Quod

Mountview Lodge, Camden

Air Quality Screening Assessment

September 2018

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Executive Summary

WYG have undertaken an Air Quality Screening Assessment for the proposed residential development at Mountview Lodge, Camden.

The potential effects during the construction phase include fugitive dust emissions from site activities, such as construction and trackout. The impacts during the operational phase take into account of exhaust emissions from additional road traffic generated due to the proposed development. Implementation of mitigation during the construction phase of the development, and adherence to good practice measures will be implemented.

Following a review of the baseline conditions and the DMRB modelling results, it is predicted that concentrations of NO_2 will exceed the AQO at all modelled proposed residential receptors. Therefore additional mitigation is required. All proposed residential units will be provided with filtration via an "AAC Eurovent Nitrosorb (or similar) unit" (AAC Unit) which is combined with the MVHR mechanical ventilation.

There is not predicted to be an exceedance of the AQO for PM_{10} at any proposed or existing modelled receptors.

Based on the assessment undertaken and methodology within this assessment, it is concluded that the site is suitable for the proposed development and no further air quality assessment is required.

1. Introduction

Quod commissioned WYG Environment to prepare an Air Quality Screening Assessment to support the proposed residential development at Mountview Lodge, Camden.

1.1 Site Location and Context

The site is bounded to the north, south and west by residential properties, and to the east by commercial properties and Finchley Road. Reference should be made to Figure 1 for a map of the proposed development site.

The approximate site United Kingdom National Grid Reference (NGR) is approximately 526596, 184333.

The following assessment stages have been undertaken as part of this assessment:

- Baseline air quality evaluation;
- Assessment of potential air quality impacts during the construction phase; and
- Assessment of potential air quality impacts during the operational phase.

The results of the assessment are detailed in the following sections of this report.

2. Policy and Planning Context

2.1 Legislation and Policy Background

European Legislation

European air quality legislation is consolidated under Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates, and includes:

- **Directive 1999/30/EC** – the First Air Quality "Daughter" Directive – sets ambient air limit values for nitrogen dioxide and oxides of nitrogen, sulphur dioxide, lead and particulate matter;
- **Directive 2000/69/EC** – the Second Air Quality "Daughter" Directive – sets ambient air limit values for benzene and carbon monoxide; and,
- **Directive 2002/3/EC** – the Third Air Quality "Daughter" Directive – seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.

The fourth daughter Directive was not included within the consolidation and is described as:

- **Directive 2004/107/EC** – sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

UK Legislation

The Air Quality Standards Regulations (Amendments 2016) seek to simplify air quality regulation and provide a new transposition of the Air Quality Framework Directive, First, Second and Third Daughter Directives and also transpose the Fourth Daughter Directive within the UK. The Air Quality Limit Values are transposed into the updated Regulations as Air Quality Standards, with attainment dates in line with the European Directives. SI 2007 No. 64 Regulation 14 extends powers, under Section 85(5) of the Environment Act (1995), for the Secretary of State to give directions to Local Authorities (LAs) for the implementation of these Directives.

The UK Air Quality Strategy is the method for implementation of the air quality limit values in England, Scotland, Wales and Northern Ireland and provides a framework for improving air quality and protecting human health from the effects of pollution.

For each nominated pollutant, the Air Quality Strategy sets clear, measurable, outdoor air quality standards and target dates by which these must be achieved; the combined standard and target date is referred to as the Air Quality Objective (AQO) for that pollutant. Adopted national standards are based on the recommendations of the Expert Panel on Air Quality Standards (EPAQS) and have been translated into a set

of Statutory Objectives within the Air Quality (England) Regulations (2000) SI 928, and subsequent amendments.

The AQOs for pollutants included within the Air Quality Strategy and assessed as part of the scope of this report are presented in Table 2.1 along with European Commission (EC) Directive Limits and World Health Organisation (WHO) Guidelines.

