

23rd October 2013

WSP Environmental 70 Chancery Lane London WC2A 1AF

Brampton Investment Ltd

c/o Mr Jamie Arva Koopmans (Directland Limited) 34A Watling Street Radlett Hertfordshire WD7 7NN

Dear Sir,

RE: PROPOSED DEVELOPMENT - 9-12 NEW COLLEGE PARADE, FINCHLEY ROAD, AIR QUALITY ASSESSMENT LETTER

WSP Environmental Ltd was commissioned to undertake an air quality assessment in connection with the planning application for the proposed mixed use development of 9-12 New College Parade, Finchley Road, London (hereafter referred to as the "Proposed Development" or "Application Site"). This letter constitutes our assessment of the potential air quality impacts associated with the construction and operation phase of the Proposed Development.

1. Background to Proposed Development

The Application Site is located within the London Borough of Camden (LBC), roughly 2.5km west of Camden Town Centre. A two storey building (plus basement) which accommodates various commercial and retail units, including a restaurant and optician, currently occupies the site. The site is approximately $440m^2$ in extent, and is bounded to the south by Finchley Road, and to the west and east by existing multi-storey mixed use buildings. North of the site is No. 40 College Crescent, which houses a Grade II Listed building, as well as a new residential development which is currently under construction.

The Proposed Development, which is aimed to become operational in late 2015, is envisaged to include:

- Ground and basement level commercial/retail space (~435 m²);
- Nine residential flats (located across Floors 1-4) with private terraces to the rear;
- Cycle parking; and
- Landscaped communal gardens.

It is also understood that the development will be car-free (no significant changes to road traffic characteristics on account of the operation of the Proposed Development) and that no on-site energy generating plant (e.g. CHP or biomass) is proposed.

2. Potential Impacts from the Proposed Development

The Proposed Development has the potential to give rise to changes in air quality at sensitive receptors in the vicinity of the site through fugitive dust emissions and vehicle-related emissions associated with the construction phase. The operation of the Proposed Development is not expected to cause any significant change to traffic on local roads, and with no on-site energy centre being planned, is thus not anticipated to have an impact on air quality.

It is considered that the proposed development may have a temporary effect on local air quality during construction, with demolition, earth-moving works and the storage of aggregates at the site posing the greatest risk with respect to the occurrence of 'nuisance dust'. Construction activities are likely to increase the risk of dust entrainment and possible nuisance occurrence from increased deposition to

surrounding surfaces. The assessment of construction phase impacts will focus on likely impacts of airborne and deposited particulate matter in the vicinity of the site. Potential control measures will be evaluated and recommended to mitigate any estimated risks associated with this phase of the Proposed Development.

3. Legislation, Policy and Guidance

a. Legislative Framework

The following applicable pieces of legislative framework were consulted and considered in this assessment:

- Air Quality Directive 2008/50/EC (Ref.1);
- The Air Quality (England) Regulations 2000 Statutory Instrument 2000 No.928 (Ref.2);
- The Air Quality (England) (Amendment) Regulations 2002 Statutory Instrument 2002 No.3043 (Ref.3);
- The Air Quality Standards Regulations 2010 Statutory Instrument 2010 No. 1001 (Ref.4);
- The Environmental Protection Act 1990 (Ref.5); and
- The Environment Act 1995 (Ref.6).

b. Policy Framework

The following applicable policy framework documents were consulted and considered in this assessment:

- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007 (Ref.7);
- National Planning Policy Framework (Ref.8);
- Regional Planning Policy The Mayor's Air Quality Strategy (Ref.9); and
- The London Plan: Spatial Development Strategy for Greater London (July 2011) (Ref.10);
- Camden Council: Camden Core Strategy 2010-2025 (Ref.11);
- Camden Council: Development Policy DP32: Air Quality and Camden's Clear Zone (within Camden Local Development Framework: Camden Development Policies 2010) (Ref.12);

c. Guidance

The following guidance documents and publications were consulted and applied in this assessment:

