₀	Ecological Sites
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms	Residential properties, hospitals, schools and residential care homes	International or national designation <i>and</i> the features may be affected by dust soiling
Medium	Parks, places of work	Office and shop workers not occupationally exposed to PM ₁₀	Presence of an important plant species where dust sensitivity is uncertain or locations with a national designation with features that may be affected by dust deposition
Low	Playing fields, farmland, footpaths, short-term car parks and roads	Public footpaths, playing fields, parks and shopping streets	Local designation where features may be affected by dust deposition

Table B3 and **Table B4** are then used to define the sensitivity of the area to dust soiling and human health effects. This should be derived for each of construction, demolition, earthworks and trackout.

Table B3: Sensitivity of the Area to Dust Soiling Effects on People and Property.

Receptor Sensitivity	Number of Receptors	Distance from Source (m)*			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low

Receptor Sensitivity	Number of Receptors	Distance from Source (m)*			
		<20	<50	<100	<350
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

*distances considered are to the dust source

Table B4: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

The sensitivity of the area is then summarised.

Step 2C Define the Risks of Impacts

The dust emission magnitude from **Table B1** and sensitivity of the area and receptors from **Table B2**, **Table B3** and **Table B4** are combined, and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied, is determined using the criteria detailed in **Table B5** to **Table B8**.

Table B5: Risk of Dust Impacts - Demolition

Potential Impact Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table B6: Risk of Dust Impacts- Earthworks

Potential Impact Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B7: Risk of Dust Impacts- Construction

Potential Impact Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B8: Risk of Dust Impacts - Trackout

Potential Sensitivity of the Area	Impact of the	Dust Emission Magnitude		
		Large	Medium	Small
High		High Risk	Medium Risk	Low Risk
Medium		Medium Risk	Low Risk	Negligible
Low		Low Risk	Low Risk	Negligible

Step 3 Determine Site Specific Mitigation

Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

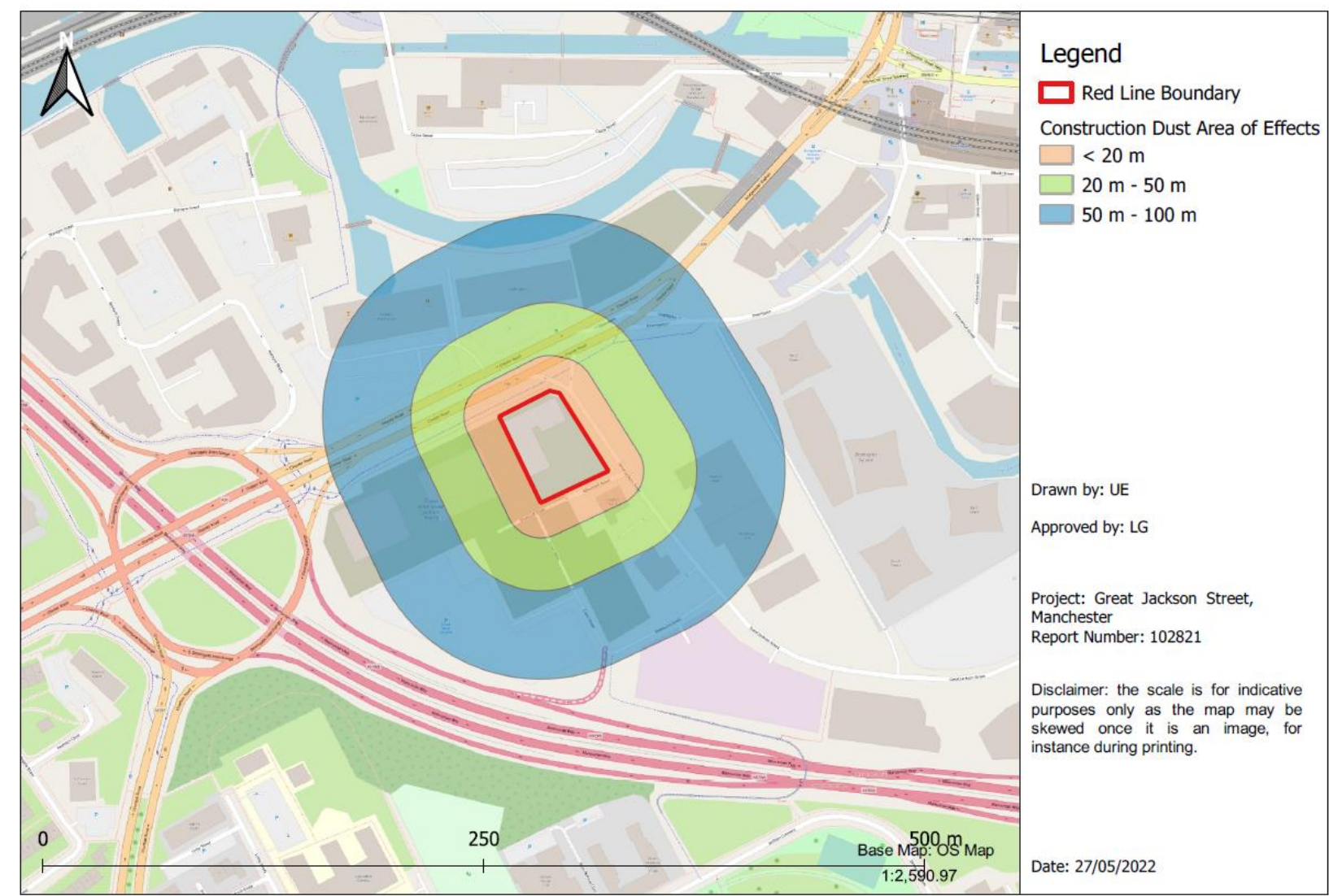
Step 4 Determine Significance of Residual Effects