Table 2.1 Air Quality Standards, Objectives, Limit and Target Values

Pollutant	Applies	Objective	Concentration Measured as	Date to be achieved and maintained thereafter	European Obligations	Date to be achieved and maintained thereafter	New or existing
PM_{10}	UK	50µg/m³ by end of 2004 (max 35 exceedances a year)	24-hour mean	1st January 2005	50µg/m³ by end of 2004 (max 35 exceedances a year)	1st January 2005	Retain Existing
	UK	40µg/m³ by end of 2004	Annual mean	1st January 2005	40µg/m³	1st January 2005	
$PM_{2.5}$	UK	25µg/m³	Annual Mean	31st December 2010	25µg/m³	1st January 2010	Retain Existing
NO_2	UK	200µg/m³ not to be exceeded more than 18 times a year	1-Hour Mean	31st December 2005	200µg/m³ not to be exceeded more than 18 times a year	1st January 2010	Retain Existing
	UK	40µg/m³	Annual Mean	31st December 2005	40µg/m³	1st January 2010	

Within the context of this assessment, the annual mean objectives are those against which facades of residential receptors will be assessed and the short-term objectives apply to all other receptor locations, where people may be exposed over a short duration, both residential and non-residential such as using gardens, balconies, walking along streets, using playgrounds, footpaths or external areas of employment uses.

National Policy

The National Planning Policy Framework (NPPF), revised July 2018, principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policy making. The NPPF states that:

'Planning policies and decision should sustain and contribute towards compliance with relevant limit values or national objectives for pollutant, taking into account the presence of Air Quality Management Areas or Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic or travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan'

The Planning Practice Guidance (PPG) web-based resource was launched by the Department for Communities and Local Government (DCLG) on 6 March 2014 to support the National Planning Policy Framework and make it more accessible. A review of PPG: Air Quality identified the following guidance:

'When deciding whether air quality is relevant to a planning application, local planning authorities should consider whether the development would:

Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more.

Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area.

Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.

Give rise to potentially significant impact (such as dust) during construction for nearby sensitive locations.

Affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites.'

Local Policy

The London Borough of Camden Core Strategy has been reviewed for policies related to Air Quality. The following policy was deemed relevant to this assessment:

> *"Policy CC4: Air Quality;*
>
> *The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.*
>
> *The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.*

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

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

3. Baseline Conditions

3.1 Air Quality review and Assessment

This section provides a review of the existing air quality in the vicinity of the proposed development site in order to provide a benchmark against which to assess potential air quality impacts of the proposed development. Baseline air quality in the vicinity of the proposed development site has been defined from a number of sources, as described in the following sections.

Air Quality Review

As required under section 82 of the Environment Act 1995, London Borough of Camden Council (LBCC) has conducted an ongoing exercise to review and assess air quality within its area of jurisdiction. The assessments have indicated that concentrations of NO_2 and PM_{10} are above the relevant AQOs at a number of locations of relevant public exposure within the Borough. LBCC therefore has one designated Air Quality Management Area (AQMA) as outlined below;

- Camden AQMA: The whole borough.

The proposed development site is located within the Camden AQMA, and therefore receptors within the AQMA have been included within this assessment.

Air Quality Monitoring

Monitoring of air quality within LBCC is undertaken through continuous and non-continuous monitoring methods. These have been reviewed in order to provide an indication of existing air quality in the area surrounding the proposed development site.

Continuous Monitoring

LBCC operates a network of two automatic monitoring stations. The closest automatic monitoring results from within LBCC for 2016 are presented in Table 3.1 below.

Table 3.1 Nitrogen Dioxide Monitoring Locations

Site ID	Location	Site Type	Distance to Kerb of Nearest Road (m)	Inlet Height (m)	NO_2 Annual Mean Concentration 2016 (µg/m^3)
LB	London Bloomsbury	Urban Background	27.0	2.0	42.0
CD1	Swiss Cottage	Kerbside	1.5	2.0	66.0
CD3	Shaftesbury Avenue	Roadside	1.0	2.0	84.0
CD9	Euston Road	Roadside	0.5	2.0	88.0

As Table 3.1 illustrates, all automatic stations monitored exceedances of the relevant National AQO (40µg/m^3)

during 2016.

Non-Continuous Monitoring

LBCC operates a network of 14 diffusion tubes. The closest NO_2 diffusion tube monitoring results from within LBCC for 2016 are presented in Table 3.2 below and shown on Figure 3.1.

