
Planning Statement

Air Quality Assessment

51 Calthorpe Street

**eight
associates**

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Document prepared for

Ollie Burchell
Brooks Murray

Date of issue

26/04/2022

Issue no.

1

Our reference

6927 - 51 Calthorpe Street - Air Quality Assessment-2204-26nv

Document prepared by

Nikita Vasilev

Quality assured by

Yiota Paraskeva

Disclaimer

This report is made on behalf of Eight Associates Ltd. By receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

Contents:

Executive Summary.....	1
Introduction	2
Policy Review	3
Site Overview.....	8
Development Overview	9
Local Receptors	11
Construction Phase	13
Existing Air Quality	15
Dispersion Modelling.....	22
Air Quality Neutral.....	33
Mitigation Measures.....	37
Conclusions	38
Appendix A.....	39
Appendix B	44
Appendix C.....	46
Appendix D.....	47
Appendix E	48

Executive Summary

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Overview

Eight Associates has been commissioned to carry out an Air Quality Assessment (AQA) for the proposed development at 51 Calthorpe Street, WC1X 0HH, in the London Borough of Camden. The proposals consist of the demolition and erection of an additional storey on top of the existing building, the insertion of a mezzanine storey and excavation of a basement, in connection with the change of use of the building from offices to a mix of office and residential uses, so as to provide a total of 8 new residential units together with the office accommodation with associated works, including landscaping.

The unmitigated risk to local sensitive receptors from emissions of dust and pollution from construction is deemed to be low. However, the risk will be mitigated further through the measures set out in the Air Quality & Dust Management Plan (AQDMP), which will be implemented through the contractor's Construction Environmental Management Plan. With the mitigation measures in place, the residual effects arising from the construction phase of the proposed development would be deemed 'not significant'.

The entire borough was declared as an Air Quality Management Area (AQMA) in 2002 for exceedances of the NAQOs for the annual mean NO₂ and 24-hour mean exceedance for PM₁₀. The site is not located in a NO₂ Focus Area.

A review of the latest monitoring data for NO₂ at the closest locations to the development indicates that the NAQO at the closest monitoring stations has been consistently achieved between the latest reporting years of 2016-2019, where relevant. NAQOs at other monitoring sites were consistently achieved for reporting years 2016-2019. Although some of the sites demonstrated exceedances, there is a decreasing trend in NO₂ levels. Additionally, the NAQO for the hourly mean (for no more than 18 exceedances of the 200 µg/m³ hourly mean) has been consistently achieved at the automatic monitoring station for the years 2016-2019. The LAEI 2016 modelled mean annual NO₂ concentrations were estimated at approximately 51 µg/m³ at the site, exceeding both the NAQO and WHO guideline.

Nearby monitored mean annual PM₁₀ concentrations and 24-hourly PM₁₀ concentrations achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM₁₀ at the site were estimated at approximately 26 µg/m³, achieving the NAQO but exceeding the WHO guidelines.

Nearby monitored mean annual PM₁₀ concentrations and 24-hourly PM₁₀ concentrations achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM_{2.5} are estimated as approximately 16 µg/m³, achieving the NAQO but exceeding the WHO guideline.

Atmospheric dispersion modelling was carried out. The performance of the modelled receptors at the façade facing Calthorpe Road indicates the effects of NO₂, PM₁₀ and PM_{2.5} concentrations in the three different scenarios, 'Baseline 2019', '2023 no development' and '2023 with development' are not significant. Therefore, residents having access to amenity spaces and openable windows will not be exposed to high level of pollution.

For developments within London, the AQA methodology includes the requirement to undertake an assessment against the Air Quality Neutral (AQN) guidance. The scheme has been assessed for both the impacts of transport and building operation against the AQN guidance and it meets the requirements for AQN.

Even though further mitigation measures to reduce exposure of future occupants to pollutants are not explicitly required, the design mitigation hierarchy has been applied nonetheless, to maximise air quality for occupants, where feasible. Measures include, provision of sustainable transport modes, such as cycling, integration of low carbon energy technologies and urban greening.

Introduction

Air Quality Assessment

51 Calthorpe Street

Project Overview

Eight Associates has been commissioned to carry out an Air Quality Assessment (AQA) for the proposed development at 51 Calthorpe Street, WC1X 0HH, in the London Borough of Camden. The proposals consist of the demolition and erection of an additional storey on top of the existing building, the insertion of a mezzanine storey and excavation of a basement, in connection with the change of use of the building from offices to a mix of office and residential uses, so as to provide a total of 8 new residential units together with the office accommodation with associated works, including landscaping.

The London Borough of Camden has declared an Air Quality Management Area (AQMA) for the whole Borough due to continued exceedances against National Air Quality Objectives (NAQOs) for the annual mean NO₂ and 24-hour mean exceedance for PM₁₀. Additionally, the south façade faces Calthorpe Street, which merges onto the primary road of King's Cross Road. Due to the proposed nature of the development, introducing new sensitive receptors into an area with existing poor air quality, mainly influenced by emissions from road transport using Calthorpe Street, an AQA has been undertaken to accompany the planning application. The AQA would further assess the feasibility of openable windows facing Calthorpe Street.

Scope of Assessment

An AQA has been undertaken in accordance with relevant planning policy and best-practice guidance at national, regional and local levels. The AQA includes:

- Establishment of nearby sensitive receptors to air pollution.
- Assessment of air quality and dust impacts during the construction phase.
- Establishment and review of existing air quality.
- Evaluation of outline proposals against the Air Quality Neutral (AQN) benchmarks.
- Assessment of air quality impacts expected during the operation of the new development.
- Assessment of the mitigation strategy to limit the exposure of building users and nearby receptors, to air pollution.

Key policy and guidance documents considered in the AQA are outlined in Table 1.

Table 1: National, regional and local policies and guidance.

National	National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021)
	The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Department for Environment, Food & Rural Affairs, Defra), 2007
	Land-Use Planning & Development Control: Planning for Air Quality (Environmental Protection UK (EPUK), Institute of Air Quality Management (IAQM), 2017)
	Clean Air Strategy (Department for Environment, Food & Rural Affairs, Defra), 2019
	Air Quality Plan for Nitrogen dioxide (NO ₂) in UK (Defra, 2017)
	Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2014)
Regional	Local Air Quality Management: Technical guidance LAQM.TG (16) (Department for Environment, Food & Rural Affairs, Defra), 2018
	The London Plan 2021 (Mayor of London, 2021)
	Sustainable Design and Construction: Supplementary Planning guidance (Mayor of London, 2014)
	The Control of Dust and Emissions during Construction and Demolition: Supplementary Planning Guidance (Mayor of London, 2014)
	Clearing the Air - The Mayor's Air Quality Strategy (Mayor of London, 2010)
Local	Air Quality and Planning Guidance (London Councils, 2007)
	Camden Local Plan 2017 (London Borough of Camden, 2017)
	Camden Planning Guidance - Air Quality (London Borough of Camden, 2021)
	Clean Air Action Plan 2019-2022 (London Borough of Camden, 2018)

Policy Review

Air Quality Assessment

51 Calthorpe Street

National Legislation and Policy

The Air Quality Standards Regulations 2010 implements the requirements of EU Directive 2008/50/EC into UK legislation. Defra, on behalf of the UK Government, has produced a series of plans for the UK to meet the EU targets in the shortest possible time, the latest being the UK plan for tackling roadside NO₂ concentrations in July 2017 (NO₂ being identified as the primary pollutant for which the EU limit values are exceeded). An overview document has been produced, together with detailed plans for 37 zones where the objectives for NO₂ were not met in 2015.

The plan for the Greater London area sets out a range of measures to reduce NO₂ concentrations and indicates that with these measures, London will be compliant by 2025.

Table 2 and Table 3 sets out the ambient air quality standards for a range of key pollutants requiring specific objectives for ambient concentrations for pollutants UK and WHO limit values, respectively to be achieved and maintained.

Table 2: UK limit values for key pollutants.¹

Pollutants	Concentrations	Measured as	Date to be achieved by
Nitrogen dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times per year	1-hour mean	31 December 2005
	40 µg/m ³	Annual mean	31 December 2005
Particles (PM ₁₀)	50 µg/m ³ not to be exceeded more than 35 times per year	24-hour mean	31 December 2004
	40 µg/m ³	Annual mean	31 December 2004
Particles (PM _{2.5})	25 µg/m ³	Annual mean	31 December 2010

Table 2: UK limit values for key pollutants (continued).

Pollutants	Concentrations	Measured as	Date to be achieved by
Carbon monoxide (CO)	10 mg/m ³	Max. daily 8-hour mean	31 December 2003
Sulphur dioxide (SO ₂)	266 µg/m ³ not to be exceeded more than 35 times per year	15-minute mean	31 December 2005
	350 µg/m ³ not to be exceeded more than 24 times per year	1 hour mean	31 December 2004
	125 µg/m ³ not to be exceeded more than 3 times per year	24-hour mean	31 December 2004
Ozone (O ₃)	100 µg/m ³ not to be exceeded more than 10 times per year	8-hour mean	31 December 2005

Table 3: WHO limit values for key pollutants.²

Pollutants	Concentrations	Measured as
Nitrogen dioxide (NO ₂)	25 µg/m ³	24-hour mean
	10 µg/m ³	Annual mean
Particles (PM ₁₀)	45 µg/m ³	24-hour mean
	15 µg/m ³	Annual mean
Particles (PM _{2.5})	15 µg/m ³	24-hour mean
	5 µg/m ³	Annual mean

¹ The full UK limit values can be viewed on Defra's UK AIR [website](#).

² The full 2021 WHO can be viewed on WHO [website](#).

Policy Review

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021)

The National Planning Policy Framework (NPPF) published in July 2021 sets out the UK Government's planning policies for England. Planning law requires that applications for planning permission must be determined in accordance with the local development plan, unless material considerations indicate otherwise.

The NPPF is also a material consideration in planning decisions. It states that the purpose of the planning system is to contribute to the achievement of sustainable development; and that planning decisions on individual applications must reflect statutory requirements. Specifically, in terms of air quality, it requires the planning system to prevent development from contributing to or being put at unacceptable risk from unacceptable levels of air pollution.

Planning policies should promote compliance with or contribute towards achievement of EU limit values and NAQOs, taking into account the presence of AQMAs and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development within an AQMA is consistent with the local Air Quality Action Plan (AQAP).

The NPPF is supported by a series of Planning Practice Guidance (PPG) documents. The guidance in relation to air quality provides guiding principles on how planning can take account of the impact of new development on air quality.

National Air Quality Management

Part IV of the Environment Act 1995 requires the UK Government to publish an Air Quality Strategy and for local authorities to review, assess and manage air quality within their areas, known as Local Air Quality Management (LAQM).

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Defra, 2007)

The 2007 Air Quality Strategy establishes the policy for ambient air quality in the UK. It includes the National Air Quality Objectives (NAQOs) for the protection of human health and vegetation for 11 pollutants. Those NAQOs included as part of LAQM are prescribed in the Air Quality Standards Regulations 2010 and the Air Quality (Amendment) (England) Regulations 2002. It should be noted that the EU limit values are numerically the same as the NAQO values but differ in terms of compliance dates, locations where they apply and legal responsibility.

The EU limit values are mandatory whereas the NAQOs are policy objectives. Local authorities are not required to achieve them but have to work towards their achievement. In addition, the EU limit values apply in all locations except where members of the public do not have access and there is no fixed habitation, on factory premises or at industrial installations, and on the carriageway/central reservation of roads except where there is normally pedestrian access. Where a local authority's review and assessment of its air quality identifies that air quality is likely to exceed the NAQOs, it must designate these areas as AQMAs and develop an Air Quality Action Plan (AQAP) setting out measures to reduce pollutant concentrations with the aim of meeting the NAQOs.

Clean Air Strategy (Defra, 2019)

Additionally, the Clean Air Strategy 2019 sets out goals that will be more stringent than EU requirements with the aim of reducing human exposure to toxic pollutants by taking into account the World Health Organisation's guidelines. The policies in the Strategy aim to reduce PM_{2.5} concentrations across the UK so that the number of people living in locations above the WHO annual mean guideline limit of 10 µg/m³ is reduced by 50% by 2025. Moreover, the Strategy will feed information to local authorities on how the cumulative impacts of nitrogen deposition in natural habitats should be assessed and mitigated through the planning system.

Policy Review

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Regional Policy and Guidance

The London Plan 2021 (Mayor of London, 2021)

Policy SI 1 in the Intended London Plan 'Improving air quality' states that:

A Development Plans, through relevant strategic, site-specific and area-based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

1 Development proposals should not:

- lead to further deterioration of existing poor air quality
- 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
- create unacceptable risk of high levels of exposure to poor air quality.

2 In order to meet the requirements in **Part 1**, as a minimum:

- development proposals must be at least Air Quality Neutral
- development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures
- major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of **B1**
- development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.

C Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

- how proposals have considered ways to maximise benefits to local air quality, and
- what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D In order to reduce the impact on air quality during the construction and demolition phase, development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development.

Clearing the Air - The Mayor's Air Quality Strategy (Mayor of London, 2010)

The Mayor of London produced an Air Quality Strategy in 2002 under the requirements of the Greater London Authority Act 1999, which was superseded by the subsequent Air Quality Strategy, published in December 2010. The Air Quality Strategy sets out how the National Air Quality Strategy would be implemented in London as a whole.

