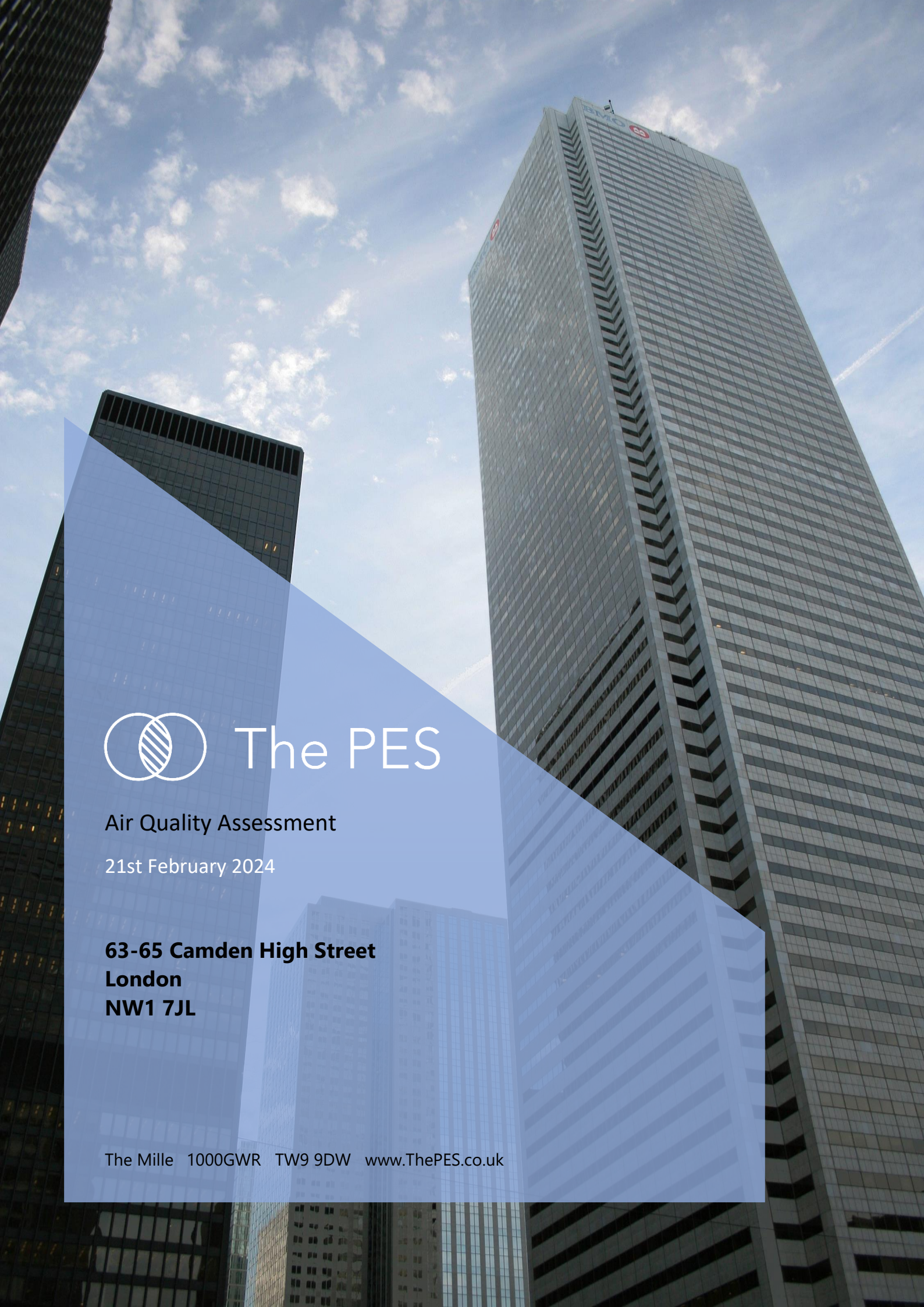

The PES

Air Quality Assessment

21st February 2024

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1.0 Executive Summary

This air quality assessment has been prepared by The PES Ltd in support of a full planning application submitted to the London Borough of Camden by Romford for the proposed residential development on Camden High Street (hereafter referred to as 'the Site').

This report should be read in conjunction with other supporting documents submitted with the planning application, including the Design and Access Statement prepared by UPP Panning which explains the Proposed Development in more detail and relates it to the surrounding context and planning policy framework for the Site.

This is an assessment of potential air quality impacts arising from the construction and operation at the Site to ascertain the impact of the proposed development on the local environment and of the existing local environment upon occupants of the proposed development

During the construction phase, the site has the potential to generate dust nuisance beyond the application boundary. However, through the implementation of a Dust Management Plan, the impacts will be effectively minimised and are unlikely to be significant.

Traffic generated by the proposed development is not expected to significantly affect local air quality as traffic movements generated are expected to be minimal given the car free (as per the Mayor's definition) nature of the development and the proposed uses/occupiers.

However, detailed dispersion modelling of traffic on the local network confirms that, at the time of project delivery, the project will not be subject to any issues associated with poor air quality and the design team are able to utilise a natural ventilation strategy if desired.

Heat and hot water will be supplied to the whole development through zero emission electrically driven systems and is thereby, air quality neutral by default.

The site has also been assessed as air quality neutral with respect to traffic-related emissions in line with the latest London Plan Guidance.

2.0 Introduction

The application site is located to the west side of Camden High Street, currently occupied by a 4 storey commercial premises.

The project is for the change of use and conversion of the 3 upper floors to create 7 x new flats, with a roof top extension creating 2 x new build flats.

The location of the proposed development site is presented in Figure 1.