Figure 3.1 Diffusion Tube Locations

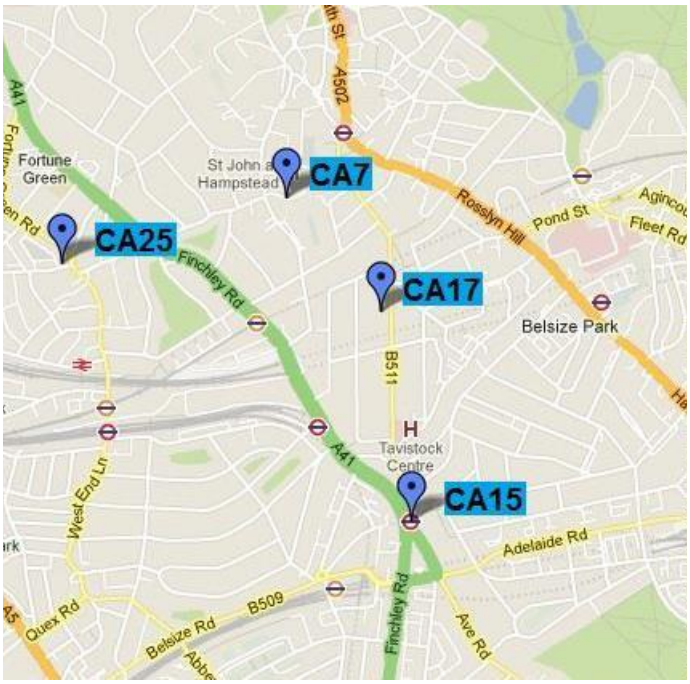


Table 3.2 Nitrogen Dioxide Monitoring Locations

Location	Site Type	Distance to Kerb of Nearest Road (m)	Inlet Height (m)	NO_2 Annual Mean Concentration 2016 (µg/m^3)
CA7	Urban Background	30	2.0	27.91
CA15	Kerbside	<1	2.0	73.86
CA17	Roadside	5	2.0	56.38
CA25	Roadside	1	2.0	52.18

As Table 3.2 illustrates, there were exceedances of the relevant National AQO (40µg/m^3) at all diffusion tube monitoring locations except CA7 during 2016.

3.2 Background Concentrations

The use of background concentrations within the modelling process ensures that pollutant sources other than traffic are represented appropriately. Background sources of pollutants include industrial, domestic and rail emissions within the vicinity of the study site.

Background concentrations were referenced from the UK National Air Quality Information Archive database

based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the development site. In November 2017, Defra issued revised 2015 based background maps for NO_X, NO_2, PM_{10} and $PM_{2.5}$ which incorporate updates to the input data used for modelling.

The updated mapped background concentrations for the predicted development opening year (2019) are summarised in Table 3.3 below.

Table 3.3 Published Background Air Quality Levels (µg/m³)

UK NGR(m)		2019			
X	Y	NO_2	NO_x	PM_{10}	$PM_{2.5}$
526500	183500	27.65	42.71	18.16	11.28
527500	183500	26.44	40.37	17.65	11.03
526500	184500	28.87	45.12	18.42	11.52
527500	184500	26.33	40.25	17.73	11.09

The predicted background concentrations of NO_2 in the vicinity of the proposed development site range between 65.8% to 72.2% of the relevant the AQO of 40µg/m³.

The predicted background concentrations of PM_{10} in the vicinity of the proposed development site range between 44.1% to 46.1% of the relevant the AQO of 40µg/m³.

For the purposes of this assessment, to give a representative baseline, the 2016 NO_2 concentration monitored at monitoring station CA15, minus the road traffic NO_2 DMRB output has been used to represent background concentrations of NO_2. The background at the site in the assessment is shown in Table 4.4 below.

Table 4.4 Background NO_2 and NO_x at Development

Source	NO_2	NO_x
CA15	54	77

4. Construction Phase

The main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months) or from construction materials. The main potential effects of dust and particulate matter are:

- Visual - dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, the need to clean surfaces;
- Physical and/or chemical contamination and corrosion of artefacts;
- Coating of vegetation and soil contamination; and,
- Health effects due to inhalation e.g. asthma or irritation of the eyes.

A number of other factors such as the amount of precipitation and other meteorological conditions will also greatly influence the amount of particulate matter generated.

