



AIR QUALITY ASSESSMENT

on behalf of

ADELFA PROPERTY LTD

for

**13 BEDFORD ROAD, ALEXANDRA
PALACE, LONDON N22 7AU**

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Summary

This air quality report has been prepared to accompany a planning application for a proposed mixed-use development at 13 Bedford Road, Alexandra Palace, London N22 7AU. It assesses the potential changes in air quality due to the construction and operation of the proposed development and whether these potential changes would significantly alter air quality.

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

Concentrations of NO₂ and PM₁₀ are likely to be below their relevant objectives at the proposed development site which is therefore considered suitable for its intended 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.

An air quality neutral assessment has also been undertaken. The assessment concluded that the proposed development will be neutral in terms of building and transport emissions.

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

Prepared By Melody Horan

Reviewed By Unam Ejaz

Signed


6 June 2023

Signed


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1 Introduction

- 1.1 Miller Goodall Ltd has been instructed to prepare an air quality assessment to accompany a planning application for a proposed mixed-use development at 13 Bedford Road, Alexandra Palace, London N22 7AU. The site lies within the administrative boundary of the London Borough of Haringey (LBoH).
- 1.2 The report provides a review of the existing air quality in proximity to the proposed development site and assesses the potential impact of the proposed development on local air quality following Local Air Quality Management Technical Guidance¹ and EPUK and IAQM guidance².
- 1.3 The report provides an assessment of the potential air quality impacts associated with the construction and operational phases of the proposed development. The suitability of the site for the intended use is also assessed.
- 1.4 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO₂) and fine particulates, normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM₁₀) and 2.5 micrometres (PM_{2.5}) since these pollutants are most likely to approach their respective air quality objectives in proximity to major roads and congested areas. This assessment has therefore focused on the impact of the proposed development on concentrations of NO₂, PM₁₀ and PM_{2.5}.

2 Site Description

- 2.1 The site is located in the London Borough of Haringey and is currently occupied by Alexandra Motors.
- 2.2 To the north of the site, there are commercial premises with possible residential dwellings on the upper floors. Bedford Road runs along the eastern site boundary, beyond which is a railway line. Alexandra Park Road runs along the southern site boundary, beyond which there are residential dwellings. Residential dwellings are also located to the west of the development site.
- 2.3 The site location is shown in **Appendix A**.

3 Proposed Development

- 3.1 The development consists of retail units on the ground floor and flats on the first, second, third and fourth floors.
- 3.2 There is no parking associated with the proposed development.
- 3.3 The proposed development will be electrically heated.

¹ Department for the Environment Food and Rural Affairs (2018) 'Local Air Quality Management Technical Guidance Document LAQM.TG (22)', London: Defra.

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

4 Policy Context

4.1 Air Quality Objectives

- 4.1.1** The standards and objectives relevant to the LAQM framework have been prescribed through the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations 2002; the Air Quality Standards Regulations 2010 set out the combined Daughter Directive limit values and interim targets for Member State compliance.
- 4.1.2** The United Kingdom left the European Union on 31st January 2020 and is no longer a member state. However, the current framework of air quality legislation was converted into domestic law through the European Union (Withdrawal) Act 2018^[3].
- 4.1.3** The relevant air quality standards and objectives are presented in **Table 1**. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health.

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

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

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

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

4.1.6 The annual mean air quality objectives do not apply to the commercial areas of the proposed development; however, the short-term objectives still apply¹. The annual mean and short-term air quality objectives apply to the residential areas of the proposed development¹.

4.2 LBoH (2013) Sustainable Design & Construction Supplementary Planning Document (SPD)

4.2.1 The LBoH Supplementary Planning Document (SPD)⁴ has a section on air quality. It outlines when an air quality assessment will be required. In accordance with the SPD⁴, a simple air quality assessment has been prepared to determine the impact of the construction and operational phases of the development on existing receptors as well as assess site suitability.

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**.

⁴LBoH (2013) Sustainable Design & Construction Supplementary Planning Document (SPD)

Table 2: Key Information Sources

Data Source	Reference
London Borough of Haringey (LBoH)	LBoH (2022) <i>London Borough of Haringey Annual Air Quality Status Report 2021</i> LBoH (2013) <i>Sustainable Design & Construction Supplementary Planning Document</i>
Department for Environment Food and Rural Affairs (Defra)	Defra <i>Local Air Quality Management Technical Guidance TG(22), updated 2022</i>
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) <i>Land Use Planning and Development Control: Planning for Air Quality (v1.2)</i>
Ministry of Housing, Communities & Local Government	Planning Practice Guidance: Air Quality, November 2019 National Planning Policy Framework (NPPF), July 2021
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps
Greater London Authority (GLA)	Greater London Authority Sustainable Design and Construction Supplementary Planning Guidance (April 2014) Greater London Authority <i>The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance</i> (July 2014)
Mayor of London	London Plan Guidance Air Quality Neutral (February 2023)
London Atmospheric Emissions Inventory (LAEI)	Pollutant maps

