

MILLER GOODALL
ACOUSTICS - AIR QUALITY - LIGHTING

AIR QUALITY ASSESSMENT

on behalf of

CHESHIRE HOMES RESIDENTIAL LTD

for

410 – 418 MOSS LANE EAST, MANCHESTER, M14 4PQ

REPORT DATE: 21ST FEBRUARY 2025

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Summary

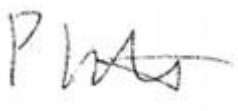
This air quality report has been prepared to accompany a full planning application for a proposed student accommodation at 410 – 418 Moss Lane East, Manchester, M14 4PQ. It assesses the potential changes in air quality due to the construction and operation of the proposed development and whether these 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 NO_2 and PM_{10} 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	Philip Walton	Reviewed By	Unam Ejaz
Signed		Signed	
Date	21st February 2025	Date	21st February 2025

Record of changes

Version	Date	Change	Initials
0	9th May 2025	First issue	PW
1	15th May 2024	Update to project description	PW
2	21st February 2025	Update to project description, NPPF, AQ monitoring data and new Defra LAQM data	PW

Contents

Summary 1
Contents 2
1 Introduction 4
2 Site Description 4
3 Proposed Development 5
4 Policy Context 5
4.1 National Planning Policy Framework 5
4.2 Planning Practice Guidance 5
4.3 Air Quality Objectives 6
4.4 Manchester City Council Air Quality & Planning Technical Guidance 7
4.5 Greater Manchester Action Plan 2016-2021 8
5 Methodology 9
5.1 Data Sources 9
5.2 Consultation 10
5.3 IAQM Construction Dust Assessment 10
5.4 Simple Air Quality Assessment 11
6 Baseline Air Quality 11
6.1 Local Air Quality 11
6.2 Air Quality Monitoring 12
6.3 Background Concentrations 13
7 Construction Dust Impact Assessment 14
7.1 Step 1 – Requirement for a Detailed Assessment 14
7.2 Step 2 – Assess the Risk of Dust Impacts 14
7.3 Step 3 – Site-Specific Mitigation 16
7.4 Step 4 – Determine Significant Effects 16
8 Effect of Air Quality on the Proposed Development 17

9 Impact of the Proposed Development on Existing Air Quality 18

10 Mitigation 18

11 Summary of Impacts and Conclusion 18

APPENDICES 20

Glossary of Terms 34

1 Introduction

1.1 This air quality assessment has been prepared by Miller Goodall Ltd on behalf of Cheshire Homes Group ("the Applicant") in support of a full planning application for the demolition of the existing building on the Site and the construction of a new purpose-built student accommodation ("PBSA") development at College View, 410 – 418 Moss Lane East, Manchester, M14 4PQ. 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 Guidance[1] and EPUK and IAQM guidance[2].

1.3 The report provides an assessment of the potential air quality impacts associated with the construction and operational phases of the proposed development.

1.4 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO_2) and fine particulates, normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM_{10}) 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 NO_2, PM_{10} and $PM_{2.5}$.

2 Site Description

2.1 The site is located approximately 2 km south of Manchester city centre in an urban residential area. The site is currently occupied by a building.

2.2 Moss Lane East borders the site to the north, with the grounds of the Manchester Academy High School located beyond. A building (Moss Court student accommodation) borders the site to the east, with residential dwellings located beyond. Residential dwellings border the site to the south with further residential dwellings located beyond. Acomb Street borders the site to the west with a mix of commercial, religious buildings and residential dwellings located beyond.

[1] Department for the Environment Food and Rural Affairs (2022). Local Air Quality Management Technical Guidance Document LAQM.TG(22)

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

2.3 The site is adjacent to a pocket of the Greater Manchester Air Quality Management Area (AQMA). Approximately 5 m^2 of the AQMA is within the red line boundary towards the north east corner of the plot. The proposed building will not be in the AQMA. The site location and AQMA is shown in **Appendix A**.

3 Proposed Development

3.1 The proposed development is for the demolition of 410-418 Moss Lane East and erection of part five, part three storey building for use as Purpose Built Student Accommodation ("PBSA"), associated landscaping, servicing, cycle parking and other associated works. The scheme comprises 132no. studio apartments, a car free development with exception of 2 disabled parking bays and 40no. cycle parking spaces.