Construction activities can give rise to short-term elevated dust/PM_{10} concentrations in neighbouring areas. This may arise from vehicle movements, soiling of the public highway or windblown stockpiles.

4.1 Air Quality Standards

The UK Air Quality Standards seek to control the health implications of respirable PM_{10}. However, the majority of particles released from construction will be greater than this in size.

Construction works on site have the potential to elevate localised PM_{10} concentrations in the area. On this basis, mitigation measures should still be taken to minimise these emissions as part of good site practice.

4.2 Dust

Particles greater than 10µm are likely to settle out relatively quickly and may cause annoyance due to their soiling capability. There are no formal standards or criteria for nuisance caused by deposited particles, however, a deposition rate of 200mg/m^2/day is often presented as a threshold for serious nuisance though this is usually only applied to long term exposure as people are generally more tolerant of dust for a short or defined period. Significant nuisance is likely when the dust coverage of surfaces is visible in contrast with adjacent clean areas, especially when it happens regularly. Severe dust nuisance occurs when the dust is perceptible without a clean reference surface.

Construction activities have the potential to suspend dust, which could result in annoyance of residents surrounding the site. Measures will be taken to minimise the emissions of dust as part of good site practice. Recommended mitigation measures proportionate to the risk associated with the development and based on best practice guidance are discussed in the following sections.

4.3 Methodology

The construction phase assessment utilises the IAQM Guidance on the Assessment of Dust from Demolition and Construction document published in February 2014.

Two construction processes are considered; these are construction and trackout. For each of these phases, the significance of the potential dust impacts is derived following the determination of a dust emission magnitude and the distance of activities to the nearest sensitive receptor, therefore assessing worst case impacts. A full explanation of the methodology is contained in Appendix A.

4.4 Assessment Results

Based on the methodology detailed in Appendix A, the scale of the anticipated works has determined the potential dust emission magnitude for each process, as presented in the Table 4.1 below.

Table 4.1 Dust Emission Magnitude

Construction Process	Dust Emission Magnitude
Demolition	Medium
Earthworks	Medium
Construction	Medium
Trackout	Medium

The sensitivity of the surrounding area to each construction process has been determined following stage 2B of the IAQM guidance. The assessment has determined the area sensitivities as shown in the Table 4.2.

Table 4.2 Sensitivity of the Area

Source	Area Sensitivity		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	High	Low	N/A
Earthworks	High	Low	N/A
Construction	High	Low	N/A
Trackout	High	Low	N/A

The dust emission magnitude determined in Table 4.1 has been combined with the sensitivity of the area determined in Table 4.2, to determine the risk of impacts prior to the implementation of appropriate mitigation measures. The potential impact significance of dust emissions associated with the construction phase, without mitigation, is presented below in Table 4.3.

Table 4.3 Impact Significance of Construction Activities without Mitigation

Source	Summary Risk of Impacts Prior to Mitigation		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	High	Low	N/A
Earthworks	Medium	Low	N/A
Construction	Medium	Low	N/A
Trackout	Medium	Low	N/A

5. Operational Phase DMRB Assessment

5.1 DMRB Assessment

An assessment of operational phase traffic flows has been undertaken to assess the potential impact of the proposed development with regards to increases in traffic flows along the local road network. Principal pollutants of concern considered within this assessment are nitrogen dioxide (NO_2) and particulate matter (PM_{10}).

The DMRB Calculation Sheet V1.03c has been used to calculate pollutant concentrations. Assessment receptor locations have been selected at existing property facades at locations where higher than average pollution concentrations are likely to be experienced, i.e. within the AQMA. Selecting receptors at such locations ensures a 'worst case scenario' prediction of pollutant concentrations. An assessment of the impact of existing air quality on proposed receptors has also been included.

5.2 Traffic Data

Baseline 2017 traffic data has been downloaded from the Department for Transport website. To calculate the 2019 'do minimum' scenario traffic flows, a TEMPRO factor of 1.02 was applied to the Baseline 2017 traffic flows. As there are no associated parking spaces with the proposed development, the development is predicted to be car free.

The traffic data used in the assessment is shown in Table 5.1.