The Mayor's Air Quality Strategy outlines a number of policies to deliver the required reductions in PM₁₀ and NO₂ concentrations in Greater London, to meet the EU limits. The planning process is required to improve air quality by ensuring that new developments, as a minimum, are 'air quality neutral'. With regard to the proposed development the key policies are as follows:

Policy Review

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk
info@eightassociates.co.uk

- Policy '6 - Reducing emissions from construction and demolition sites' which states that the Mayor will work with the London Council to review and update the Best Practice guidance for construction and demolition sites and create supplementary planning guidance to assist implementation;
- Policy '7 - Using the planning process to improve air quality - new developments in London as a minimum shall be 'air quality neutral' which states that the Mayor will encourage boroughs to require emissions assessments to be carried out alongside conventional air quality assessments. Where air quality impacts are predicted to arise from developments these will have to be offset by developer contributions and mitigation measures secured through planning conditions, section 106 agreements or the Community Infrastructure Levy;
- Policy '8 - Maximising the air quality benefits of low to zero carbon energy supply' which states that the Mayor will apply emission limits for both PM and NO_x for new biomass boilers and NO_x emission limits for Combined Heat and Power (CHP) plant. Air quality assessments will be required for all developments proposing biomass boilers or CHP plants and operators will be required to provide evidence yearly to demonstrate compliance with the emission limits; and
- Policy '9 - Energy efficient buildings' which states that the Mayor will set CO₂ reduction targets for new developments which will be achieved using the Mayor's Energy Hierarchy. These measures will result in reductions of NO_x emissions.

Sustainable Design and Construction: Supplementary Planning Guidance (Mayor of London, 2014)

The Supplementary Planning Guidance (SPG), which supports the London Plan, was first published in 2006 and was updated in April 2014. The following guidance on air quality is provided in Section 4:

- Developers should design schemes to be 'Air Quality Neutral';
- Developments should be designed to minimise the generation of air pollutants;
- Developments should be designed to minimise exposure to poor air quality;
- Energy plant, including boilers and CHP) should meet relevant emission limits; and
- Developers and contractors should follow the relevant guidance on minimising impacts from construction and demolition.

The SPG states that where developers are unable to meet the 'air quality neutral' benchmark, consideration should be given to off-site NO_x and PM₁₀ abatement measures.

The Control of Dust and Emissions during Construction and Demolition: Supplementary Planning Guidance (SPG) (Mayor of London, 2014)

This SPG provides detailed best practice guidance, seeking to address emissions from construction activities, including construction machinery with respect to London's 'low emission zone' for non-road mobile machinery (NRMM), introduced in 2015. The SPG incorporates the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction' approach for assessing the risk of dust impacts from construction.

Local Policy and Guidance

Camden Local Plan 2019-2022 Proposed Submission Version (London Borough of Camden, 2017)

The Local Plan sets out the vision and strategy for future growth and sustainable development up to 2022. The policies below relate directly to air quality and development:

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.

Policy Review

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Camden Planning Guidance – Air Quality (London Borough of Camden, 2021)

The whole of Camden is an Air Quality Management Area (AQMA) as it does not meet national air quality objectives for nitrogen dioxide (NO₂) and because it is widely accepted that there is no safe level for particulates (PM₁₀ and smaller). Air quality is particularly severe along major roads through the borough, and in the south of borough which is characterised by high levels of traffic. Major roads are those either in the Transport for London Road Network or designated as a Major Road by Camden.

- All of Camden is a designated Air Quality Management Area due to the high concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀).
- All developments are to protect future occupants from exposure to poor air quality.
- All developments are to limit their impact on local air quality and be at least air quality neutral.

Policy 3.5. Air quality assessments are to include the following:

- Emissions: An inventory of the PM₁₀ and NO_x emissions associated with the proposed development, including the type and quantity of emission concentrations, during the construction and operational phase. This shall cover transport, stationary and mobile emission sources.
- Modelling: The application of atmospheric dispersion modelling to predicted NO₂ and PM₁₀ concentrations, both with and without the proposed development. Dispersion modelling shall be carried out in accordance with Air Quality and Planning Guidance, London Councils (2007) and London Local Air Quality Management Plan Technical Guidance 2016. Modelling should not predict improvements to future years (future vehicle emissions or future background concentrations).

Clean Air Action Plan 2019-2022 (London Borough of Camden, 2018)

Camden's Clean Air Action Plan has been produced as part of our duty to London Local Air Quality Management. It outlines the action we will take to improve air quality in Camden between 2019 and 2022.

Some relevant actions related to reducing emissions from buildings and new development include:

- Working to reduce emissions from our own estate and operations.
- Helping residents and visitors to reduce emissions and exposure.
- Using planning policy and regulation to reduce air pollution.
- Implementing innovative projects across the borough to improve air quality.
- Using our influence to lobby for increased financial and regulatory support for the mitigation of air pollution.
- Maintaining a monitoring network and ensuring the data is freely accessible.
- Raising awareness on how to reduce emissions and exposure.

Site Overview

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Site Overview

The development site at 51 Calthorpe Street is on the north side of Calthorpe Street in the south of the London Borough of Camden. The OS grid reference for the site is X (Eastings) 530941, Y (Northings) 182466 and the postcode is WC1X 0HH. It is bounded by residential units to the west, hotel and commercial units to the north-east and former Royal Mail office to the south, as illustrated in Figure 1.

The total area of the site is approximately 600m² (0.06 ha). The building on site is a three-storey building in use as an office space.



Figure 1: The red line illustrates the approximate location of the development site.

Development Overview

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Description of Proposed Development

The proposals consist of the demolition and erection of an additional storey on top of the existing building, the insertion of a mezzanine storey and excavation of a basement, in connection with the change of use of the building from offices to a mix of office and residential uses, so as to provide a total of 8 new residential units together with the office accommodation with associated works, including landscaping. Illustrations of the proposed ground floor plan, first floor plan and the massing model of the development are shown in Figure 2, Figure 3 and Figure 4, respectively.

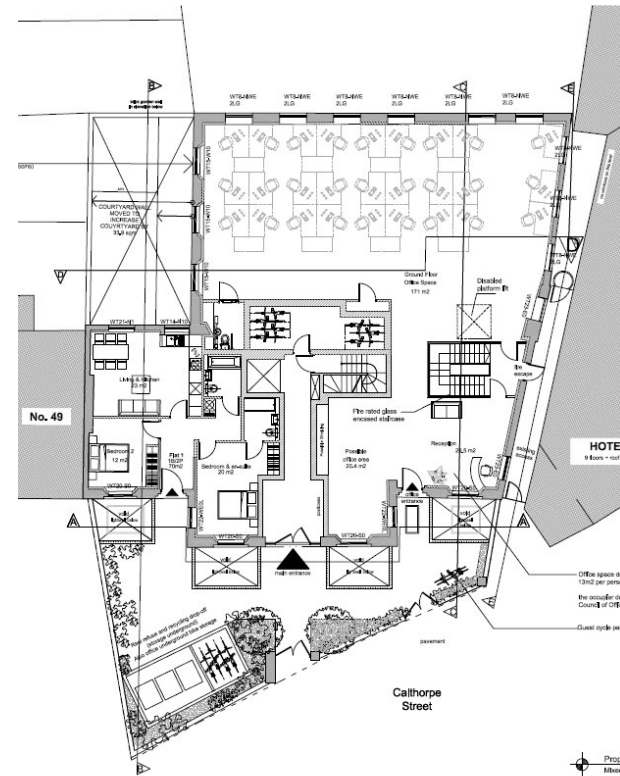


Figure 2: Proposed ground floor plan showing the office space and residential units.

Development Overview

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

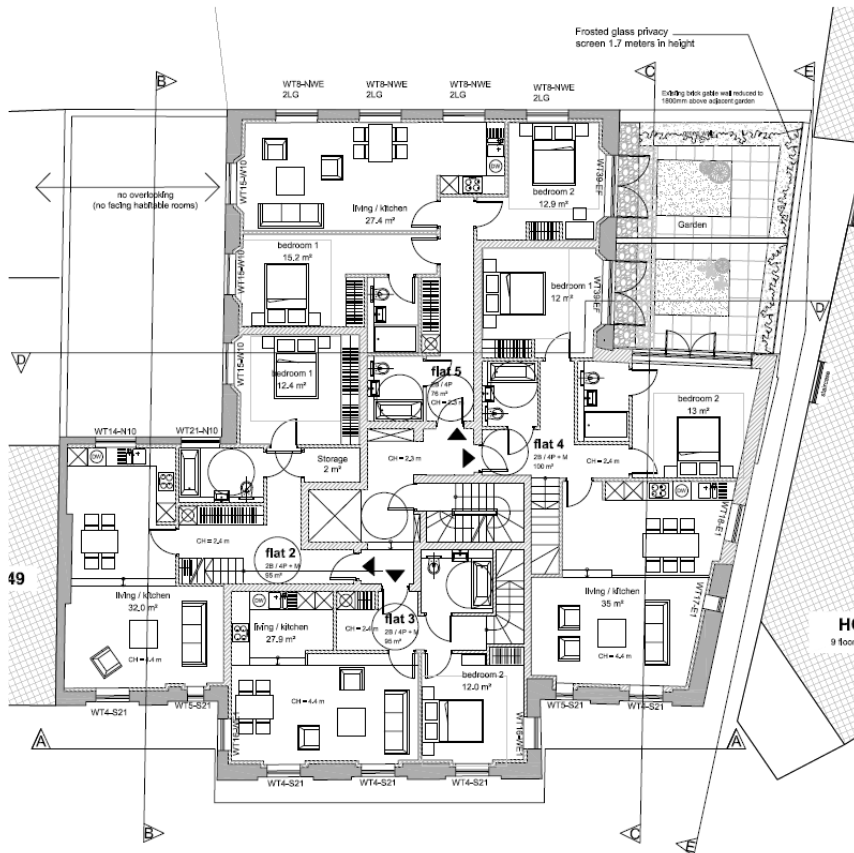


Figure 3: Proposed first floor plan illustrating the residential units and amenity spaces.



Figure 4: Massing model at Calthorpe Street.

Local Receptors

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Overview of Local Sensitive Receptors

A sensitive receptor is a location that may be affected by the emission of pollutants and / or particulate matter during construction or from the operation of a completed development, including from building plant and transport uses as a result of the new development.

In accordance with the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction', the need for a detailed assessment of the air quality impacts from construction should be determined where the following receptors are present:

- Where there is a human receptor within:
 - 350m of the boundary of the site; and/or
 - 50m of the route used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- Where there is an ecological receptor within:
 - 50m of the boundary of the site; and/or
 - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

For the purposes of identifying receptors, which may be sensitive to potential air quality impacts of dust and emissions from construction, a 350m radius from the development site is used for human receptors, a 50m radius for ecological receptors and a 500m radius is used for the trackout route for both types of receptors, as shown in Figure 5.

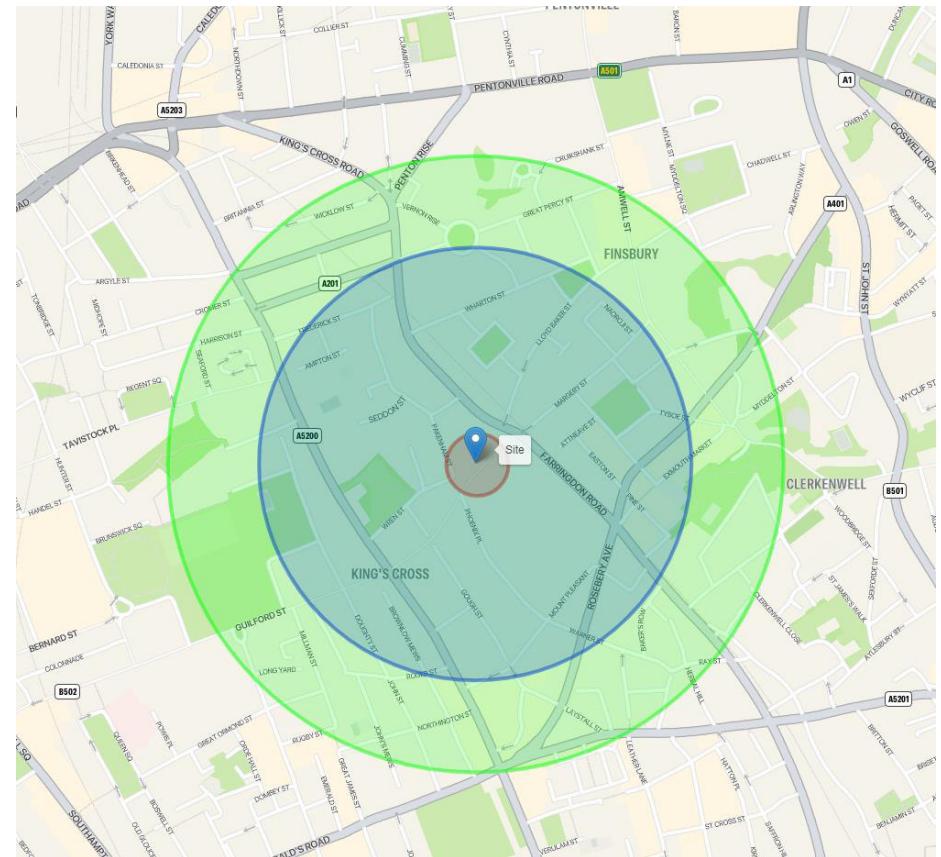


Figure 5: Map view showing a 500m radius (green), a 350m radius (blue) and a 50m radius (red) from the site.

Local Receptors

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Human Receptors

A human receptor refers to any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM₁₀ over a time period relevant to the air quality objectives, as defined in the Government's technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to residential dwellings, but may also refer to other premises such as schools, hospitals, museums, vehicle showrooms, food manufacturers and amenity areas.

The surrounding area consists predominantly of residential and retail spaces. Key human receptors are described below (all distances detailed are approximate).

Schools

The following schools have been identified within 350m of the development or within 500m of the trackout route:

- Westminster Kingsway College - approximately 370m west.
- Christopher Hatton Primary School - approximately 375m south.
- The Ragged School - approximately 420m south.
- Saint George the Martyr C of E Primary School - approximately 430m south-west.

