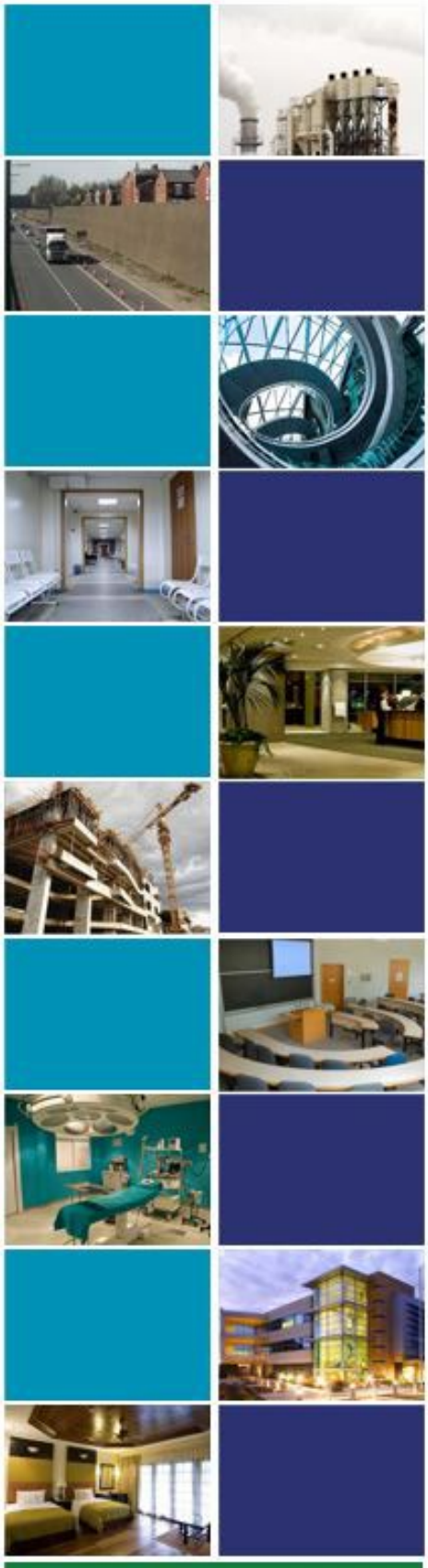


MILLER GOODALL
ACOUSTICS - AIR QUALITY - LIGHTING

AIR QUALITY AND ODOUR ASSESSMENT

on behalf of

CAMBRIDGE PARK LIMITED

for

82-84 MARKET STREET, MANCHESTER

M1 1PD

REPORT DATE: 3RD FEBRUARY 2025

REPORT NUMBER: 103274

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Summary

This air quality and odour assessment has been prepared to accompany a planning application for a change of use of upper floors at 82-84 Market Street, Manchester M1 1PD. 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. Additionally, it includes a screening odour assessment from the commercial kitchen at ground floor.

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 phases are not significant.

Concentrations of NO_2 and PM_{10} are likely to be below their respective long and short-term objectives at the site which is therefore considered suitable for residential use with regard to air quality. Concentrations of $PM_{2.5}$ are expected to be below the annual mean target. Additionally, there is negligible risk of odour from the ground floor commercial kitchen to the new development.

The proposed change of use is not expected to have a significant effect 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	[redacted]	Signed	[redacted]
Date	3rd February 2025	Date	3rd February 2025

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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 change of use of the upper floors at 82-84 Market Street, Manchester M1 1PD to provide residential accommodation, including upwards extension to the rear. The site lies within the administrative boundary of Manchester City Council (MCC).

1.2 The report provides an assessment of the potential air quality impacts associated with the construction and operational phases of the proposed development. Existing air quality at and around the development is reviewed and the potential effect of the development on local air quality is undertaken following Defra[1] and EPUK and IAQM guidance[2].

1.3 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 $PM_{2.5}$.

1.4 The report provides an odour risk assessment of the commercial kitchen odour present at the ground floor Greggs in accordance with established guidance from IAQM[3].

2 Site Description

2.1 The site is located to the south of Market Street in Manchester city centre. The proposed development site is characterised predominately by retail units at ground level with retail, commercial and residential spaces above. To the north the site is bound by Market Street where there are commercial units including Arndale shopping centre. To the east, there is a Barclays bank and a public passageway providing access to the back of the building. To the south and west, there is a building with retail at ground and office spaces over four floors above along Spring Gardens street.

[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)

[3] IAQM (July 2018) Guidance on the assessment of odour for planning

2.2 The site is in an Air Quality Management Area (AQMA) as all of Manchester city has been declared as an AQMA. The site location is shown in **Appendix A**.

3 Proposed Development

3.1 The development involves the conversion of the upper floors to residential apartments and an extension of the rear roof to include an additional habitable floor.

3.2 There is no parking proposed as part of this proposed conversion.

4 Policy Context

4.1 National Planning Policy Framework

4.1.1 The National Planning Policy Framework[4] (NPPF) 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.

4.1.2 The NPPF does not specifically mention odour, but it does refer to air and pollution. Paragraph 187 states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[…] e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

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

4.1.3 The planning system aims to protect sensitive uses from being negatively impacted by existing odorous sources and to avoid imposing unnecessary limitations on established odorous businesses.