Table 5.1 Traffic Data

Link		2019 Do Minimum			2019 Do Something		
		AADT	%HGV	Speed (km/hr)	AADT	%HGV	Speed (km/hr)
1	Finchley Road South	24,084	2.92	48	24,084	2.92	48
2	Finchley Road North	50,042	2.43	48	50,042	2.43	48
3	Belsize Road	16,688	5.02	32	16,688	5.02	32
4	Hillgrove Road	16,688	5.02	32	16,688	5.02	32

5.3 Limitations of DMRB Assessment

The following limitations have been identified with the DRMB Assessment:

- The assessment has only considered the impact on the identified affected roads, namely those included in Table 5.1.
- Background concentrations have been used from UK National Air Quality Archive.
- The DRMB result outputs are unadjusted results.

5.4 Assessment Receptor Locations

Receptor locations have been identified to indicate the effects of the surrounding road network. The receptor locations are presented in Table 5.2 and reference should be made to Figure 1 for a visual representation.

Table 5.2 Assessment Receptor Locations

Receptor		Distance from Link (m)			
ID	Location	From Link 1	From Link 2	From Link 3	From Link 4
R1	Hickes House	65	62	8	190
R2	The Royal Central School of Speech and Drama	50	2	110	-
R3	Farjeon House	5	198	186	7
R4	Byron Court	-	-	6	62
R5	Darwood Court	140	140	7	147
PR1	Proposed Residential Receptor	36	35	11	-
PR2	Proposed Residential Receptor	22	21	26	-
PR3	Proposed Residential Receptor	21	22	25	-
PR4	Proposed Residential Receptor	35	36	7	-

5.5 Ecological Receptors

Air quality impacts associated with the proposed development have the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The Conservation of Habitats and Species Regulations (2017) require competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. Special Protection Areas).

A study was undertaken to identify any statutory designated sites of ecological or nature conservation importance within the extents of the dispersion modelling assessment. This was completed using the Multi-Agency Geographic Information for the Countryside (MAGIC) web-based interactive mapping service, which draws together information on key environmental schemes and designations. Following a search within a 1km radius of the site boundary, no ecologically sensitive receptors were identified.

5.6 DMRB Assessment Results

Predicted annual mean ground level NO_2 and PM_{10} concentrations for the 'do minimum' and 'do something' scenarios are illustrated in Table 5.3 below. A NO_2 background concentration of 54 µg/m^3 has been utilised for the assessment area. This has been calculated by taking off the DMRB traffic NO_2 output of 19.55 µg/m^3 at monitoring location CA15.

Table 5.3 DMRB Nitrogen Dioxide and Particulate Matter Assessment Results (µg/m³)

Receptor ID		2019 Predicted Annual Mean NO_2 Concentration (µg/m³)		Development Contribution (DS-DM)	2019 Predicted Annual Mean PM_{10} Concentration (µg/m³)		Development Contribution (DS-DM)
ID	Location	Do Minimum	Do Something		Do Minimum	Do Something	
R1	Hickes House	61.94	61.94	0.00	20.53	20.53	0.00
R2	The Royal Central School of Speech and Drama	62.87	62.87	0.00	20.77	20.77	0.00
R3	Farjeon House	64.44	64.44	0.00	21.22	21.22	0.00
R4	Byron Court	60.56	60.56	0.00	20.16	20.16	0.00
R5	Darwood Court	59.87	59.87	0.00	19.96	19.96	0.00
PR1	Proposed Residential Receptor	-	64.01	-	-	21.11	-
PR2	Proposed Residential Receptor	-	64.80	-	-	21.33	-
PR3	Proposed Residential Receptor	-	64.85	-	-	21.34	-
PR4	Proposed Residential Receptor	-	64.43	-	-	21.24	-

As illustrated in Table 5.3, at nearby existing receptors, the maximum modelled NO_2 annual average exposure is 64.44 µg/m³ at Farjeon House (R3). At any proposed receptor the maximum modelled NO_2 annual average exposure is 64.85 µg/m³ at PR3. Both of these are predicted to be above the long term AQAL of 40 µg/m³.