3.2 The building is setback approximately 20 m from the roadside of Moss Lane East.

4 Policy Context

4.1 National Planning Policy Framework

4.1.1 The National Planning Policy Framework[3] advises at Paragraph 199 that development should be compliant with relevant objectives and limit values, opportunities to improve air quality should be included particularly at the design stage, and that new development should be consistent with existing air quality areas of concern and the local air quality action plans. The key theme of the policy is that existing areas of poor air quality (for example AQMAs or Clean Air Zones) should be not significantly worsened by a development scheme.

4.2 Planning Practice Guidance

[3] Ministry of Housing, Communities and Local Government, 2024. National Planning Policy Framework

4.2.1 The Planning Practice Guidance (PPG)[4], provides guidance on how planning can take account of the impact of new development on air quality. It provides advice on how assessments should be prepared, information sources to use, what impacts and issues should be predicted, and mitigation.

4.3 Air Quality Objectives

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

4.3.2 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[5].

4.3.3 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 times per year
	40 µg/m^3	Annual mean

[4] Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities, *Planning Practice Guidance - Air Quality* 2019 Air quality - GOV.UK (www.gov.uk)

[5] UK Parliament (2018): http://www.legislation.gov.uk/ukpga/2018/16/contents/enacted

Particles ($PM_{2.5}$)	20 µg/m^3	Annual mean (target)
	10 µg/m^3	Annual mean (target) (to be achieved by 2040)

4.3.4 Where an air quality objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as AQMAs 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.

4.3.5 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.

4.4 Manchester City Council Air Quality & Planning Technical Guidance

4.4.1 MCC has published the Air Quality & Planning Technical Guidance, 2022 [6] 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.
- Electric vehicle charging – MCC encourages the adoption of electric vehicle charging for developments. Best practice is outlined in Appendix IV of the Guidance. MCC recommend 1 charging point per residential unit with allocated parking and 20% allocation for commercial uses

[6] Manchester City Council, 2022. Air Quality & Planning Technical Guidance

with more than 11 parking spaces. The Guidance continues and specifies the capacities and electric requirements.

4.4.2 The MCC Guidance also specifies guidance for chimney stacks, however, it is not relevant to this assessment. All of the bullet points and referenced guidance are considered in this report.

4.5 Places for Everyone Joint Development Plan

4.5.1 Greater Manchester Combined Authority (GMCA) has adopted the Places for Everyone (PfE) Joint Development Plan[7]. The intention behind this document is to establish a joint approach for all nine Greater Manchester local authorities, with respects to creating a long term plan for jobs, new homes and sustainable growth. While the PfE sets out the strategy and policies to guide sustainable growth it also allocates sites for development across Greater Manchester.

4.5.2 Policy JP-S5 Clean Air identifies actions related to air quality. The Policy identifies 11 items that range from new development (creating good designs, promoting electric vehicle charging, assessments and guidance, mitigation) to actions at local authority level (implementing the clean air plan, controlling traffic levels at schools).

4.5.3 The proposals have been developed and designed to meet the PfE policies.

4.6 Greater Manchester Action Plan 2016-2021

4.6.1 The Greater Manchester Combined Authority (GMCA) Air Quality Action Plan 2016-2021[8] 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

[7] Greater Manchester Combined Authority, 2024. Places for Everyone Joint Development Plan 2022 to 2039

[8] GMCA (2016) Greater Manchester Air Quality Action Plan 2016-2021

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

4.6.2 At the time of writing, there has not been an update of the action plan past the 2021 date. It is assumed it is still active and applies.

4.6.3 Greater Manchester was identified in the Government's mandate to prepare a Clean Air Zone (CAZ). The approach for an investment-led approach was approved by Defra and a charging CAZ is no longer proposed.

