Planning Statement
Air Quality Assessment
Northways Parade Volvo Garage

eight associates

+44 (0)207 0430 418

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

Contents:

Document prepared for
Maurice Albert Perera
Finsbury Corporate Services Ltd

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Document prepared by
Ryan Menezies

Quality assured by
Ben Shirbini

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Executive Summary
Air Quality Assessment
Northways Parade Volvo Garage

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+44 (0)207 0430 418

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Overview

Eight Associates has been commissioned to carry out an Air Quality Assessment (AQA) for the proposed development at Northways Parade Volvo Garage, in the London Borough of Camden. The project comprises the of the conversion of the existing building from a former Volvo garage to a co-working office space. A small extension has been proposed to the north of the site. The new development will provide new office space with a GIA of 1,297m^2. The total area of the development site is approximately 0.1766 hectares (1,766m^2).

Northways Parade Volvo Garage is located in an Air Quality Management Area (AQMA), which has been declared for exceedances of the annual mean objective for NO_2 and PM_{10}. The Camden AQMA is an area encompassing the entire borough. A review of the latest monitoring data for particulate matter confirms that NAQOs for PM_{10} and $PM_{2.5}$ are currently being achieved. However, it is likely that NO_2 concentrations are exceeding the NAQO limits.

Due to the location of the development within an AQMA, and the development proposals introducing new sensitive receptors into an area with poor existing air quality, an Air Quality Assessment (AQA) has been undertaken to accompany the planning application for the scheme. 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 meets the requirements for AQN.

The unmitigated risk to local sensitive receptors from emissions of dust and pollution from construction is deemed to be low. 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.

Opportunities to incorporate green infrastructure in development proposals have been reviewed and evaluated for their benefits for air quality and the mitigation of exposure to poor air quality for building users. Current proposals include green roofs, landscaping in new open spaces created within the development.

Introduction
Air Quality Assessment
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Project Overview

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The London Borough of Camden has declared an Air Quality Management Area (AQMA) over the entire Camden area, due to continued exceedances against National Air Quality Objectives (NAQOs). The development site is located in an AQMA, which has been declared for exceedances of the annual mean objective for NO_2 and PM_{10}. Due to the proposed nature of the development, introducing new sensitive receptors into an area with existing poor air quality, an AQA has been undertaken to accompany the planning application.

Scope of Assessment

An Air Quality Assessment (AQA) has been undertaken in accordance with relevant planning policy and best-practice guidance at a national, regional, and local level. The AQA includes:

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

National	National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2018)
	Land-Use Planning & Development Control: Planning For Air Quality (Environmental Protection UK (EPUK), Institute of Air Quality Management (IAQM), 2017)
	Air quality plan for nitrogen dioxide (NO_2) in UK (DEFRA, 2017)
	Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2014)
	Local air quality management: Technical guidance LAQM.TG(09) (Department for Environment, Food & Rural Affairs (DEFRA), 2012)
Regional	Intend to Publish London Plan (Mayor of London, 2019)
	The London Plan (Mayor of London, 2016)
	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)
	Cleaning the Air – The Mayor's Air Quality Strategy (Mayor of London, 2010)
	Air Quality and Planning Guidance (London Councils, 2007)
Local	Camden Clean Air Quality Action Plan 2019-2022 (London Borough of Camden, 2019)
	Camden Local Plan (London Borough of Camden, 2017)

Policy Review
Air Quality Assessment
Northways Parade Volvo Garage

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International legislation and policy

EU Directive 2008/50/EC1 on Ambient Air Quality and Cleaner Air for Europe (the CAFE Directive) sets out the ambient air quality standards for a range of key pollutants, requiring specific objectives for ambient concentrations for pollutants (EU limit values) to be achieved and maintained (Table 2). EU Directive 2008/50/EC1 also contains a series of limit values for the protection of human health and critical levels for the protection of vegetation.

Compliance with the EU limit values is mandatory. However, Member States can apply for a time extension for compliance, subject to approval of an action plan by the European

Commission. The UK Government applied in autumn 2011 for a time extension for compliance with the NO_2 limit values until 2015 for a number of areas throughout England. However, the UK Government has withdrawn its application for those zones where compliance is not expected until after 2015, which includes central London.

Table 2: EU limit values for key pollutants.

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
Carbon monoxide (CO)	10 µg/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 35 times per year	8 hour mean	31 December 2005

Policy Review
Air Quality Assessment
Northways Parade Volvo Garage

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National legislation and policy

The Air Quality Standards Regulations 2010 implements the requirements of EU Directive 2008/50/EC1 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 NO_2 concentrations in July 2017 (NO_2 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 NO_2 were not met in 2015. The plan for the Greater London area sets out a range of measures to reduce NO_2 concentrations and indicates that with these measures, London will be compliant by 2025.

The National Planning Policy Framework (NPPF) published in March 2012 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 relevant EU obligations and 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 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. This is known as Local Air Quality Management (LAQM).

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 (superseding the Air Quality Standards Regulation 2007) 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. For instance, the compliance date for the EU NO_2 limit values is 1 January 2010, which is five years later than the date for the NAQO.

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.

Policy Review
Air Quality Assessment
Northways Parade Volvo Garage

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London-wide policy and guidance

Intend to Publish London Plan (Mayor of London, 2019)

Policy SI 1 in the Intend to Publish London Plan 'Improving air quality' states that:

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

The London Plan (Mayor of London, 2015)

Policy 7.14 in the London Plan 'Improving air quality' states that development proposals should:

- Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children or older people) such as by design solutions, buffer zones or steps to promote greater use of sustainable transport modes through travel plans;
- Be at least 'Air Quality Neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs))

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London-wide policy and guidance (continued)

- Ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site. Where it can be demonstrated that on-site provision is impractical or inappropriate, and that it is possible to put in place measures having clearly demonstrated equivalent air quality benefits, planning obligations or planning conditions should be used as appropriate to ensure this, whether on a scheme by scheme basis or through joint area-based approaches; and
- Where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permissions should only be granted if no adverse air quality impacts from the biomass boiler are identified."