5.2 GLA Construction Dust Impact Assessment

5.2.1 The GLA provides guidance⁵ on the assessment of air quality impacts arising from construction and demolition activities and has been used in this assessment. This section follows a risk assessment to determine the likely impact of the development on nearby receptor location during the construction phase and goes on to recommend mitigation measures that should be implemented to reduce any impact. The methodology for the assessment is shown in **Appendix B**. The study area in relation to the construction dust and the buffer zones of <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 Greater London Authority (GLA) (2014) 'The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance' (July 2014)

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 Air Quality Neutral Assessment

- 5.4.1 The London Plan and the Mayor's Air Quality Strategy demand that developments are to be at least 'air quality neutral'. The methodology within the Air Quality Neutral Guidance⁶ has been used to complete the assessments of building and transport-related emissions.
- 5.4.2 To enable the implementation of this policy emission benchmarks have been produced for buildings' operation and transport across London based on the latest technology (including its effectiveness and viability). Developments that do not exceed these benchmarks will be considered to avoid any increase in NO_x and PM emissions across London as a whole and therefore be 'air quality neutral'. These are to be considered minimum benchmarks.
- 5.4.3 The London Plan states that new development proposals should meet the minimum standards outlined in the SPG. Emission standards are provided for: individual gas boilers; communal gas boilers; solid biomass boilers; and combined Heat and Power (CHP) plants. The emission standards can be presumed to be met if the following criteria are met:
- the new heating system is a heat pump or other zero emission heat source;
 - the new heating system is a gas boiler with NO_x emissions rated at less than 40 mg/kWh; or
 - the development is connecting to an existing heat network.
- 5.4.4 The policy applies to all major developments in Greater London. Developers have to calculate the NO_x and/or PM₁₀ emissions from the buildings and transport elements of their developments and compare them to the benchmarks set out in the guidance for the relevant London zone. For minor developments, a reduced assessment scope is recommended.

5.5 Air Quality Positive

- 5.5.1 The London Plan specifies the need for air quality assessment and planning submissions to consider air quality positive. The London Plan Guidance Air Quality Positive, March 2021, outlines the requirements of the air quality positive assessment. The document states an Air Quality Positive assessment is required for proposals meeting Environmental Impact Assessment. An Air Quality Positive consideration for this assessment is not required.

⁶ Major of London, 2023. London Plan Guidance Air Quality Neutral. Available at: <https://www.london.gov.uk/sites/default/files/2023-02/Air%20Quality%20Neutral%20LPG.pdf>

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 LBoH (provided in the 2021 Annual Status Report) and background concentration maps provided by Defra for the grid squares covering the proposed development.

6.1.2 The site is located within an AQMA. The site location and its relationship to the AQMA is shown in **Appendix A**. The AQMA was declared for the whole borough in 2001, on the basis of annual average levels of NO₂ and 24-hour mean PM₁₀ levels. As the whole borough is declared an AQMA, it is likely there are areas within the AQMA which are not expected to exceed the NO₂ annual mean objective and 24-hour mean PM₁₀ objective.

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO₂)

6.2.1 LBoH monitors NO₂ via automatic monitoring stations and diffusion tubes. There are no NO₂ monitoring sites within the vicinity of the proposed development site.

Particulate Matter (PM₁₀ & PM_{2.5})

6.2.2 LBoH does undertake PM₁₀ and PM_{2.5} monitoring at one automatic monitoring station, HG005. However, the location of HG005 is not representative of the proposed development site.

6.3 Background Concentrations

6.3.1 Background concentrations of NO₂, PM₁₀ and PM_{2.5} obtained from the background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations⁷ are shown in **Table 3**.

Table 3: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site *

Grid Square	Pollutant	2023
		(µg/m ³)
530500,190500	NO ₂	19.78
	PM ₁₀	16.64
	PM _{2.5}	11.03