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) *Greater Manchester Air Quality Action Plan 2016-2021*

	MCC / GMCA (2024) *2024 Air Quality Annual Status Report for Greater Manchester* GMCA Clean Air Greater Manchester (website)
Institute of Air Quality Management (IAQM)	IAQM "Guidance on the assessment of dust from demolition and construction" v2.2 2024
Department for Environment Food and Rural Affairs (Defra)	Defra *Local Air Quality Management Technical Guidance TG(22), updated 2022*
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) *Land Use Planning and Development Control: Planning for Air Quality (v1.2)*
Ministry of Housing, Communities & Local Government	Planning Practice Guidance: Air Quality, November 2019 National Planning Policy Framework (NPPF), December 2024
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps

5.2 Consultation

5.2.1 MCC has specified in previous communications to Miller Goodall Ltd that if the scheme meets the definition for a simple assessment (i.e. below the trip generation values in EPUK guidance[2]), then it is not necessary to consult with MCC to agree the methodology, only that the air quality report is prepared in accordance with the requirements listed in the MCC Guidance[6].

5.2.2 The development is car-free and is not located in an area expected to exceed the 40 µg/m^3 NO_2 annual mean air quality objective. A simple assessment methodology will suffice and the evidence for this approach is provided in this report. The air quality assessment has been prepared in accordance with all requirements of the MCC Guidance[6].

5.3 IAQM Construction Dust Assessment

5.3.1 The IAQM has produced guidance[9] 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 Simple Air Quality Assessment

5.4.1 A simple assessment of air quality in terms of the impact of the development and suitability of the site, which relies on already published information, has been completed using sources such as the Local Authority's monitoring network and the Defra LAQM support tools.

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 website) and background concentration maps provided by Defra for the grid squares covering the proposed development.

6.1.2 The Greater Manchester AQMA has been declared based on the outputs of air dispersion modelling conducted in 2016. All locations across Greater Manchester that were predicted to be above an NO_2 annual mean of 35 µg/m^3 were declared as part of the AQMA. The annual mean objective is 40 µg/m^3, the selection of 35 µg/m^3 as the threshold was selected to account for model uncertainty.

6.1.3 A pocket of the AQMA is adjacent to the northeast of the site, which slightly extends into the red line boundary, although only marginally and the building footprint will not fall in the AQMA. The site location and its relationship to the AQMA is shown in **Appendix A**. The AQMA was declared in 2016, on the basis of annual average levels of NO_2.

[9] Institution of Air Quality Management, 2024. Guidance on the assessment of dust from demolition and construction" v2.2

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO_2)

6.2.1 GMCA operates an extensive air quality monitoring network across Greater Manchester. There are no air quality monitors in the immediate vicinity of the site, however, there are two monitors further northwards from the site that share similar conditions to the site. These comprise a setting on a minor road connecting between two A-roads to the east and west. The site and the two monitors are located at an appreciable distance from the A-roads.

6.2.2 Diffusion tube MAN112 is located approximately 1.2 km to the north west of the site. It is located on a minor road, and is within the same zone between the A34 to the east and the A5103 to the west, similar to the site.

6.2.3 Diffusion tube MAN113 is located approximately 1.25 km to the north east of the site. This monitor is located on a minor road between the A6 to the east and the A34 to the west.

6.2.4 Both monitors commenced in 2021. There is no representative air quality monitoring from the pre-Covid period.

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

Table 3: Annual Mean NO_2 Concentrations Monitored by MCC within the Study Area

Site ID & Classification	Location		Annual Mean NO_2 Concentrations ($\mu g/m^3$)				
			2019	2020	2021	2022	2023
MAN112 (Roadside)	383989	396735	-	-	21.4	22.7	19.8
MAN113 (Roadside)	385087	396891	-	-	28.1	29.2	28.2
Annual Mean NO_2 air quality objective					40 $\mu g/m^3$		

6.2.6 The monitoring results in **Table 3** indicate that annual mean concentrations of NO_2 were below the NO_2 annual mean objective at the identified monitoring sites during the period shown.

6.2.7 The results indicate that the short-term objective for NO_2 was unlikely to be exceeded at the identified monitoring sites as monitored annual mean concentrations were well below the indicative screening concentration of 60 μ/gm^3 during the period shown.