4.2 Planning Practice Guidance

4.2.1 The Planning Practice Guidance (PPG)[5], 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. This framework of air quality legislation was converted into domestic law through the European Union (Withdrawal) Act 2018[6].

4.3.2 The relevant air quality standards and objectives[7] are presented in **Table 1**.

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

[5] 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)

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

[7] UK Parliament (2020): https://www.legislation.gov.uk/uksi/2020/1313/made

Pollutant	Air Quality Objective	
	Concentration	Measured As
Particles ($PM_{2.5}$)	40 µg/m^3	Annual mean
	20 µg/m^3	Annual mean (target)
	10 µg/m^3	Annual mean (target) (to be achieved by 2040)

4.3.3 Pollutant standards relate to ambient pollutant concentrations in air, set based on medical and scientific evidence of how each pollutant affects human health. 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.

4.3.4 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.

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
Environment Agency (EA)	EA (2011) H4 Odour Management.
Greater Manchester Combined Authority (GMCA)	GMCA (2024) Air Quality Status Report GMCA Greater Manchester Clean Air website Home | Clean Air Greater Manchester (cleanairgm.com)

Data Source	Reference
Transport for Greater Manchester (TfGM)	TfGM (2016) Predicted NO_2 concentration plot for the proposed site location
Institute of Air Quality Management (IAQM)	IAQM (July 2018) Guidance on the assessment of odour for planning 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
Mode Transport	Traffic Data

5.2 IAQM Construction Dust Assessment

5.2.1 The IAQM has produced guidance[8] 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

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

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**.

5.3 Simple Air Quality Assessment

5.3.1 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.

5.4 IAQM Guidance Methodology

5.4.1 The IAQM "Guidance on the Assessment of Odour for Planning" 2018 (referred to herein as IAQM Odour Guidance[3)] uses the source-pathway-receptor methodology as a means of categorising the potential effects of pollution. The basis is that for an impact to occur, there must be an odour source, a pathway to transport the odour from source to receptor, and a receptor to be affected by the odour.

5.4.2 Before an adverse effect (such as disamenity, annoyance, nuisance or complaints) can occur, there must be an odour exposure. For odour exposure to occur all three links in the source-pathway-receptor chain must be present: an emission source (a means for the odour to get into the atmosphere); a pathway (for the odour to travel through the air to locations off site); and the presence of receptors (people) that could experience an adverse effect, noting that people vary in their sensitivities to odour.

5.4.3 The scale of exposure (the impact) is determined by the parameters collectively known as the FIDOL factors (Frequency, Intensity, Duration and Offensiveness); these are described in **Table 3.**

5.4.4 The magnitude of the effect experienced is determined by the scale of exposure (FIDO) and the sensitivity of the receptor (L, denoting the location, which is often taken to be a surrogate for the sensitivity and incorporates the social and psychological factors that can be expected for a given community).

Table 3: Description of the FIDOL factors

Factor	Description of Factor
Frequency	How often an individual is exposed to odour
Intensity	The individual's perception of the strength of the odour
Duration	The overall duration that individuals are exposed to an odour over time
Odour unpleasantness	Odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score.
Location	The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

5.4.5 Different combinations of FIDO factors can result in different exposures at a location.

5.4.6 The risk of the impact of the odour at a receptor can be estimated using a basic relationship as identified below:

Effect ≈ Dose x Response

5.4.7 The dose is the likely impact of the odour as a result of the odour exposure and the response is the result of the sensitivity of the receiving environment.

5.4.8 The key issues impacting on the effect of the odour include:

- Magnitude of the odour;
- Effectiveness of the pathway for the odour to be received; and
- The sensitivity of the receptor.

5.4.9 The IAQM Odour Assessment Methodology which has been followed during the assessment procedure is shown in **Appendix E.**

5.4.10 Where adverse effects are found in the screening assessment, professional judgement should be applied to determine whether a further and more detailed assessment is necessary (e.g. SCAIL, odour modelling using ADMS, or sniff tests)

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 in the Greater Manchester Clean Air website[9]) 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.

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO_2)

6.2.1 The closest monitoring stations and the concentrations observed are listed in **Table 4** and the monitor locations are shown in **Appendix A**. There is one automatic monitor (Piccadilly) within the vicinity of the proposed development which is located approximately 170 m to the east of the development. There are also two diffusion tubes which are also included, which are located within 160 m of the site to the northeast and east of the development.

Table 4: Annual Mean NO_2 Concentrations Monitored by MCC within the Study Area

Site ID & Classification	Location		Annual Mean NO_2 Concentrations (µg/m^3)				
			2019	2020	2021	2022	2023
Manchester Piccadilly (Urban Centre)	384310	398337	36.0	27.0	30.0	29.0	27.0
CAP_MANC_086 (Roadside)	384160	398343	**46.9**	30.3	32.6	36	32.7
CAP_MANC_093 (Roadside)	384280	398505	**48.0**	27.6	33.4	34.8	31.3
Annual Mean NO_2 air quality objective							**40µg/m^3**

[9] Greater Manchester Clean Air. Data Hub. Available at: https://cleanairgm.com/data-hub/

6.2.2 The monitoring results in **Table 4** indicate that annual mean concentrations of NO_2 were below the NO_2 annual mean objective at the identified monitoring sites from 2020 onwards. In 2019 there has been exceedance of the annual objectives observed at CAP monitors.