Cleaning 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 PM_{10} and NO_2 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 '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 NOx for new biomass boilers and NOx 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 NOx 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 PM_{10} 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.

Policy Review
Air Quality Assessment
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London Borough of Camden policy and guidance

Camden Local Plan 2017 (London Borough of Camden)

- Policy CC4 – Air Quality
  Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

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

Camden Clean Air Action Plan 2019 – 2022

The overarching aim of the Clean Air Action Plan is to:

1. Continue to meet the EU objectives for Carbon Monoxide, Benzene, 1,3–Butadiene, Lead and PM_{10}.
2. Continue to reduce concentrations of PM_{10} and $PM_{2.5}$, and to meet the EU Objective for NO_2.
3. Drive forward compliance with WHO Guidelines by 2030

Site Overview
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info@eightassociates.co.uk

Site Overview

The Northways Parade Volvo Garage development site is located in the London Borough of Camden. The OS grid reference for the site is X (Eastings) 526606, Y (Northings) 184464, and the closest post code is NW3 5EN (Figure 1).

The total area of the Northways Parade Volvo Garage, development site is approximately 0.1766 hectares (1,766m^2). The existing site comprises residential units. The site is bordered by College Cres and Finchley Rd.

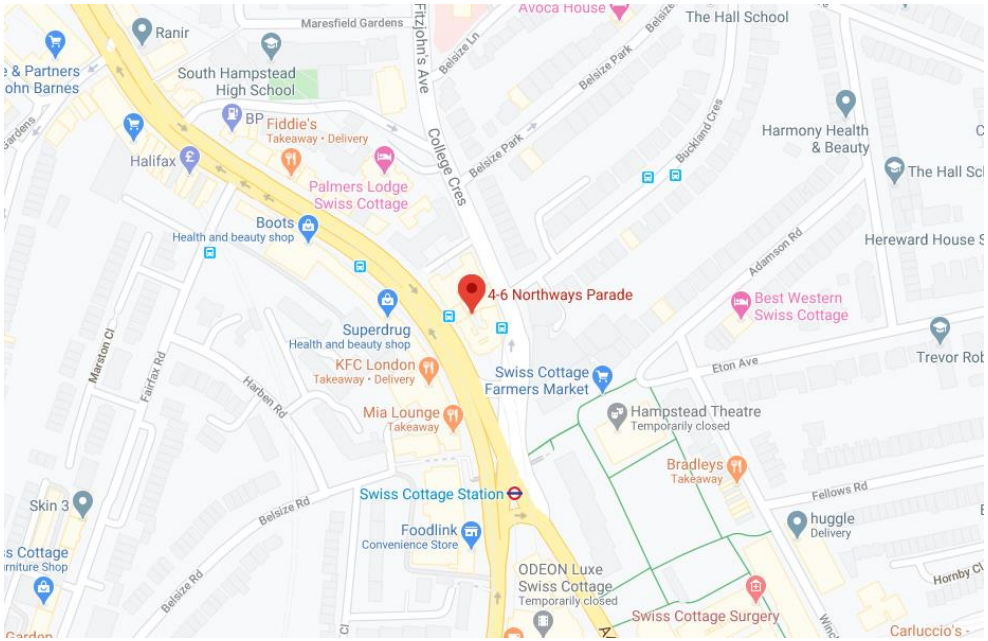

Figure 1: Map showing development site location.

Description of proposed development

The project comprises the of the conversion of the existing building from a former Volvo garage to a co-working office space. A small extension has been proposed to the north of the site. The new development will provide new office space with a GIA of 1,297m^2. A plan is given in Figure 2.

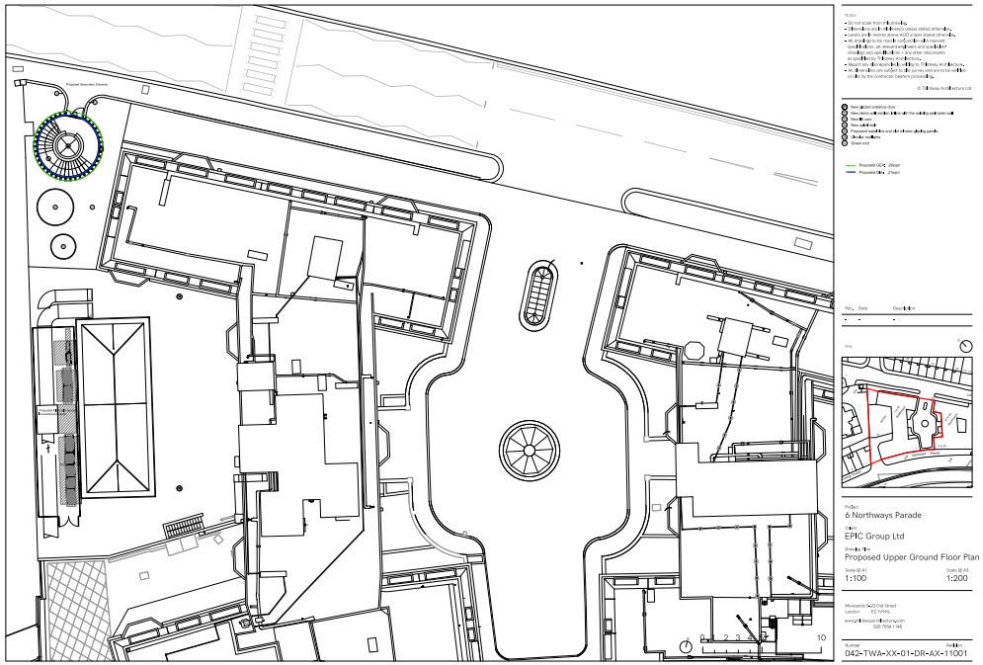

Figure 2: Proposed development plan.