Particulate Matter (PM_{10} & $PM_{2.5}$)

6.2.8 MCC does not undertake PM_{10} or $PM_{2.5}$ monitoring in the vicinity of the proposed development site, neither is there any nearby representative monitoring available. GMCA operates several automatic monitoring stations in the administrative area and there have been no recorded exceedances of the annual mean or 24-hour air quality objectives for particulate matter.

6.3 Background Concentrations

6.3.1 There are no background monitoring locations in the vicinity of the proposed development site or at any nearby relevant receptor locations.

6.3.2 Background concentrations of NO_2, PM_{10} and $PM_{2.5}$ obtained from the 2021-based background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations[10] are shown in **Table 4**.

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

Grid Square	Pollutant	2025 ($\mu g/m^3$)
384500, 395500 (Site)	NO_2	15.15
	PM_{10}	13.14
	$PM_{2.5}$	7.89

[10] http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

7 Construction Dust Impact Assessment

7.1 Step 1 – Requirement for a Detailed Assessment

7.1.1 There are sensitive receptors located within 250m 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 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s) 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.

7.2.2 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	Medium	• The total building volume to be demolished is between 12,000 m^3 - 75,000 m^3.
Earthworks	Small	• the site area is less than 18,000 m^2.
Construction	Medium	• total building volume estimated to be constructed is between 12,000 to 75,000 m^3.
Trackout	Small	• there are likely to be less than 20 HDV outward movements in any one day.

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

7.2.3 Dwellings are located within a distance of 20 m from demolition, earthworks and construction, and 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**.

7.2.4 The Manchester Academy High School will have over 100 students. However, the school building is between 50 to 100 m from the construction site. The 10-100 receptors within 20 m category registers a higher sensitivity of area classification (high) than >100 receptors at 100 m (medium).

Step 2B Sensitivity of the Area to Dust Soiling and Human Health Effects of PM_{10}

7.2.5 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.** 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 receptors within 20 m of demolition activity.
	Earthworks	High	There are 10 – 100 highly sensitive receptors within 20 m of the site boundary.
	Construction	High	There are 10 – 100 highly sensitive receptors within 20 m of construction activity.
	Trackout	High	There are 10 – 100 highly sensitive receptors within 20 m of the trackout route, up to 200 m of the site exit.
Human Health	Demolition	Low	There are 10 – 100 highly sensitive receptors within 20 m of demolition activity. Background PM_{10} 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 PM_{10} pollutant concentrations are below 24 µg/m^3.
	Construction	Low	There are 10 – 100 highly sensitive receptors within 20 m of construction activity. Background PM_{10} pollutant concentrations are below 24 µg/m^3.
	Trackout	Low	There are 10 – 100 highly sensitive receptors within 20 m of the trackout route, up to 200 m of the site exit. Background PM_{10} 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	Low	Medium	Low
Human Health	Low	Negligible	Low	Negligible

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[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.

[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 Effect of Air Quality on the Proposed Development

8.1 The background concentrations in **Table 4** show that background concentrations of NO_2, PM_{10} and $PM_{2.5}$ are well below health-based air quality objectives of 40 µg/m^3 for both pollutants. However, the site is likely experiencing higher concentrations due to its proximity to the urban road network.

8.2 A review of local air quality monitoring data has been conducted and shown in **Table 3**. There is no air quality monitoring conducted in the near vicinity of the site, however, there are two monitors to the north that share similar characteristics to the site. The site is located in an urban (mostly residential) area, borders a local minor road and is between two A-roads further beyond to the east and west.

8.3 Diffusion tubes MAN112 and MAN113 are located to the north. MAN112 in particular is located in the zone between the same A-roads as the development site. The distances to the A-road and positioning on a minor local road are similar. The NO_2 concentrations recorded at these two monitors is well below the annual mean air quality objective. The development site is expected to have a similar concentration.

8.4 The declaration of the Greater Manchester AQMA was based on model outputs. The NO_2 annual mean concentrations from the model output for select areas is available from Transport for Greater Manchester. **Appendix E** provides the plot for the proposed development site. The modelled results are from 2016 and set at a 0 m grid height.