6.2.3 There have been no exceedances of the 1-Hour mean NO_2 objective. 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} & $PM_{2.5}$)

6.2.4 MCC monitors PM_{10} and $PM_{2.5}$ at the Piccadilly automatic monitoring station. The results from the monitoring station are shown in **Table 5** and **Table 6** and the location of the monitor is shown in **Appendix A**.

Table 5: Annual Mean PM_{10} Concentrations Monitored by MCC within the Study Area

Site ID & Classification	Location		Annual Mean PM_{10} Concentrations (µg/m^3)				
			2019	2020	2021	2022	2023
Manchester Piccadilly (Urban Centre)	384310	398337	20	15	15	17	15
Annual Mean PM_{10} air quality objective			**40µg/m^3**				

Table 6: Annual Mean $PM_{2.5}$ Concentrations Monitored by MCC within the Study Area

Site ID & Classification	Location		Annual Mean $PM_{2.5}$ Concentrations (µg/m3)				
			2019	2020	2021	2022	2023
Manchester Piccadilly (Urban Centre)	384310	398337	12	8	9	10	9
Annual Mean $PM_{2.5}$ air quality objective			**20µg/m^3**				

6.2.5 The results indicate that the annual mean concentrations have been below the annual mean objectives for Particulate Matter (PM_{10} and $PM_{2.5}$). There has been no exceedance of short-term objectives for PM_{10} (50µg/m^3 not to be exceeded more than 35 times/year).

6.3 Background Concentrations

6.3.1 In addition to the background concentrations observed at Piccadilly Urban Centre automatic station, concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been 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 7**.

Table 7: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site

Grid Square	Pollutant	2025 ($\mu g/m^3$)
384500, 398500	NO_2	21.45
	PM_{10}	14.30
	$PM_{2.5}$	7.96

6.4 Transport for Greater Manchester Air Quality Model

6.4.1 Transport for Greater Manchester (TfGM) conducted air pollution dispersion modelling for the Combined Authority members in 2016, which was used to determine the location and extent of the AQMA. The model shows the predicted concentrations of NO_2 in 2016 at locations across the Greater Manchester area at a height of 0 m. The GMCA AQMA was declared where the model predicted annual average NO_2 concentrations above 35 $\mu g/m^3$.

6.4.2 AQMA modelling contours covering the site have been obtained from TfGM as shown in **Appendix F**, which shows the predicted 2016 NO_2 concentration at a number of points on and around the site. The screenshot indicates that, based on 2016 modelling, concentrations of NO_2 are below the objectives, with results around 37 $\mu g/m^3$. As observed in **Table 4**, the NO_2 concentrations have continued to decline from this level.

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

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

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, construction and trackout activities. No earthwork activities are required as it is a rooftop extension.

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 8.**

Table 8: 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 12,000 m^3
Earthworks	NA	NA
Construction	Small	• total building volume estimated to be constructed is less than 12,000 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 Offices and commercial places 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**.

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

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 9**.

Table 9: Outcome of Defining the Sensitivity of the Area

Pollution	Activity	Sensitivity of the Surrounding Area	Justification for Sensitivity Classification
Dust Soiling	Demolition	Medium	There are more than 1 medium sensitive receptors within 20 m of demolition activity.
	Earthworks	NA	NA
	Construction	Medium	There are more than 1 medium sensitive receptors within 20 m of construction activity.
	Trackout	Medium	There are more than 1 medium sensitive receptors within 20 m of the trackout route, up to 200 m of the site exit.
Human Health	Demolition	Low	There are more than 1 medium sensitive receptors within 20 of demolition activity. Background PM_{10} pollutant concentrations are below 24 µg/m^3.
	Earthworks	Low	There are more than 1 medium 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 more than 1 medium sensitive receptors within 20 m of construction activity. Background PM_{10} pollutant concentrations are below 24 µg/m^3.
	Trackout	Low	There are more than 1 medium 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 10**.

Table 10: Risk of Dust Impacts

Potential Impact	Dust Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low	NA	Low	Low
Human Health	Negligible	NA	Negligible	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 10**. 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 'low risk' classification.

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 Effect of Air Quality on the Proposed Development

8.1 The AQMA is only declared only on the basis of annual average levels of NO_2, not PM_{10} concentrations. Therefore, the air quality objectives for particulate matter are not expected to be exceeded within the proposed development. Monitored concentrations of $PM_{2.5}$ are not expected to exceed the target level. The local automatic monitoring results corroborate this conclusion.

8.2 The proposed development site is surrounded by pedestrianised streets, and the rear of the road only has service vehicle entry way. Therefore, concentrations at the proposed development would be similar to background concentrations rather than the roadside concentrations measured at the CAP monitors. Monitored NO_2 concentration results are shown in **Table 4** and they show that the concentrations have been below the objectives throughout.