- Local Air Quality Management Review and Assessment Technical Guidance LAQM.TG(09) (DEFRA, February 2009) (Ref.13)
- Local Air Quality Management Review and Assessment Policy Guidance LAQM.PG(09) (DEFRA, February 2009) (Ref.14)
- Development Control: Planning for Air Quality (2010 Update) Environmental Protection UK, April 2010 (Ref.15)
- Institute of Air Quality Management: Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance (January 2012) (Ref.16)
- Camden Planning Guidance (CPG6: Amenity) 2011 (Ref.17)
- Camden's Air Quality Action Plan 2013-2015 (Ref.18)

4. Methodology

a. Scope

The scope of the assessment was determined by:

- Reviewing project proposal information provided by the project architects and planners;
- Reviewing air quality data for the area surrounding the site, including data from LBC, DEFRA¹ and the Environment Agency (EA)² websites.
- Conducting a desk study to confirm the location of nearby receptors that may be sensitive to changes in local air quality; and
- Consulting with the Environmental Health Officer of the LBC (Mr Nick Humfrey).

The agreed scope of the current assessment includes the evaluation of the effects resulting from:

- Dust generated by on-site activities on nearby environment during the construction phase;
- Particulate matter (PM₁₀) generated by on-site activities on local air quality during the construction phase;
- Increases in pollutant concentrations (namely nitrogen dioxide (NO₂) and PM₁₀) as a result of exhaust emissions arising from construction traffic and plant on local air quality; and
- New exposure to ambient air quality concentrations (namely NO₂ and PM₁₀) due to new residential units being operational in the opening year.

b. Extent of the Study Area

The air quality assessment considers the Application Site of the Proposed Development and the immediate surrounding area. For the purpose of assessing the effect of dust and particulate matter arising from the on-site preparation, earthworks and construction activities on local air quality, an area of up to 350m from the Site boundary and 500m from the Application Site entrance has been considered in accordance with guidance published by IAQM (Ref. 16).

c. Methods

Method of baseline data collection

A desk study was undertaken to obtain baseline data to inform the assessment. This study incorporated collation and review of local monitoring data and local air quality review and assessment reports available from LBC, review of available air quality from the DEFRA's online Local Air Quality Management support pages (Ref. 19) and the Environment Agency (EA)'s website (Ref. 20).

ii. Assessment of Dust and PM₁₀ generated by on-site activities on nearby environment and on local air quality

A qualitative assessment of the likely significant effects of the generation and dispersion of dust and PM₁₀ during the construction phase has been undertaken using guidance produced by the IAQM. This assessment procedure includes the consideration of potential dust and PM₁₀ impacts from demolition, earthworks, general construction activities and track-out.

iii. Assessment of the increase in pollutant concentrations (NO₂ and PM₁₀) as a result of exhaust emissions arising from construction traffic and plant on local air quality

Exhaust emissions from construction vehicles may have an effect on local air quality both on-site and adjacent to the routes used by these vehicles to access the Application Site. As information on the number of vehicles associated with the each part of the construction phase was not available at the time of undertaking this assessment, a qualitative evaluation of their overall effect on local air quality has been undertaken.

¹ http://laqm1.defra.gov.uk/review/tools/background.php

² http://www.environment-agency.gov.uk

Significance Criteria

iv. Construction Phase

The significance of effects associated with the construction phase of the Proposed Development was determined qualitatively considering parameters related to the location of the site and relationship with surrounding land uses, environmental conditions and proposed construction activities.

The IAQM methodology (Ref. 16) follows a four tier approach to determining the significance of construction phase related effects comprising the following steps:

- 1) Determination of the sensitivity of the surrounding area to dust deposition and changes in PM₁₀ concentration;
- Determination of the dust emission class for the proposed construction work (divided into four types (namely demolition, earthworks, construction and trackout) to reflect their different potential effects);
- 3) Determination of the risk of the site giving rise to impacts from dust generation and PM₁₀ concentrations using the dust emission class and the distance to the nearest sensitive receptor;
- 4) Determination of the significance of the effects based on the sensitivity of the surrounding area and the risk of the site giving rise to effects.