Local Receptors
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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 human 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 and a 50m radius for ecological receptors (Figure 3).

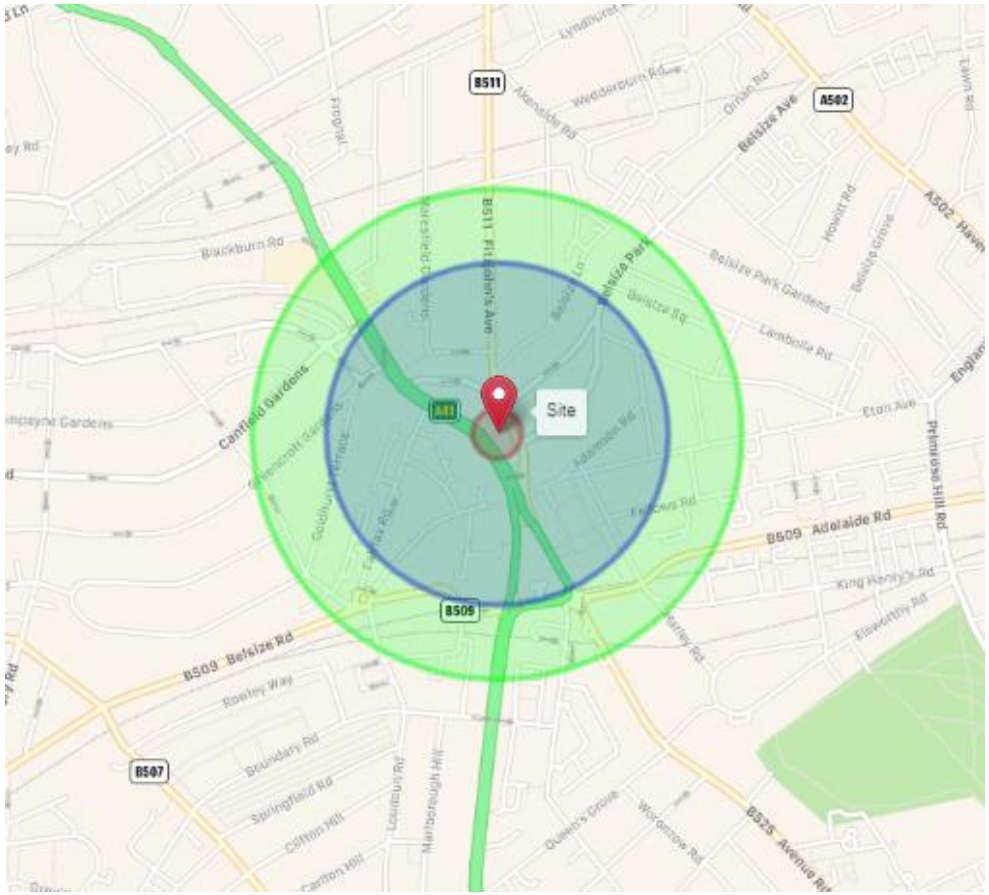

Figure 3: Aerial view showing 500m radius (green), 350m radius (blue) and 50m radius from site (red).

Local Receptors
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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 PM_{10} 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 proposed development has a number of human receptors within 350m of the site. The surrounding area is densely populated and contains numerous residential dwellings. Key human receptors are identified below:

Schools

The following schools are within 350m of the development:

- The Royal Central School of Speech and Drama – approximately 80m southeast of the site.
- South Hampstead High School – approximately 220m northwest of the site.
- Hua Hsia Chinese School – approximately 240m northwest of the site.
- Holy Trinity Primary School – approximately 250m northwest of the site.
- The Hall School – approximately 260m northeast of the site.

Nurseries

The following nurseries are within 350m of the development:

- Eton Nursery School – approximately 85m east of the site.
- University College School Pre-prep – approximately 185m northwest of the site.
- Swiss Cottage Pre-school – approximately 320m southeast of the site.

Hospitals

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

Doctors

The following doctors are within 350m of the development:

- Daleham Gardens Surgery – approximately 290m north of the site.
- Swiss Cottage Surgery – approximately 290m southeast of the site.

Ecological receptors

Potential sensitive ecological receptors have been determined using geographic information obtained from the MAGIC website.

The site is within the Source Protection Zone II – Outer Protection Zone.

Existing Air Quality
Air Quality Assessment
Northways Parade Volvo Garage

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info@eightassociates.co.uk

Current local status

An Air Quality Management Area (AQMA) has been declared for the majority of the London Borough of Camden due to continued exceedances of NO_2 and PM_{10} NAQOs. A number of focus areas for NO_2 have been declared due to these areas having both high concentrations of NO_2 and significant human exposure (Figure 5). The site is located in an NO_2 focus area.