The site falls within the boundaries of the London Borough of Camden

2.1 Camden Clean Air Action Plan 2023-2026

The Camden Clean Air Action Plan 2023-2026 describes the actions that Camden will take over the next four years (2023-2026). This follows on from the previous Camden Clean Air Action Plan 2019-2022.

The Action Plan confirms that air pollution affects us all. Many of us may already have health vulnerabilities – such as asthma – which make us more likely to feel the effects of high-pollution episodes or local pollution emissions from roads, wood stoves or construction activity. Some of us may work in environments where we are routinely exposed to higher levels of air pollution, for example if we drive professionally, work outdoors, or work in kitchens or in cleaning jobs.

For people with no existing health conditions it is still important that we do everything we can to reduce our contribution and our exposure to air pollution, because breathing cleaner air now will be good for our health in the future.

The action plan has identified 7 broad topic for the coming 4 years

1. Construction and development: Reducing the impact of air pollution from construction and development on public health
2. Buildings: Reducing the impact of air pollution from building operation and use (heating, power, and commercial and industrial processes) on public health
3. Transport: Reducing the impact of air pollution from transport on public health
4. Communities and schools: Supporting and empowering communities and schools to reduce and avoid exposure to air pollution
5. Indirect emissions and lobbying: Leading by example, working with others, and advocating for greater action on air quality and health
6. Public health and awareness: Helping everyone to be aware of the importance of clean air and the roles we all have in protecting health

7. Indoor air quality and occupational exposure: Raising awareness about the causes and impact of poor indoor air quality and workplace air pollution exposure.

Fig 1. Site Location Plan

3.0 Policy Context

An overview of the relevant policy drivers for the assessment is provided in the following section.

3.1 European Legislation

Within the European Union, ambient air quality is currently regulated through the Ambient Air Quality Directive 2008/50/EC and the Fourth Daughter Directive 2004/107/EC. These directives set limit values and target values for ambient pollutant concentrations. The limit values are legally binding and must not be exceeded, whereas the target values are to be attained where it is cost effective to do so.

The Ambient Air Quality Directive provides limit values for sulphur dioxide (SO2), nitrogen dioxide (NO_2), benzene (C_6H_6), carbon monoxide (CO), lead (Pb) and particulate matter (PM_{10} and $PM_{2.5}$). The Fourth Daughter Directive provides target values for arsenic (As), cadmium (Cd), nickel (Ni), benzo(a)pyrene (B(a)P), mercury (Hg) and polycyclic aromatic hydrocarbons (PAH).

The EU limit values have been adopted into UK law via the Air Quality Standards Regulations 2010.

In the context of the proposed development, the primary pollutants of concern are NO_2, PM_{10} and $PM_{2.5}$ from traffic on roads close to the site. A summary of the European limit values for the protection of human health for these pollutants is presented in Table 1.

Table 1: European Limit Values for the Protection of Human Heath

Pollutant	Averaging Period	Limit Value ($\mu g/m^3$)	Comments
NO_2	1 Hour	200	Not to be exceeded more than 18 times per calendar year (equivalent to the 99.8th percentile of 1-hour means)
	Calendar Year	40	
PM_{10}	24 Hour	50	Not to be exceeded more than 35 times per year (equivalent to the 90.4th percentile of 24-hour means)
	Calendar Year	40	
$PM_{2.5}$	Calendar Year	25	Stage 1 LV (to be met by 01/01/15)
	Calendar Year	20	Stage 2 LV (to be met by 01/01/20)

3.2 National Legislation

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

The Air Quality Strategy for England, Wales and Northern Ireland was published in 2007 and sets out policy targets (objectives) for SO2, NO2, C6H6, CO, Pb, PM10, PM2.5, 1,3-butadiene (C4H6) and PAH. These objectives are generally in line with those set by the European Directives, although more stringent particulate and benzene objectives apply in Scotland (and in Northern Ireland for benzene).

The Air Quality Objectives (AQO) for NO2, PM10 and PM2.5 in England do not differ from those presented in Table 1.

Local Air Quality Management

The framework for Local Air Quality Management (LAQM) in the UK was introduced by the Environment Act 1995. Local Authorities are required to regularly review and assess air quality to establish whether there are any locations where pollutant concentrations exceed the relevant air quality objectives or EU limit values.
Where an exceedance is identified the local authority is obliged to declare an Air Quality Management Area (AQMA) and prepare an Action Plan setting out measures to improve air quality and achieve compliance with the objective(s).

The National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021) sets out the Government's policies for planning and how these should be applied. With regard to air quality, the NPPF states that:-

para. 186.

Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement.

So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications.

Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

3.3 Regional Policy

The London Plan (March 2021)

Chapter 9 deals with Sustainable Infrastructure:-

Policy SI1 Improving air quality

London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced:

1) Development proposals should not:

a) lead to further deterioration of existing poor air quality
b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits
c) reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality
d) create unacceptable risk of high levels of exposure to poor air quality.

5) Air Quality Assessments (AQAs) should be submitted with all major developments, unless they can demonstrate that transport and building emissions will be less than the previous or existing use.

The Mayor of London's Air Quality Strategy (2010)

The Mayor of London's Air Quality Strategy outlines the Mayor's commitment to improving air quality in London. The objective of the plan is to significantly reduce NO2 and PM10 concentrations through a number of measures including:

- Ensuring all buses meet Euro IV emission standards;
- Introducing age limits for taxis and Private Hire Vehicles to remove older, more polluting vehicles from the roads;
- Including large vans and minibuses in the Low Emission Zone (LEZ); Introducing a new NOx standard in the LEZ; and

- Working with Borough to implement traffic management strategies to reduce congestion.