The following terms were used to define the significance of the effects identified:

- Major effect: where the Proposed Development could be expected to have a very significant effect (either positive or negative) on local air quality;
- Moderate effect: where the Proposed Development could be expected to have a noticeable effect (either positive or negative) on local air quality;
- Minor effect: where the Proposed Development could be expected to result in a small, barely noticeable effect (either positive or negative) on local air quality; and
- Negligible: where no discernible effect is expected as a result of the Proposed Development on local air quality.

v. Operation Phase

In determining both the significance of new exposure to air pollution (future occupants of the development) and the levels of mitigation required, consideration was given to the Air Pollution Exposure Criteria (APEC).

d. Selection of Sensitive Receptors

Sensitive locations are those where the public or sensitive ecological habitats may be exposed to pollutants from the Proposed Development. These will include locations sensitive to an increase in dust deposition as a result of on-site construction activities, or exposure to gaseous pollutants from exhaust emissions from construction site traffic.

Estimates of receptor sensitivity to dust and particulate matter generated by construction activities were based on examples provided in the guidance published by the IAQM.

5. Baseline Conditions

a. AQMAs

A review of the latest Air Quality Progress Report prepared by LBC (Ref.21) indicates that the entire borough has been declared an air quality management area (AQMA) in respect of NO₂. The declaration has been in effect since 2001.

b. Local Emission Sources

The Application Site is located in an area where air quality is mainly influenced by emissions from road transport, in particular the A41 (Finchley Road), which passes within approximately 8m of the Application Site.

c. Background Air Quality Data

DEFRA's estimated background concentrations for the pollutants of interest for this study area for 2012 are tabulated below.

Location (O S Coordinates X & Y)	Pollutant	2012 (μg/m³)	
526500, 184500	NO _x	72.49	
	NO ₂	38.95	
	PM ₁₀	21.19	

Neither the NO_2 nor the PM_{10} background concentrations exceed their respective objectives; however the NO_2 concentration is not far below the threshold for non-compliance. Similar NO_2 concentrations have been recorded for 2012 at the LBC's urban background sites at Wakefield Gardens and Travistock Gardens. A lower NO_2 concentration was recorded at the LBC's Frognal Way urban background site, however this site is situated in the less dense/congested northern section of the borough.

d. Local Air Quality Monitoring Data

LBC manages a network of 14 diffusion tube monitoring sites measuring NO_2 concentrations across its area of jurisdiction. Further to this, four continuous monitoring stations, measuring a variety of air pollutants including NO_2 are also operated. There are diffusion tubes co-located with a continuous monitor at a kerbside site in close proximity to the Application Site at Swiss Cottage (grid reference: 526633, 184392). This location is approximately 160m to the southeast of the Application Site, alongside Finchley Road.

Site ID	Site Name	Within AQMA	Annual Mean Concentration (µg/m³)			2012 Data Capture	
			2009	2010	2011	2012	(%)
CD1	Swiss Cottage (Continuous Monitor)	Y	84	82	71	70	97
CA15	Finchley Road (Diff. Tubes)	Y	87.5	71	73.2	72.7	100

It is clear from the results that annual mean concentrations at this kerbside site are well above the objective of 40 μ g/m³. Although not presented here, the hourly NO₂ concentrations at the same site between 2007 and 2012 (inclusive) have had exceedences beyond the allowable number prescribed by the objective.

Annual average PM_{10} concentrations (not shown) at the Swiss Cottage site have been found to be well below the objective for this pollutant between 2007 and 2012 (inclusive).

Likely Significant Effects

a. Construction Phase

During the construction phase of the Proposed Development, there will be a number of activities which have the potential to generate and/or re-suspend dust and PM₁₀. These may include (but are not

limited to): site clearance and earthworks; materials handling and storage; construction vehicle movements; and fabrication/finishing activities.