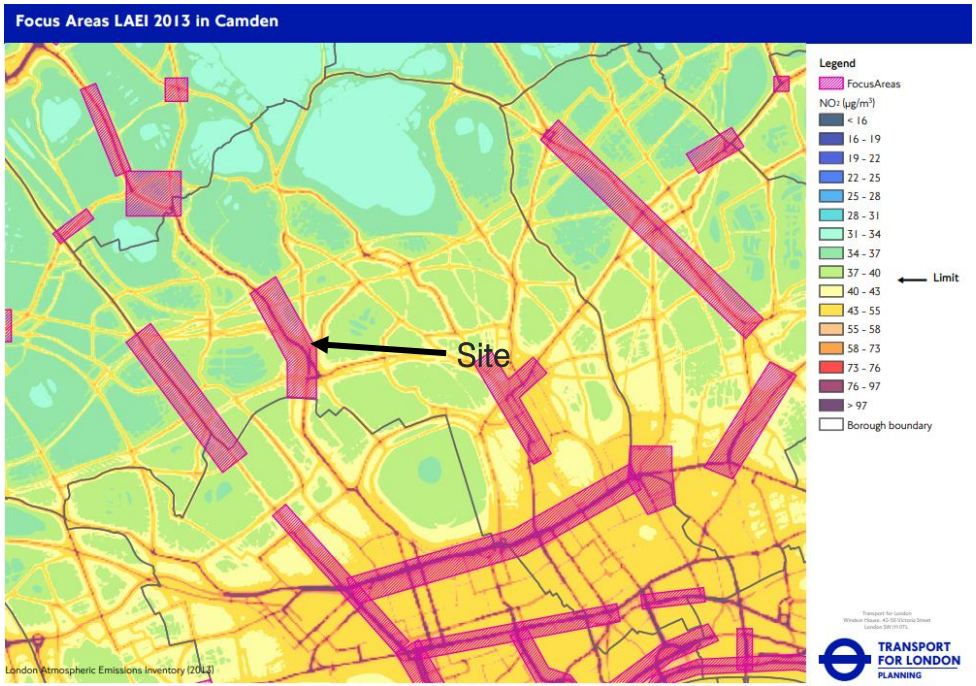

Figure 5: London Borough of Camden's NO_2 focus areas.

Local monitoring stations

Nearby operational diffusion tubes and automatic monitoring stations in the London Borough of Camden have been identified, based on their proximity to the development site, completeness of data and relevance to the development site. The monitoring sites identified in proximity to the development site are outlined in Table 3.

Table 3: Air quality monitoring stations identified near to the site.

Site ID	Site name and type	Pollutants monitored	Distance to exposure (m)	Distance to kerb (m)	Inlet height (m)	Distance from site (km)
CD1	Swiss Cottage, automatic monitoring, kerbside	NO_2, PM_{10}, NO_x	7	1.5	–	0.076
CA15	Swiss Cottage, diffusion tube, kerbside	NO_2	7	<1	–	0.077
CA17	47 Fitzjohn's Rd, diffusion tube, roadside	NO_2	5	5	–	0.664
CA7	Frognal Way, diffusion tube, urban background	NO_2	6	30	–	1.125
CA25	Emmanuel Primary, diffusion tube, roadside	NO_2	3	1	–	1.502

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Local monitoring stations (continued)

A map showing the approximate locations of the closest NO_2 diffusion tubes and automatic monitoring stations in relation to the development site is shown in Figure 6 below.

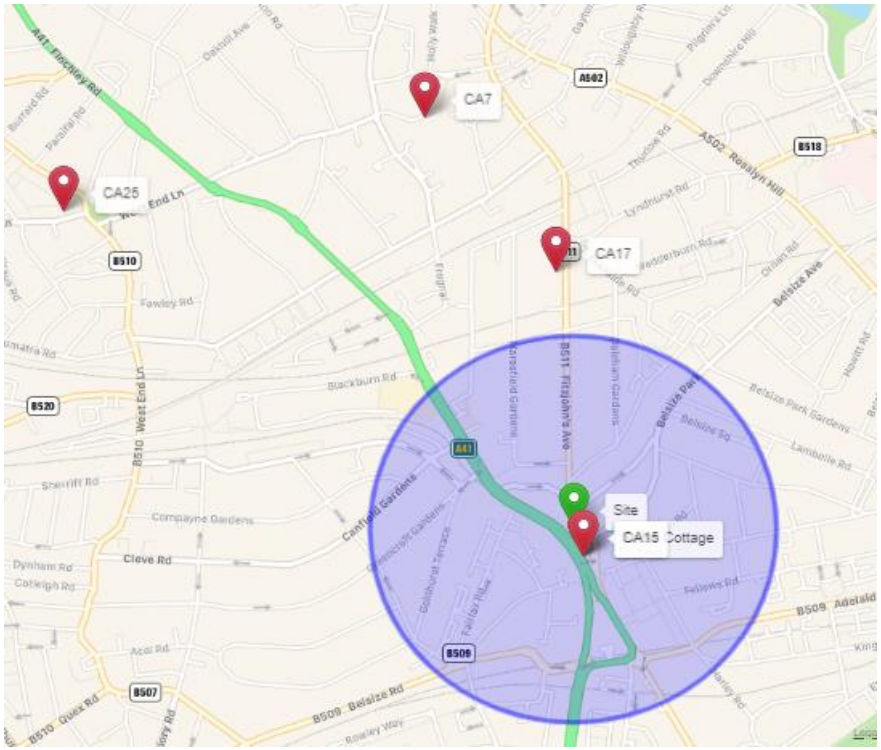

Figure 6: Map showing location of development site in relation to nearby NO_2 diffusion tubes (shown in red) and automatic monitoring stations (shown in orange).

Monitored nitrogen dioxide (NO_2)

A summary of the latest monitoring results for NO_2 annual mean concentrations at the closest monitoring stations to the development site is given in Table 4. Results for each monitoring station and reporting year are shown in red where the NAQO is exceeded and grey where there is a lack of sufficiently robust monitored data.

The data shows that the NAQO for mean annual NO_2 concentration (for the mean annual concentration to be no more than 40 µg/m3) has been exceeded for majority of the locations, with more focus put on locations closer to the site.

Table 4: 2015–2018 NO_2 annual mean concentrations near to the site.

Site ID	Monitoring station type	Distance from site (m)	Annual mean concentration (µg/m^3)			
			2018	2017	2016	2015
CD1	Swiss Cottage, automatic monitoring, kerbside	76	54	53	66	61
CA15	Swiss Cottage, diffusion tube, kerbside	77	66	–	84	86
CA17	47 Fitzjohn's Rd, diffusion tube, roadside	664	48	–	56	56
CA7	Frognal Way, diffusion tube, urban background	1125	22	32	28	28
CA25	Emmanuel Primary, diffusion tube, roadside	1502	40	55	52	48

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Monitored nitrogen dioxide (NO_2) (continued)

A summary of the latest monitoring results for the annual exceedances of the NO_2 hourly mean concentration of 200 µg/m^3 is given in Table 5. Only continuous monitoring stations are capable of monitoring progress against this NAQO. The NAQO (for no more than 18 exceedances of the 200 µg/m^3 hourly mean) was met at this location between 2015 and 2018, with the exception of 2016.