8.3 Monitored concentrations of Particulate Matter (PM_{10} in **Table 5** and $PM_{2.5}$ in **Table 6**) show that the concentrations have been below the objectives as well.

8.4 The background concentrations in **Table 7** indicate that background concentrations of NO_2, PM_{10} and $PM_{2.5}$ around the development are well below health-based air quality objectives of 40 µg/m^3 for these pollutants.

8.5 Furthermore, the TfGM model in **Appendix F** shows that NO_2 concentrations at the proposed development to be around 37 µg/m^3, in 2016. Concentrations have improved noticeably in the intervening time period.

8.6 Pollutant concentrations decrease with height and the residential use is proposed from first floor upwards so the concentrations would be lower than monitored concentrations as monitoring is positioned on 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 $PM_{2.5}$ concentrations below the annual mean target.

9 Impact of the Proposed Development on Existing Air Quality

9.1 The proposed development will introduce an increase in road traffic of 21 Annual Average Daily Traffic (AADT), primarily comprising light-duty vehicles (LDV) with 1.6% of heavy-duty vehicles (HDV)[11].

9.2 If the total development flows are below 500 LDV AADT outside an AQMA, or 100 LDV AADT within an AQMA then, as detailed in EPUK 2017 Guidance[2], there is not expected to be a significant risk of air quality change. Air quality changes from trip generation below these criteria can be concluded as not significant.

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

[11] Email from Model Transport to MGL on 22nd January 2025

10 Assessment of Odour Potential

10.1 Source Odour Potential

10.2 There is a commercial kitchen source vent on the ground floor which will stay. There are a number of factors that influence the magnitude of an odour problem at kitchen premises, these include:

- size of the cooking facility – influences the intensity of the odour;
- type of food being prepared – affects the chemical constituents within the ventilation air;
- type of cooking appliances used – which the level of fat, water droplets and temperature within the ventilation air; and
- the location of the premises.

10.2.1 Using **Table E1** in **Appendix E**, the source odour potential can be described as **Small**. This is because the commercial kitchen serves warmed up foods which can be classed as "less offensive".

10.2.2 Additionally, Greggs would have effective mitigation and controls in place during the time of its operation. With reference to the EMAQ+ guidance[12], the food type is "*most pubs, mainly reheating*" which equates to a 'low' rating in terms of odour and grease loading. **Appendix G** shows the full breakdown and score for each parameter assessed within the risk assessment to determine the level of odour control required. In respect of the three other EMAQ+ parameters are:

- **Dispersion**: the kitchen ventilation flue is low level and located on the façade in the passageway, as can be seen in on street view.
- **Covers**: the number of daily covers is expected to be more than 100 covers, equating to a 'medium' rating for size of kitchen.
- **Receptor proximity**: residential properties are located within 20 m of the kitchen flue, equating to a 'close' risk rating.

10.2.3 The total score for all four parameters corresponds that **very high** level odour control which would ensure that the little or no residual odour is remaining after mitigation. As a national operator, we would expect the Greggs establishment to have good odour control and the appropriate mitigation that would be expected for this type of use.

[12] EMAQ+, 2022. Control of Odour and Noise from Commercial Kitchen Exhaust Systems

10.3 Pathway Effectiveness

10.3.1 Using **Table E2** in **Appendix E**, the pathway effectiveness of the odour to the proposed receptors can be described as **Moderately Effective**. As the new receptors are local to the source and release is elevated but compromised by building effects.

10.4 Risk of Odour Impact

10.4.1 Using the matrix in **Table E3** in **Appendix E,** the risk of odour exposure can, therefore, be described as **Negligible Risk** as there is a small source odour potential and a moderately effective pathway.

10.5 Receptor Sensitivity

10.5.1 Using **Table E4** in **Appendix E,** the receptor sensitivity of proposed residential dwellings is described as **highly sensitive.**

10.6 Magnitude of Odour Impact

10.6.1 Using the matrix in **Table E5** in **Appendix E,** the magnitude of the odour effect can be described as **Negligible** as there is a negligible risk of odour impact on a highly sensitive receptor. This level of effect is not considered to be significant.

11 Mitigation

11.1 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.

11.2 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.**

12 Summary of Impacts and Conclusion

12.1 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.

12.2 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.