The maximum predicted annual average exposure to particulate matter, at nearby existing receptors, the maximum modelled annual average exposure is 21.22 µg/m³ at Farjeon House (R3). At any proposed receptor the maximum modelled NO_2 annual average exposure is 21.34 µg/m³ at PR3. Both of these are predicted to be below the AQAL of 40 µg/m³.

Table 5.4 Significance of Effects at Key Existing Receptors (NO_2)

NO_2 Significance Effects at Key Receptors					
Receptor	Change Due to Development (DS-DM) (µg/m³)	Change Due to Development (% of AQO)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
R1	0.00	0.00	0	76-94% AQAL	Negligible
R2	0.00	0.00	0	76-94% AQAL	Negligible
R3	0.00	0.00	0	95-102% AQAL	Negligible
R4	0.00	0.00	0	76-94% AQAL	Negligible
R5	0.00	0.00	0	76-94% AQAL	Negligible
*0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.					

Table 5.5 Significance of Effects at Key Existing Receptors (PM_{10})

PM_{10} Significance Effects at Key Receptors					
Receptor	**Change Due to Development (DS-DM) (µg/m³)**	**Change Due to Development (% of AQO)**	**% Change in Concentration Relative to AQAL**	**% Annual Mean Concentration in Assessment Year**	**Significance**
R1	0.00	0.00	0	<75% AQAL	Negligible
R2	0.00	0.00	0	<75% AQAL	Negligible
R3	0.00	0.00	0	<75% AQAL	Negligible
R4	0.00	0.00	0	<75% AQAL	Negligible
R5	0.00	0.00	0	<75% AQAL	Negligible
*0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.					

The magnitude of the effects of changes in traffic flow as a result of the proposed development, with respect to NO_2 exposure is determined to be 'negligible'.

The magnitude of the effects of changes in traffic flow as a result of the proposed development, with respect to PM_{10} exposure, is determined to be 'negligible'.

The DMRB assessment calculations have predicted that there will be an exceedance of the AQO for NO_2 at all proposed residential receptors, and therefore further assessment and mitigation may be required.

6. Mitigation

6.1 Construction Phase

The dust risk categories have been determined in Section 3 for each of the four construction activities. The assessment has determined that the potential impact significance of dust emissions associated with the construction phase of the proposed development is 'high risk' at the worst affected receptors.

Using the methodology described in Appendix A, site specific mitigation measures associated with the determined level of risk can be found in Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction. The mitigation measures have been divided into general communications and dust management measures applicable to all sites, and measures applicable specifically to demolition, earthworks, construction and trackout. They are categorised into 'highly recommended' and 'desirable' measures.

The recommended mitigation measures for the proposed development are detailed in Table 6.1 below:

Table 6.1 Highly Recommended Construction Phase Mitigation Measures

Communications
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Display the head or regional office contact information
Dust Management
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
Make the complaints log available to the local authority when asked.
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
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. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period
Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
Cover, seed or fence stockpiles to prevent wind whipping.

Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable
Ensure all vehicles switch off engines when stationary - no idling vehicles.
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Use enclosed chutes and conveyors and covered skips
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods
Avoid bonfires and burning of waste materials.
Demolition
Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
Avoid explosive blasting, using appropriate manual or mechanical alternatives.
Bag and remove any biological debris or damp down such material before demolition.
Earthworks
No action required.
Construction
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.
Trackout
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
Record all inspections of haul routes and any subsequent action in a site log book.
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
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.
Access gates to be located at least 10m from receptors where possible.

Following the implementation of the mitigation measures detailed in the tables above, the impact significance of the construction phase is not considered to be significant.

6.2 Operational Phase

The proposed residential units are predicted to exceed the AQO as outlined in Table 5.3. All proposed residential units will be provided with filtration via an "AAC Eurovent Nitrosorb (or similar) unit" (AAC Unit) which is combined with the MVHR mechanical ventilation.

The AAC unit is an independently tested NO_2 and NO_x removal solution which has been formulated to remove low concentrations (typically external concentrations of around 70µg/m³ NO_2). This high-quality solution delivers sustainable NO_2 and NO_x mitigation and is designed to improve indoor air quality in residential properties. The unit has been proven to mitigate levels of Nitrogen Oxides to 70-80% of their outside value.

7. Conclusions

WYG have undertaken an Air Quality Screening Assessment for the proposed residential development at Mountview Lodge, Camden in accordance with the methodology and parameters described within this report.