Policy SI 1 of the London Plan includes requirements for new development to be Air Quality Neutral. In support of this policy, the Mayor's office published the London Plan Guidance Air Quality Neutral Guidance (Feb 2023) which sets out the methodology for assessing the neutrality of projects as required.

The Mayor's office has also published the Control of Dust and Emissions SPG; the aim of this supplementary planning guidance is to reduce emissions of dust, PM10 and PM2.5 from construction and demolition activities in London.

It also aims to control nitrogen oxides (NOx) from these same activities by introducing an Ultra Low Emissions Zone (ULEZ) for non-road mobile machinery.

3.4 Local Plan Policy

The project sits within the London Borough of Camden (Camden).

The key planning document is the Camden Local Plan 2017:-

Policy CC4 Air quality

The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

4.0 Methodology

This section outlines the assessment methodology, taking into account all relevant national and local policies and technical guidance relating to air quality.

4.1 Construction Dust

The potential impact of dust generated during site enabling, earthworks and construction works at the proposed development has been undertaken in accordance with the Mayor of London's SPG for the control of dust and emissions during construction and demolition, which is closely aligned with the Institute of Air Quality Management (IAQM) construction dust guidance . A full description of the construction dust methodology is provided in **Appendix A** – IAQM Construction Dust Methodology.

A detailed assessment of dust impacts is required where there are human or ecological receptors within:

- 50m of the site boundary; or
- 50m of the route(s) used by construction vehicles on public roads, up to 500m from the site entrance(s).

The IAQM/ SPG methodology allows the potential risk of dust soiling and human health effects to be determined, based primarily on the sensitivity of nearby receptors (human and ecological) and the anticipated magnitude of the dust emission due to:

- Demolition;
- Earthworks;
- Construction; and
- Track-out (re-suspended dust from vehicle movements).

The assessment of dust risk is also based on professional judgement taking into account factors such as the prevailing wind direction, the proposed construction phasing, the likely duration of dust raising activities, local topography and existing air quality.

A range of best practice mitigation measures are provided within the guidance, which are dependent on the level of dust risk attributed to the site. It is recommended that these measures are incorporated into a Dust Management Plan (DMP) for the proposed development which could be secured by condition.

The significance of the residual impacts following appropriate mitigation is determined by professional judgement.

Best Practice Guidance for dust control will be implemented, as appropriate, during the construction phase through the Dust Management Plan (DMP) for the proposed development.

The risk of dust soiling and human health impacts from the site has been assessed as medium:-

- Development of between 1,000 and 15,000 square metres of land and;
- Development of between ten to 150 properties and;
- Potential for emissions and dust to have an intermittent or likely impact on sensitive receptors

Prior to mitigation, therefore in accordance with the IAQM guidance it is recommended that the measures detailed in the table below are incorporated into the DMP. The significance of dust impacts on nearby receptors following the implementation of appropriate and best practice mitigation is considered to be negligible.

4.3 Construction Traffic

Construction traffic will contribute to existing traffic levels on the surrounding road network. However, the temporary increase in traffic is considered unlikely to be significant in terms of total flow or construction duration.

All non-road mobile machinery (NRMM) should use fuel equivalent to ultra-low sulphur diesel (ULSD), especially where a bunkered fuel supply is available.

The impact of vehicular emissions of NO_2 and PM10 from construction traffic and on-site machinery on local air quality is considered to be negligible, as a low volume temporary source of local pollution.

Construction traffic is not included within the screening requirements of Table 4.1 – Screening Assessment of Road Traffic Sources within the Technical Guidance (LLAQM.TG (22)).

Potential dust emission associated with construction traffic are considered further, in line with the IAQM guidance and section 6.0 below.

4.4 Operational Traffic

The Environmental Protection UK (EPUK)/ IAQM planning guidance states that for developments within or near an AQMA, a detailed assessment of traffic-related impacts is required where:

- There is a change in the annual average daily traffic (AADT) flow of light goods vehicles (LGV) of more than 100 vehicles; and/or
- There is a change in the AADT flow of heavy goods vehicles (HGV) of more than 25 vehicles; and/or There is a change in the road re-alignment by more than 5m; and/or
- A new junction is introduced, which will significantly alter vehicle speeds.

The project at Camden High Street does not trigger any of the above requirements.

The site is in a highly accessible central location; as such, it is not considered that the new proposals will involve a material increase in the trips generated by the development.

The proposed development will be car-free.

However, dispersion modelling of baseline traffic on the surrounding major road network has been undertaken to predict pollutant concentrations at the proposed development site to determine whether the site is suitable for the new residential accommodation uses, as proposed.

The input parameters for the modelling are detailed in **Appendix B** – ADMS-Roads Input Parameters.

4.5 Emission Factors

Concentrations of NOx, PM_{10} and $PM_{2.5}$ have been predicted using vehicle emission factors from version 11 of the Emissions Factor Toolkit. The emission factors predict a gradual decline in pollution levels over time due to improvements in emissions abatement technologies and the gradual renewal of the vehicle fleet.

However, monitoring carried out in urban areas throughout the UK have found that NO_2 concentrations are not declining as rapidly as predicted and in some locations, roadside concentrations have increased.

The baseline dispersion modelling has been based on the year **2022** with background emissions, traffic data selected accordingly.

4.6 Meteorological Data

The assessment has used hourly sequential meteorological data from London City Airport, which is approximately 13km south east of the proposed development.

4.7 Sensitive Receptors

Pollutant concentrations have been predicted across the development site using a Cartesian receptor grid of 5m resolution.