8.5 According to the plot, the model's prediction indicated a concentration of 33.79 µg/m3 to the left of the site and 35.27 µg/m3 to the right of the site. The modelled concentrations indicated no exceedance of the annual mean air quality objective, and did not require declaring an AQMA on the site in 2016. Between 2016 and 2022 (the most recent monitoring record), there has been a marked improvement in the air quality concentrations, which suggests that the current concentrations are expected to be much lower than those shown in the modelled plot.

8.6 Pollution decreases with distance and height from the source. The ground floor frontage is not sensitive and future residential uses on the ground floor will be up to 20 m from the roadside. First floor receptors and on the floors above will experience lower concentrations, when compared to the ground floor.

8.7 The evidence from existing information sources is that the proposed development site is likely to experience levels of NO_2 and PM_{10} below the annual mean and short-term objectives, and below the annual mean target for $PM_{2.5}$.

9 Impact of the Proposed Development on Existing Air Quality

9.1 The proposed development is car free.

9.2 If the total development flows are below 500 light-duty vehicles (LDV) AADT outside an AQMA, or 100 LDV AADT within an AQMA as detailed in EPUK 2017 Guidance[2], then there is not expected to be a significant risk of air quality change. Consequently, the proposals will not exceed these criteria.

9.3 The potential for air quality changes arising from development traffic to cause adverse effects can be concluded as not significant.

10 Mitigation

10.1 The development is expected to have a not significant effect on local air quality. Based on the results of this assessment, no further mitigation in relation to the operational phase is deemed to be required.

10.2 The proposals include cycle provisions.

10.3 The effects of construction dust will be controlled by means of dust mitigation and management, as outlined by the selection of measures in **Appendix D.**

10.4 Any gas-fired boilers installed must meet a minimum standard of <40 mgNOx/kWh [2].

11 Summary of Impacts and Conclusion

11.1 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.

11.2 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.

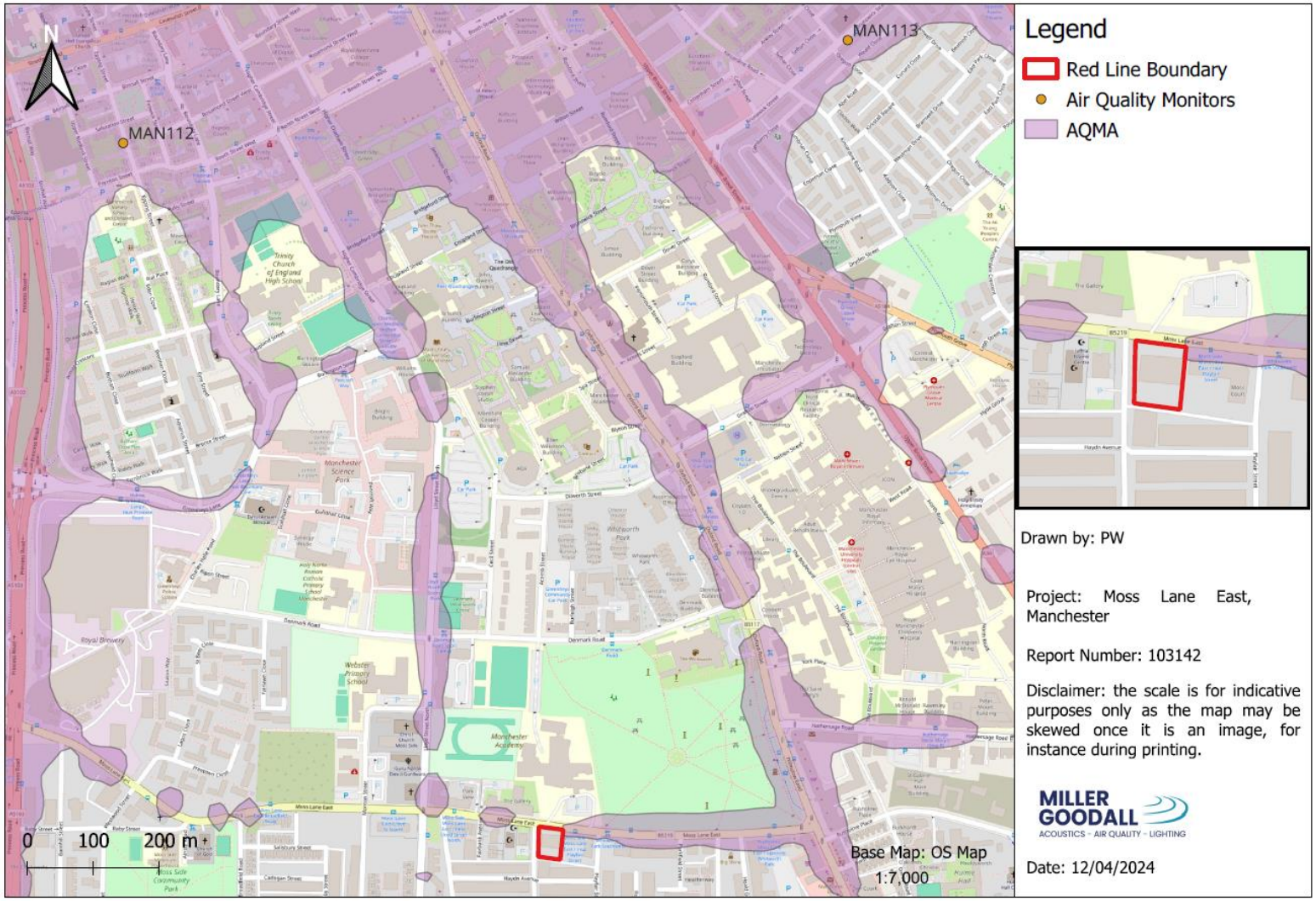
11.3 Concentrations of NO_2 and PM_{10} are likely to be below their respective long and short-term objectives at the proposed development site which is therefore considered suitable for residential use with regards to air quality. Concentrations of $PM_{2.5}$ are expected to be below the annual mean target.