Nurseries

The following nurseries / pre-schools have been identified within 350m of the development or within 500m of the trackout route:

- Pre-School Learning Alliance - approximately 45m west.
- Clerkenwell Mount Day Nursery - approximately 400m north-east.
- Holmwood House Nursery - approximately 440m south.
- Thomas Coram Centre pre-school - approximately 470m west.

Hospitals

No hospitals have been identified within 350m of the development or within 500m of the trackout route.

Doctors

The following doctors have been identified within 500m of the trackout route:

- Solomon Dr S M E - 77 Grays Inn Rd, London WC1X 8TS - approximately 350m south.
- New Farringdon Osteopaths - approximately 290m east.
- Pine Street Medical Practice - approximately 300m east.
- Amwell Group Practice - approximately 330m north-east.
- Clerkenwell Medical Practice - approximately 370m east.

Ecological Receptors

Potential sensitive ecological receptors have been determined using geographic information obtained from [MAGIC](#)'s website.

The following non-statutory ecological sites have been identified within 50m of the development or within 500m of the trackout route:

- Source Protection Zone II - Outer Protection Zone - 400m to the north-east of the site.

No statutory ecological sites have been identified within 50m of the development or within 500m of the trackout route.

The following sites that could represent ecological receptors but not defined as either statutory or non-statutory ecological site, have been identified within 500m of the development site:

- Priority Habitat Inventory - Deciduous Woodland (England) - Coram's Fields - approximately 280m west.
- National Forest Inventory (GB) - Coram's Fields - approximately 280m west.
- Priority Habitat Inventory - Deciduous Woodland (England) - St. George's Gardens - approximately 420m west.
- National Forest Inventory (GB) - St. George's Gardens - approximately 420m west.

Construction Phase Air Quality Assessment 51 Calthorpe Street

Construction Phase Impacts

Construction phase impacts, as a result of the proposed development, have been assessed using the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction'. The construction phase impacts have been assessed for their risks in line with section 5 of the IAQM guidance.

Assessment of Construction Impacts

Using the evaluation criteria within the IAQM's guidance, the potential dust emission magnitude has been identified for each stage of the proposed development as shown in Table 4.

Table 4: Dust emission magnitudes for construction activities.

Activity	Dust emission magnitude	Justification
Demolition	Small	The total building volume to be demolished will be less than 20,000 m ³ and demolition activities will occur at no greater than 10 m above ground - approximately 3,431m³ .
Earthworks	Small	The total site area is less than 2,500 m ² . There would be less than 5 heavy earth moving vehicles active at any one time - approximately 600m² .
Construction	Small	The total new building volume will be less than 25,000 m ³ - approximately 5,343m³ .
Trackout	Small	It is anticipated that there will be a minimal unpaved site area, which will be used for vehicle trackout. It is considered likely that there would be no more than approximately 8 outward vehicle movements of HDV (>3.5t) vehicles in any one day.

The overall sensitivity of the surrounding area to dust soiling, human health impacts and ecological effects has been determined by reviewing the sensitivity of the receptors and distance from the source. A summary of sensitivity of nearby receptors to dust impacts is given in Table 5.

Table 5: Sensitivity of nearby receptors to dust impacts.

Sensitivity of people to dust soiling	Sensitivity of people to PM ₁₀ health impacts	Sensitivity to ecological effects
Medium	Low	Low
More than 10 residential units have been identified within 50m of the site.	More than 100 residential units, and one nursery are present within 350m of the development site. Nearby annual mean PM ₁₀ monitoring was 18 µg/m ³ in 2019.	No internationally or nationally designated ecological sites in proximity of the site. It is not established whether there are particularly important or vulnerable plant species in nearby green spaces, therefore precautionary principle is applied.

The dust emission magnitude determined in Table 4 has been combined with the sensitivity assessment in Table 5 to define the risk of impacts for each phase of development in the absence of mitigation measures. The sensitivity of the surrounding area has been defined in accordance with IAQM guidance and the results are given in Table 6.

Construction Phase

Air Quality Assessment

51 Calthorpe Street

Table 6: Risk to local sensitive receptors from construction dust impacts.

	Risk without mitigation	Activity			
		Demolition	Earthworks	Construction	Trackout
Potential impact	Dust soiling	Low	Low	Low	Negligible
	Human health	Negligible	Negligible	Negligible	Negligible
	Ecological effects	Negligible	Negligible	Negligible	Negligible
Overall risk of dust impacts with no mitigation		Low risk			

The overall risk of dust impacts from the construction phase without mitigation measures proposed has been assessed as being low risk. The risk across the four construction activities has been determined to be low risk or negligible. The risk of all the activities with regards to ecology is deemed to be negligible. Therefore, no further mitigation measures need specifically be recommended for protecting ecology.

Effects of Mitigation Measures

A schedule of mitigation measures has been developed for the construction phase, based on the 'Control of Dust and Emissions during Construction and Demolition: Supplementary Planning Guidance' (Mayor of London, 2014). These measures are outlined in the Air Quality & Dust Management Plan (AQDMP) (Appendix A). The measures will be incorporated in the appointed Contractor's Construction Environmental Management Plan.

The recommended AQDMP measures address the key construction activities identified and a summary of the proposed measures to satisfactorily reduce the risks from the respective construction phases is given in Table 7. The implementation of the proposed measures is deemed to mitigate the risk for each activity and thus the residual effects are deemed to be negligible.

Table 7: Summary of proposed AQDMP mitigation measures for construction phase.

Activity	Relevant mitigation measures
General (all activities)	Site management measures 1-10. Preparing and maintaining the site measures 11-23. Operating vehicle/machinery and sustainable travel measures 24-30. Operations measures 31-35. Waste management measure 36-37.
Demolition	Measures 38-41.
Earthworks	Measures 42-44
Construction	Measures 45-48.
Trackout	Measures 49-58.

Existing Air Quality

Air Quality Assessment

51 Calthorpe Street

Current Local Status

The London Borough of Camden was declared an AQMA for the entire borough in 2002. The AQMA has been declared due to annual mean exceedances of NO₂ and 24-hour mean exceedances of PM₁₀. Currently, the borough meets all the NAQOs except for NO₂. Even though the NAQOs for PM₁₀ and PM_{2.5} are being met, they remain pollutants of concern. These pollutants are primarily produced by road traffic. However, other contributors include construction, domestic gas use and industry.

The AQAP 2018-2023 identified four Focus Areas, based on modelling using the London Atmospheric Emissions Inventory (LAEI) 2013². Table 8 and Figure 6 illustrate the Focus Areas as determined by LAEI 2016 modelling data. Focus Areas are locations designated as having high levels of pollution and human exposure. The site is not located in the Focus Area.

Table 8: List of Focus Areas in Camden based on LAEI 2016.

ID LAEI 2016	Focus Areas
28	Camden High Street from Mornington Crescent to Chalk Farm and Camden Road
29	Holborn and Southampton Row junction
30	Kilburn Town Centre
31	Euston Road

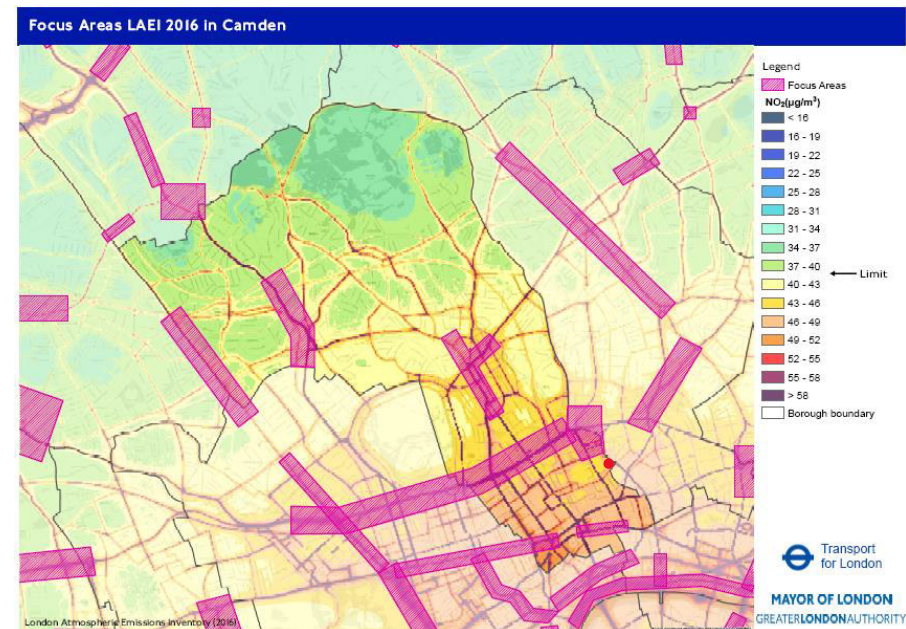


Figure 6: Focus Areas in Camden based on LAEI 2016. The red dot illustrates the approximate location of the development site.

²LAEI 2013 datasets were used in the AQAP.

Existing Air Quality

Air Quality Assessment

51 Calthorpe Street

Local Monitoring Stations

Four automatic monitoring sites and 33 non-automatic monitoring sites have been identified in the London Borough of Camden Air Quality Annual Status Report 2019. Based on their proximity to the development site, completeness of data and relevance to the site, the following monitoring sites are reviewed in Table 9. One automatic monitoring station and four non-automatic monitoring sites have been identified that are considered to be representative of the surroundings of the site.

Table 9: Air quality monitoring stations identified near the site.

Site ID	Site name and type	Pollutants monitored	X (Eastings)	Y (Northings)	Inlet height (m)	Distance from site (m)
CA28	St. George's Gardens East, diffusion tube, urban background	NO ₂	530512	182511	1.5	430
CA6	St. George's Gardens East, diffusion tube, urban background	NO ₂	530430	182430	1.8	510
CA4A (new)	Euston Road, diffusion tube, kerbside	NO ₂	530093	182792	2.2	910
B0	London Bloomsbury, automatic, urban background	NO ₂ , PM ₁₀ , PM _{2.5} , SO ₂ and O ₃	530123	182014	4	930
CA27	Euston Road, diffusion tube, roadside	NO ₂	529907	182670	2	1000

A map, showing the approximate locations of the closest automatic monitoring stations and NO₂ diffusion tubes, in relation to the development site, is shown in Figure 7.

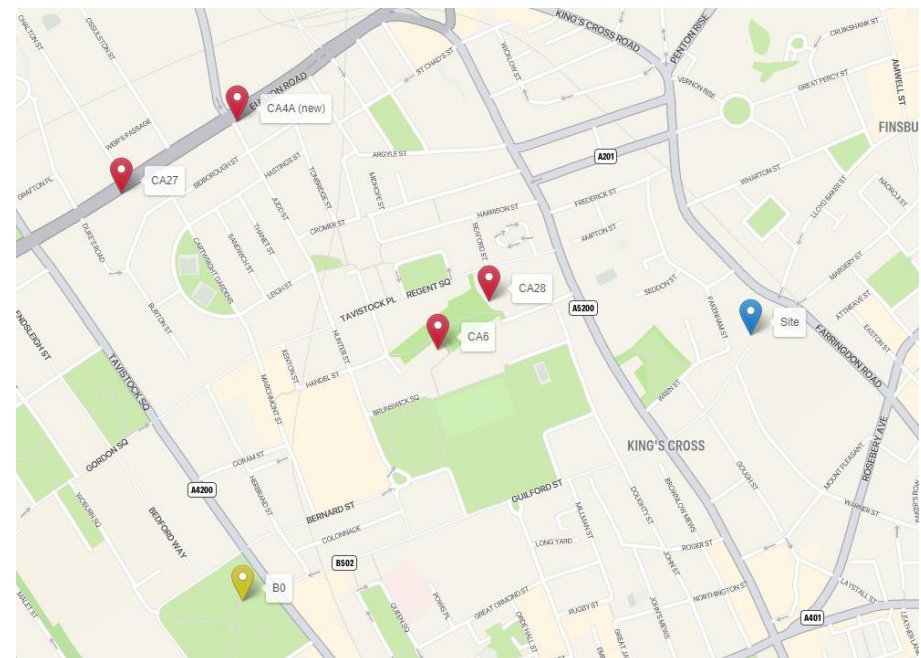


Figure 7: Map showing location of development site (shown in blue) in relation to nearby automatic monitoring stations (shown in yellow) and NO₂ diffusion tubes (shown in red).

Existing Air Quality

Air Quality Assessment

51 Calthorpe Street

Monitored Nitrogen Dioxide (NO₂)

A summary of the latest monitoring results for NO₂ annual mean concentrations at the closest monitoring stations to the development site is given in Table 10. Results for each monitoring station and reporting year are shown in green where the NAQO is achieved, in red where the NAQO is exceeded and in grey where data have not been reported.

The data show that the NAQO for mean annual NO₂ concentration (for the mean annual concentration to be no more than 40 µg/m³) closest to the development site, has been achieved at sites CA28 and CA6 for the latest reporting years of 2016-2019. NAQOs at monitoring site B0 were consistently achieved for reporting years 2017-2019. Although B0 site demonstrated exceedance in 2016 and monitoring sites CA4 (new) and CA27 demonstrated exceedance in 2019, there is a decreasing trend in NO₂ levels. Additionally, air quality is predicted to improve in the future with actions such as the introduction of electric vehicles.

Table 10: 2016-2019 NO₂ annual mean concentrations near the site.³

Site ID	Monitoring station type	Distance from site (m)	Annual mean concentration (µg/m ³)			
			2019	2018	2017	2016
CA28	Non-automatic, urban , background	430	27.67	-	-	-
CA6	Non-automatic, urban background	510	24.65	26.67	34.83	31.31
CA4A (new)	Non-automatic, kerbside	910	69.06	-	-	-
B0	Automatic, urban background	930	32	36	38	42
CA27	Non-automatic, roadside	1000	63.81	-	-	-

A summary of the latest monitoring results for the annual exceedances of the NO₂ hourly mean concentration of 200 µg/m³ is given in Table 11. The NAQO (for no more than 18 exceedances of the 200 µg/m³ hourly mean) has been consistently achieved at automatic monitoring station B0 for the years 2016-2019, where relevant.