4.8 Verification

There is an inherent level of uncertainty associated with any assessment process; however, the methodology presented has been developed to minimise errors where possible. Potential errors in predicted concentrations due to uncertainties in the assessment source activity data (e.g. traffic flows and emission factors) and the estimated background concentration are minimised by the verification of modelled concentrations using local monitoring data.

The Local Air Quality Management Technical Guidance (LAQM.TG22) recommends that modelled concentrations should be within 25% of monitored concentrations, ideally within 10%. Where there is a large discrepancy between modelled and measured concentrations, it is considered necessary to adjust the model results to more accurately reflect local air quality.

The modelled NO2 concentrations have been verified using 2022 data from the diffusion tube CAM130, Camden High Street 528884,183901 - located just 400m along Camden High Street from the development site.

Full details of the model verification process are presented in **Appendix C** – Model Verification.

4.9 Building-related Emissions

Heat and hot water will be provided to the whole development via all electrical systems. Accordingly, the building in operation will not impact local air quality.

5.0 Baseline Air Quality

Through an analysis of local monitoring data, a description of existing air quality in the vicinity of the proposed development is provided.

5.1 Local Air Quality Monitoring

5.1.1 Automatic Data

Camden has a network of automatic monitoring sites in the vicinity of the proposed development; this report has identified the most relevant in terms of roadside and urban background monitoring - details of these sites are provided in Table 2.

Table 2: Automatic Monitoring Sites

Site Name	Type	Easting	Northing	Pollutants Monitored
BL0 London Bloomsbury	Urban Background	530123	182014	NO_2, PM_{10}, $PM_{2.5}$
CD010 Camden High Street	Roadside	528832	183995	NO_2

Annual mean NO_2 and PM_{10} concentrations measured at the above locations between 2018 and 2022 have been obtained from Camden Council's Air Quality Annual Status Report for 2022 (August 2023), which are summarised in Table 3, together with the number of measured exceedances of the short-term AQO's.

The data indicate that urban background NO_2 and PM_{10} concentrations in the area are likely to be within the relevant long and short-air quality standards.

Table 3a: Urban Background NO_2, PM_{10} & $PM_{2.5}$ concentrations measured at Bloomsbury Urban Background Monitoring site

Criteria	2018	2019	2020	2021	2022
Annual Mean NO_2 (µg/m3)	36	32	28	27	26
Number of Predicted Exceedances of the 1-Hour Mean AQO of 200 µg/m^3	0	0	0	0	0
Annual Mean PM_{10} (µg/m3)	17	18	16	16	17
Number of Predicted PM_{10} Exceedances of the 24-Hour Mean AQO of 50 µg/m3	1	9	4	0	5
Annual Mean $PM_{2.5}$ (µg/m3)	10	11	9	9	9

Table 3a: Roadside NO_2 concentrations measured at Camden High Street Monitoring site

Criteria	2018	2019	2020	2021	2022
Annual Mean NO_2 (µg/m3)	-	-	-	30	29
Number of Predicted Exceedances of the 1-Hour Mean AQO of 200 µg/m^3	0	0	0	0	0

The data indicates that NO_2 concentrations in the Borough have limited potential to exceed the relevant long standards.

5.1.2 Non-automatic Data

Annual mean NO_2 concentrations are measured in Camden via an extensive network of passive diffusion tubes.

The nearest and most relevant tubes to the proposed development for the assessment of roadside concentrations are tabulated below, for both background and road side emissions.

A summary of the annual average NO_2 concentrations measured at these locations between 2018 and 2022 is presented in Table 4.

Table 4: Annual Mean NO_2 Concentrations Measured by Diffusion Tube SSDT8 (µg/m3)

Site ID	2018	2019	2020	2021	2022
CAM79 - 529880 182334 (background)	35.35	33.90	26.78	22.2	23.91
CAM130 – 528884 183901 (roadside)	-	47.65	37.79	31.35	30.19

The data indicates that annual mean NO_2 concentrations at the development site are very unlikely to exceed the air quality standard of 40 µg/m^3 at ground floor level or above.

Measurements across the UK have shown that the 1-hour mean AQO for NO_2 may also be exceeded where the annual mean concentration is greater than 60µg/m^3. The above noted data therefore indicates that an exceedance of the short-term objective will be even less of a concern, but this will also be assessed as part of overall consideration of all traffic generated and background data.

5.1.3 DEFRA Mapped Background Concentrations

Given the lack of background monitoring data for NO_2, PM_{10} and $PM_{2.5}$, concentrations have been obtained from the Defra UK Background Air Pollution maps. These 1km grid resolution maps are derived from a complex modelling exercise that takes into account emissions inventories and measurements of ambient air pollution from both automated and non-automated sites.

A summary of the mapped annual mean background concentrations for the proposed development site is presented in Table 5, which will be used for the purposes of the assessment.

Table 5: Defra Mapped, Measured and Assessment Background Pollutant Concentrations (µg/m3)

Pollutant	2022 Mapped	2022 Measured	Assessment	AQO/EAL
NO_2	29.59	26	29.56*	40
PM_{10}	20.07	17	20.07	40
$PM_{2.5}$	10.67	9	11	25

*The use of the higher figure from the DEFRA website has been utilised to generate a worse case scenario, as all of Camden's background monitoring has returned considerably lower figures.

6.0 Potential Impacts

The potential impacts and significance of these impacts on air quality during the construction phase of the development are identified in this section. Suggested mitigation measures are outlined in a subsequent section of the report.

6.1 Construction Dust

6.1.1 Sensitivity of the Area to Dust Impacts

The assessment of dust impacts is dependent on the proximity of the most sensitive receptors to the site boundary. The area is generally residential above retail, with a large residential block to the rear, the occupants of which would be considered as **HIGH** sensitivity receptors.