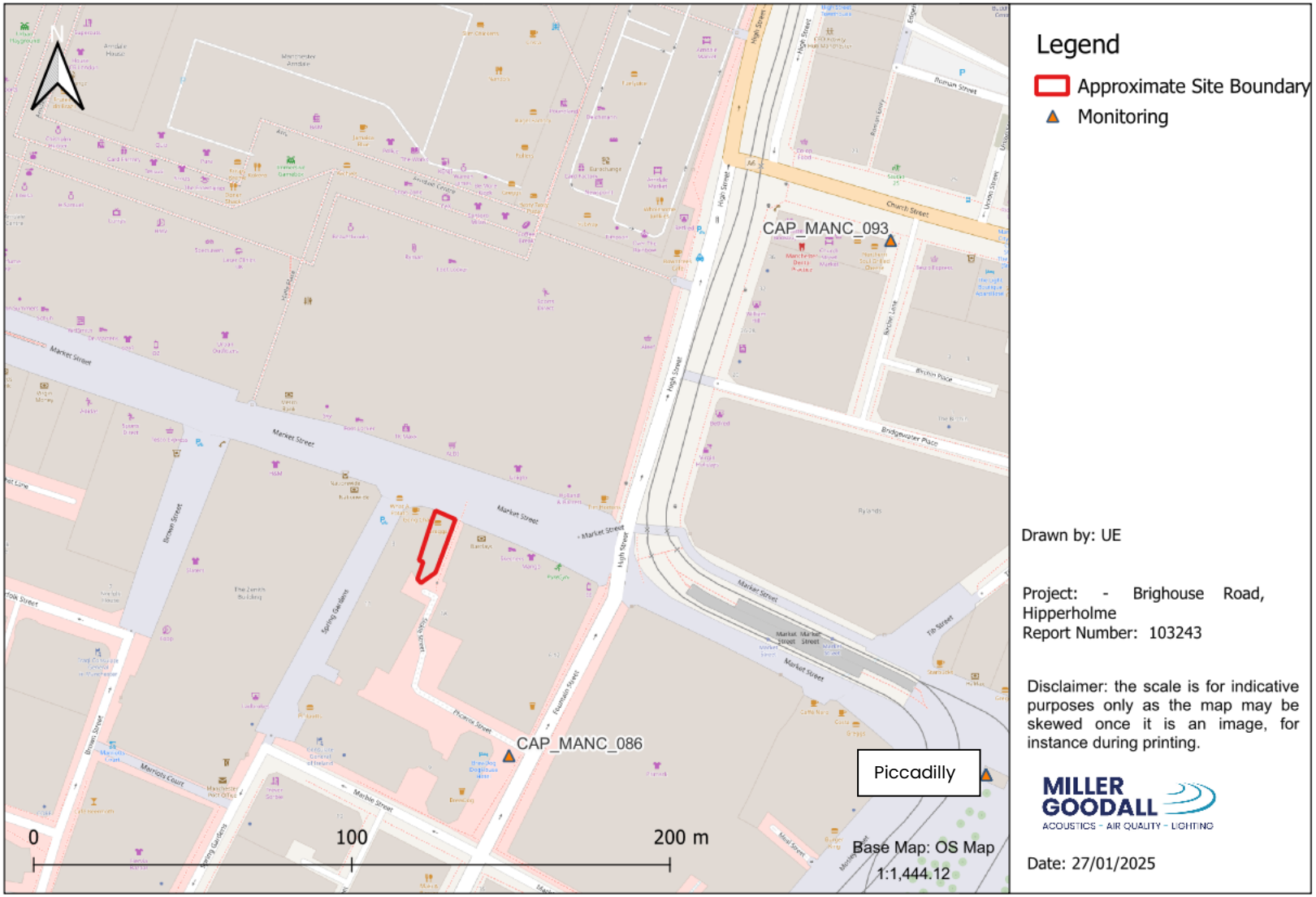
12.3 Concentrations of NO_2 and PM_{10} are likely to be below their respective long and short-term objectives at the proposed development site which is therefore considered suitable for residential use with regard to air quality. Concentrations of $PM_{2.5}$ are expected to be below the annual mean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

12.4 A desktop odour assessment has been undertaken to assess the potential for odours from the existing commercial kitchen on the ground floor on the proposed residential receptors. The Institute of Air Quality Management's "Guidance on the Assessment of Odour for Planning" has been used. The assessment concluded that during operation it would be negligible.

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

APPENDICES

Appendix A: Location of site, and MCC monitoring



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[8]. 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 250 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 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/m³	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m³	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m³	>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
Medium	>32 µg/m³	>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