Table 11: 2016-2019 NO₂ annual exceedances of hourly mean of 200 µg/m³ near the site.

Site ID	Monitoring station type	Distance from site (m)	Count of annual exceedances of hourly mean of 200 µg/m ³			
			2019	2018	2017	2016
B0	Automatic, urban background	930	0	0	0	0

³ Data are obtained from the London Borough of Camden Air Quality Annual Status Report 2019. A National Bias Adjustment Factor of 0.87 is applied to diffusion tubes data for 2019. PM₁₀ monitoring does not require correction.

Existing Air Quality

Air Quality Assessment

51 Calthorpe Street

Monitored Particulate Matter under 10 µm diameter (PM₁₀)

A summary of the latest monitoring results for PM₁₀ annual mean concentrations at the closest monitoring stations to the development site is given in Table 12. The NAQO (for the mean annual concentration to be no more than 40 µg/m³) has consistently been met at the automatic monitoring site B0 for the years 2016-2019, where relevant.

Table 12: 2016-2019 PM₁₀ annual mean concentrations near the site.³

Site ID	Monitoring station type	Distance from site (m)	Annual mean concentration (µg/m ³)			
			2019	2018	2017	2016
B0	Automatic, urban background	930	18	17	19	20

A summary of the latest monitoring results for the annual exceedances of the PM₁₀ daily mean concentration of 50 µg/m³ is given in Table 13. The NAQO (for no more than 35 exceedances of the 50 µg/m³ daily mean) has been consistently met at the automatic monitoring site B0 for the years 2016-2019, where relevant.

Table 13: 2016-2019 PM₁₀ annual exceedances of daily mean of 50 µg/m³ near the site.

Site ID	Monitoring station type	Distance from site (m)	Count of annual exceedances of daily mean of 50 µg/m ³			
			2019	2018	2017	2016
B0	Automatic, urban background	930	9	1	6	9

Monitored Fine Particulate Matter 2.5 µm diameter (PM_{2.5})

A summary of the latest monitoring results for PM_{2.5} annual mean concentrations at the closest monitoring stations to the development site is given in Table 14. The NAQO (for the mean annual concentration to be no more than 25 µg/m³) has consistently been met at the automatic monitoring site B0 for the years 2016-2019, where relevant.

Table 14: 2016-2019 PM_{2.5} annual mean concentrations near the site.³

Site ID	Monitoring station type	Distance from site (m)	Annual mean concentration (µg/m ³)			
			2019	2018	2017	2016
B0	Automatic, urban background	930	11	10	13	12

Existing Air Quality

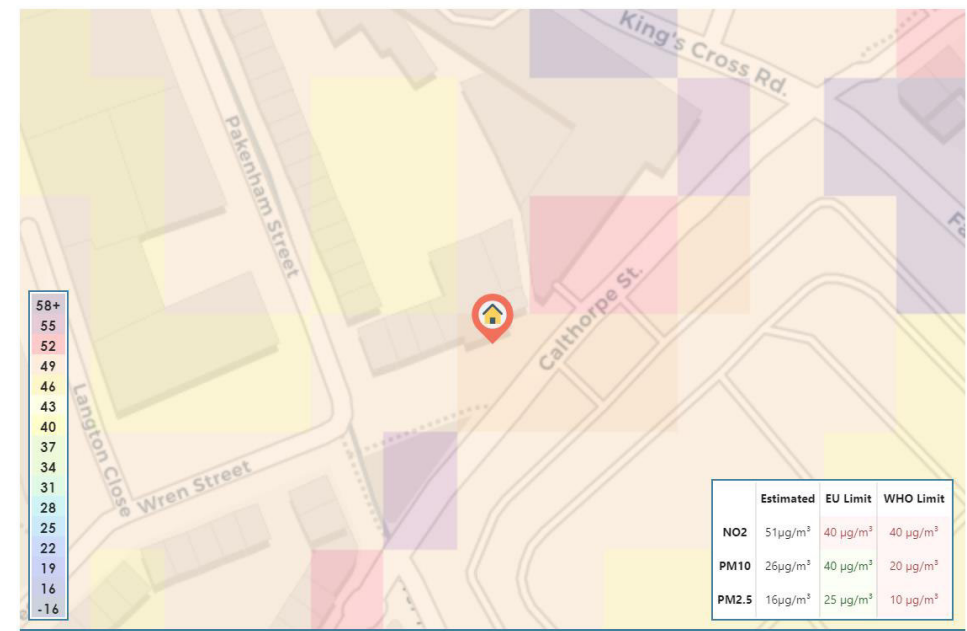
Air Quality Assessment

51 Calthorpe Street

Modelled Nitrogen Dioxide (NO₂)

The London Atmospheric Emissions Inventory (LAEI)⁴ is a database of geographically referenced datasets of pollutant emissions and sources in Greater London. The base year for the latest and current LAEI is 2016 and includes NO₂, PM₁₀ and PM_{2.5} as key pollutants.

The LAEI 2016 modelled mean annual concentrations of NO₂ for the site and surrounding area are shown in Figure 8. Mean annual NO₂ concentrations were estimated at approximately 51 µg/m³ at the site for 2016. The modelled data indicate that the NAQO and WHO guidelines (mean annual concentration no greater than 40 µg/m³ and 10 µg/m³, respectively) were both exceeded at the site during 2016.



Nitrogen Dioxide (µg/m³) - Camden, WC1X 0HH

Figure 8: 2016 modelled NO₂ concentrations for the site and surrounding area.

⁴ London Atmospheric Emissions Inventory (LAEI) 2016, Greater London Authority. LAEI 2016 mapped data accessed from [London Air](http://londonair.org.uk).

Existing Air Quality

Air Quality Assessment

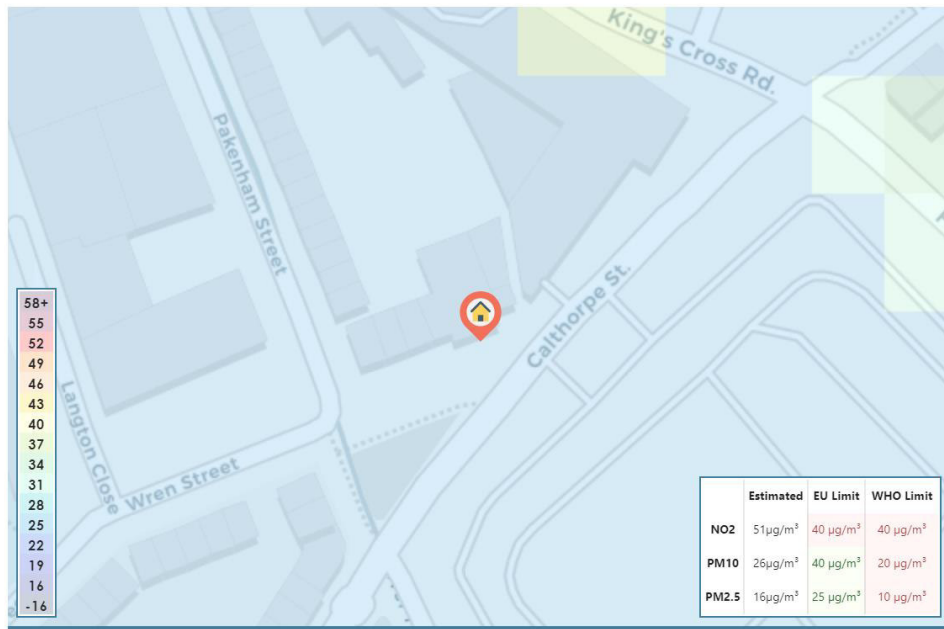
51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Modelled Particulate Matter under 10 µm Diameter (PM₁₀)

The LAEI 2016 modelled mean annual concentrations of PM₁₀ are shown in Figure 9. Mean annual PM₁₀ concentrations at the site were estimated at approximately 26 µg/m³ for 2016. The modelled data indicate that the NAQO (mean annual concentration no greater than 40 µg/m³) was achieved at the site for 2016 but the WHO guideline (mean annual concentration no greater than 15 µg/m³) was exceeded.

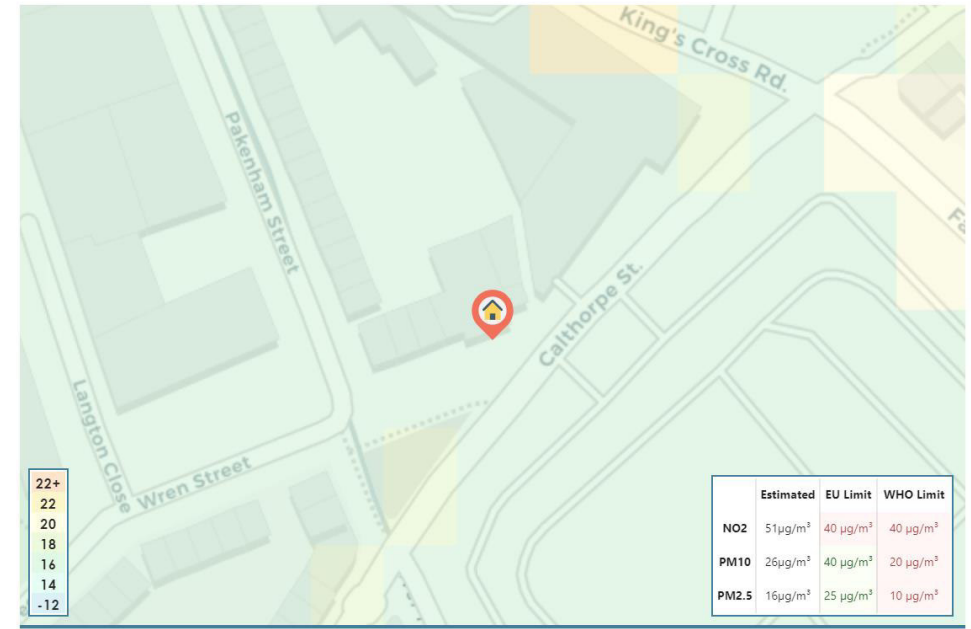


PM₁₀ Particulates (µg/m³) - Camden, WC1X 0HH

Figure 9: 2016 modelled PM₁₀ concentrations for the site and surrounding area.

Monitored Fine Particulate Matter 2.5 µm Diameter (PM_{2.5})

The LAEI 2016 modelled mean annual concentrations of PM_{2.5} are shown in Figure 10. Mean annual PM_{2.5} concentrations at the site were estimated at approximately 16 µg/m³ for 2016. The modelled data indicate that the NAQO (mean annual concentration no greater than 25 µg/m³) for 2016 was achieved at the site, but the WHO guideline (mean annual concentration no greater than 5 µg/m³) was exceeded.



PM_{2.5} Particulates (µg/m³) - Camden, WC1X 0HH

Figure 10: 2016 modelled PM₁₀ concentrations for the site and surrounding area.

Existing Air Quality

Air Quality Assessment

51 Calthorpe Street

Modelled Background Concentrations

Defra provides modelled background concentrations for key pollutants across the UK. The 2019-2023 modelled background concentrations for NO₂, PM₁₀ and PM_{2.5} for the area surrounding the site are given in Table 15. The background concentrations for NO₂, PM₁₀ and PM_{2.5} consistently achieve the NAQOs and unfaillingly decrease between the modelled years of 2019-2023.

Table 15: 2019-2023 modelled background concentrations near the site.⁵

Pollutant/particulate matter	Background concentration (µg/m ³)				
	2023	2022	2021	2020	2019
NO ₂	34.8	35.5	36.4	37.3	39.3
PM ₁₀	19.1	19.3	19.5	19.7	20.3
PM _{2.5}	12.1	12.2	12.4	12.6	12.9

Existing Air Quality Conclusions

Nitrogen Dioxide (NO₂)

A total of three NO₂ diffusion tubes and one automatic monitoring station, monitoring mean annual NO₂ concentrations, have been identified close to the development site. The data show that the NAQO for mean annual NO₂ concentration (for the mean annual concentration to be no more than 40 µg/m³) closest to the development site, has been consistently achieved at monitoring sites CA4A (new) and B0 for reporting years 2017-2019. Although B0 site demonstrated exceedance in 2016 and monitoring sites CA4 (new) and CA27 demonstrated exceedance in 2019, there is a decreasing trend in NO₂ levels.

Additionally, the NAQO for the hourly mean (for no more than 18 exceedances of the 200 µg/m³ hourly mean) has been consistently achieved at automatic monitoring stations B0 for the years 2016-2019, where relevant. The LAEI 2016 modelled mean annual NO₂ concentrations were estimated at approximately 51 µg/m³ at the site, exceeding both the NAQO and WHO guideline. The Defra modelled background concentration of NO₂ is 39.3 µg/m³ for 2019, decreasing to 34.8 µg/m³ by 2023. It is likely that mean annual NO₂ concentrations currently exceed both the NAQO and WHO guidelines at the development site.

Coarse particulate matter (PM₁₀)

Nearby monitored mean annual PM₁₀ concentrations and 24-hourly PM₁₀ concentrations at B0 consistently achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM₁₀ at the site were estimated at approximately 26 µg/m³, achieving the NAQO but exceeding the WHO guidelines. The Defra modelled background concentration of PM₁₀ is 20.3 µg/m³ for 2019, decreasing to 19.1 µg/m³ by 2023. It is likely that the mean annual PM₁₀ concentrations at the development site currently achieve the NAQO but exceed the WHO guideline at the site.