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

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

APPENDICES

Appendix A: Location of site, AQMA, MCC monitoring and receptors



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 activities[9]. 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 250 m of the site boundary and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 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 200 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 <12,000 m^3, construction materials with low potential for dust release.	Total building volume 12,000 m^3 – 75,000 m^3, potential dusty construction material.	Total building volume >75,000 m^3, potentially dusty construction material.
Earthworks	Total site area <18,000 m^2, soil type with large grain	Total site area 18,000 – 110,000 m^2, moderately dusty soil type	Total site area >110,000 m^2, potentially dusty soil type
Construction	Total building volume <12,000 m^3.	Total building volume 12,000 – 75,000 m^3.	Total building volume >75,000 m^3.
Trackout	<20 outward HDV trips in any one day. Unpaved road length <50 m.	20-50 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 PM_{10} 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 *and* the features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species such as vascular species included in the

Sensitivity of Receptor	Criteria for Determining Sensitivity		
	Dust Soiling Effects	Health Effects of PM_{10}	Ecological Sites
			Red Data List For Great Britain
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. **Table B5** is used to define the sensitivity of the area to ecological impacts. 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	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
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	<250
High	>32 µg/m^{-}	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
Medium	24-28 µg/m³	1-10	High	Medium	Low	Low
		>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m³	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	>32 µg/m⁻	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m³	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table B5: Sensitivity of the Area to Ecological Impacts[a, b, c]

Receptor Sensitivity	Distance from Source (m)[c]	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

[a] *The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site. See STEP 2B, Box 8 and Box 9 of IAQM guidance.*

[b] *Only the highest level of area sensitivity from the table needs to be considered.*

[c] *For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site.*

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**, **Table B4** and **Table B5** 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 B6** to **Table B9**.

Table B6: 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 B7: 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 B8: 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 B9: Risk of Dust Impacts- Trackout