Accordingly, it can clearly be assumed that, with 10-100 High Sensitivity Receptors that are within 50m of the site boundary, the sensitivity of the area to dust soiling effects on people and property could be considered **MEDIUM.**

Finally, for the potential range of sensitive receptors in the range 10-100 within 50m of the development site, and with the background PM levels at <24µg/m^3, sensitivity of the area to human health impacts would be considered **LOW.**

Figure 2 – Local sensitive receptors - Proposed development site – Sensitive Receptors

The precise behaviour of the dust, its residence time in the atmosphere and the distance it may travel before being deposited, will depend upon a number of factors. These include wind direction and strength, local topography and the presence of intervening structures (buildings, etc.) that may intercept dust before it reaches sensitive locations. Furthermore, dust would be naturally suppressed by rainfall.

6.1.2 Dust Emission Magnitude

The risk of dust arising in sufficient quantities to cause annoyance and/or health and/or ecological impacts should be determined using four risk categories: negligible, low, medium and high risk.

A development is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission
- magnitude as small, medium or large (see Table 6);

and

- the sensitivity of the area to dust impacts, which is defined as low, medium or high sensitivity.

Table 6 – Dust emission risk categories

Activity	Dust Emission Class		
	Large	Medium	Small
Demolition	Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level	Total building volume 20,000 – 50 000m^3, potentially dusty construction material, demolition activities 10-20 m above ground level	Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months
Earthworks	Total site area >10,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8 m in height, total material moved >100,000 tonnes	Total site area 2,500 – 10,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m - 8 m in height, total material moved 20,000 tonnes – 100,000 tonnes	Total site area <2,500 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <10,000 tonnes, earthworks during wetter months
Construction	Total building volume >100,000 m^3, piling, on site concrete batching; sandblasting	Total building volume 25,000 m3 – 100,000 m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching	Total building volume <25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber)
Track out	>50 HDV (>3.5t) trips in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m	10 – 50 HDV (>3.5t) trips in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100 m;	<10 HDV (>3.5t) trips in any one day, surface material with low potential for dust release, unpaved road length <50 m.

These factors are combined to determine the risk of dust impacts with no mitigation applied (see Table 8 below). The risk category assigned to the development can be different for each of the four potential activities (demolition, earthworks, construction and trackout).

Demolition - the site is currently an existing building, with the requirements for very limited demolition and internal enabling works required, the magnitude of the dust emission is considered to be 'small'.

Earthworks – there are no proposed earthworks for the project; perhaps only minor excavation for the upgrade of services or similar.

The magnitude of the dust emission during the earthworks phase is therefore also considered to be 'small'.

Construction - Dust emissions during construction will depend on the scale of the works, method of construction, construction materials and duration of build.

The proposed new development includes internal re-configuration, with the new build upper floors areas of a brick clad construction up to ground and 4 floors, a total construction volume at circa 2,500m^3

On site concrete batching will not be possible

Due to the height of the works, the close proximity of some of the residential receptors and the use of dust releasing materials, the magnitude of the emission during construction is considered to be 'medium'.

Trackout – the site will not be accessible to road traffic at any point during the development; access for the project will be taken from road side without need to enter the site. Dust emissions will be "small".

Table 7: Risk of Dust Impacts Prior to Mitigation

Dust Source	Emissions Magnitude
Demolition	Small
Earthworks	Small
Construction	Medium
Track Out	Small

6.1.3 Assessment of Dust Risk Prior to Mitigation

Referring to Chapter 7 of the IAQM "Assess the Risk of Dust Impacts" – tables 3 – 9; a summary of the potential risk of dust impacts prior to mitigation, based on the low sensitivity of the area to dust soiling and human health impacts is presented in Table 8.

Table 8: Risk of Dust Impacts Prior to Mitigation

Dust Source	Emissions Magnitude	Human Health Risk	Dust Soiling Risk
Demolition	Small	Negligible	Low
Earthworks	Small	Negligible	Low
Construction	Medium	Low	Medium
Track Out	Small	Negligible	Negligible

6.2 Baseline Traffic - 2022

Dispersion modelling has been undertaken for the baseline year **2022** – utilising 2022 background emissions data, emission year 2022 with data set 11.0 and traffic data for 2022.

The modelling has been undertaken with the ADMS Roads v5.0.1.3 with contours modelled in "Surfer" software

Predicted annual mean NO_2 concentrations at first floor level – the first residential floor - is presented at contour plot Figures 3. Site wide levels at this floor are within the required AQO – at less than 34µg/m^3, remembering that the model uses a worse case scenario for background NO_2 levels.

PM_{10} and $PM_{2.5}$ concentrations at the proposed development site at the ground floor level are presented as contour plot Figures 4 & 5, both figures well within the required long term AQO.

Short term concentrations of NO_2 and PM_{10} have been modelled at the proposed development façade, closest to the junction with Camden High Street (529080, 183550). Maximum concentrations are at 81.35µg/m^3 for NO_2 and 21.58µg/m^3 for PM_{10} both well within required standards.