Fine particulate matter (PM_{2.5})

Nearby monitored mean annual PM_{2.5} concentrations and 24-hourly PM₁₀ concentrations at B0 consistently achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM_{2.5} are estimated as approximately 16 µg/m³, achieving the NAQO but exceeding the WHO guideline. The Defra modelled background concentration of PM_{2.5} is 12.9 µg/m³ for 2019, decreasing to 12.1 µg/m³ by 2023. It is likely that mean annual PM_{2.5} concentrations at the development site currently achieve the NAQO but exceed the WHO guidelines.

⁵ Defra Local Air Quality Management - [Background Maps](#). Data are obtained for the London Borough of Camden for the nearest grid square (X coordinate 530500, Y coordinate 182500) for years 2019-2023 (from 2019 baseline).

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Operational Impacts: Dispersion Modelling

A detailed assessment, of the feasibility of openable windows facing Calthorpe Street, has been undertaken using the atmospheric dispersion modelling software, ADMS-Roads Extra⁶.

ADMS-Roads is a comprehensive tool for investigating air pollution problems due to networks of roads that may be in combination with industrial sites, for instance small towns or rural road networks. The software uses a steady state gaussian dispersion model and incorporates advanced meteorological pre-processing, along with computation of vertical profiles of wind, turbulence, and temperature.

Model Inputs

A summary of the key model inputs and parameters is given in Appendix B. An overview of the dispersion model scenarios is given in this section of the report.

Modelled scenarios

Three scenarios are modelled as part of the assessment:

- '2019 baseline' - existing baseline traffic flows, 2019 meteorological data and emissions factors.
- '2023 no development' - projected 2023 traffic flows, 2019 meteorological data and 2023 emissions factors.
- '2023 with development' - projected 2023 traffic flows and additional traffic from the proposed 51 Calthorpe Street development, 2019 meteorological data and 2023 emissions factors.

Emissions sources

For the purpose of this assessment, emissions from local roads close to the site, and for which adequate traffic flow data exists, have been modelled. These roads predominantly comprise the primary access routes to the proposed development site. Pollutant concentrations from all other sources, including all non-local emissions and local emissions from all other sources apart from the roads which are predicted to significantly change are derived from the Defra modelled background concentrations.

Traffic flow data

An overview of all traffic flow data is given in Appendix C. Baseline traffic flow data for the average annual daily traffic flow (AADF) for the local road network has been obtained from the Department for Transport (DfT) website⁷. The latest DfT reporting year, 2019, has been selected for the '2019 baseline' scenario.

⁶ ADMS-Roads Extra version 5 (Cambridge Environmental Research Consultants (CERC)). Further details can be found on the [website](#).

⁷ Department for Transport (DfT) Road Traffic Statistics. Accessed from the [website](#).

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Traffic flow data for 2023, the projected opening year of the development, has been obtained using the English and Welsh Regional Traffic Growth and Speed Forecasts (RTFs) and the local TEMPRO factor⁸, as illustrated in Table 16.

- Final Growth Factor = RTF factor x (Local TEMPRO factor / Regional TEMPRO factor)⁹

Table 16: Traffic growth factor values for the period of 2019-2023.

Growth Factor	Value
RTF 2023	1.0532
TEMPRO Growth Factor for Inner London (2019-2023)	1.0436
TEMPRO Growth Factor for London Borough of Camden (2019-2023)	1.0335
Final Growth Factor for 2023	1.0429

The final growth factor can then be used to predict the AADF in 2023 in the 'no development' scenario.

The scheme can be considered to be car-free. The following trips for have been assumed:

- 0 daily LGV trips.

Thus, the final growth factor and the additional trips above are used in the '2023 with development' scenario.

Traffic speeds

Traffic speeds have been estimated based on-site observations and national speed limits. As such, an average traffic speed of 30 miles/hour is applied to all the road sections. Furthermore, it is assumed that the average traffic speeds on the local road network are the same for the opening year of 2023, as they are for the baseline year of 2019. See Appendix C for the full traffic flow data used for each modelling scenario and Appendix D for the layout of roads used in the model.

Street canyon effect

Narrow streets with tall buildings on either side have the potential to create a confined space, which can interfere with the dispersion of pollution from traffic and may result in heightened pollutant concentrations in these streets. In dispersion modelling, these narrow streets are described as street canyons, defined as 'narrow streets where the height of buildings on both sides of the road is greater than the road width'. ADMS-Roads includes a street canyon module to account for the additional turbulent flow patterns occurring inside such a narrow street, with relatively tall buildings on both sides. Street canyon effects have not been incorporated in the dispersion model.

⁸ The TEMPRO factor is obtained from [Trip End Model Presentation Program](#) (TEMPro) (Department for Transport).

⁹ The methodology is obtained from [LAQM](#).

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Modelled pollutants

Concentrations of NO₂, PM₁₀ and PM_{2.5} have been modelled. Note that NO_x concentrations have been modelled as NO_x and converted to NO₂, using the Defra NO_x to NO₂ Calculator¹⁰, in accordance with Local Air Quality Management: Technical Guidance (TG16) (Defra, 2018).

Meteorological data

Hourly meteorological data from the London City Airport meteorological station, as the closest and most applicable station, has been used. Wind speed and direction data from London City Airport meteorological station has been plotted as a wind rose in Figure 11. Most frequent wind is from south-west with most frequent wind speed 5.1-8.2 m/s

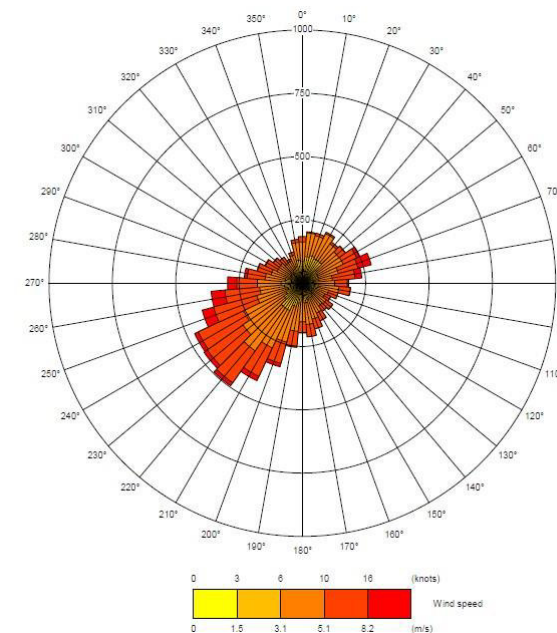


Figure 11: Wind rose for London City Airport (2018).

¹⁰ Defra (2020) NO_x to NO₂ Calculator v8.1. Accessed from the [website](#).

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Background concentrations

Background concentrations of pollutants and particulate matter have been obtained from Defra as listed in Table 15. Defra provides a breakdown of the contribution of background concentrations from specific source types for most pollutants. The background concentration contributed by road transport from within the local area has been removed, to isolate the modelled effects of the road transport emissions on concentrations.

2019 background concentrations are used for the '2019 baseline' scenario and 2023 background concentrations are used for the '2023 no development' and '2023 with development' scenarios.

Model Outputs

Dispersion models cannot predict short-term concentrations as accurately as mean annual concentrations. Furthermore, model verification for short-term concentrations is challenging, particularly with limited monitoring stations capable of recording short-term concentrations. As such, only mean annual concentrations of NO₂ and PM₁₀ and PM_{2.5} will be modelled. TG16 (Defra, 2018) provides guidance on estimating NO₂ hourly NAQO and PM₁₀ 24-hourly NAQO exceedances, where it is not possible to model the hourly and 24-hourly impacts, respectively. See the sections 'Results for NO₂' and 'Results for PM₁₀' for further details.

Model Verification

Systematic errors in dispersion modelling results may arise from a range of factors, such as uncertainties in vehicle traffic flows, speeds, and the composition of the vehicle fleet. Such errors can be addressed and corrected for by making comparisons with monitoring data. The accuracy of the future year modelling results is relative to the accuracy of the base year results. Therefore, greater confidence can be placed in the future year concentrations if good agreement is found for the base year.

Verification of the dispersion model has been undertaken, by comparing modelled pollutant concentrations to monitored pollutant concentrations for the baseline year. Model verification is used to determine the performance of the model against 'real-world' monitored pollutant concentrations and has been undertaken in accordance with the Local Air Quality Management: Technical Guidance (TG16) (Defra, 2018).

Discrepancies between modelled and measured concentrations can arise for a number of reasons, for example:

- Traffic data uncertainties, including uncertainties in emissions factors caused by discrepancies between test cycle and real-world emissions.
- Background concentration estimates.
- Meteorological data uncertainties.
- Sources not explicitly included within the model e.g. car parks and bus stops.
- Overall model limitations, including treatment of roughness and meteorological data, treatment of traffic speeds, slowing down and idling at junctions).
- Uncertainty in monitoring data, particularly diffusion tubes.

Dispersion models may perform differently when comparing results for kerbside, roadside and background monitoring sites. For example, models may predict reasonable concentrations towards background sites, but under-predict at locations closer to the roadside. In addition to the consideration of kerbside, roadside and background sites during model verification, the different types of locations should be considered when comparing modelled and monitored concentrations. For example, modelling undertaken for roadside sites in urban areas (including areas with street canyons) may require a different adjustment to modelling undertaken for roadside sites near motorways or trunk roads in open settings.

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Model refinement

Initially, the dispersion model was run using all the receptors identified in Table 9. The roads identified were A201, A501, A5200 and A4200. Several refinements were carried out and the final model consisted only of monitoring sites CA4A (new).

Comparison

Mean annual NO₂ concentrations have been used for model verification. A comparison of monitored and modelled concentrations is given in Table 17.

Table 17: Comparison of modelled and monitored concentrations for NO_x and NO₂ (µg/m³).

Site ID	2019 monitored NO ₂	2019 monitored road contribution NO _x	2019 modelled road contribution NO _x	Ratio of monitored to modelled road contribution NO _x
CA4A (New)	69.06	70.81	18.06	3.92
CA27	63.81	56.76	21.67	2.62

The mathematical relationship between monitored and modelled road contribution NO_x is given in Figure 12, with a trendline passing through zero and its derived equation.

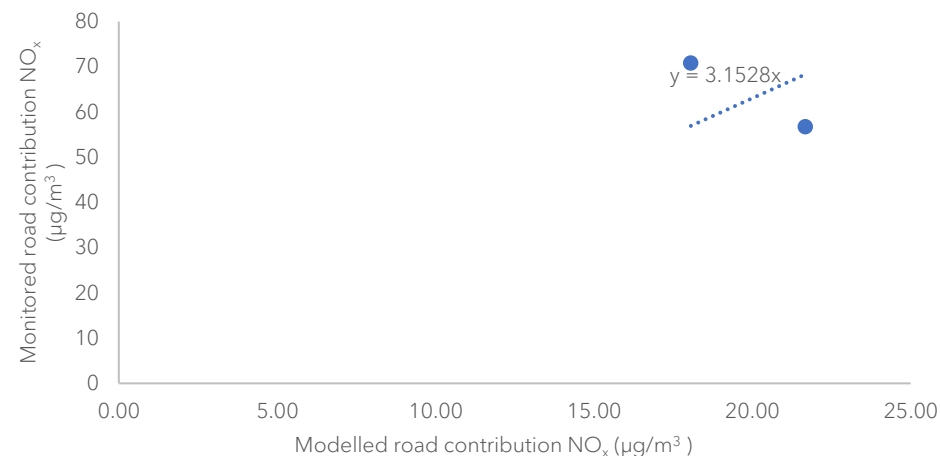


Figure 12: Comparison of monitored and modelled road contribution of NO_x at monitoring sites.

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Adjustment

The adjustment factor derived from Figure 12 (3.1528) has been applied to the modelled road contribution NO_x concentrations before being converted to annual mean NO₂ concentrations using the Defra NO_x to NO₂ calculator (Table 18).

The NO_x adjustment process and derived road contribution NO_x adjustment factor has subsequently been applied to predicted concentrations at receptors for the '2019 baseline', '2023 no development' and '2023 with development' scenarios. The road contribution NO_x adjustment factor (3.1528) has subsequently been applied to all predicted concentrations of PM₁₀ and PM_{2.5}, in accordance with TG16 (Defra, 2018).

Table 18: Model verification results for NO_x and NO₂ (µg/m³).

Site ID	Road contribution NO _x adjustment factor	Adjusted 2019 modelled road contribution NO _x	2019 modelled total NO ₂	2019 monitored NO ₂	% difference modelled to monitored NO ₂
CA4A (New)	3.1528	24.24	63.88	69.1	8.1%
CA27	3.1528	28.5	68.14	63.8	-6.4%

The correlation between modelled and monitored NO₂ concentrations at the monitoring sites has been achieved by applying a model correction factor, detailed in Table 18. The final adjusted model results in modelled concentrations that are within 10% of the monitored concentrations, as required by TG16 (Defra, 2018). This demonstrates that the adjusted model predictions are in line with the 'real-world' monitoring concentrations.

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Modelled Receptors

Dispersion modelling determines the concentrations of pollutants at specified receptors. Receptors have been modelled at the façade facing Calthorpe Street but at different heights as detailed in Table 19. A plan of the modelled receptor locations is given in Figure 13.

Table 19: Summary of modelled receptors.