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

Step 3 Determine Site Specific Mitigation

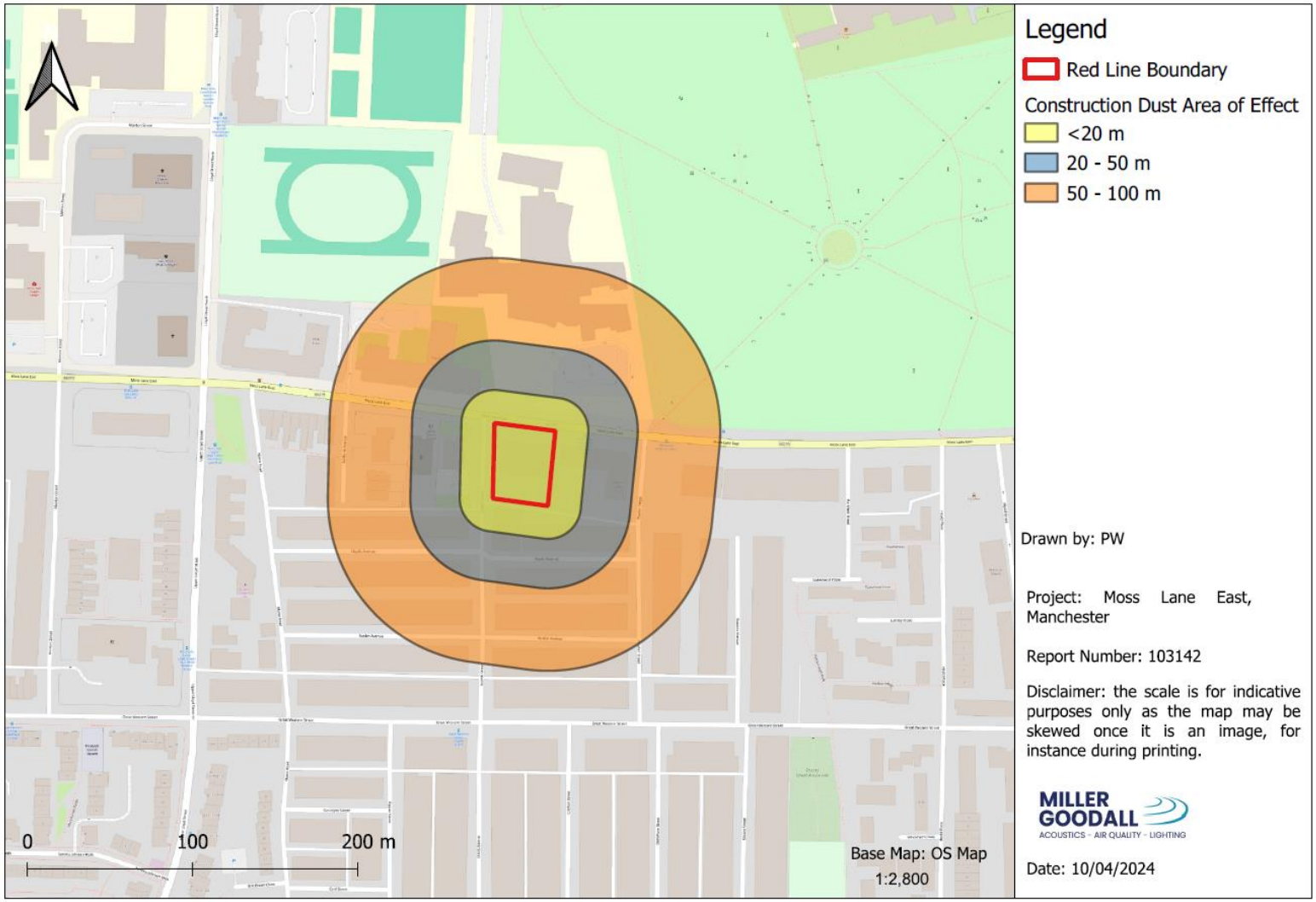
Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

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.

Appendix C: Construction Dust Area of Effect



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), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM_{10} continuous monitoring and/or visual inspections.	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
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
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 actives 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
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