At step four the significance of residual effects is assessed. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'.

There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that a conclusion of no significant effect is robust.

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Appendix C: Construction Dust Area of Effects



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Appendix D: IAQM Dust Assessment Mitigation

xx Highly Recommended

x Desirable

Measures relevant for demolition, earthworks, construction and trackout.

Mitigation Measure	Medium Risk
Communications	
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	xx
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.	xx
Display the head or regional office contact information.	xx
Develop and implement a Dust Management Plan (DMP).	xx
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.	xx
Make the complaints log available to the local authority when asked.	xx
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.	xx
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 checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.	x
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.	xx
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.	xx

Mitigation Measure	Medium Risk
If requested by the Local Authority: Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority; where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	XX
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.	XX
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	XX
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	XX
Avoid site runoff of water or mud.	XX
Keep site fencing, barriers and scaffolding clean using wet methods.	XX
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	XX
Cover, seed or fence stockpiles to prevent wind whipping.	XX
Operating vehicle/machinery and sustainable travel	
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	XX
Ensure all vehicles switch off engines when stationary - no idling vehicles.	XX
Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	XX
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 appropriate).	X
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	XX
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	X
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.	XX
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	XX
Use enclosed chutes and conveyors and covered skips.	XX

Mitigation Measure	Medium Risk
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	xx
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.	xx
Waste management	
Avoid bonfires and burning of waste materials.	xx

Measures specific to demolition

Mitigation Measure	Medium Risk
Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	x
Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	xx
Avoid explosive blasting, using appropriate manual or mechanical alternatives.	xx
Bag and remove any biological debris or damp down such material before demolition.	xx

Measures specific to construction.

Mitigation Measure	Medium Risk
Avoid scabbling (roughening of concrete surfaces) if possible.	x
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.	xx
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.	x

Measures specific to trackout.

Mitigation Measure	Low Risk
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.	x
Avoid dry sweeping of large areas.	x
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	x
Record all inspections of haul routes and any subsequent action in a site log book.	x
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	x

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Appendix E: Assessment and Model Inputs

This appendix outlines the inputs used in the road traffic emissions assessment.

Traffic Data

The ADMS-Roads model requires the inclusion of detailed road traffic data for the routes to be affected by the proposed development.

Traffic data has been obtained from the Department for Transport Traffic Counts website¹². SK Transport Planning has provided a TemPRO Growth Factor to adjust the 2019 baseline traffic flows to the proposed 2023 opening year scenario.

For the round about the half of the highest traffic flow (South of roundabout) travelling at 15 kph was assumed. For the Chester Road passing within the round-about, the average traffic from East and West of round about travelling at 15 kph was assumed.

24-hour Annual Average Daily Traffic (AADT) and heavy-duty vehicle percentages (HDV%) were used in the assessment. No average speed traffic survey information was available, therefore, posted speed limits have been utilised in the model. Areas of congestion, queuing and junction locations have been modelled at reduced speeds of 5 to 15 km/h.