Receptor ID	X coordinate	Y coordinate	Description	Height (m)
RA1	530941	182466	Façade facing Calthorpe Street, ground floor	2.5,
RA2	530941	182466	Façade facing Calthorpe Street, first floor	5.5
RA3	530941	182466	Façade facing Calthorpe Street, second floor	8.5

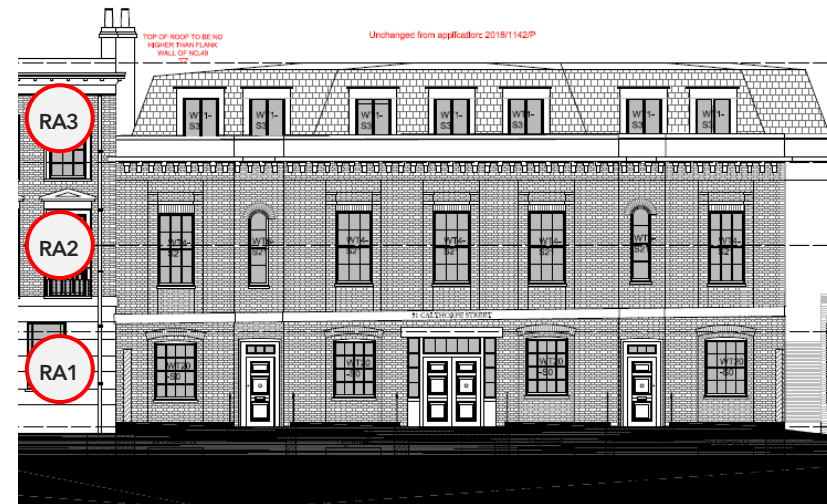


Figure 13: Plan of modelled receptors at façade facing Calthorpe Street.

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Significance of Effects

The significance of effects from the operational phase of the development may be assessed by comparing the change in mean annual concentrations at receptors between the modelled scenarios, in accordance with the EPUK and IAQM's 'Land-Use Planning & Development Control: Planning For Air Quality' (2017) guidance. Significance of the effects of changing concentrations is defined in accordance with the qualitative descriptors and thresholds defined in Table 20.

The significance of effects is a measure of both the pre-development concentration at a receptor (for the '2023 no development' scenario), and the change from the pre-development concentration to post-development ('2023 with development' scenario), against the relevant Air Quality Assessment Level (AQAL). In this case, the AQAL is the respective National Air Quality Objective (NAQO) for NO₂, PM₁₀ and PM_{2.5}. Note that changes of 0% or less (i.e. less than 0.5%) are described as 'negligible'.

Table 20: Significance of effects matrix.

Long-term average concentration at receptor	% change in mean annual concentration relative to AQAL			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Results for NO₂

Table 21: Results of NO₂ annual mean concentrations for '2019 baseline', '2023 no development' and '2023 with development'.

Receptor ID	2019 baseline	2023 no development	2023 with development
RA1	38.14	34.07	34.07
RA2	38.03	34.00	34.00
RA3	37.86	33.89	33.89

Table 22: Significance of effects from NO₂ concentrations for '2023 with development'.

Receptor ID	NO ₂ concentrations for '2023 with development'
RA1	Negligible
RA2	Negligible
RA3	Negligible

NO₂ annual mean concentration

Table 21 provides an overview of the predicted mean annual NO₂ concentrations for all modelled receptors at the development site:

- NO₂ concentrations at the site are predicted to be highest for the '2019 baseline' scenario (Table 21), falling slightly for the '2023 no development' and '2023 with development' scenarios. NO₂ concentrations for the '2019 baseline' were below the NAQO (mean annual NO₂ concentration of 40 µg/m³) but above 36 µg/m³, accounting for a potential 10% margin for error at all receptors.
- NO₂ concentrations for the '2023 no development' and '2023 with development' scenarios are predicted to be below the NAQO and below 36 µg/m³, accounting for a potential 10% margin for error at all receptors. The concentrations of NO₂ are similar for both scenarios mainly because the scheme is proposed to be car-free and the proposed trips for deliveries are minimal.
- Residents using opening windows are predicted not to be exposed to high level of NO₂ annual mean concentrations.

NO₂ hourly mean NAQO exceedances

Research undertaken on behalf of Defra in 2003¹¹ identified that exceedances of the NO₂ hourly mean NAQO are unlikely to occur where the annual mean is below 60 µg/m³. In accordance with TG16 (Defra, 2017), this assumption is still considered to be valid, particularly for roadside locations, where road traffic is the primary source of emissions. The dispersion modelling predicts that this would be achieved at all receptors for the '2023 no development' and '2023 with development' scenarios.

Significance of impacts

With reference to the EPUK and IAQM's (2017) guidance, the significance of effects from NO₂ concentrations on the proposed development is 'negligible' at all modelled receptors, as shown in Table 22. As the percentage change in relation to NAQO is never greater than, or equal to, 0.5%, the significance of effects at all receptors is defined as 'negligible'. The impact of NO₂ concentrations on the development is not deemed to be significant.

¹¹ Laxen D and Marnier B (2003) Analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites. Accessed [here](#).

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Results for PM₁₀

Table 23: Results of PM₁₀ annual mean concentrations for '2019 baseline', '2023 no development' and '2023 with development'.

Receptor ID	2019 baseline	2023 no development	2023 with development
RA1	20.44	19.20	19.20
RA2	20.42	19.17	19.17
RA3	20.38	19.13	19.13

Table 24: Significance of effects from PM₁₀ concentrations for '2023 with development'.

Receptor ID	PM ₁₀ concentrations for '2023 with development'
RA1	Negligible
RA2	Negligible
RA3	Negligible

PM₁₀ annual mean concentration

Table 23 provides an overview of the predicted mean annual PM₁₀ concentrations for all modelled receptors at the development site:

- PM₁₀ concentrations at the site are predicted to be slightly higher for the '2019 baseline' scenario (Table 23), decreasing for the '2023 no development' and '2023 with development' scenarios. PM₁₀ concentrations for the '2019 baseline' were significantly below the NAQO (mean annual PM₁₀ concentration of 40 µg/m³) and below 36 µg/m³, accounting for a potential 10% margin for error at all receptors. The WHO guideline (mean annual PM₁₀ concentration of 15 µg/m³) was exceeded at all receptors.
- PM₁₀ concentrations are predicted to be well below the NAQO (mean annual PM₁₀ concentration of 40 µg/m³) and below 36 µg/m³, accounting for a potential 10% margin for error, for the '2023 no development' and '2023 with development' scenarios at all receptors. The WHO limit (mean annual PM₁₀ concentration of 15 µg/m³) is exceeded at all receptors.
- Residents using the openable windows are predicted not to be exposed to high level of PM₁₀ annual mean concentrations.

PM₁₀ 24-hour mean NAQO exceedances

TG16 (Defra, 2018) provides a methodology to estimate the likely 24-hourly concentrations for PM₁₀ from annual mean concentrations as shown in the equation below. The highest PM₁₀ concentration for the '2019 baseline' scenario (20.4 µg/m³) results in an estimated number of annual occurrences of the 24-hourly mean above 200 µg/m³ of 4.0 (significantly less than the NAQO of 18). It is therefore concluded that this NAQO would be achieved at the site.

$$\text{likely 24 hourly PM}_{10} \text{ concentrations} = -18.5 + 0.00145 \times \text{Annual Mean}^3 + \frac{206}{\text{Annual Mean}}$$

Significance of impacts

The significance of effects of PM₁₀ concentrations on the proposed development is deemed to be 'negligible' at all receptors, as demonstrated in Table 24.

Dispersion Modelling

Air Quality Assessment

51 Calthorpe Street

Results for PM_{2.5}

Table 25: Results of PM_{2.5} annual mean concentrations for '2019 baseline', '2023 no development' and '2023 with development'.

Receptor ID	2019 baseline	2023 no development	2023 with development
RA1	12.97	12.16	12.16
RA2	12.95	12.15	12.15
RA3	12.92	12.12	12.12

Table 26: Significance of effects from PM_{2.5} concentrations for '2023 with development'.

Receptor ID	PM _{2.5} concentrations for '2023 with development'
RA1	Negligible
RA2	Negligible
RA3	Negligible

PM_{2.5} annual mean concentration

Table 25 provides an overview of the predicted mean annual PM_{2.5} concentrations for all modelled receptors at the development site:

- PM_{2.5} concentrations at the site are predicted to be marginally higher for the '2019 baseline' scenario (Table 25), decreasing for the '2023 no development' and '2023 with development' scenarios. PM_{2.5} concentrations for the '2019 baseline' were significantly below the NAQO (mean annual PM_{2.5} concentration of 25 µg/m³) and below 22.5 µg/m³, accounting for a potential 10% margin for error at all receptors. However, the WHO guideline was not achieved.
- PM_{2.5} concentrations are predicted to be well below the NAQO (mean annual PM_{2.5} concentration of 25 µg/m³) and below 22.5 µg/m³, accounting for a potential 10% margin for error for 2023 no development' and '2023 with development' scenarios at all receptors. The WHO limits (mean annual PM_{2.5} concentration of 5 µg/m³) are exceeded at all modelled receptors.
- Residents using the openable windows are predicted not to be exposed to high level of PM_{2.5} annual mean concentrations.

Significance of impacts

The significance of effects from PM_{2.5} concentrations on the proposed development is deemed to be 'negligible' at all receptors, as demonstrated in Table 26.

Air Quality Neutral

Air Quality Assessment

51 Calthorpe Street

Operational Impacts: Air Quality Neutral

Policy SI 1 in the London Plan 2021, 'Improving air quality' requires that development proposals should not lead to further deterioration of existing poor air quality and that they must be at least Air Quality Neutral (AQN). The proposed development has been assessed for its performance against the AQN guidance and benchmarks, for both transport and building-related emissions.

Air Quality Neutral: Transport Emissions

The AQN guidance provides a methodology for calculating the Transport Emissions Benchmark (TEB) for specific land use types. The TEB has been calculated for the development (Table 27) using the factors for Class C3 (residential) and Class E (commercial space).

The development proposal does not include any additional car parking spaces. Therefore, traffic related air quality impacts are assessed to be negligible.

Table 27: Transport Emissions Benchmark (TEB).

Development metric	Residential	Commercial	Total
Applicable planning use class for TEB	Dwelling Houses (C3)	Commercial (E)	-
Gross Internal Area (m ²)	773.0	194.0	967.0
Number of dwellings - residential only	8	0	8
Location (CAZ/inner/outer)	CAZ	CAZ	-
NO _x TEB factor (g/m ² /year) - non-residential	0.0	1.3	1.3
NO _x TEB factor (g/dwelling/year) - residential	234.0	0.0	-
Total NO_x TEB (kg/year)	1.9	0.2	2.1
PM ₁₀ TEB factor (g/m ² /year) - non-residential	0.0	0.2	-
PM ₁₀ TEB factor (g/dwelling/year) - residential	40.7	0.0	-
Total PM₁₀ TEB (kg/year)	0.3	0.0	0.4

Air Quality Neutral

Air Quality Assessment

51 Calthorpe Street

Table 28: Comparison of calculated transport emissions against TEBs.

Development metric	Residential	Commercial	Total
Applicable planning use class for TEB	Dwelling Houses (C3)	Commercial (E)	-
Daily trips by car	0	0	0
Annual car trips by car	0	0	0
Location (CAZ/inner/outer)	CAZ	CAZ	-
Average distance travelled per car trip (km)	4.3	3.0	7
Annual distance travelled by car (km/year)	0.0	0.0	0.0
NO _x emissions factor (g/km)	0.422	0.422	-
Total NO _x emissions (kg/year)	0.0	0.0	0
Difference from NO _x TEB to actual	-1.9	-0.2	-2.1
Transport NO_x AQN result	Pass	Pass	Pass
PM ₁₀ emissions factor (g/km)	0.0733	0.0733	-
Total PM ₁₀ emissions (kg/year)	0.0	0.0	0
Difference from PM ₁₀ TEB to actual	-0.3	0.0	-0.4
Transport PM₁₀ AQN result	Pass	Pass	Pass

The development passes the AQN test for transport emissions based on the proposed trip generations (Table 28).

Air Quality Neutral: Building Emissions

The AQN guidance provides a methodology for calculating the Building Emissions Benchmark (BEB) for specific land use types. The BEB has been calculated for the development (Table 29) using the factors for Class C3 and Class E.

Table 29: Building Emissions Benchmark (BEB).

Development metric	Residential	Commercial	Total
Applicable planning use class for BEB	Dwelling Houses (C3)	Commercial (E)	-
Gross internal area (m ²)	773.0	194.0	967.0
NO _x BEB factor (g/m ² /year)	26.2	75.2	101.4
Total NO_x BEB (kg/year)	20.3	14.6	34.8
PM ₁₀ BEB factor (g/m ² /year)	2.28	1.77	4.05
Total PM₁₀ BEB (kg/year)	1.8	0.3	2.1

An Energy Statement was produced by Eight Associates in August 2020, which is based on a strategy to reduce energy demand as far as practically and economically possible, by implementing energy efficiency measures before applying low carbon and renewable energy technologies. The use of biomass, combined heat and power (CHP) and gas boilers have been excluded from the scheme. The residential units are served by a communal air source heat pump with a minimum COP of 2.90 will be proposed as the main heating system. Heat will be provided via radiators and will be controlled with a charging system linked to use of community with programmer and TRVs. It is proposed to use a communal air source heat pump with a minimum COP of 2.90 to provide heating to the commercial spaces. Heat will be provided via radiators and will be controlled by local time and temperature. Hot water will be provided by the air source heat pump, with a minimum COP of 2.90. A top-up electric immersion heater will provide less than 20% of the hot water demand.

Air Quality Neutral

Air Quality Assessment

51 Calthorpe Street

Since the energy consumption will all be electricity-based, the development, therefore, passes the AQN test for building emissions (Table 30).

Table 30: Comparison of calculated building emissions against BEBs.