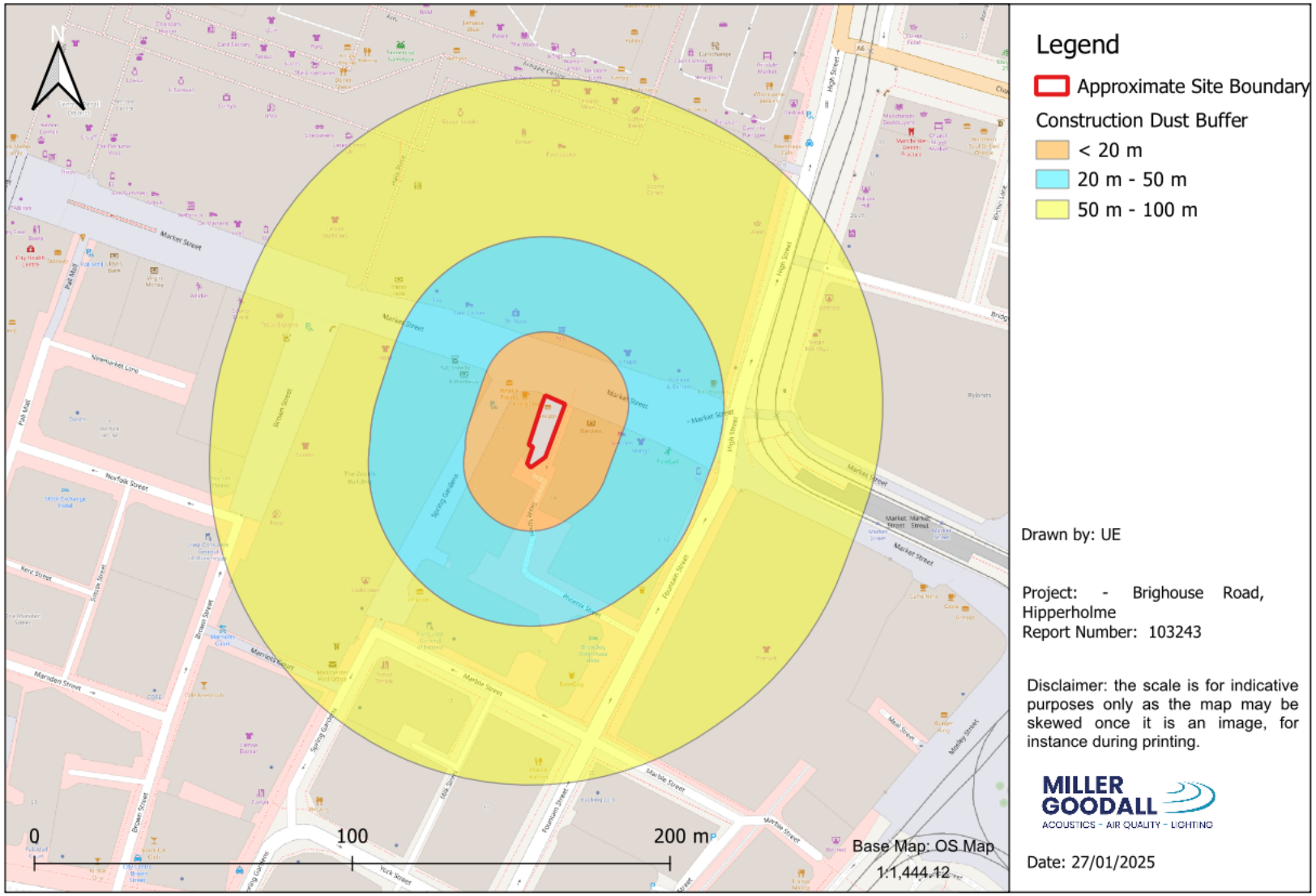
Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

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 Buffer Zones



Appendix D: IAQM Dust Assessment Mitigation

xx Highly Recommended **x Desirable**

Measures relevant for demolition, earthworks, construction and trackout

Mitigation Measure	Low Risk
Communications	
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	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.	x
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	Low 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.	x
Avoid site runoff of water or mud.	xx
Keep site fencing, barriers and scaffolding clean using wet methods.	x
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.	x
Cover, seed or fence stockpiles to prevent wind whipping.	x
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
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

Mitigation Measure	Low Risk
Use enclosed chutes and conveyors and covered skips.	xx
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.	x
Waste management	
Avoid bonfires and burning of waste materials.	xx

Measures specific to demolition

Mitigation Measure	Low 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	Low 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.	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: IAQM Assessment of Odour Methodology

The IAQM Odour Guidance methodology for the desktop screening assessment is provided below. The FIDOL parameters are considered throughout the determination of the source-pathway-receptor methodology.

Source Odour Potential

The first step in the assessment is to estimate the odour generating potential of the site activities, termed the "Source Odour Potential", which takes into account three factors:

- The scale (magnitude) of the release from the odour source, taking into account the effectiveness of any odour control or mitigation measures that are already in place. This involves judging the relative size of the release rate after mitigation and taking account of any pattern of release (e.g. intermittency).

- How inherently odorous the emission is. In some cases, it may be known whether the release has a low, medium or high odour detection threshold (ODT); this is the concentration at which an odour becomes detectable to the human nose. In most instances the odours released by a source will be a complex mixture of compounds and the detectability will not be known. However, for some industrial processes the odour will be due to one or a small number of known compounds and the detection thresholds will be a good indication of whether the release is highly odorous or mildly odorous.

- The relative pleasantness/unpleasantness of the odour.

Using the factors above**, Table E1** can be used to determine whether the source odour potential is Large, Medium or Small.

Table E1: Determining the Source Odour Potential

Source Odour Potential	Magnitude	Compounds	Unpleasantness	Mitigation/Control
Large	Larger permitted processes of odorous nature or large Sewage Treatment Works (STWs); materials usage hundreds of thousands of tonnes/m^3 per year; area sources of thousands of m^2.	The compounds involved are very odorous (e.g. mercaptans), having very low Odour Detection Thresholds (ODTs) where known.	Processes classed as "Most offensive"[13] (where known) compounds/odours having unpleasant (-2) to very unpleasant (-4) hedonic score.	Open air operation with no containment, reliance solely on good management techniques and best practice.
Medium	Smaller permitted processes or small (STWs); materials usage thousands of tonnes/m^3 per year; area sources of hundreds of m^2.	The compounds involved are moderately odorous.	Processes classed in H4 as "Moderately offensive"; or (where known) odours having neutral (0) to unpleasant (-2) hedonic score.	Some mitigation measures in place, but significant residual odour remains.
Small	Falls below Part B threshold; material usage hundreds of tonnes/m^3 per year; area sources of tens m^2.	The compounds involved are only mildly odorous, having relatively high ODTs where known.	Processes classed as "Less Offensive" in H4; or (where known) compounds/odours having neutral (0) to very pleasant (+4) hedonic score.	Effective, tangible mitigation measures in place (e.g. BAT, BPM) leading to little or no residual odour.