Table 5: 2015–2018 NO_2 annual exceedances of hourly mean of 200 µg/m^3 near to the site.

Site ID	Monitoring station type	Distance from site (m)	Count of annual exceedances of hourly mean of 200 µg/m^3			
			2018	2017	2016	2015
CD1	Swiss Cottage, automatic monitoring, kerbside	76	2	1	37	11

Monitored particulate matter under 10 µm diameter (PM_{10})

A summary of the latest monitoring results for PM_{10} annual mean concentrations at the closest monitoring stations to the development site is given in Table 6. Only the continuous monitoring stations in the vicinity of the development have the capability of monitoring mean annual PM_{10} concentrations. The NAQO (for the mean annual concentration to be no more than 40 µg/m^3) has been met at this location for 2015 to 2018.

Table 6: 2015–2018 PM_{10} annual mean concentrations near to the site.

Site ID	Monitoring station type	Distance from site (m)	Annual mean concentration (µg/m^3)			
			2018	2017	2016	2015
CD1	Swiss Cottage, automatic monitoring, kerbside	76	21	20	21	20

A summary of the latest monitoring results for the annual exceedances of the PM_{10} daily mean concentration of 50 µg/m^3 is given in Table 7. Only continuous monitoring stations are capable of monitoring progress against this NAQO. The NAQO (for no more than 35 exceedances of the 50 µg/m^3 daily mean) has been met at this location for 2015 to 2018.

Table 7: 2015–2018 PM_{10} annual exceedances of daily mean of 50 µg/m^3 near to the site.

Site ID	Monitoring station type	Distance from site (m)	Count of annual exceedances of daily mean of 50 µg/m^3			
			2018	2017	2016	2015
CD1	Swiss Cottage, automatic monitoring, kerbside	76	4	8	7	8

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+44 (0)207 0430 418

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info@eightassociates.co.uk

Modelled nitrogen dioxide (NO_2)

The London Atmospheric Emissions Inventory (LAEI) 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 NO_2, PM_{10} and $PM_{2.5}$ as key pollutants.

The LAEI 2016 modelled mean annual concentrations of NO_2 for the site and surrounding area is shown in Figure 7. Mean annual NO_2 concentrations are estimated as approximately 46 µg/m^3 at the site for 2016. The modelled data indicates that the NAQO and WHO guideline (mean annual concentration no greater than 40 µg/m^3) was not achieved at the site during 2016

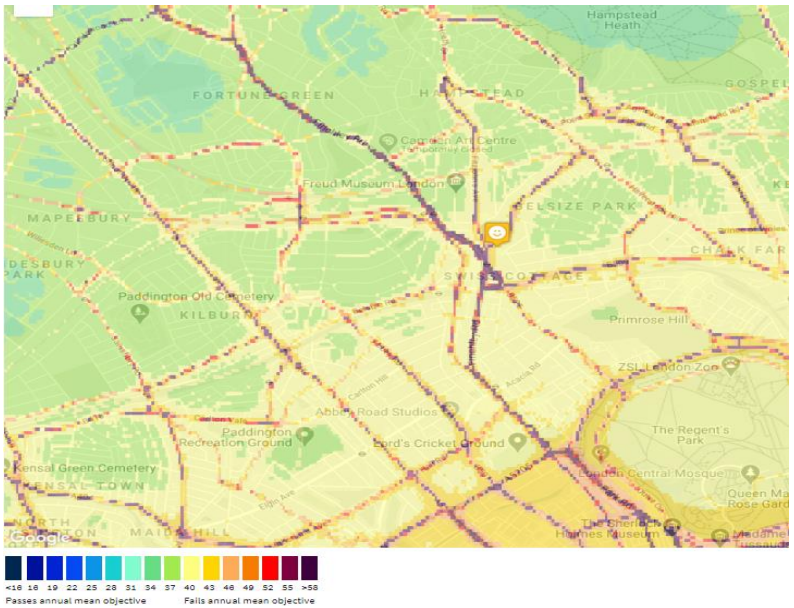

Figure 7: 2016 modelled NO_2 concentrations for the site and surrounding area.

Monitored particulate matter under 10 µm diameter (PM_{10})

The LAEI 2016 modelled mean annual concentrations of PM_{10} are shown in Figure 8. Mean annual PM_{10} concentrations at the site are estimated as approximately 22 µg/m^3 for 2016. The modelled data indicates that the NAQO (mean annual concentration no greater than 40 µg/m^3) was achieved at the site for 2016 but the WHO guideline (mean annual concentration no greater than 20 µg/m^3) was not achieved at the site.

Figure 8: 2016 modelled PM_{10} concentrations for the site and surrounding area.

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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 9. Mean annual $PM_{2.5}$ concentrations at the site are estimated as approximately 12 µg/m^3 for 2016. The modelled data indicates that the NAQO (mean annual concentration no greater than 25 µg/m^3) for 2016 was achieved at the site, but the WHO guideline (mean annual concentration no greater than 10 µg/m^3) for $PM_{2.5}$ was not achieved.