Development metric	Residential	Commercial	Total
Applicable planning use class for BEB	Dwelling Houses (C3)	Commercial (E)	-
Total annual gas consumption from boilers (mg/kWh)	0	0	0
Boilers NO _x emissions factor (mg/kWh)	38	38	-
Total NO _x emissions from boilers (kg/year)	0.0	0.0	0
Total annual gas consumption from CHP (kWh/year)	0.0	0.0	0
CHP NO _x emissions factor (mg/kWh)	0.0	0.0	-
Total NO _x emissions from CHP (kg/year)	0.0	0.0	0
Total NO _x emissions (kg/year)	0.0	0.0	0
Difference from NO _x BEB to actual	-20.3	-14.6	-34.8
Building NO_x AQN result	Pass	Pass	Pass
Total annual oil or solid fuel consumption (kWh/year)	0.0	0.0	0
PM ₁₀ emissions factor (mg/kWh)	0.0	0.0	-
Total PM ₁₀ emissions (kg/year)	0.0	0.0	0
Difference from PM ₁₀ BEB to actual	-1.8	-0.3	-2.1
Building PM₁₀ AQN result	Pass	Pass	Pass

Air Quality Neutral Statement

The Sustainable Design and Construction SPG issued by the Mayor of London, sets out the requirement for all major developments in Greater London to undertake an AQN Test and be designed so that they are at least 'air quality neutral'. A development is considered to be AQN if it can be demonstrated that both emissions from the operation of a proposed development and transport as a result of the proposed development achieve the relevant emissions benchmarks provided in the AQN guidance.

The development achieves both the TEB and BEB and, therefore, passes the AQN test. No additional mitigation for the purposes of AQN is required.

Mitigation Measures

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Pollution Mitigation Hierarchy

The development passes the AQN test for transport and building emissions. Additionally, the impact of NO₂, PM₁₀ and PM_{2.5} concentrations on the development are deemed to be insignificant at the façade facing Calthorpe Street as per the air dispersion modelling. Therefore, no additional mitigation or offsetting measures for the operational phase of the development will be required.

However, the principles of the pollution mitigation hierarchy, outlined in the Institute of Air Quality Management (IAQM) 'Mitigation of Development Air Quality: Position Statement', have been applied to the proposed development to minimise the exposure of future building users and occupants.

1. Prevention and Avoidance

Preference should be given to preventing or avoiding exposure/impacts to the pollutant in the first place by eliminating or isolating potential sources or by replacing sources or activities with alternatives.

Cycle storage

Cycling will be promoted by the inclusion of a cycle storage, which will be provided using a covered and secure system.

Sustainable energy technologies

The residential units are served by a communal air source heat pump with a minimum COP of 2.90 will be proposed as the main heating system. Heat will be provided via radiators and will be controlled with a charging system linked to use of community with programmer and TRVs. It is proposed to use a communal air source heat pump with a minimum COP of 2.90 to provide heating to the commercial spaces. Heat will be provided via radiators and will be controlled by local time and temperature. Hot water will be provided by the air source heat pump, with a minimum COP of 2.90. A top-up electric immersion heater will provide less than 20% of the hot water demand.

2.a Reduction and Minimisation: Mitigation Measures that act on the Source

Reduction and minimisation of exposure/impacts should next be considered, once all options for prevention/avoidance have been implemented so far as is reasonably practicable (both technically and economically).

No mitigation measures are proposed.

2.b. Reduction and Minimisation: Mitigation Measures that act on the Pathway

Urban greening

The proposed development will include soft landscaping at amenity spaces of the development and green roof. These strategies of urban greening will help alleviate pollution, benefitting the air quality of the development. In addition, it will introduce a new biodiversity to the development, contributing to the ecology of the area.

Mitigation Measures

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

2.c. Reduction and Minimisation: Mitigation Measures at or Close to the Point of Receptor Exposure

Ventilation strategy

Natural Ventilation have been considered in all units and extract ventilation in toilets

3. Off-setting

Off-setting a new development's air quality impact by proportionately contributing to air quality improvements elsewhere (including those identified in Air Quality Action Plans and low emission strategies) should only be considered once the solutions for preventing/avoiding, and then for reducing/minimising, the development-specific impacts have been exhausted. Even then, offsetting should be limited to measures that are likely to have a beneficial impact on air quality in the vicinity of the development site. It is not appropriate to attempt to offset local air quality impacts by measures that may have some effect remote from the vicinity of the development site.

The mitigation measures proposed are appropriate to the scale and nature of the development (see sections 1. to 2.c. above). No additional off-setting measures are proposed.

Conclusions

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418

www.eightassociates.co.uk

info@eightassociates.co.uk

Conclusions

The unmitigated risk to local sensitive receptors from emissions of dust and pollution from construction is deemed to be low. However, the risk will be mitigated further through the measures set out in the Air Quality & Dust Management Plan (AQDMP), which will be implemented through the contractor's Construction Environmental Management Plan. With the mitigation measures in place, the residual effects arising from the construction phase of the proposed development would be deemed 'not significant'.

The entire borough was declared as an Air Quality Management Area (AQMA) in 2002 for exceedances of the NAQOs for the annual mean NO₂ and 24-hour mean exceedance for PM₁₀. The site is not located in a NO₂ Focus Area.

A review of the latest monitoring data for NO₂ at the closest locations to the development indicates that the NAQO at the closest monitoring stations has been consistently achieved between the latest reporting years of 2016-2019, where relevant. NAQOs at other monitoring sites were consistently achieved for reporting years 2016-2019. Although some of the sites demonstrated exceedances, there is a decreasing trend in NO₂ levels. Additionally, the NAQO for the hourly mean (for no more than 18 exceedances of the 200 µg/m³ hourly mean) has been consistently achieved at the automatic monitoring station for the years 2016-2019. The LAEI 2016 modelled mean annual NO₂ concentrations were estimated at approximately 51 µg/m³ at the site, exceeding both the NAQO and WHO guideline.

Nearby monitored mean annual PM₁₀ concentrations and 24-hourly PM₁₀ concentrations achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM₁₀ at the site were estimated at approximately 26 µg/m³, achieving the NAQO but exceeding the WHO guidelines.

Nearby monitored mean annual PM₁₀ concentrations and 24-hourly PM₁₀ concentrations achieved the NAQOs. The LAEI 2016 modelled mean annual concentrations of PM_{2.5} are estimated as approximately 16 µg/m³, achieving the NAQO but exceeding the WHO guideline.

Atmospheric dispersion modelling was carried out. The performance of the modelled receptors at the façade facing Calthorpe Road indicates the effects of NO₂, PM₁₀ and PM_{2.5} concentrations in the three different scenarios, 'Baseline 2019', '2023 no development' and '2023 with development' are not significant. Therefore, residents having access to amenity spaces and openable windows will not be exposed to high level of pollution.

For developments within London, the AQA methodology includes the requirement to undertake an assessment against the Air Quality Neutral (AQN) guidance. The scheme has been assessed for both the impacts of transport and building operation against the AQN guidance and it meets the requirements for AQN.

Based on the findings of the report, no further mitigation measures to reduce the effects of air pollution are required. One of the main reasons is the neighbouring Royal Mail warehouse has become vacant recently, which significantly reduced traffic and therefore emissions from the road transport. It can be concluded that conditions 15 and 16 of the decision notice (2018/1142/P) should be removed, including NO_x filters and continuous on-site monitoring.

Even though further mitigation measures to reduce exposure of future occupants to pollutants are not explicitly required, the design mitigation hierarchy has been applied nonetheless, to maximise air quality for occupants, where feasible. Measures include, provision of sustainable transport modes, such as cycling, integration of low carbon energy technologies and urban greening.

Appendix A

Air Quality Assessment

51 Calthorpe Street

Air Quality & Dust Management Plan: Roles and Responsibilities

The Site Manager will have overall responsibility for dust management during construction and will ensure that all site personnel are effectively briefed and given adequate resources to undertake the air quality and dust management requirements, as set out in this Air Quality & Dust Management Plan (AQDMP).

Key roles and responsibilities for the Site Manager and site personnel are outlined in Table A-1.

Table A-1: Schedule of AQDMP responsibilities.

Role	Responsibilities
Site manager	Ensure that the mitigation and monitoring requirements outlined in the AQDMP are carried out during works on site.
	Ensure that staff are aware of the requirements of the AQDMP and have access to the document. Regular training of staff should be implemented.
	Undertake and record dust inspections of the site as required by the AQDMP.
	Ensure that site documentation (including method statements and risk assessments) include adequate dust mitigation.
	Act on complaints and dust alerts as detailed in the AQDMP.
	Maintain up-to-date site log of air quality events and complaints.
	Investigate the cause of air quality events and apply additional mitigation as required.
	Act as the key point of contact for queries and complaints regarding air quality emissions from site.
	Report observations of dust events or deviations from the AQDMP procedures.

Table A-1: Schedule of AQDMP responsibilities (continued).

Role	Responsibilities
Site personnel	Carry out the works in accordance with the AQDMP requirements.
	Report observations of dust events or deviations from the AQDMP procedures.
	Attend environmental management training.

Hours of Work

Normal working hours for 51 Calthorpe Street construction site will be as follows:

- Monday - Friday: 08:00 - 18:00.
- Saturday: 08:00 - 13:00.

There will not typically be any construction activities undertaken outside of the stated working hours, including on Sundays, Public Holidays or Bank Holidays. In the event that construction activities are sought to be undertaken outside of the normal working hours, these will be agreed in writing with the local planning authority in advance.

Measures Relevant for Demolition, Earthworks, Construction and Trackout

Robust site management will be required to control the dust emissions from construction activities. Mitigation methods, in accordance with 'The Control of Dust and Emissions during Construction and Demolition' SPG (Mayor of London, 2014) have been proposed for the site.

All 'required' mitigation measures must be implemented. We would strongly recommend that all 'recommended' measures are implemented, along with those that are 'not required' where feasible.

Appendix A

Air Quality Assessment

51 Calthorpe Street

It is recommended that these measures, as detailed in Table A-2, be set out in the site-specific Construction Environmental Management Plan, which will form part of the proposed development's overall Construction Management Plan.

Table A-2: Schedule of construction phase mitigation measure requirements.

Site management	
Mitigation measure	Compliance requirements
1) Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	Not required
2) Develop a Dust Management Plan.	Not required
3) Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary.	Required
4) Display the head or regional office contact information.	Required
5) Record and respond to all dust and air quality pollutant emissions complaints.	Required
6) Make a complaint log available to the local authority when asked.	Required
7) 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.	Required
8) 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.	Required
9) 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.	Required

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Site management	
Mitigation measure	Compliance requirements
10) Hold regular liaison meetings with other high-risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised.	Not required
Preparing and maintaining the site	
Mitigation measure	Compliance requirements
11) Plan site layout: machinery and dust causing activities should be located away from receptors	Required
12) Erect solid screens or barriers around dust activities or the site boundary that are, at least, as high as any stockpiles on site.	Required
13) Full enclosure of the site or specific operations where there is a high potential for dust production and the site is active for an extensive period..	Recommended
14) Install green walls, screens or other green infrastructure to minimise the impact of dust and pollution.	Not required
15) Avoid site runoff of water and mud.	Required
16) Keep site fencing, barriers and scaffolding clean using wet methods.	Recommended
17) Remove materials from site as soon as possible.	Recommended
18) Cover, seed or fence stockpiles to prevent wind whipping.	Not required
19) Carry out regular dust soiling checks of buildings within 100 m of site boundary and cleaning to be provided if necessary.	Not required

Appendix A

Air Quality Assessment

51 Calthorpe Street

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Preparing and maintaining the site	
Mitigation measure	Compliance requirements
20) Provide showers and ensure a change of shoes and clothes are required before going off-site to reduce transport of dust.	Not required
21) Agree monitoring locations with the Local Authority.	Not required
22) Where possible, commence baseline monitoring at least three months before phase begins.	Not required
23) Put in place real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly.	Not required

Operating vehicles/machinery and sustainable travel	
Mitigation measure	Compliance requirements
24) Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone.	Required
25) Ensure all non-road mobile machinery (NRMM) comply with the standards set within this guidance.	Required
26) Ensure all vehicles switch off engines when stationary - no idling vehicles.	Required
27) Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where possible.	Required
28) 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).	Recommended

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Operating vehicles/machinery and sustainable travel	
Mitigation measure	Compliance requirements
29) Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	Not required
30) Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	Required

Operations	
Mitigation measure	Compliance requirements
31) 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.	Required
32) Ensure an adequate water supply on the site for effective dust/particulate matter mitigation (using recycled water where possible).	Required
33) Use enclosed chutes, conveyors and covered skips.	Required
34) Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	Required
35) 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.	Not required

Appendix A

Air Quality Assessment

51 Calthorpe Street

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Waste management	
Mitigation measure	Compliance requirements
36) Reuse and recycle waste to reduce dust from waste materials.	Required
37) Avoid bonfires and burning of waste materials.	Required

Measures Specific to Demolition

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Demolition	
Mitigation measure	Compliance requirements
38) Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	Recommended
39) Ensure water suppression is used during demolition operations.	Required
40) Avoid explosive blasting, using appropriate manual or mechanical alternatives.	Required
41) Bag and remove any biological debris or damp down such material before demolition.	Required

Measures Specific to Earthworks

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Earthworks	
Mitigation measure	Compliance requirements
42) Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces.	Not required
43) Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil.	Not required
44) Only remove secure covers in small areas during work and not all at once.	Not required

Appendix A

Air Quality Assessment

51 Calthorpe Street

Measures Specific to Construction

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Construction	
Mitigation measure	Compliance requirements
45) Avoid scabbling (roughening of concrete surfaces) if possible.	Recommended
46) 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.	Recommended
47) Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	Not required
48) For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.	Not required

Measures Specific to Trackout

Table A-2: Schedule of construction phase mitigation measure requirements (continued).

Trackout	
Mitigation measure	Compliance requirements
49) Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site.	Recommended
50) Avoid dry sweeping of large areas.	Recommended
51) Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport.	Recommended
52) Record all inspections of haul routes and any subsequent action in a site logbook.	Not required
53) Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems and regularly cleaned.	Not required
54) Inspect haul routes for integrity and instigate necessary repairs to the surface, as soon as reasonably practicable.	Not required
55) Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	Recommended
56) Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	Not required
57) Access gates to be located at least 10m from receptors, where possible.	Not required
58) Apply dust suppressants to locations where a large volume of vehicles enters and exit the construction site.	Not required

Appendix B

Air Quality Assessment

51 Calthorpe Street

Dispersion Model Inputs

Table B- 1: Summary of inputs and parameters used in dispersion model.