* Background concentrations obtained from the latest 2018 based background maps

⁷ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

6.4 LAEI Concentrations

- 6.4.1 The Greater London Authority and Transport for London fund, develop and maintain the London Atmospheric Emissions Inventory (LAEI). The LAEI modelled annual mean NO₂, PM₁₀ and PM_{2.5} concentrations based on measurements made during 2016⁸.
- 6.4.2 A pollution concentration map of the ground-level, 0 m, NO₂ concentrations has been obtained from the LAEI dataset, this map is shown in **Appendix E**. In the map legend, the predicted PM₁₀ and PM_{2.5} concentrations within the highlighted 20 m x 20 m grid square⁹ are provided.
- 6.4.3 The NO₂ concentrations are close to the annual mean objective of 40 µg/m³. The results indicate that the short-term objective for NO₂ was unlikely to be exceeded at the development site as annual mean concentrations are below the indicative screening concentration of 60 µg/m³.
- 6.4.4 PM₁₀ concentrations at the development site are below the annual mean objective of 40 µg/m³. The results indicate that the short-term objective for PM₁₀ was unlikely to be exceeded at the development site as annual mean concentrations are below the indicative screening concentration of 50 µg/m³.
- 6.4.5 At the development site, PM_{2.5} concentrations are below the annual mean target.
- 6.4.6 The LAEI also undertook modelling based on measurements made in 2013¹⁰. This modelling included predicted concentrations for future years. The 2016 LAEI modelling does not include future year predictions. A screenshot of the LAEI predicted 2025 NO₂ concentrations is provided in **Appendix F**. The prediction shows that by 2025 the proposed development is expected to be exposed to NO₂ and PM₁₀ concentrations well below the annual mean objectives as well as below the PM_{2.5} annual mean target. The proposed development is also expected to be below the NO₂ and PM₁₀ short-term objectives in 2025.

7 Construction Dust Impact Assessment

7.1 Step 1 – Requirement for a Detailed Assessment

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

⁸ <https://data.london.gov.uk/dataset/londonGround-lev-atmospheric-emissions-inventory--laei--2016>

⁹ <https://www.londonair.org.uk/map-maker/>

¹⁰ <https://www.londonair.org.uk/london/asp/futuremaps.asp?species=NO2&LayerStrength=50&lat=51.5008010864&lon=-0.124632000923&zoom=14>

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 4**.

Table 4: Dust Emission Magnitudes for Each Activity

Activity	Dust Emission Magnitudes	Justification for Sensitivity Classification
Demolition	Small	The total building volume to be demolished is less than 20,000 m³
Earthworks	Small	the site area is less than 2,500 m²
Construction	Small	total building volume estimated to be constructed is less than 25,000 m³
Trackout	Small	there are likely to be less than 10 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**.

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

- 7.2.4 The sensitivity of the area for dust soiling and human health effects has been determined using the criteria detailed in **Table B3** and **Table B4** respectively in **Appendix B**.
- 7.2.5 The sensitivity of the area to dust soiling and human health for each activity is summarised in **Table 5**.

Table 5: 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 1 – 10 highly sensitive receptors within 20 m of the demolition activity.
	Earthworks	Medium	There are 1 – 10 highly sensitive receptors within 20 m of the site boundary.
	Construction	Medium	There are 1 – 10 highly sensitive receptors within 20 m of the construction activity.
	Trackout	Medium	There are 1 – 10 high-sensitivity receptors within 20 m of roads which relevant vehicles are likely to use that are up to 50 m from the site.
Human Health	Demolition	Low	There are 1 – 10 highly sensitive receptors within 20 m of the demolition activity. Background PM ₁₀ pollutant concentrations are below 24 µg/m ³ .
	Earthworks	Low	There are 1 – 10 highly sensitive receptors within 20 m of the site boundary. Background PM ₁₀ pollutant concentrations are below 24 µg/m ³ .
	Construction	Low	There are 1 – 10 highly sensitive receptors within 20 m of the construction activity.
	Trackout	Low	There are 1 – 10 high-sensitivity receptors within 20 m of roads which relevant vehicles are likely to use that are up to 50 m from the site. 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 6**.

Table 6: Risk of Dust Impacts

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

7.3 Step 3 – Site-Specific Mitigation

- 7.3.1 Step 3 of the GLA guidance identifies appropriate site-specific mitigation. These measures are related to the site risk for each activity. Mitigation measures specific to demolition, construction and trackout are proposed based on the risk classifications in **Table 6**. Specific mitigation measures for earthworks are not provided because there are none for 'low' risk earthworks. 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 (in this instance the site is classified as "low" risk due to demolition, earthworks and construction)¹¹.

7.4 Step 4 – Determine Significant Effects

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

8 Effect of Air Quality on the Proposed Development

8.1 The ground floor of the proposed development is for commercial use. Therefore, the annual mean air quality objectives do not apply to the ground floor of the development; however, the short-term objectives still apply¹. On the first floor and above, residential dwellings are proposed. Therefore, the annual mean and short-term air quality objectives apply to the first floor and above.

8.2 The background concentrations in **Table 3** show that background concentrations of NO₂, PM₁₀ and PM_{2.5} are well below health-based air quality objectives of 40 µg/m³ for both pollutants.