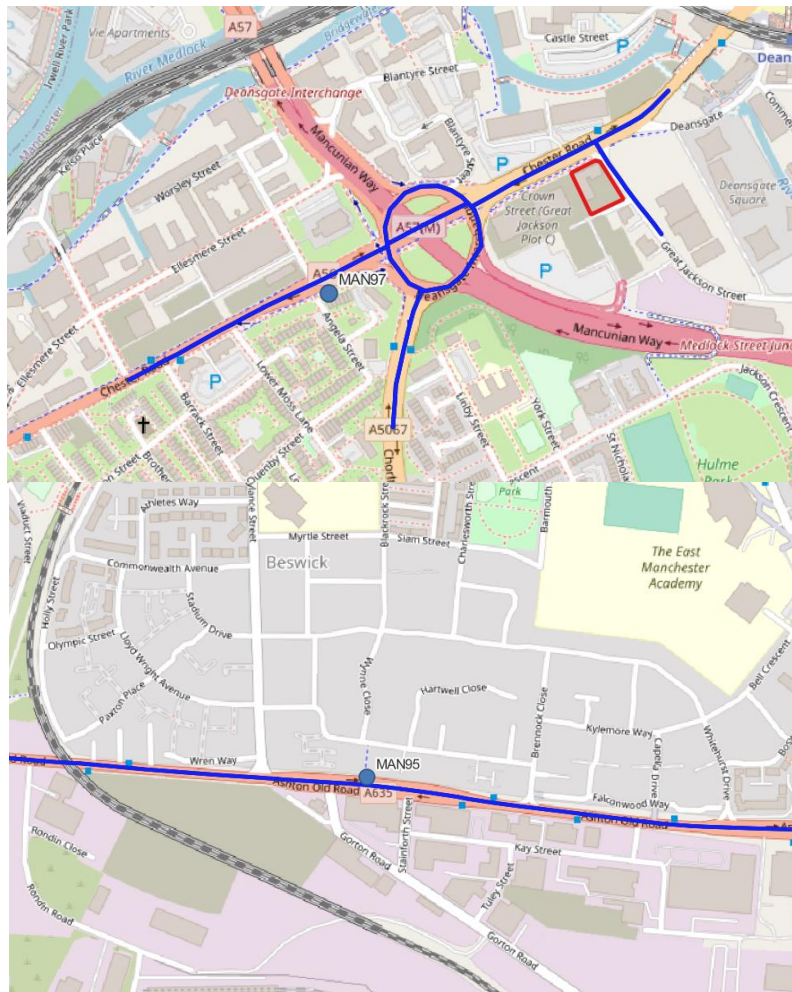
The traffic data used in the assessment is detailed in **Table E1** and presented in **Figure E1**.

Table E1: Traffic Data used in the Assessment

Link Number	Road & DfT Count Reference	Speed (km/h)	2019 Base Year/Verification		2023 Opening Year	
			AADT LDV	AADT HDV	AADT LDV	AADT HDV
1	A56 East	5	15,270	494	16,001	518
2	A56 West	48	30,366	1,046	31,821	1,096
3	A57(M) South	48	69,964	3,145	73,315	3,296
4	A57(M) North	48	58,009	2,267	60,788	2,376
5	A57(M)	48	46,408	1,813	48,631	1,900
6	A5067	48	11,549	239	12,102	250
7	Great Jackson Street	48	2,475	38	2,594	40

Figure E1: Spatial Model Scope

¹² Department for Transport. Available at: <https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints>



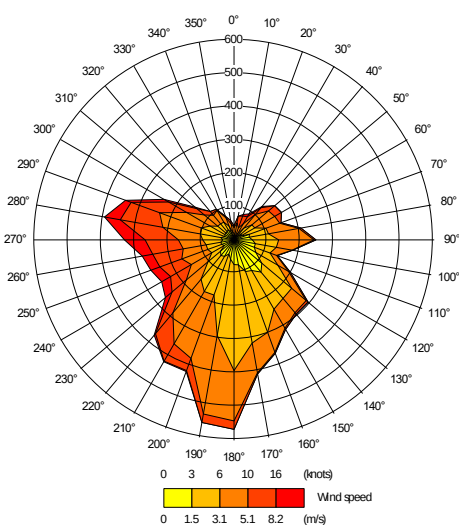
The ADMS-Road modelled link was drawn with OS Mastermap to ensure accuracy. The image displayed in Figure E1 is a free OS map plotted using QGIS and is purely for visual purpose.