The majority of the releases are likely to occur during the 'working week'. However, for some potential release sources (e.g. exposed soil produced from significant earthwork activities) in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

i. Sensitivity of the Area

Interpretation of the 2012 wind rose data from both Heathrow Airport and London City Airport revealed a pattern of strong prevailing winds from the west and southwest. Therefore, receptors located to the east and northeast of the Application Site are more likely to be affected by any dust emitted/resuspended from any construction activities and track-out.

It is estimated that there are between 10-100 residential receptors within 20m of the Application Site boundary, as the site is bordered to both the east and west by blocks containing residential units. Local background PM_{10} concentrations are, however, low (comfortably below 75% of the annual mean objective for this pollutant) and therefore PM_{10} generated by the construction phase is unlikely to cause an exceedence of the objectives for this pollutant at the nearby existing properties.

Six schools were identified within 350m of the site, with the closest of these on 30m to the northwest (i.e. not within the primary downwind nodal direction). The nearest medical facility to the site was identified as being the Daleham Gardens Health Centre, approximately 240m distant towards the northeast.

No ecological sites that are sensitive to the pollutants arising from traffic sources are located in the vicinity of the Proposed Development and therefore no further consideration was given to these type of receptors.

Taking the above and guidance produced by the IAQM into account, the area surrounding the Proposed Development is considered to be of **high sensitivity** (in terms of dust soiling) **to low sensitivity** (in terms of compliance related PM_{10} effects) to changes in dust and PM_{10} as a result of construction activities.

ii. Risk of the Application Site in terms of Dust and PM₁₀ emissions

A summary of risk effects due to construction activities, assessed according to the IAQM procedure is provided in the table below. The Proposed Development is considered to constitute a **Medium Risk Site**.

Construction Phase	Details of Each Activity	Potential Dust Emission Class	Distance to the nearest Receptors	Dust Risk Category		
Demolition	Building volume <20,000m ³	Small	<20m	Medium Risk		
Earthworks	Total site area <2,500m ² Total material moved <10,000 tonnes <5 Heavy earthmoving vehicles on-site at a time		<20m	Medium Risk		
Construction Activities	Total building volume <25,000m ³	Small	<20m	Medium Risk		
Trackout	<25 HDV trips per day and <50m of unpaved surface	Small <20m		Medium Risk		
Summary	Medium Risk Site					

Taking into account all of the above, the overall sensitivity of the surrounding area in terms of human receptors is high, and the overall magnitude of change prior to mitigation is considered to be small. Therefore, there is likely to be a direct, temporary, medium-term effect on nearby residential properties of **moderate adverse** significance prior to the implementation of mitigation measures.

iii. Construction Traffic

Exhaust emissions from construction traffic and plant will contribute to local pollutant concentrations. At the time of writing, the exact number of vehicles and plant required during construction activities was not known. In addition, there will also be a requirement to deliver equipment and materials to and from the site and additional vehicle trips associated construction staff/workers travelling to and from the Application Site.

The greatest impact on air quality from traffic associated with the construction phase will be in the areas immediately adjacent to the site access. It is anticipated that construction traffic will access the site via Finchley Road. As noted above, there are residential properties directly adjacent to this possible site access.

Whilst the sensitivity of the receptors is high, the magnitude of change prior to mitigation is anticipated to be small. Considering the maximum annual mean concentrations of NO_2 in the opening years is estimated to be above its objective, the impacts are therefore considered to be temporary, short-term, local in effect and of **slight adverse** significance prior to mitigation. For PM_{10} , the significance would be considered **negligible**.

b. Operation Phase

i. Impact on Existing Receptors

It is understood that the Proposed Development will be car-free (no significant changes to road traffic characteristics on account of the operation of the proposal) and that no on-site energy generating plant is proposed. These considerations, coupled with the small size of the development translate to a situation where the operation phase is not expected to cause any significant air quality impacts to existing receptors.

ii. New Exposure

Without having undertaken detailed quantitative modelling for new exposure for the proposed Development once operational, findings were based on assessment of prevailing background concentrations of NO_2 and PM_{10} in the study area, other available monitoring data, as well as prior experience with pollutant dilution and dispersion under the types of environments that are anticipated at the site.