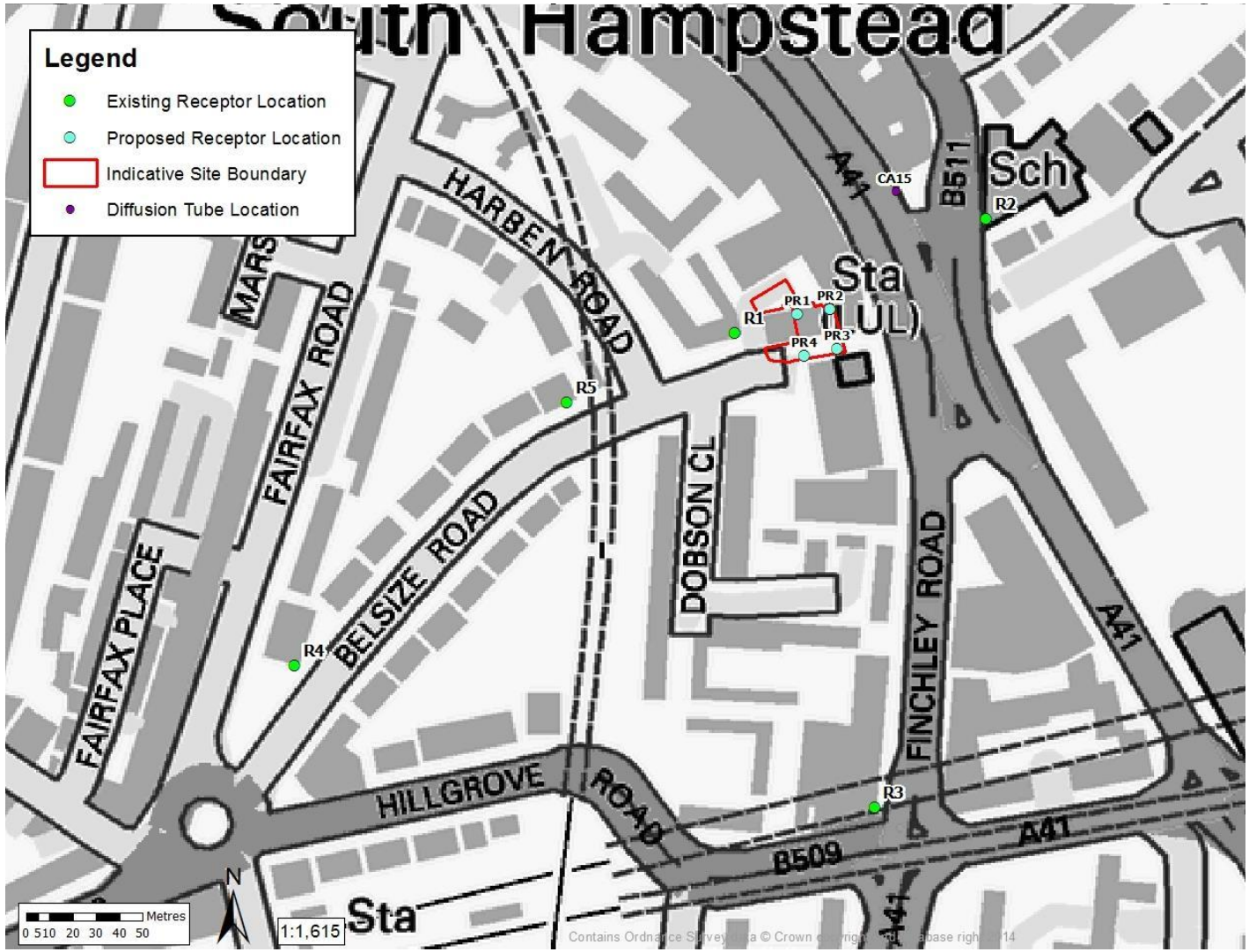
Prior to the implementation of appropriate mitigation measures, the potential impact significance of dust emissions associated with the construction phase of the proposed development has potential as 'high' at some worst affected receptors without mitigation. However, appropriate site specific mitigation measures have been recommended based on Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition, Earthworks, Construction and Trackout. It is anticipated that with these appropriate mitigation measures in place, the risk of adverse effects due to emissions from the construction phase will not be significant.