Meteorological Data

The air quality assessment includes the use of the 2019 Manchester Airport meteorological recording station.

The Manchester Airport recording station is located approximately 10.9 km to the south east of the proposed development site and is considered to be the most representative of the site conditions in terms of altitude and distance.

The 2019 wind rose for Manchester Airport recording station is provided in **Figure E2**.

Figure E2: Wind Rose

Dispersion and Meteorological Site Characteristics

The air dispersion characteristics for the site and meteorological recording station differ, therefore, these have been adjusted accordingly within ADMS-Roads. **Table E3** details the adjustments made.

Table E3: Dispersion and Meteorological Site Characteristics

Parameter	Dispersion Site	Meteorological Site
Surface Roughness	1 m	0.2 m
Surface Albedo	0.23	0.23
Minimum Monin-Obukhov Length	30 m	10 m
Priestley-Taylor Parameter	1	1

Grid

Air quality predictions at the site have been modelled using the Grid option in ADMS-Roads. A contour plot for NO₂, PM₁₀ and PM_{2.5} to show how pollution disperses across the development footprint has been produced.

The grid has been modelled at a height of 1.5 m to represent ground floor use. **Table E4** shows the modelled grid parameters.

Table E4: Modelled Grid

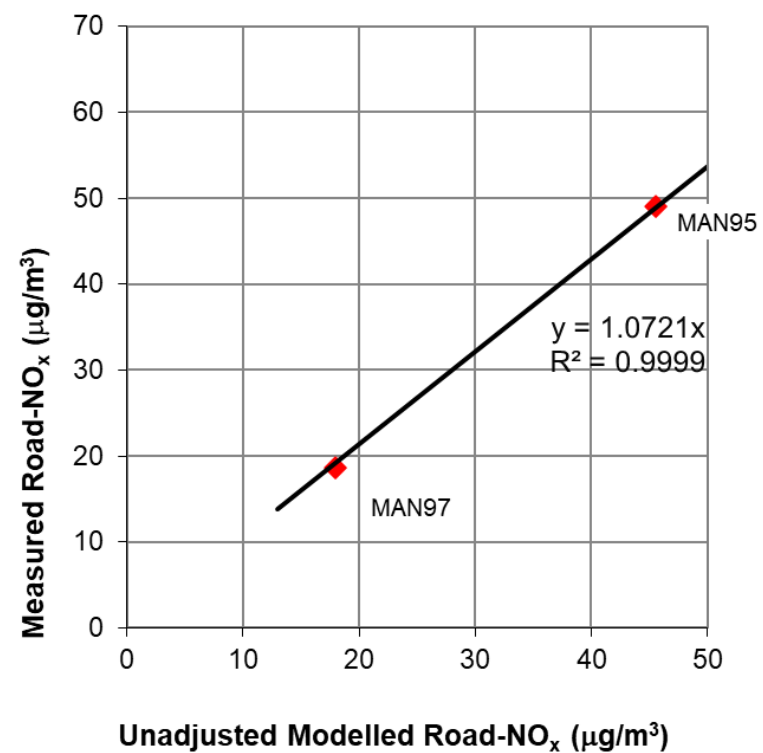
Parameter	Data
Grid reference (min, max)	X: 383160, 383246 Y: 397318, 397385
Grid Points	41 (X), 41 (Y)
Height	1.5 (m)

Model Verification

Model verification has been completed for NO₂ and PM₁₀. There are no representative PM_{2.5} air quality monitors available for model verification. The verification procedure for the selected air quality monitors of this assessment is detailed in **Table E5**. Air quality monitor positions can be seen on **Appendix A**.