Parameter	Description	Input value
Software type	ADMS-Roads Extra version 5	-
Coordinate system	Setting to align geographical data with a coordinate system.	<i>OSGB 1936 / British National Grid</i> used.
Chemistry	Settings to calculate the atmospheric chemical reactions between nitric oxide (NO), ozone (O ₃) and volatile organic compounds (VOCs).	No atmospheric chemistry parameters included.
Meteorology	Representative meteorological data from a local source.	<i>London City Airport meteorological station</i> , hourly sequential data used.
Surface roughness	Setting to define the surface roughness of the model area based on its location and surface characteristics.	<i>1.5m</i> selected, representing a typical surface roughness for <i>large urban areas</i> .
Latitude	Setting to allow the location of the model area to be defined.	<i>52°</i> selected for United Kingdom.
Advanced dispersion site data	Settings to define specific surface albedo, minimum Monin-Obukhov length, Priestley-Taylor parameter and precipitation factor for site.	Advanced dispersion site parameters included for Minimum Monin-Obukhov length, and model defaults used for all other parameters.
Elevation of roads	Setting to allow the height of road links above ground level to be specified.	All road links set to ground level at <i>0m</i> .
Road width	Setting to allow the width of the road links to be specified.	Road widths selected for individual road links based on data obtained from OS map data.
Topography	Setting to allow complex terrain data to be included within the model in order to account for topographical effects on turbulence and plume spread.	No regional topographical data files available to complex terrain data inputs not used.
Time varied emissions	Setting to enable daily, weekly or monthly variations in emissions to be applied to emissions sources.	Time varied emissions data inputs are used.
Road type	Setting to allow the effect of different types of roads to be assessed.	London (inner) road type selected.
Road speeds	Setting to accommodate the effects of road speeds on different roads on emissions sources.	Individual road speeds based on national speed limits and observations from street images.

Appendix B

Air Quality Assessment

51 Calthorpe Street

Table B- 1: Summary of inputs and parameters used in dispersion model (continued).

Parameter	Description	Input value
Street canyon modelling	Settings to enable both 'basic' and 'advanced' street canyon modelling of road links.	Street canyon modelling is not relevant for this site.
Road source emissions	Settings to input road source emissions based on road traffic emission calculation method.	UK Emissions Factor Toolkit (EFT) version 9.0 selected for the respective baseline and proposed operational years of the development.
Point source emissions	Settings to input point sources, for example from industrial sources and energy centres.	No point source emissions included.

Appendix C

Air Quality Assessment

51 Calthorpe Street

Dispersion Model Traffic Inputs

Table C- 1: Traffic flow data [average speed, annual average daily traffic flow (AADT) and % contribution of heavy duty vehicles (HDVs) to AADT] for each modelled scenario.

Road name	Speed (km/h)	2019 baseline		2023 no development		2023 with development	
		AADT	% HDV	AADT	% HDV	AADT	% HDV
A201_2	32	18,188	4%	18,969	4%	18,969	4%
A501	32	51,573	8%	53,786	8%	53,786	8%
A5200	32	12,959	7%	13,515	7%	13,515	7%
A4200	32	14,516	17%	15,139	17%	15,139	17%

Appendix D

Air Quality Assessment

51 Calthorpe Street

eight
associates

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Dispersion Model Area

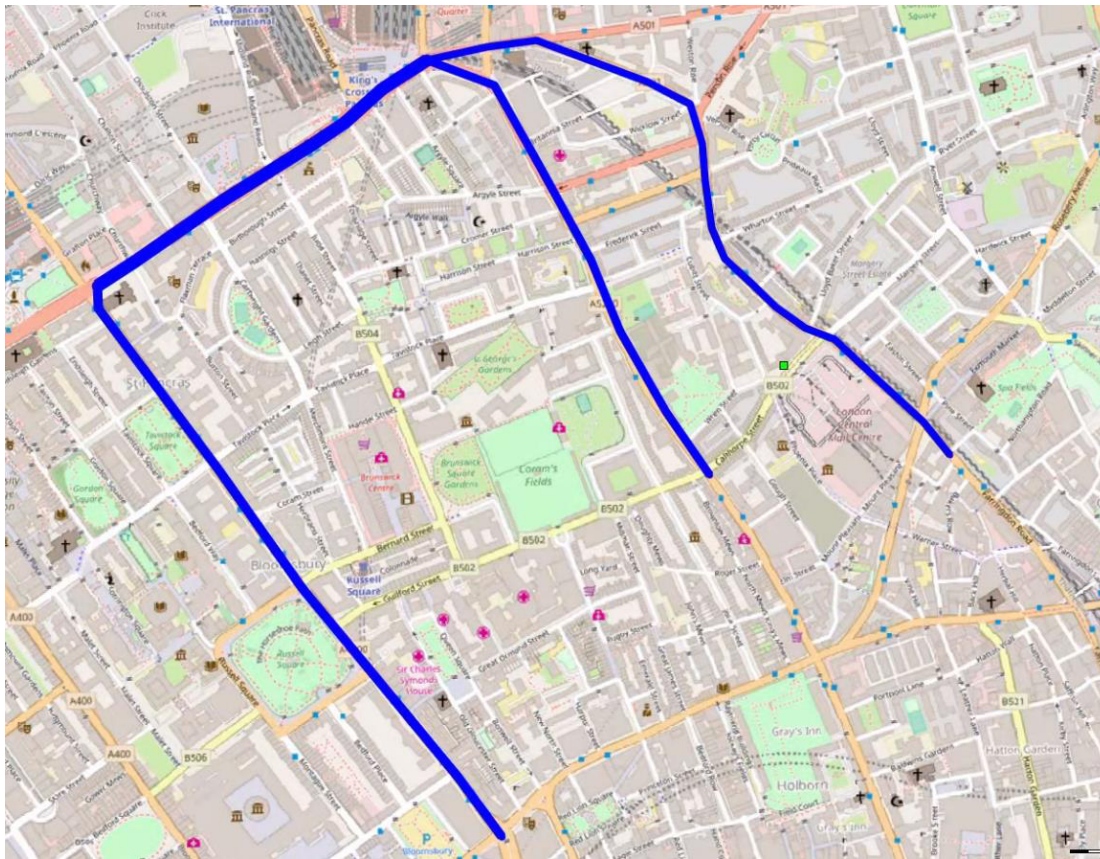


Figure D- 1: Dispersion model area, showing road emissions sources (in blue) and modelled receptors around the development (in green).

Appendix E

Air Quality Assessment

51 Calthorpe Street

**eight
associates**

+44 (0)20 7043 0418
www.eightassociates.co.uk
info@eightassociates.co.uk

Camden Air Quality Proforma

Proforma for development proposals in Camden to inform assessment of Air Quality v1a

All relevant yellow boxes must be completed on this and all relevant tabs

Complete orange cells with source document and section/page references, required to support/justify responses

See guidelines / notes in column M

Complete the summary tab and relevant tab depending on the type of Air Quality Assessment required.

Introduction: This Proforma is intended to help you understand the air quality considerations we will take into account when considering an application in Camden, as well as helping us to consider the application. This does not replace the requirement to provide an Air Quality Assessment or the detailed guidance in the Camden Planning Guidance (CPG) on Air Quality. Any information provided should be referenced to the relevant section of submitted supporting documents. This summary page will help provide key details on the application.

Application details:

Application number (when known)						
Scheme name	51 Calthorpe Street					
Scheme address	51 Calthorpe Street, London					
Postcode	WC1X 0HH					
Type of development (choose drop down options)	Mixed use					
No. of residential units	8					
Scale of development details (m ²)	Existing			Proposed		
	TOTAL pre-development	For demolition	New-build incl. infills, re-build, extensions	Retained (refurbished or Change of Use)	TOTAL post-development	Net UPLIFT post-development
Total floor area of development (GIA)	850	20	1748	830	2578	1728
of which residential	0		684	0	684	684
of which non-residential	850	20	1064	830	1894	1044
Air Quality Assessment document details	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv					
Baseline scenario year used (projections not accepted)	2019					
Development year used for scenarios	2023					

Approve/Condition/Refuse

1. Air Quality Assessment (AQA) requirement

Air Quality in development area (to determine assessment requirement)	Response	Document	Page/ section reference
a. NO ₂ at development site	51	6927 - 51 Calthorpe Street - Air Quality	19
b. PM ₁₀ at development site	26	6927 - 51 Calthorpe Street - Air Quality	20
c. PM _{2.5} at development site	16	6927 - 51 Calthorpe Street - Air Quality	20
d. Does the proposal introduce new receptors?	YES	6927 - 51 Calthorpe Street - Air Quality	2
e. Will the proposals include sensitive receptors?	YES	6927 - 51 Calthorpe Street - Air Quality	2
f. Is there a likely increase in traffic levels from existing base?	NO	6927 - 51 Calthorpe Street - Air Quality	23
g. Includes biomass boilers or CHP (combined heat and power)	NO	6927 - 51 Calthorpe Street - Air Quality	34
h. Includes connections to existing decentralised energy networks	NO	6927 - 51 Calthorpe Street - Air Quality	34
i. Involves substantial earthworks or demolition?	NO	6927 - 51 Calthorpe Street - Air Quality	2
	Response		
j. Given responses above (using flow chart below) what minimum level of AQA is required?	Detailed	Go to relevant AQA tab (if required)	

Scale	Criteria met			Assessments Required		
	Area of Poor Air Quality	Scheme brings sensitive receptors	Scheme brings air quality impacts	Air Quality Assessment type	Air Quality Neutral	Construction and Demolition Impacts
Major	YES	YES	YES	Detailed	Required	Required
			NO	Detailed		
		NO	Basic			
	NO	YES	YES	Detailed		
			NO	Basic		
		NO	Basic			
Minor	YES	YES	YES	Detailed	Not required	May be required
			NO	Basic		
		NO	Not required			
	NO	YES	YES	Detailed		
			NO	Not required		
		NO	Basic			
		NO	Not required			

Proforma for development in Camden - Air Quality Requirements

All relevant yellow boxes must be completed

Complete orange cells with source document and section/page references, required to justify/support responses

See guidelines / notes in column M

Recommendation
(Council to complete)

2. Background AQ

Background concentrations used for modelling	Response	Document	Page/ section reference
a. Background annual NO ₂ in vicinity of development	35.5 µg/m ³	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	21
b. Background annual PM ₁₀ in vicinity of development	19.3 µg/m ³	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	21
c. Background annual PM _{2.5} in vicinity of development	12.2 µg/m ³	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	21
d. Background data source	DEFRA background maps	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	21

3. Operational impact of development on local area

	Response	Document	Page/ section reference
a. If gas boilers are proposed what is the NO _x rating?	N/A µg/m ³	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
b. Is the development "zero on-site emission" (energy sources)	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
c. Is the development "zero on-site emission" (non-energy sources)	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
d. Is the development car free?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
e. Is CHP proposed?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
f. Is a biomass boiler proposed?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
g. Is any stack at least 1m above the highest part of the development?	N/A	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
h. What output capacity of emergency or STOR generation is proposed?	N/A kWe	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
i. Emergency or STOR generation fuel source?	N/A	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34

3a. Air Quality Neutral Assessment (required for all Major developments)

	NO _x kg per annum	PM ₁₀ kg per annum	Document	Page/ section reference
Building Emissions Benchmark (BEB)	34.8	2.1	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
Total Building Emissions for development			6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	34
Difference	-34.8	-2.1		
Transport Emissions Benchmark (TEB)	2.1	0.4	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	33
Total Transport Emissions for development	0	0	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	33
Difference	-2.1	-0.4		
Air Quality Neutral	Yes			

4. Operational impact of development on occupants

Model details	Response	Document	Page/ section reference
a. Emissions factor toolkit version used	V8.0 (latest)		
b. Air quality modelling software used (names and versions)	ADMS 5		
Modelled annual expected (worst case) air quality at the development	Response	Document	Page/ section reference
a. Are any expected 'with development' NO ₂ levels for the site above 38µg/m ³	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	30
b. Are any expected 'with development' NO ₂ levels for the site above 42µg/m ³	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	30
c. Are any expected 'with development' NO ₂ levels for the site above 60µg/m ³	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	30
d. Are any expected 'with development' PM ₁₀ levels for the site above 20µg/m ³	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	31
e. Are any expected 'with development' PM _{2.5} levels for the site above 10µg/m ³	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	32
f. Has air quality been modelled at all levels and all facades?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	28
Mitigation proposed to protect internal air quality	Response	Document	Page/ section reference
a. Is MVHR proposed?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
b. Will the MVHR inlet(s) be at roof level and away from busy roads and other emission sources such as extract systems and flues?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
c. Is NO _x filtration proposed?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
d. Is particulate filtration proposed?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
e. Will windows be openable?	Yes	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
f. Are winter gardens proposed?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	37
g. Other mitigation proposed (provide reference for details)		6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	36

5. Demolition and construction impact

	Response	Document	Page / section reference
a. What is the highest demolition/construction dust risk before mitigation?	low	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	13
b. Has mitigation been proposed in line with the GLA checklist for risk level in	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	13
c. Is real time dust monitoring proposed?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	13
d. How many real time dust monitors are proposed?	N/A	N/A	N/A
e. Are there any other developments within a 100m radius of the development	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	12
f. Is the site within 10m of a school or hospital?	NO	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	12
g. Is the site within 500m of a school or hospital?	YES	6927 - 51 Calthorpe Street - Air Quality Assessment-2202-23nv	12

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse

Approve/Condition/Refuse