Figure 3 – NO_2 concentrations – First Floor

Figure 4 - PM_{10} concentrations – First Floor

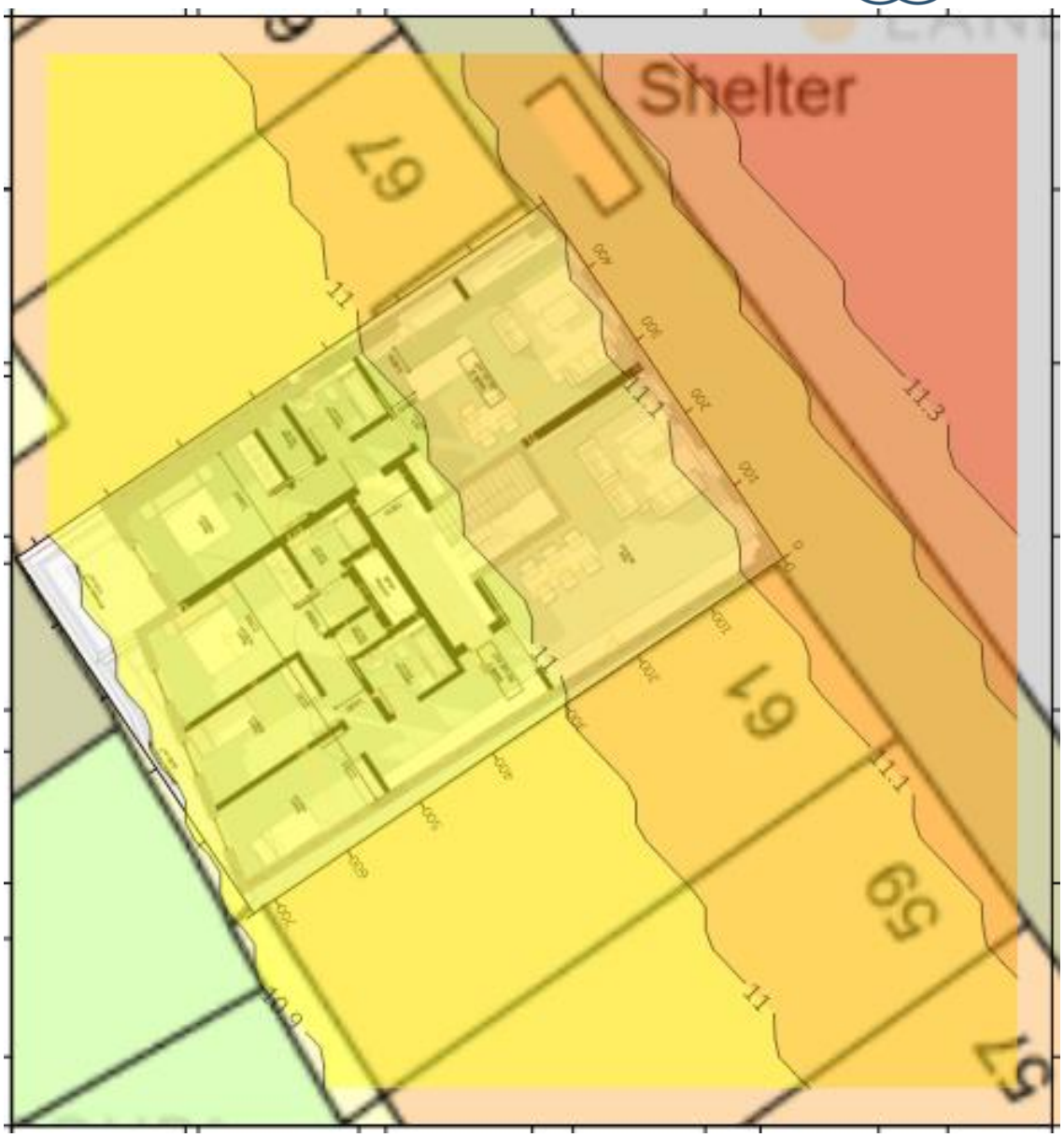

Figure 5 – PM2.5 Concentrations – First Floor

7.0 Air Quality Neutral Assessment

Policy SI 1 of the London Plan includes requirements for new development to be Air Quality Neutral. This section presents an air quality neutral assessment in accordance with The London Plan Guidance Air Quality Neutral Adopted in February 2023.

'Air Quality Neutral' (AQN) is a term for developments that do not contribute to air pollution beyond allowable benchmarks. The benchmarks, set out in this guidance, are based on research and evidence carried out by building and transport consultants.

7.1 Excluded Developments

Developments, including major developments which do not include additional emissions sources are assumed to be Air Quality Neutral and do not need an Air Quality Neutral assessment. This would include, for example, developments that have no additional motor vehicle parking, do not lead to an increase in motor vehicle movements , and do not include new combustion plant such as gas-fired boilers.

The project at Camden High Street does not provide any on-site parking.

The development is proposed to use electrical HVAC systems only.

7. 2 Building Emissions

In accordance with the Air Quality Neutral Guidance document (AQNG), the project is air quality neutral by default, as it does not introduce any new fossil fuel combustion plant

7.3 Transport Emissions

As noted above, the project is only proposing to provide 2no. blue badge car parking spaces, as such the project is air quality neutral for transport emissions by default.

8.0 Mitigation

The following mitigation measures will be required during the construction and operational phases in order to minimise the air quality impacts arising from the development.

8.1 Construction Phase

London Best Practice Guidance for dust control will be implemented, as appropriate, during the construction phase through the Dust Management Plan (DMP) for the proposed development.

The risk of dust soiling and human health impacts from the site has been assessed as **"Medium"** prior to mitigation, therefore in accordance with the IAQM guidance it is recommended that the measures detailed in Table 8 are incorporated into the DMP. The significance of dust impacts on nearby receptors following the implementation of appropriate and best practice mitigation is considered to be negligible.

Table 8 Recommended Mitigation Measures

Description	Mitigation Measure
General	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary; this may be the environment manager/engineer or the site Manager. • Display the head or regional office contact information.
Site management	• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on or offsite, and the action taken to resolve the situation in the log book.
Monitoring	• Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.

	• Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. • 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
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. • Erect solid screens or barriers around dusty activities or at the site boundary that is at least as high as any stockpiles on site. • Fully enclose the site or specific operations where there is a high potential for dust production and the site is active for an extensive period • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. • Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle & machinery and sustainable travel	• Ensure all vehicles switch off engines when stationary - no idling vehicles. • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips.

	• Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	• Avoid bonfires and burning of waste materials
Demolition	• 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. • Avoid explosive blasting, using appropriate manual or mechanical alternatives. • Bag and remove any biological debris or damp down such material before demolition.
Construction	• Ensure sand and other aggregates are stored in bundled 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.
Track out	• Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Access gates to be located at least 10m from receptors where possible.

8.1.1 Method Statement

A method statement should cover all phases of the development and take account of all contractors or sub-contractors. It should be submitted to the local planning authority (LPA) prior to any works being carried out and include a timetable of dust generating activities accompanied with proposed dust control measures. It is expected that this will be in the form of a full CEMP secured by planning condition.

The content of a Method Statement will be determined by a site specific evaluation but typical features to include are outlined below:-

- summary of work to be carried out
- description of site layout and access – including proposed haul routes, location of site equipment including supply of water for damping down, source of water (wherever possible from dewatering or extraction), drainage and enclosed areas
- inventory and timetable of all dust generating activities
- list of all dust and emission control methods to be used
- details of any fuel stored on site
- Identification of an authorised responsible person on-site for air quality. Ideally this person needs to have knowledge of pollution control and vehicle emissions;
- summary of monitoring protocols and agreed procedure of notification to the local authority nominated person(s)
- a site log book to record details and action taken in response to exceptional incidents or dust-causing episodes. It should also be used to record the results of routine site inspections.

8.2 Operational Phase

The proposed development will include additional secure grade level cycle spaces to encourage sustainable transport in line with the guidance received from TfL.

The project has a central location with excellent access to tube, bus and rail services, and thus will only generate highly limited vehicle movements.

Detailed dispersion modelling of local traffic flows indicates that NO_2, PM_{10} and $PM_{2.5}$ concentrations at the site will be within the relevant short-term air quality standards and the site is appropriate for the hotel and restaurant accommodation proposed.

The use of electrical only heating and hot water systems will have zero emission impact on local sensitive receptors; the nearby residential accommodation.

9.0 Summary and Conclusions

The following summarise the outcomes of the assessment and provide details of any air quality constraints to the development of the site. Based on the results of the assessment, it is considered the proposed new development would not cause a significant impact on local air quality.

An assessment has been undertaken to assess the potential impacts on local air quality associated with the construction and operation of the proposed development.

An assessment of the potential impacts during the construction phase has been carried out in accordance with the latest Institute of Air Quality Management guidance; this has shown that releases of dust and PM_{10} are likely to occur during site construction activities. The risk of dust soiling impacts at neighbouring properties has been assessed as high, with the risk to human health assessed as potentially low. Through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM_{10} releases may be effectively mitigated and the resultant impacts are considered to be negligible.

The additional traffic generated by the proposed development is not expected to significantly affect local air quality, however detailed dispersion modelling of the local road network has been undertaken to assess whether the site is suitable for the residential accommodation, as proposed.

The modelling indicates that short term air quality standards are well within the targets set by the Air Quality Standards Regulations 2010.

In addition, the site is air quality neutral with respect to building-related and transport related emissions by default.

Appendix A

IAQM CONSTRUCTION DUST METHODOLOGY

Factors defining the sensitivity of a receptor to dust impacts are presented in Table A1.

Table A1: Receptor Sensitivity

Receptor Sensitivity	Human Health	Dust Soiling	Ecological
High	- Locations where members of the public are exposed over a time period relevant to the air quality objectives for PM_{10} (a) - Examples include residential dwellings, hospitals, schools and residential care homes.	- Regular exposure - High level of amenity expected. - Appearance, aesthetics or value of the property would be affected by dust soiling. - Examples include residential dwellings, museums, medium and long-term car parks and car showrooms.	- Nationally or Internationally designated site with dust sensitive features (b) - Locations with vascular species (c)
Medium	- Locations where workers are exposed over a time period relevant to the air quality objectives for PM_{10} (a) - Examples include office and shop workers (d)	- Short-term exposure - Moderate level of amenity expected - Possible diminished appearance or aesthetics of property due to dust soiling - Examples include parks and places of work	- Nationally designated site with dust sensitive features (b) - Nationally designated site with a particularly important plant species where dust sensitivity is unknown
Low	- Transient human exposure - Examples include public footpaths, playing fields, parks and shopping streets	- Transient exposure - Enjoyment of amenity not expected. - Appearance and aesthetics of property unaffected - Examples include playing fields, farmland (e), footpaths, short-term car parks and roads	- Locally designated site with dust sensitive features (b)

a) In the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more in a day.
b) Ecosystems that are particularly sensitive to dust deposition include lichens and acid heathland (for alkaline dust, such as concrete).
c) Cheffing C. M. & Farrell L. (Editors) (2005), The Vascular Plant. Red Data List for Great Britain, Joint Nature Conservation Committee.
d) Does not include workers' exposure to PM_{10} as protection is covered by Health and Safety at Work legislation.
e) Except commercially sensitive horticulture.

The sensitivity of the area as a whole is dependent on the number of receptors within each sensitivity class and their distance from the source. Human health impacts are also dependent on the existing PM_{10} concentrations in the area.

Table A2 and Table A3 summarise the criteria for determining the overall sensitivity of the area to dust soiling and health impacts respectively. The sensitivity of the area to ecological impacts is presented in Table A4.