8.3 The development site is located within the Haringey AQMA. The AQMA was declared for the whole borough in 2001, on the basis of annual average levels of NO₂ and 24-hour mean PM₁₀ levels. As the whole borough is declared an AQMA, there are likely areas within the AQMA which are not expected to exceed the NO₂ annual mean objective and 24-hour mean PM₁₀ objective. The proposed development site is not located in close proximity to any major roads.

8.4 There are no representative air quality monitoring locations of the proposed development site. Consequently, LAEI modelling has been reviewed to assess the suitability of the site for its intended use.

8.5 The LAEI 2016 modelling results show that NO₂ concentrations were expected to be close to the annual mean objective at a height of 0 m at the development site but below the NO₂ short-term objective. PM₁₀ concentrations were predicted to be below the annual mean and short-term objective and PM_{2.5} concentrations below the annual mean target.

8.6 LAEI 2025 predicted air pollutant concentrations were also reviewed. Predicted NO₂ and PM₁₀ concentrations are expected to be below the annual mean and short-term objectives for the pollutants as well as below the annual mean target for PM_{2.5}.

8.7 As the distance from the pollutant source, such as traffic, increases the concentration of primary pollutants, such as NO₂, decreases. Therefore, the ground floor is expected to be exposed to higher concentrations of road-related air pollutants compared to the first floor and above.

8.8 The evidence from existing information sources is that the proposed development site is likely to experience levels of NO₂ and PM₁₀ below the short-term objectives on the ground floor and below the NO₂ and PM₁₀ annual mean

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.

and short-term objectives on the first floor and above. Therefore, the proposed development is suitable for its intended use.

9 Impact of the Proposed Development on Existing Air Quality

- 9.1 The proposed development will be electrically heated and there is no parking associated with the proposed development. Therefore, in accordance with EPUK 2017 Guidance², the proposed development is not expected to have a significant impact on local air quality.

10 Air quality neutral assessment

- 10.1.1 An air quality neutral assessment has been completed following The London Plan Guidance Air Quality Neutral⁶.

Transport Emissions

- 10.2 The SPG states that developments should be designed to encourage and facilitate walking and cycling and the use of public transport. This will enable air pollutants deriving from a particular development to be minimised. To further support this policy, boroughs should also ensure developments do not exceed local car parking standards.
- 10.3 As there are no parking spaces associated with the development, the development is considered air quality neutral in terms of transport emissions⁶.

Building Emissions

- 10.4 As the development will be heated electrically, the development is considered air quality neutral in terms of building emissions⁶.

Air Quality Neutral Assessment Summary

- 10.5 The development is neutral in terms of transport and building emissions.

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 NO₂ and PM₁₀ are likely to be below their relevant objectives at the proposed development site which is therefore considered suitable for its intended 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.

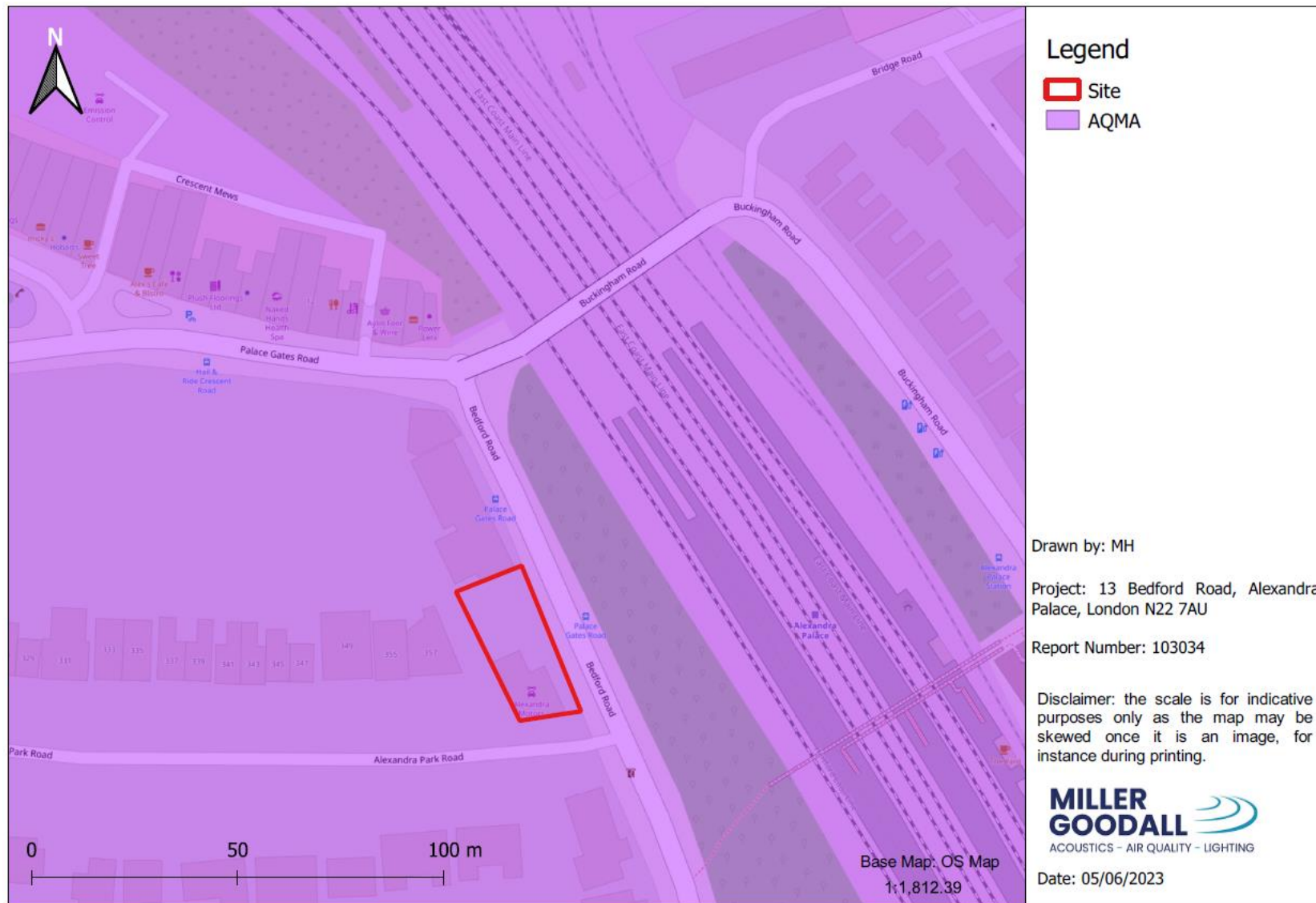
11.5 An air quality neutral assessment has also been undertaken. The assessment concluded that the proposed development will be neutral in terms of building and transport emissions.