Table E5: NO₂ Model Verification Procedure

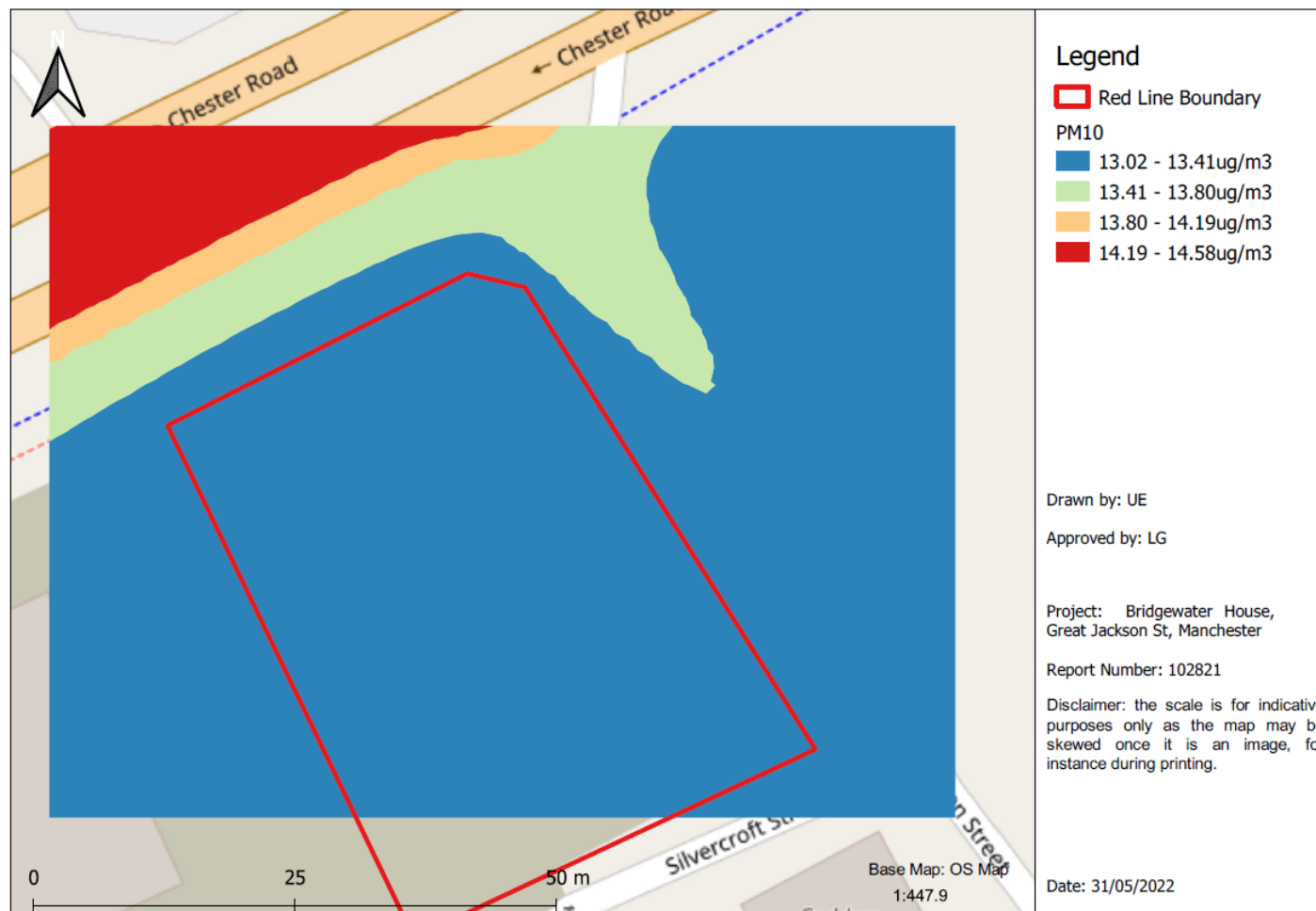
Monitor	Total Monitored NO ₂	Monitored	NO ₂ Background	NO _x Background	Monitored Road Contribution NO ₂ (total - background)	Modelled Road Contribution NO _x (excludes background)	Ratio of Monitored Road Contribution NO _x / Modelled Road Contribution	Adjustment Factor	Adjusted Road Contribution NO _x	Adjusted Modelled Total Nox (including background NO _x)	Modelled Total NO ₂ (based on empirical NO _x / NO ₂ relationship)	% Difference [(modelled - monitored) / monitored] x 100
MAN97	32.30	18.66	22.78	33.65	9.52	17.95	1.0397	1.0721	19.24	52.89	32.58	0.87
MAN95	43.40	49.05	19.63	28.26	23.77	45.54	1.0771	1.0721	48.82	77.08	43.3	-0.23