Following a review of the baseline conditions and the DMRB modelling results, it is predicted that concentrations of NO_2 will exceed the AQO at all modelled proposed residential receptors. Therefore additional mitigation is required. All proposed residential units will be provided with filtration via an "AAC Eurovent Nitrosorb (or similar) unit" (AAC Unit) which is combined with the MVHR mechanical ventilation.

There is not predicted to be an exceedance of the AQO for PM_{10} at any proposed or existing modelled receptors.

The magnitude of the effects of changes in traffic flow as a result of the proposed development, with respect to NO_2 and PM_{10} exposure, is determined to be 'negligible'.

Figure 1 Site Location Plan



Appendix A

The following information sets out the adopted approach to the construction phase impact assessment in accordance with the aforementioned IAQM guidance[1].

Step 1 – Screen the Requirement for a more Detailed Assessment

An assessment is required if there are sensitive receptors within 350m of the site boundary, within 50m of the route(s) used by construction vehicles on the surrounding road network, or within 500m from the site entrance. A detailed assessment is also required if there is an ecological receptor within 50m of the site boundary.

Step 2A – Define the Potential Dust Emission Magnitude

Construction

The dust emission magnitude for the construction phase has been determined based on the below criteria:

- *Large:* Total building volume >100 000m^3, on site concrete batching; sandblasting
- *Medium:* Total building volume 25 000m^3 – 100 000m^3, potentially dusty construction material (e.g. concrete), on site concrete batching; and,
- *Small:* Total building volume <25 000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout

The dust emission magnitude for trackout has been determined based on the below criteria:

- *Large:* >50 HGV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m;
- *Medium:* 10-50 HGV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m; and,
- *Small:* <10 HGV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

Step 2B - Defining the Sensitivity of the Area

Sensitivities of People to Dust Soiling Effects

- *High:*
    - Users can reasonably expect a enjoyment of a high level of amenity;
    - The appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably expect to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land; and,
    - Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.
- *Medium:*
    - Users can reasonably expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home;
    - The appearance, aesthetics or value of their property could be diminished by soiling;
    - The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as

[1] Institute of Air Quality Management 2014. *Guidance on the Assessment of dust from demolition and construction.*

part of the normal pattern of use of the land; and,

- Indicative examples include parks and places of work.

- *Low:*
  - The enjoyment of amenity would not reasonably be expected;
  - Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling;
  - There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land; and,
  - Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A1– Sensitivity of the Area to Dust Soiling Effects on People and Property

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

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of People to the Health Effects of PM_{10}

- *High:*
  - Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day);
  - Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.

- *Medium:*
  - Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day); and,
  - Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.

- *Low:*
  - Locations where human exposure is transient; and,
  - Indicative examples include public footpaths, playing fields, parks and shopping streets.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A2 - Sensitivity of the Area to Human Health Impacts

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

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of Receptors to Ecological Effects

- *High:*
  - Locations with an international or national designation and the designated features may be affected by dust soiling;
  - Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain; and,
  - Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
- *Medium:*
  - Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown;
  - Locations with a national designation where the features may be affected by dust deposition; and,
  - Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
- *Low:*
  - Locations with a local designation where the features may be affected by dust deposition; and,
  - Indicative example is a local Nature Reserve with dust sensitive features.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A3 - Sensitivity of the Area to Ecological Impacts

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

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Step 2C - Defining the Risk of Impacts

The risk of impacts with no mitigation is determined by combining the dust emission magnitude determined in Step 2A and the sensitivity of the area determined in Step 2B.

The following tables provide a method of assigning the level of risk for each activity.

Demolition

Table A4 - Risk of Dust Impacts, Demolition

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

Earthworks

Table A5 - Risk of Dust Impacts, Earthworks

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

Construction

Table A6 - Risk of Dust Impacts, Construction

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

Trackout

Table A7 - Risk of Dust Impacts, Trackout

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

Step 3 – Site Specific Mitigation

The dust risk categories for each of the four activities determined in Step 2C should be used to define the appropriate, site-specific mitigation measures to be adopted.

These mitigation measures are contained within section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

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