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

APPENDICES

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Appendix A: Location of site and AQMA



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Appendix B: GLA Dust Risk Assessment Methodology

The following section outlines criteria developed by the GLA⁵ for the assessment of air quality impacts arising from construction and demolition activities. The assessment procedure is divided into four steps and is summarised below:

Step 1: Screen the Need for a Detailed Assessment

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

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

Step 2: Assess the Risk of Dust Impacts

In step two, a site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the GLA (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 GLA guidance recommends that the dust emission magnitude is determined separately for demolition, earthworks, construction and trackout. **Table 1** describes the potential dust emission class criteria for each outlined activity.

Table 1: Criteria Used in the Determination of Dust Emission Magnitude

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

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

Step 2B: Define the Sensitivity of the Area

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

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- the local background PM₁₀ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

The criteria detailed in **Table 2** is used to determine the sensitivity of the receptor in relation to dust soiling, health effects and ecological effects.

Table 2: Criteria for Determining Sensitivity of Receptors

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

Table 3 and **Table 4** are then used to define the sensitivity of the area to dust soiling and human health effects. This should be derived for each of construction, demolition, earthworks and trackout.

Table 3: Sensitivity of the Area to Dust Soiling Effects on People and Property.

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

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

*distances considered are to the dust source

Table 4: Sensitivity of the Area to Human Health Impacts

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

The sensitivity of the area is then summarised.

Step 2C Define the Risks of Impacts

The dust emission magnitude from **Table 1** and sensitivity of the area and receptors from **Table 2**, **Table 3** and **Table 4** 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 5** to **Table 8**.

Table 5: 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	Low Risk	Low Risk	Negligible

Table 6: Risk of Dust Impacts- Earthworks

Potential Sensitivity of the Area	Impact of the	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 7: Risk of Dust Impacts- Construction

Potential Sensitivity of the Area	Impact of the	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 8: Risk of Dust Impacts- Trackout