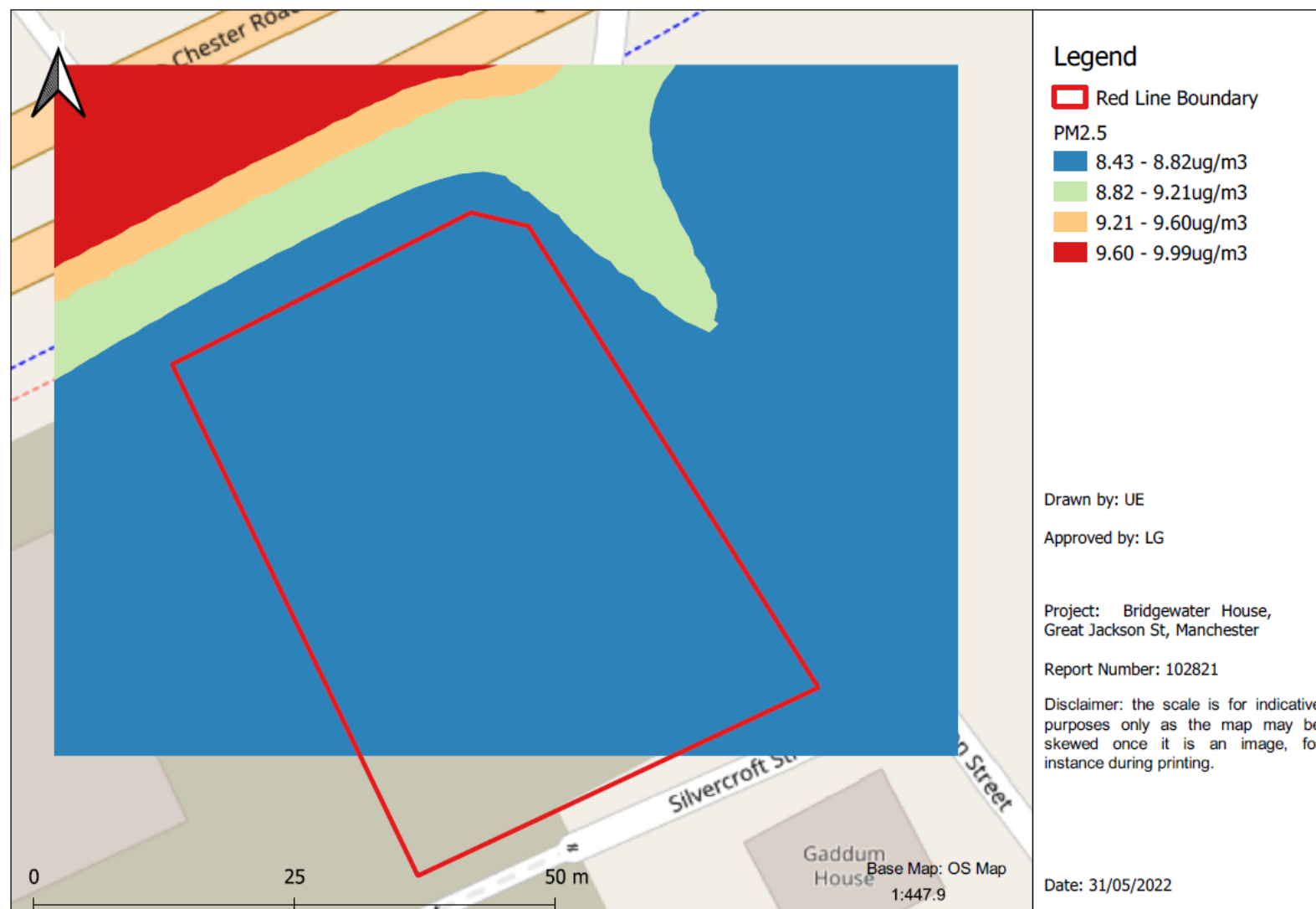


Appendix F: Contour Plots (Opening Year)

NO₂



PM₁₀

PM_{2.5}

Glossary of Terms

AADT Annual Average Daily Traffic flow

Air Quality Standard Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health and the environment

Air Quality Objective Pollutant Objectives incorporate future dates by which a standard is to be achieved, taking into account economic considerations, practicability and technical feasibility

Annual Mean A mean pollutant concentration value in air which is calculated on a yearly basis, yielding one annual mean per calendar year. In the UK air quality regulations, the annual mean for a particular substance at a particular location for a particular calendar year is:

- (a) in the case of lead, the mean of the daily levels for that year;
- (b) in the case of nitrogen dioxide, the mean of the hourly means for that year;
- (c) in the case of PM₁₀, the mean of the 24-hour means for that year.