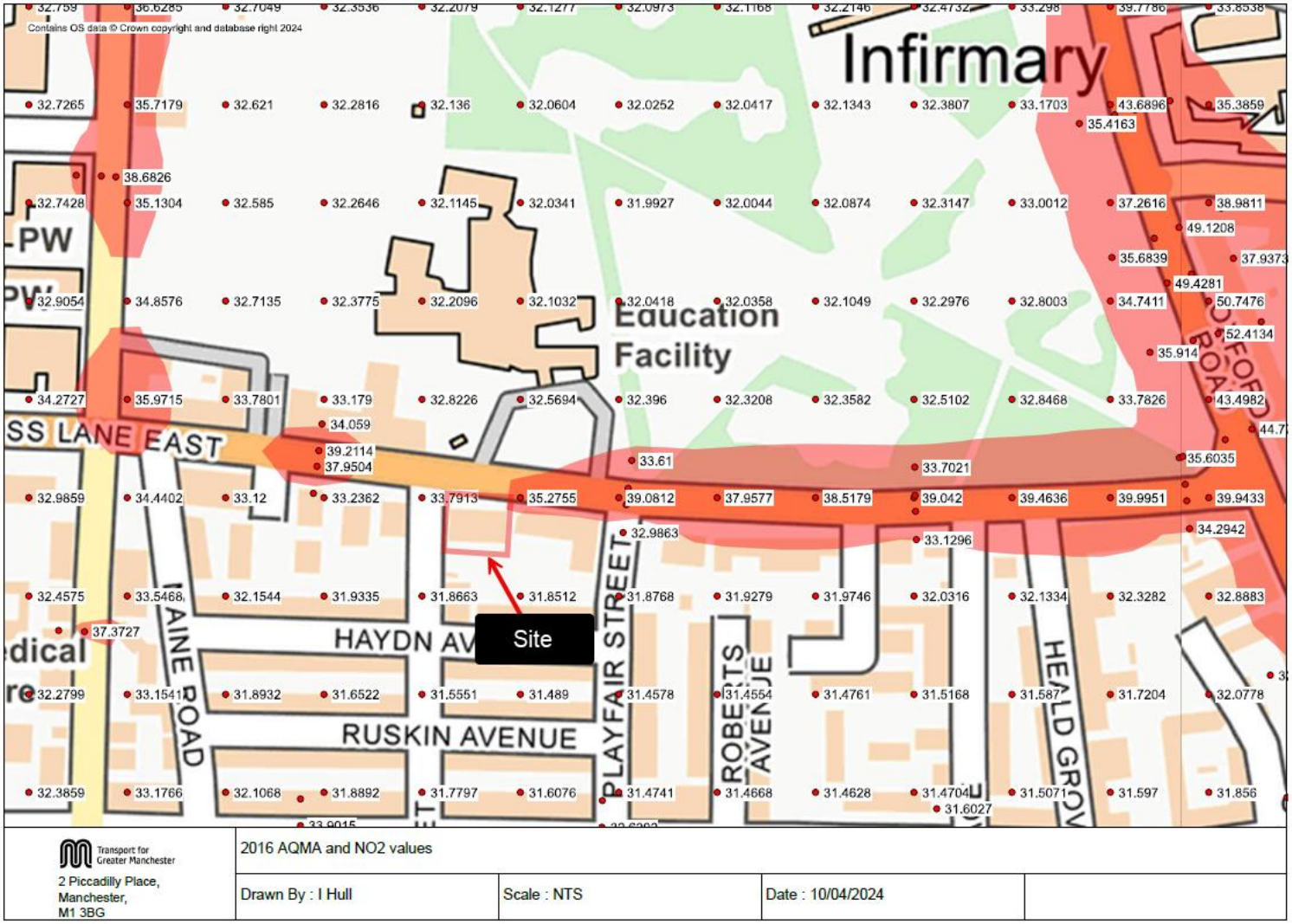
Mitigation Measure	Medium Risk
Avoid scabbling (roughening of concrete surfaces) if possible.	x
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures 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
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	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

Appendix E: TfGM 2016 modelling screenshot for NO_2 Annual Mean Concentration



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 PM_{10}, 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

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 morality due to exposure to PM_{10} 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

$\mu g/m^3$ Microgrammes (of pollutant) per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 $\mu g/m^3$ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant

NO_2 Nitrogen Dioxide

NOx A collective term used to represent the mixture of nitrogen oxides in the atmosphere, as nitric oxide (NO) and nitrogen dioxide (NO_2)

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 us of his land.

Public nuisance, arising from and 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

PM_{10} 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 PM_{10}, EN 12341, with a 50% efficiency cut-off at 10 μm aerodynamic diameter

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.


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