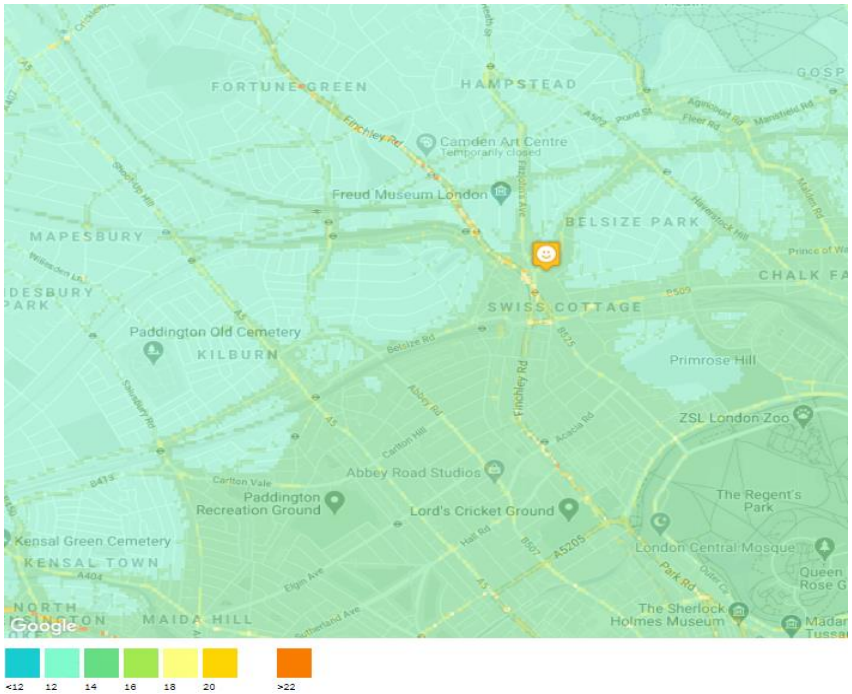

Figure 9: 2016 modelled $PM_{2.5}$ concentrations for the site and surrounding area.

Modelled background concentrations

DEFRA provides modelled background concentrations for key pollutants across the UK squares. The 2018–2022 modelled background concentrations for NO_x, NO_2, PM_{10} and $PM_{2.5}$ for the area surrounding the site are given in Table 8.

Table 8: 2018–2022 modelled background concentrations near to the site.

Pollutant / particulate matter	Background concentration (µg/m^3)				
	2022	2021	2020	2019	2018
NO_x	40.0	41.8	43.6	47.9	52.2
NO_2	25.4	26.2	27.1	29.1	30.9
PM_{10}	17.4	17.6	17.7	18.0	18.3
$PM_{2.5}$	11.6	11.7	11.9	12.1	12.3

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Existing air quality conclusions

Nitrogen dioxide (NO_2)

A total of 4 NO_2 diffusion tubes and automatic monitoring stations, monitoring mean annual NO_2 concentrations, have been identified close to the development site. Mean annual NO_2 concentrations at nearby kerbside and roadside monitoring sites have exceed the NAQO for mean annual NO_2 concentration. The LAEI 2016 modelled mean annual NO_2 concentrations are estimated as approximately 46 µg/m^3 at the site. The DEFRA modelled background concentration of NO_2 is 30.9 µg/m^3 for 2018, decreasing to 25.4 µg/m^3 by 2022. It is likely that mean annual NO_2 concentrations currently exceed the NAQO and WHO guidelines.

Course particulate matter (PM_{10})

Nearby monitored mean annual PM_{10} concentrations and 24–hourly PM_{10} concentrations achieve the NAQO objectives, but mean annual concentrations exceed the WHO guidelines. The LAEI 2016 modelled mean annual concentrations of PM_{10} at the site are estimated as approximately 22 µg/m^3. The DEFRA modelled background concentration of PM_{10} is 18.3 µg/m^3 for 2018, decreasing to 17.4 µg/m^3 by 2022. It is likely that mean annual NO_2 concentrations currently achieve the NAQO but exceed the WHO guidelines.

Fine particulate matter ($PM_{2.5}$)

There is no nearby monitoring data available for $PM_{2.5}$. The LAEI 2016 modelled mean annual concentrations of $PM_{2.5}$ are estimated as approximately 12 µg/m^3. The DEFRA modelled background concentration of $PM_{2.5}$ is 12.3 µg/m^3 for 2018, decreasing to 11.6 µg/m^3 by 2022. It is likely that mean annual $PM_{2.5}$ concentrations currently achieve the NAQO but exceed the WHO guidelines.

Construction Phase Impact

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info@eightassociates.co.uk

Introduction

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

The project comprises the of the conversion of the existing building from a former Volvo garage to a co-working office space. A small extension has been proposed to the north of the site. The new development will provide new office space with a GIA of 1,297m^2. The total area of the development site is approximately 0.1766 hectares (1,766m^2).

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 9.

Table 9: 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
Earthworks	Small	The total site area is less than 2,500 m^2. It is anticipated that no earthworks will take place.
Construction	Small	The total new building volume will be less than 25,000m^3
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 4 outward vehicle movements of HDV (>3.5t) vehicles in any one day.

Construction Phase Impact

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Assessment of construction impacts (continued)

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 10.

Table 10: Sensitivity of nearby receptors to dust impacts.

Sensitivity of people to dust soiling	Sensitivity of people to PM health impacts	Sensitivity to ecological effects
High	High	Low
Residential properties (10–100) within 350m of the site which can be expected to be occupied throughout the day. Other sensitive receptors to dust are present, including places of work, and numerous schools	Residential properties, schools and doctors' surgeries are present within 350m of the development site.	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 on the previous page has been combined with the sensitivity assessment in the above table to define the risk of impacts for each phase of development in the absence of mitigation. The sensitivity of the surrounding area has been defined in accordance with IAQM guidance and the results are given in Table 11.

Table 11: Risk to local sensitive receptors from construction dust impacts.

	Risk without mitigation	Activity			
		Demolition	Earthworks	Construction	Trackout
Potential impact	Dust soiling	Medium risk	Low risk	Low risk	Low risk
	Human health	Medium risk	Low risk	Low risk	Low risk
	Ecological effects	Negligible risk	Negligible risk	Negligible risk	Negligible risk
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. The risk of trackout activities for ecology is deemed to be negligible, therefore no further mitigation measures need specifically recommending for protecting ecology from trackout activities.