[13] Table 5 in the IAQM *"Guidance on the Assessment of Odour for Planning"*

Effectiveness of Pollutant Pathway

Next, the effectiveness of the pollutant pathway as the transport mechanism for odour through the air to the receptor, versus the dilution/dispersion in the atmosphere, is estimated. Any factor that increases dilution and dispersion of the odorous pollutant plume as it travels from source (e.g. processes and plant) to receptor will reduce the concentration at the receptor, and hence reduce exposure. Important factors to consider here are:

- The distance of sensitive receptors from the odour source.
- Whether these receptors are downwind (with respect to the predominant prevailing wind direction). Odour episodes often tend to occur during stable atmospheric conditions with low wind speed, which gives poor dispersion and dilution; receptors close to the source in all directions around it can be affected under these conditions. When conditions are not calm, it will be the downwind receptors that are affected. Overall therefore, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact.
- The effectiveness of the point of release in promoting good dispersion, e.g. releasing the emissions from a high stack will – all other things being equal - increase the pathway, dilution and dispersion.
- The topography and terrain between the source and the receptor. The presence of topographical features such as hills and valleys, or urban terrain features such as buildings can affect air flow and therefore increase - or inhibit - dispersion and dilution.

Using the factors above**, Table E2** can be used to determine the effectiveness of the pollutant pathway.

Table E2: Determining the Effectiveness of Pollutant Pathway

Effective Pathway for Odour Flux to Receptor	Distance	Direction	Effectiveness of dispersion/dilution
High	Receptor is adjacent to the source/site; distance well below any official set-back distances.	High frequency (%) of winds from source receptor (or, qualitatively, receptors downwind of source with respect to prevailing wind).	Open process with low-level releases, e.g. lagoons, uncovered effluent treatment plant, landfilling of putrescible wastes.

Effective Pathway for Odour Flux to Receptor	Distance	Direction	Effectiveness of dispersion/dilution
Moderate	Receptor is local to the source.	-	Releases are elevated, but compromised by building effects.
Ineffective	Receptor is remote from the source; distance exceeds any official set-back distances.	Low frequency (%) of winds from source to receptor (or, qualitatively, receptors upwind of source with respect to prevailing wind).	Releases are from high level (e.g. stacks, or roof vents >3m above ridge height) and are not compromised by surrounding buildings.

Risk of odour impact

In the third step, the estimates of Source Odour Potential and the Pathway Effectiveness are considered together to predict the risk of odour exposure (impact) at the receptor location, as shown by the example matrix in **Table E3.**

Table E3: Risk of Odour Exposure (Impact) at the Specific Receptor Location

Pathway Effectiveness	Source Odour Potential		
	Small	Medium	Large
Highly Effective Pathway	Low Risk	Medium Risk	High Risk
Moderately Effective Pathway	Negligible Risk	Low Risk	Medium Risk
Ineffective Pathway	Negligible Risk	Negligible Risk	Low Risk

Receptor Sensitivity

For the sensitivity of people to odour, the IAQM recommends that the air quality practitioner uses professional judgment to identify where on the spectrum between high and low sensitivity a receptor lies, taking into account the following general principles shown in **Table E4.**

Table E4: Sensitivity of the Receptor

High Sensitivity Receptor
Surrounding land where: Users can reasonably expect enjoyment of a high level of amenity. The people would reasonably be expected to be present here continuously, or at least regularly for extended period, as part of the normal pattern of use of the land. Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.
Medium Sensitivity Receptor
Surrounding land where: Users would expect to enjoy a reasonable level of amenity, but wouldn't reasonably expect to enjoy the same level of amenity as in their home. People wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Examples may include places of work, commercial/retail premises and playing/recreational fields.
Low Sensitivity Receptor
Surrounding land where: The enjoyment of amenity would not be reasonably expected. There is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples may include industrial, farms, footpaths and roads.