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

Step 3 Determine Site Specific Mitigation

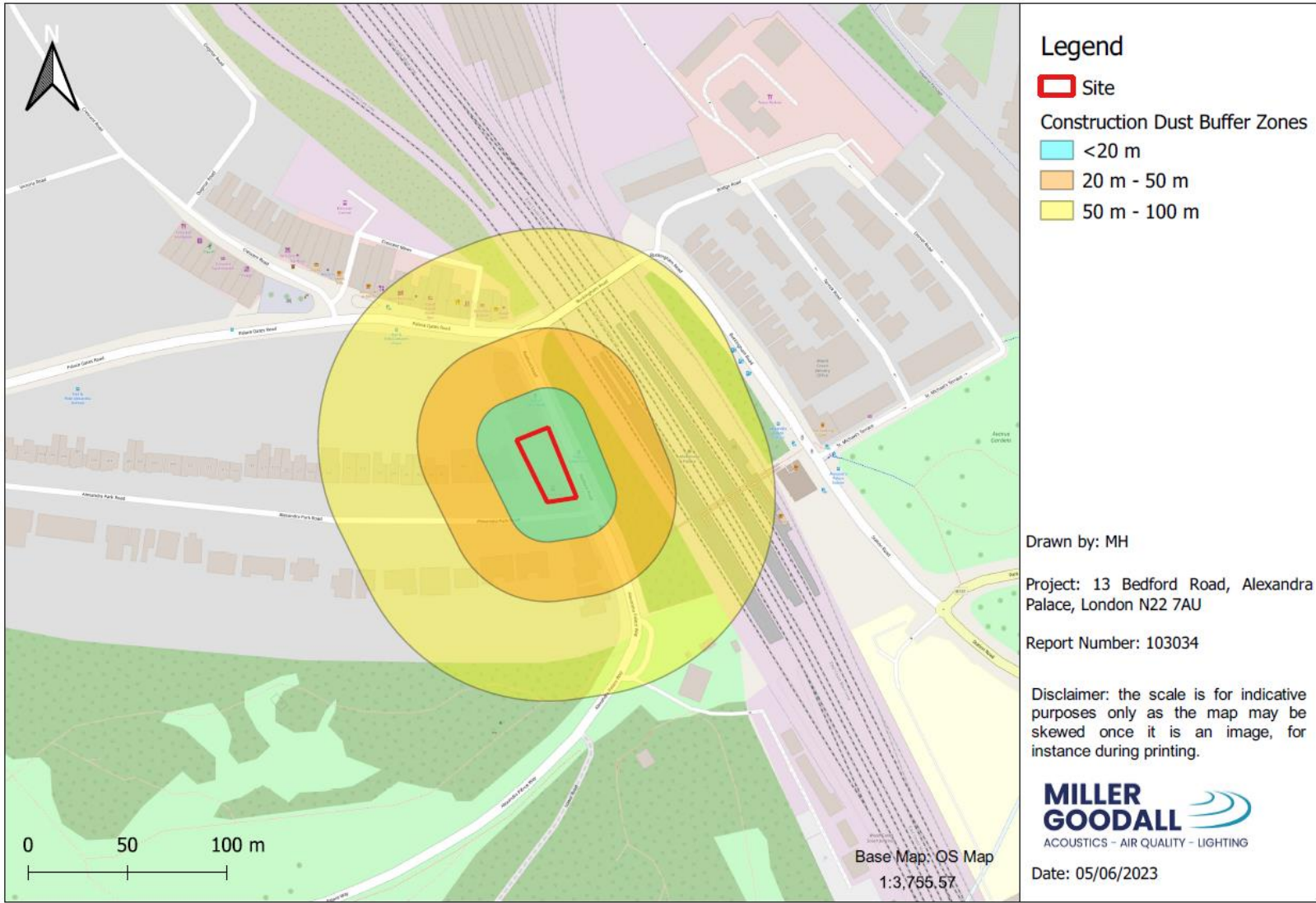
Step three of the GLA guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

Step 4 Determine Significance of Residual Effects

At step four the significance of residual effects is assessed. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'. There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that a conclusion of no significant effect is robust.

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Appendix C: Construction Dust Buffer Zones



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Appendix D: GLA Dust Assessment Mitigation

xx Highly Recommended

x Desirable

Measures relevant for demolition, earthworks, construction and trackout

Mitigation Measure	Low Risk
Site management	
Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary.	XX
Display the head or regional office contact information.	XX
Record and respond to all dust and air quality pollutant emissions complaints.	XX
Make a complaints log available to the local authority when asked.	XX
Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the local authority when asked.	XX
Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions and dust are being carried out, and during prolonged dry or windy conditions.	XX
Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the log book.	XX
Preparing and maintaining the site	
Plan site layout: machinery and dust causing activities should be located away from receptors.	XX
Erect solid screens or barriers around dust activities or the site boundary that are, at least, as high as any stockpiles on site.	XX
Fully enclosure site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	X
Install green walls, screens or other green infrastructure to minimise the impact of dust and pollution.	
Avoid site runoff of water or mud.	XX
Keep site fencing, barriers and scaffolding clean using wet methods.	X
Remove materials from site as soon as possible.	X
Operating vehicle/machinery and sustainable travel	
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone.	XX
Ensure all non-road mobile machinery (NRMM) comply with the standards set within this guidance.	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 possible.	XX
Impose and signpost a maximum-speed-limit of 10mph on surfaced haul routes 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).	XX
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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 mitigation (using recycled water where possible).	XX
Use enclosed chutes, 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

Waste management

Reuse and recycle waste to reduce dust from waste materials	XX
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 water suppression is used during demolition operations.	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