Construction Phase Impacts

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Effects of mitigation measures

A schedule of mitigation measures has been developed for the construction phase. 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 12.

Table 12: Summary of proposed AQDMP mitigation measures for construction phase.

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

Operational Impacts: Air Quality Neutral

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

Introduction

Policy 7.14 in the London Plan 'Improving air quality' requires that developments should be at least Air Quality Neutral (AQN) and 'not lead to further deterioration of existing poor air quality'. The proposed development has been assessed for its performance against the AQN guidance and benchmarks, for both transport and building-related emissions.

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 13) using the factors for Class B1 office areas.

Table 13: Transport Emissions Benchmark (TEB).

Development metric	Office	Total
Applicable planning use class for TEB	Office (B1)	–
Gross internal area (m^2)	1,297	1,297
Number of dwellings – residential only	0	0
Location (CAZ/inner/outer)	Inner	–
NO_x TEB factor (g/m^2/year) – non-residential only	11.4	11.4
NO_x TEB factor (g/dwelling/year) – residential only	0.0	–
Total NO_x TEB (kg/year)	**14.8**	**14.8**
PM_{10} TEB factor (g/m^2/year) – non-residential only	2.1	–
PM_{10} TEB factor (g/dwelling/year) – residential only	0.0	–
Total PM_{10} TEB (kg/year)	**2.7**	**2.7**

Operational Impacts: Air Quality Neutral

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Transport emissions (continued)

A Transport Statement (TS) was produced by TTP Consulting in April 2020, which confirms details regarding car parking and car trip estimates that are relevant to this section of the report:

- The site is in a highly accessible location, reflected by a PTAL rating of 6a
- The office will not be provided with any on site car parking and staff and visitor trips are likely to be undertaken by public transport, cycling or on foot
- The level of trips to and from the site is not considered likely to have any effect on the operation of local public transport services
- Secure cycle parking will be provided in accordance with local cycle parking standards
- Access to the site will be improved with new landscaping and a direct entrance to the building from College Crescent
- Deliveries will typically take place on site with large delivery vehicles and refuse collection vehicles stopping Finchley Road, where a loading bay is provided adjacent to the main site access

It can be concluded that there are likely to be a negligible number of car trips associated with the proposed development. No car trips are calculated in the TS and therefore the development passes the AQN test for transport emissions (Table 14).

Table 14: Comparison of calculated transport emissions against TEBs.

Development metric	Office	Total
Applicable planning use class for TEB	Office (B1)	–
Daily trips by car	0	0
Annual trips by car	0	0
Location (CAZ/inner/outer)	Inner	–
Average distance travelled per car trip (km)	7.7	7.7
Annual distance travelled by car (km/year)	0.0	0.0
NO_x emissions factor (g/km)	0.370	–
Total NO_x emissions (kg/year)	0.0	0.0
Difference from NO_x TEB to actual	−14.8	−14.8
Transport NO_x AQN result	**Pass**	**Pass**
PM_{10} emissions factor (g/km)	0.0665	–
Total PM_{10} emissions (kg/year)	0.0	0.0
Difference from PM_{10} TEB to actual	−2.7	−2.7
Transport PM_{10} AQN result	**Pass**	**Pass**

Operational Impacts: Air Quality Neutral

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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 15) using the factors for Class B1 office areas.

Table 15: Building Emissions Benchmark (BEB).

Development metric	Office	Total
Applicable planning use class for BEB	B1	–
Gross internal area (m^2)	1,297	1,297
NO_x BEB factor (g/m^2/year)	75.2	75.2
Total NO_x BEB (kg/year)	**97.5**	**97.5**
PM_{10} BEB factor (g/m^2/year)	1.77	1.77
Total PM_{10} BEB (kg/year)	**2.3**	**2.3**

An Energy Strategy was produced by Eight Associates in March 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 and combined heat and power (CHP) has been avoided for the scheme. Gas-fired boilers will be used for water heating. Based on the gas consumption estimates calculated by Eight Associates and the proposed boiler NO_x emissions ratings, the development therefore passes the AQN test for building emissions (Table 16 overleaf).

Operational Impacts: Air Quality Neutral

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Building emissions (continued)

Table 16: Comparison of calculated building emissions against BEBs.

Development metric	Office	Total
Applicable planning use class for BEB	B1	–
Total annual gas consumption from boilers (kWh/year)	3,733	3,733
Boilers NOx emissions factor (mg/kWh)	38	–
Total NOx emissions from boilers (kg/year)	0.1	0.1
Total annual gas consumption from CHP (kWh/year)	0.0	0.0
CHP NOx emissions factor (mg/kWh)	0.0	–
Total NOx emissions from CHP (kg/year)	0.0	0.0
Total NOx emissions (kg/year)	0.1	0.1
Difference from NOx BEB to actual	-97.4	-97.4
Building NOx AQN result	**Pass**	**Pass**
Total annual oil or solid fuel consumption (kWh/year)	0.0	0.00
PM10 emissions factor (mg/kWh)	0.0	–
Total PM10 emissions (kg/year)	0.0	0.00
Difference from PM10 BEB to actual	-2.3	-2.3
Building PM10 AQN result	**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 Air Quality Neutral Test and be designed so that they are at least 'air quality neutral' (AQN). A development is considered to be AQN if it can be demonstrated either that 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 Transport Emissions Benchmark (TEB) and Building Emissions Benchmark (BEB) and therefore passes the AQN test. No additional mitigation for the purposes of AQN is required.

Operational Impacts: Mitigation Measures

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Pollution mitigation hierarchy

The development passes the AQN test for transport and building emissions. As a result of this, no additional mitigation or off-setting measures for the operational phase of the development will be required. However, the proposals will introduce offices to an area that is likely to have poor existing air quality (most notably for NO_2), therefore mitigation measures should be incorporated to reduce the exposure of future building users.