Magnitude of odour impact

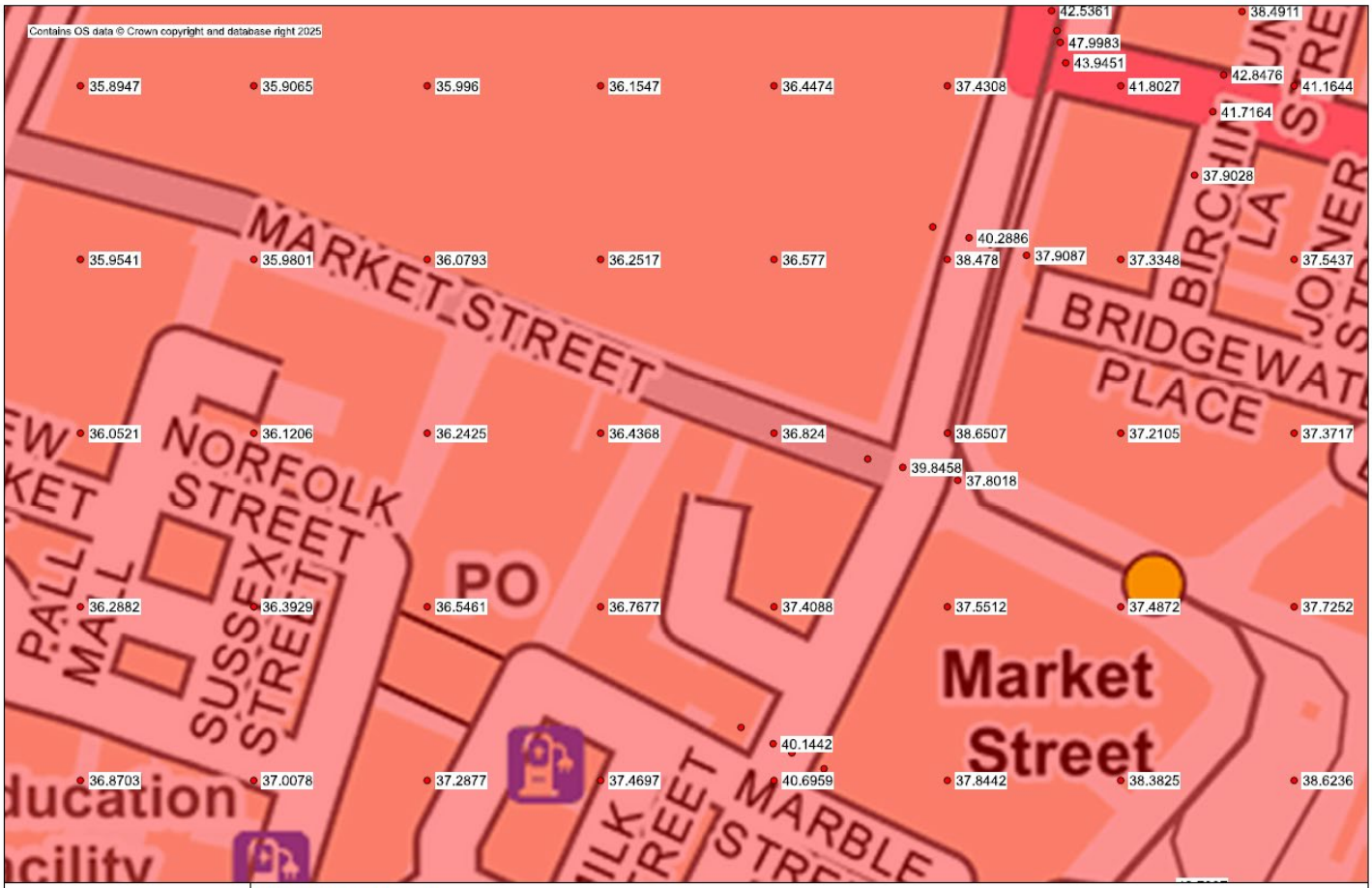
The next step is to estimate the effect of that odour impact on the exposed receptor, taking into account its sensitivity, as shown in **Table E5.** The odour effects may range from negligible, through slight adverse and moderate adverse, up to substantial adverse.

Table E5: Likely Magnitude of Odour Effect at the Specific Receptor Location

Risk of Odour Exposure (From Table 5)	Receptor Sensitivity		
	Low	Medium	High
High Risk of Odour Exposure	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk of Odour Exposure	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk of Odour Exposure	Negligible Effect	Negligible Effect	Slight Adverse Effect
Negligible Risk of Odour Exposure	Negligible Effect	Negligible Effect	Negligible Effect

This procedure results in a prediction of the likely odour effect. Where the overall effect is greater than "slight adverse", the effect is likely to be considered significant.

Appendix F: Transport for Greater Manchester NO_2 Contour Plot



Transport for Greater Manchester 2 Piccadilly Place, Manchester, M1 3BG	2016 AQMA and NO2 values			
	Drawn By : I Hull	Scale : NTS	Date : 23/01/2025	

Appendix G: Risk Assessment for Cooking Odour

Criteria		Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s
	Good	5	Discharging 1m above ridge at 15 m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge
Size of kitchen	Large	5	More than 100 covers or large sized take away.
	Medium	3	Between 30 and 100 covers or medium sized take away
	Small	1	Less than 30 covers or small take away.
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. Turkish, Middle Eastern or any premises cooking with soild fuel
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese, Steakhouse
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms
Total Score		**36**	**Very High Impact: Very high level odour control required.**

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

IAQM Institute of Air Quality Management

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

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.

MILLER GOODALL

ACOUSTICS - AIR QUALITY - LIGHTING