Annoyance (Dust) Loss of amenity due to dust deposition or visible dust plumes, often related to people making complaints, but not necessarily sufficient to be a legal nuisance.

AQAP Air Quality Action Plan

AQEG Air Quality Expert Group

AQMA Air Quality Management Area

AQMP Air Quality Management Plan

AQO Air Quality Objective

AQS Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Background Concentrations The term used to describe pollutant concentrations which exist in the ambient atmosphere, excluding local pollution sources such as roads and stacks

Construction Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.

Construction Impact Assessment An assessment of the impacts of demolition, earthworks, construction and trackout. In this Guidance, specifically the air quality impacts.

Defra Department for Environment, Food and Rural Affairs

Demolition Any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time.

Deposited Dust that is no longer in the air and which has settled onto a surface. Deposited dust is also sometimes called amenity dust or nuisance dust, with the term nuisance applied in the general sense rather than the specific legal definition.

DMP Dust Management Plan; a document that describes the site-specific methods to be used to control dust emissions.

Dust Solid particles that are suspended in air, or have settled out onto a surface after having been suspended in air. The terms dust and particulate matter (PM) are often used interchangeably, although in some contexts one term tends to be used in preference to the other. In this guidance the term 'dust' has been used to include the particles that give rise to soiling, and to other human health and ecological effects. Note: this is different to the definition given in BS 6069, where dust refers to particles up to 75 µm in diameter.

Earthworks Covers the processes of soil-stripping, ground-levelling, excavation and landscaping.

Effects The consequences of the changes in airborne concentration and/or dust deposition for a receptor. These might manifest as annoyance due to soiling, increased morbidity or mortality due to exposure to PM₁₀ or PM_{2.5} or plant dieback due to reduced photosynthesis. The term 'significant effect' has a specific meaning in EIA regulations. The opposite is an insignificant effect. In the context of construction impacts any effect will usually be adverse, however, professional judgement is required to determine whether this adverse effect is significant based in the evidence presented.

EPUK Environmental Protection UK

HDV Heavy Duty Vehicle

Impacts The changes in airborne concentrations and/or dust deposition. A scheme can have an 'impact' on airborne dust without having any 'effects', for instance if there are no receptors to experience the impact.

LAQM Local Air Quality Management

LDV Light Duty Vehicle

Mg/m³ Microgrammes (of pollutant) per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m³ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant

NO₂ Nitrogen Dioxide

NO_x A collective term used to represent the mixture of nitrogen oxides in the atmosphere, as nitric oxide (NO) and nitrogen dioxide (NO₂)

NPPF National Planning Policy Framework

Nuisance The term nuisance dust is often used in a general sense when describing amenity dust. However, this term also has specific meanings in environmental law:

Statutory nuisance, as defined in S79(1) of the Environmental Protection Act 1990 (as amended from time to time).

Private nuisance, arising from substantial interference with a person's enjoyment and use of his land.

Public nuisance, arising from an act or omission that obstructs, damages or inconveniences the right of the community.

Each of these applying in so far as the nuisance relates to the unacceptable effects of emissions. It is recognised that a significant loss of amenity may occur at lower levels of emission than would constitute a statutory nuisance.

Note: as nuisance has a specific meaning in environmental law, and to avoid confusion, it is recommended that the term is not used in a more general sense.

PM_{2.5} The fraction of particles with a mean aerodynamic diameter equal to, or less than, 2.5 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50% efficiency cut-off at 2.5 µm aerodynamic diameter

PM₁₀ The fraction of particles with a mean aerodynamic diameter equal to, or less than, 10 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50% efficiency cut-off at 10 µm aerodynamic diameter

Running Annual Mean A mean pollutant concentration value in air which is calculated on an hourly basis, yielding one running annual mean per hour. The running annual mean for a particular substance at a particular location for a particular hour is the mean of the hourly levels for that substance at that location for that hour and the preceding 8759 hours

Trackout 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.