Table A2: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source			
		<20m	<50m	<100m	<350m
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

Table A3: Sensitivity of the Area to Health Impacts from Dust

Receptor Sensitivity	Annual Mean PM_{10} Concentration ($\mu g/m^3$)	Number of Receptors	Distance from the Source				
			<20m	<50m	<100m	<200m	<350m
High	>32	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Table A4: Sensitivity of the Area to Ecological Impacts from Dust

Receptor Sensitivity	Distance from the Source	
	<20m	<50m
High	High	Medium
Medium	Medium	Low
Low	Low	Low

The magnitude of the dust impacts for demolition, earthworks, construction and trackout is classified as small, medium or large depending on the scale of the proposed works as detailed in Table A5.

Table A5: Dust Emission Magnitude

Receptor Sensitivity	Large	Medium	Small
Demolition	- Total building volume >50,000m^3 - Potentially dusty material (e.g. concrete) - Onsite crushing and screening - Demolition activities >20m above ground level.	- Total building volume 20,000 - 50,000m^3 - Potentially dusty material - Demolition activities 10 - 20m above ground level.	- Total building volume <20,000m^3 - Construction material with low potential for dust release - Demolition activities <10m above ground level - Demolition during wetter months
Earthworks	- Total site area >10,000m^2 - Potentially dusty soil type (e.g. clay) - >10 heavy earth moving vehicles active at any one time - Formation of bunds >8m in height - Total material moved >100,000 tonnes	- Total site area 2,500 - 10,000m^2 - Moderately dusty soil type (e.g. silt) - 10 heavy earth moving vehicles active at any one time - Formation of bunds 4 - 8m in height - Total material moved 20,000 - 100,000 tonnes	- Total site area <2,500m^2 - Soil type with large grain size (e.g. sand) - <5 heavy earth moving vehicles active at any one time - Formation of bunds <4m in height - Total material moved <20,000 tonnes - Earthworks during wetter months
Construction	- Total building volume >100,000m^3 - On site concrete batching - Sandblasting	- Total building volume 25,000 - 100,000m^3 - Potentially dusty construction material (e.g. concrete) - On site concrete batching	- Total building volume <25,000m^3 - Material with low potential for dust release (e.g. metal cladding or timber
Trackout	- >50 HGV movements in any one day (a) - Potentially dusty surface material (e.g. high clay content) - Unpaved road length >100m	- 10 - 50 HGV movements in any one day (a) - Moderately dusty surface material (e.g. silt) - Unpaved road length 50 - 100m	- <10 HGV movements in any one day (a) - Surface material with low potential for dust release - Unpaved road length <50m

a) HGV movements refer to outward trips (leaving the site) by vehicles of over 3.5 tonnes

For each dust emission source, the worst-case area sensitivity is used in combination with the dust emission magnitude to determine the risk of dust impacts prior to mitigation as illustrated in Tables A6 and A7.

Table A6: Risk of Dust Impacts from Demolition, Earthworks and Construction

Area Sensitivity	Distance from the Source		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible Risk

Table A7: Risk of Dust Impacts from Trackout

Area Sensitivity	Distance from the Source		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible Risk
Low	Low Risk	Low Risk	Negligible Risk

Appendix B

ADMS-ROADS INPUT PARAMETERS

ADMS-Roads Input Parameters

Table B1: Summary of ADMS-Roads Input Parameters

Parameter	Value
ADMS-Roads Model Version	5.0.1.3
Vehicle Emission Factors	EFT v11
Meteorological Data	Hourly sequential data from London City Airport
Surface Roughness	1.0m
Monin-Obukhov Length	75m

Table B2: Summary of Traffic Data

Road Link	2022 AADT (Hourly)	Bus/HGV (%)	Average Speed (kph)
Camden High Street	782	10.9	10 – approaching Pratt Street junction and stopped at pedestrian crossing

Figure 6 – Monitoring Points relative to development site

Appendix C

MODEL VERIFICATION

The modelled NO_2 concentrations have been verified using 2022 data from the diffusion tube CAM130, Camden High Street 528884,183901 - located just 400m along Camden High Street from the development site.

Background NO2 levels have been taken from Camden's automated motoring station at London Bloomsbury.

The modelling assumes traffic moving freely at 15Kph, pulling away from junction.

Most nitrogen dioxide (NO_2) is produced in the atmosphere by the reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions. Verification of concentrations predicted by the ADMS-Roads model has followed the methodology presented in LAQM.TG16.

The modelled NO_x concentration has been converted into an equivalent Road-NO_2 (i.e. the component of total NO_2 coming from road traffic) concentrations using the Defra NOx to NO_2 calculator.

The ratio of the measured and modelled Road-NO_2 contributions provides an adjustment factor for the modelled Road-NO_2 concentrations. This factor is then applied to the modelled road NOx concentrations, before they are converted to Road-NO_2 using the Defra NOx to NO_2 calculator and added to the background NO_2 concentration for to produce a total adjusted modelled NO_2 concentration.

The model verification calculations are presented in Tables C1; the NOx emissions as modelled are within a 10% tolerance for the site for 2022. Accordingly, a 0.0% adjustment factor has also been applied to the modelled Road NO_2.

Tables C1: Verification Calculations

CAM130 – Camden High Street

Parameter	Value
Measured NO_2 Concentration (2022)	29.0 µg/m^3
Modelled NO_2 Concentration*	29.24 µg/m^3
Adjustment Factor	0.0%

*Using the DEFRA NOx to NO_2 Converter

Figure 7 – Verification Diffusion Tube Monitoring Site