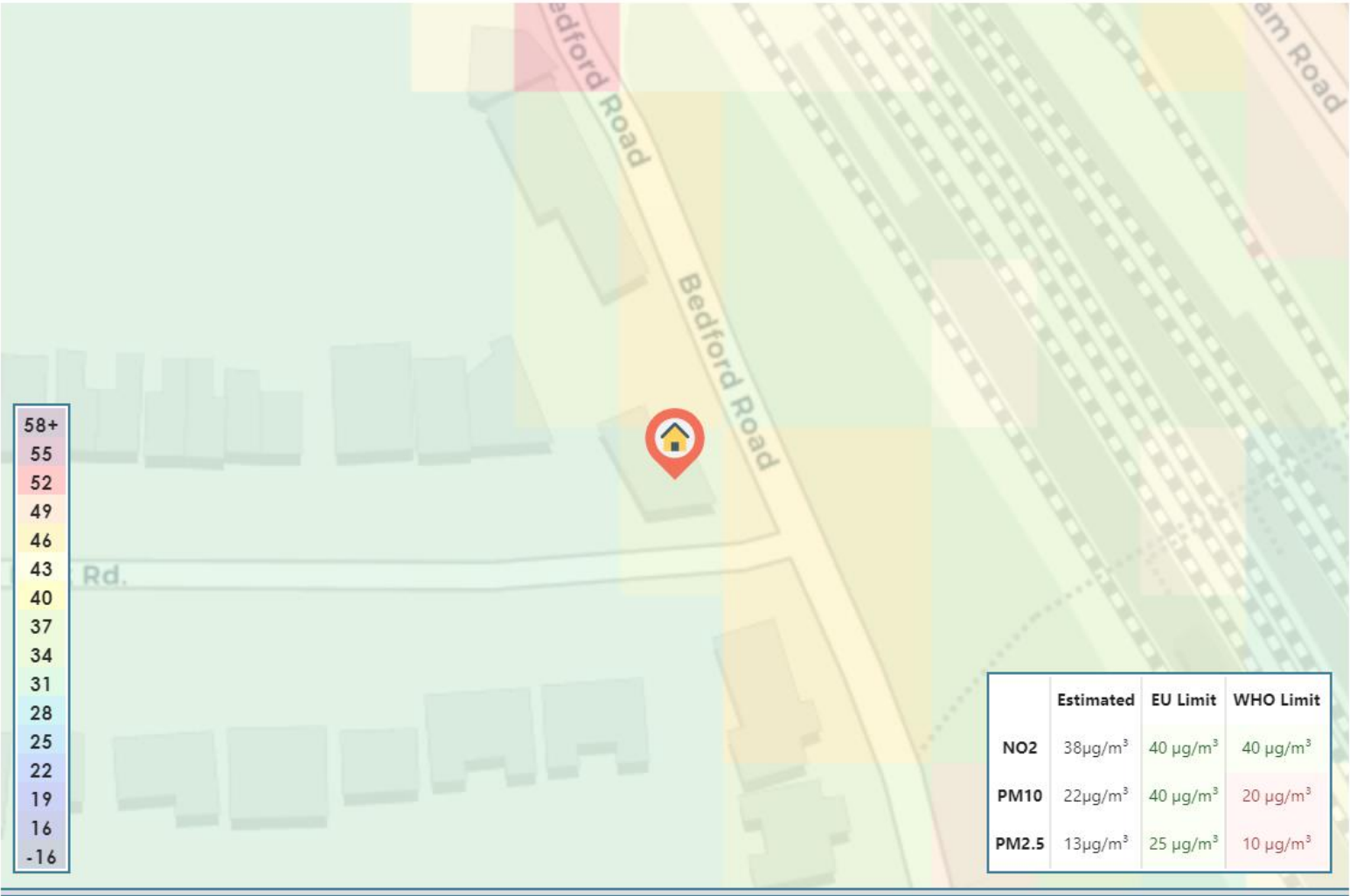
Measures specific to construction

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
Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site.	X
Avoid dry sweeping of large areas.	X
Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport.	X
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	X