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.

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

The Transport Statement concludes that there are likely to be a negligible number of car trips associated with the proposed development. The site is well connected for public transport with a Public Transport Accessibility Level (PTAL) of 6a (the highest rating). Cycling will be promoted further by the inclusion of cycle storage.

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). To achieve this reduction/minimisation, preference should be given, in order, to:

Ultra low-NO_x boilers

Gas-fired boilers will be used for water heating. The design team should use gas-fired boilers with NO_x emissions ratings of 38 mgNO_x/kWh, which are compliant with GLA requirements for emissions ratings of <40 mgNO_x/kWh will minimise localised NO_x emissions from the new boilers.

Reduction and minimisation: Mitigation measures that act on the pathway

It is likely that the primary local source of emissions, including NO_2, PM_{10} and $PM_{2.5}$, is the local road network, most notably Finchley Road, which is bounded by the main frontage to the site. Pollutant concentrations are likely to be highest at the Finchley Road boundary, at ground level (typically decreasing with height from the ground).

Building form

The site is relatively constrained, and the development proposals will utilise the entire site area for the new building, following the form of the existing Northways Parade Volvo Garage building and neighbouring buildings. Within current development proposals it will not be possible to set the building back further from Finchley Road to increase the distance from pollution sources. However, the design team has proposed mechanical ventilation (with heat recovery) as the ventilation strategy for the scheme. Therefore, the fresh air intakes should be located as far away from the primary sources of pollution as possible (see 'Ventilation and filtration' section below).

Operational Impacts: Mitigation Measures

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Reduction and minimisation: Mitigation measures at or close to the point of receptor exposure

Ventilation and filtration

The ventilation strategy for the development is based primarily on the use of mechanical ventilation, although windows may also be openable. Intakes for the mechanical ventilation system should be located as far as possible from the primary sources of pollution (Finchley Road and exhaust flues from the proposed boilers). In accordance with the latest BREEAM New Construction 2018 Hea 02 Ventilation guidance, fresh air intakes should preferably be at least 10m away from all external pollution sources, as well at least 10m away from ventilation exhausts (to prevent recirculation of air).

All mechanical ventilation systems should be designed in accordance with BS EN 16798:2017 'Energy Performance of Buildings – Ventilation for Buildings' and BS EN ISO 16890:2016 'Air Filters for General Ventilation'. In accordance with these standards, consideration must be given to the quality of the outdoor air at the proposed location of the building and the design should incorporate the following mitigation measures:

- Air intakes should be located where the outdoor air is least polluted, where outdoor air pollution concentrations are not uniform around the building.
- Some form of filtration and/or air cleaning should be applied, where outdoor air pollution concentrations are significant. Tables 16 and 17 of BS EN 16798:2017 (Part 3) should be followed to determine the appropriate required level of filtration efficiency for particulate and gaseous filtration systems.

To verify that the filtration system continues to operate as designed, the facilities team will provide records of air filtration maintenance, including evidence that filters have been properly maintained as per the manufacturer's recommendations. Additionally, activated carbon filters or combination particulate/carbon filters may be considered for installation in the main air ducts to filter recirculated air.

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.

Mitigation measures have been proposed for the development, appropriate to the scale and nature of the development (see sections 1. to 2.c. above). No additional off-setting measures are proposed.

Conclusions
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eight associates

+44 (0)207 0430 418

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info@eightassociates.co.uk

Conclusions

Eight Associates has been commissioned to carry out an Air Quality Assessment (AQA) for the proposed development at Northways Parade Volvo Garage, in the London Borough of Camden. The project comprises the of the conversion of the existing building from a former Volvo garage to a co-working office space. A small extension has been proposed to the north of the site. The new development will provide new office space with a GIA of 1,297m^2. The total area of the development site is approximately 0.1766 hectares (1,766m^2).

Northways Parade Volvo Garage is located in an Air Quality Management Area (AQMA), which has been declared for exceedances of the annual mean objective for NO_2 and PM_{10}. The Camden AQMA is an area encompassing the entire borough. A review of the latest monitoring data for particulate matter confirms that NAQOs for PM_{10} and $PM_{2.5}$ are currently being achieved. However, it is likely that NO_2 concentrations are exceeding the NAQO limits.

Due to the location of the development within an AQMA, and the development proposals introducing new sensitive receptors into an area with poor existing air quality, an Air Quality Assessment (AQA) has been undertaken to accompany the planning application for the scheme. 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 meets the requirements for AQN.

The unmitigated risk to local sensitive receptors from emissions of dust and pollution from construction is deemed to be low. 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.

Opportunities to incorporate green infrastructure in development proposals have been reviewed and evaluated for their benefits for air quality and the mitigation of exposure to poor air quality for building users. Current proposals include green roofs, landscaping in new open spaces created within the development.

Appendix A: Air Quality & Dust Management Plan

Air Quality Assessment

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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 A1: 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 are required.
	Act as the key point of contact for queries and complaints regarding air quality emissions from site.
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 the Northways Parade Volvo Garage Wembley construction site will be as follows:

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

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.

Appendix A: Air Quality & Dust Management Plan

Air Quality Assessment

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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.

It is recommended that these measures 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.	Recommended
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
10) Hold regular liaison meetings with other high-risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised.	Not required

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Measures relevant for demolition, earthworks, construction and trackout (continued)

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.	Recommended
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.	Recommended
19) Carry out regular dust soiling checks of buildings within 100m of site boundary and cleaning to be provided if necessary.	Recommended
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
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).	Not required

eight associates

+44 (0)207 0430 418

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

Appendix A: Air Quality & Dust Management Plan

Air Quality Assessment

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eight associates

+44 (0)207 0430 418

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

Measures relevant for demolition, earthworks, construction and trackout (continued)

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.	Recommended

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

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

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

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Measures specific to construction

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

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.	Recommended
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 enter and exit the construction site.	Not required