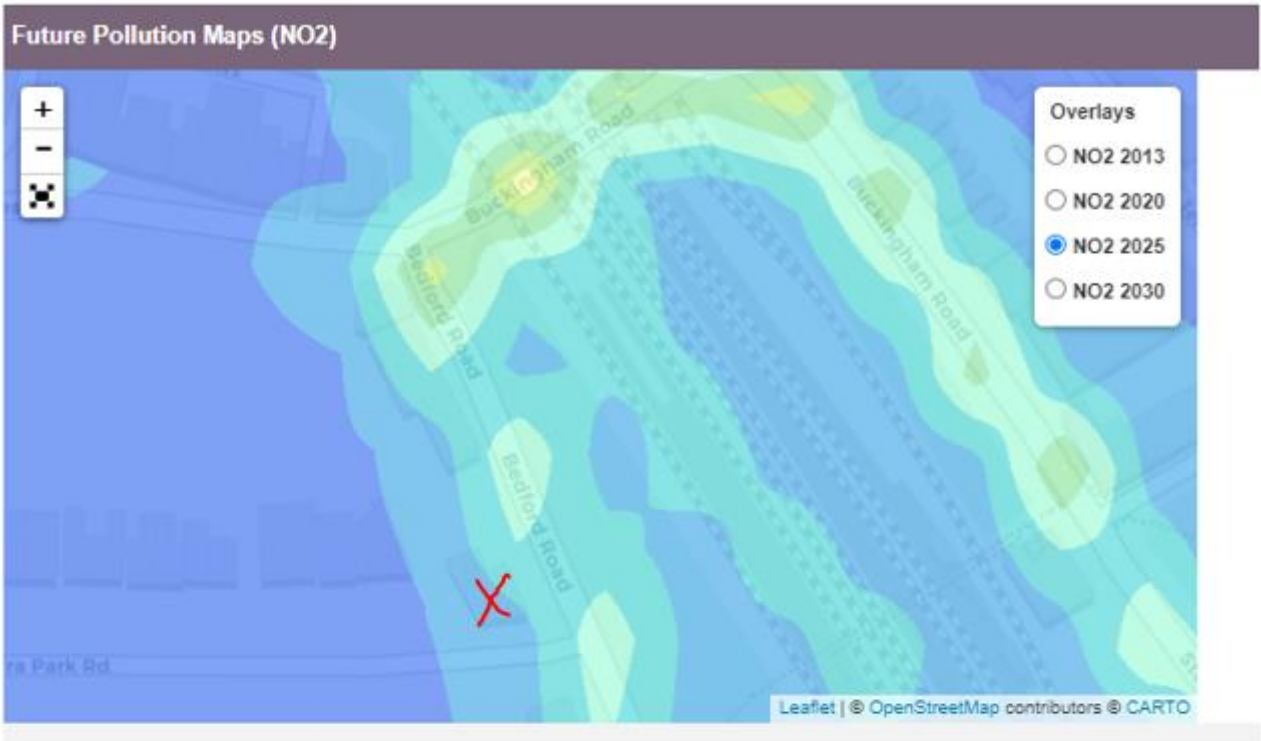
Appendix E: LAEI 2016 modelled results



Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$) - Haringey, N22 7AU

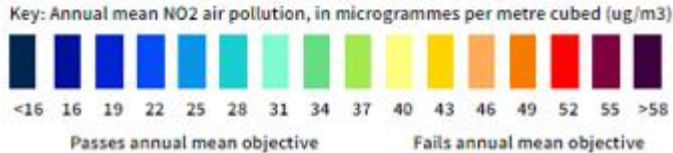
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Appendix F: LAEI 2025 predicted modelled results (red 'x' marks the site)



Modelled annual mean NO2 air pollution for NO2.

This map was used with permission from The Greater London Authority and Transport for London, who fund, develop and maintain the London Atmospheric Emissions Inventory. For more information please visit data.london.gov.uk





Modelled annual mean PM10 air pollution for *PM10*.

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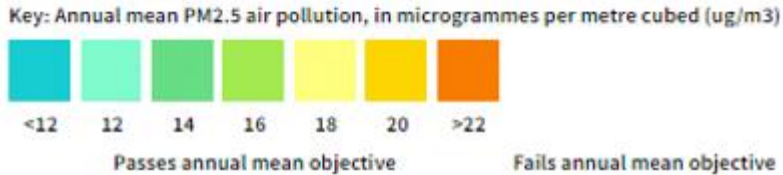
Key: Annual mean PM10 air pollution, in microgrammes per metre cubed ($\mu\text{g}/\text{m}^3$)





Modelled annual mean PM25 air pollution for PM25.

This map was used with permission from The Greater London Authority and Transport for London, who fund, develop and maintain the London Atmospheric Emissions Inventory. For more information please visit data.london.gov.uk



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Glossary of Terms

AADT Annual Average Daily Traffic flow

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

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

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

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

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

AQAP Air Quality Action Plan

AQEG Air Quality Expert Group

AQMA Air Quality Management Area

AQMP Air Quality Management Plan

AQO Air Quality Objective

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

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

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

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

Defra Department for Environment, Food and Rural Affairs

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

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

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

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

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

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

EPUK Environmental Protection UK

HDV Heavy Duty Vehicle

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

LAQM Local Air Quality Management

LDV Light Duty Vehicle

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

NO₂ Nitrogen Dioxide

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

NPPF National Planning Policy Framework

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

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

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

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

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

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

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

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

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

Trackout The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.