It is expected that annual mean NO_2 concentrations at the first (and possibly second) storey residential unit facades would exceed the objective for this pollutant. Such exceedences would be attributable to existing background pollutant levels within the area and sources such as road traffic along the adjacent Finchley Road. Concentrations would tend to decrease with height, but given the existing air quality in the area, it is considered plausible that the upper residential storeys may have potential exposure to NO_2 concentrations approaching the objective.

Therefore, according to the London Councils' Air Pollution Exposure Criteria (APEC), the Proposed Development is estimated to be classed as APEC Level C for the lower level residential units facing Finchley Road and APEC Level B for all other units in terms of annual mean NO_2 concentrations in the opening year.

According to the same London Councils' APEC, in the opening year, the proposed redevelopment is expected to be APEC Level A for annual mean PM_{10} concentrations at all on-site receptors i.e. no air quality grounds for refusal of the planning application.

7. Likely Significant Effects

a. Construction Phase

i. Mitigation Measures

A number of mitigation methods will be implemented, as appropriate including:

- Vehicles carrying loose aggregate and workings will be sheeted at all times;
- Design controls for construction equipment and vehicles will be implemented and only appropriately designed vehicles will be used for materials handling;
- Completed earthworks will be covered or vegetated as soon as is practicable;
- Regular inspection of local highways and site boundaries to check for dust deposits will be conducted. If necessary, cleaning and/or removal will be undertaken;
- Stockpile surface areas will be minimised (subject to health and safety and visual constraints regarding slope gradients and visual intrusion) to reduce area of surfaces exposed to wind pick-up;
- Where appropriate, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between the Application Site and the surroundings;
- Where practicable, stockpiles of soils and materials will be located as far as possible from sensitive properties, taking account of prevailing wind directions and seasonal variations in the prevailing wind;
- During dry or windy weather, material stockpiles and exposed surfaces will be dampened down
 using a water spray to minimise the potential for wind pick-up;
- Dust-suppressed tools will be used for all operations;
- All construction plant and equipment will be ensured to be maintained in good working order and not left running when not in use;
- On-site movements will be restricted to well within site and not near the perimeter, if possible; and
- Unauthorised burning of any material anywhere on site will not be tolerated.

Detailed mitigation measures to control construction traffic shall be discussed with LBC to establish the most suitable access and haul routes for the site traffic. The most effective mitigation will be achieved by ensuring that construction traffic does not pass along sensitive roads (residential roads, congested roads, via unsuitable junctions, etc.) where possible, and that vehicles are kept clean (through the use of wheel washers, etc.) and sheeted when on public highways. Timing of large-scale vehicle movements to avoid peak hours on the local road network will also be beneficial.

It is recommended that liaison with the local authority be maintained throughout the construction process.

A comments and complaints register which is accessible to members of public should be implemented and maintained. Such a register would provide a formal framework within which to record any comments and complaints received, as well as to identify and action appropriate mitigation and/or remediation measures. The register should also include a means of recording and communicating the close-out of issues.

ii. Residual Effects

With appropriate use of mitigation measures and good site management, the overall significance of residual effects of dust and PM_{10} generation and deposition are considered to be **negligible**. The residual effects of emissions from construction vehicles overall will also be **negligible**.

b. Operation Phase

i. Mitigation Measures

The anticipated ambient NO_2 concentrations at the site are such that it is proposed that a means of mechanical ventilation (with its intake at roof level) be considered for the residential units within the Proposed Development (first and second storey units at a minimum, but advisable for all). The

ventilation strategy should introduce a suitable filtration system to reduce NO₂ concentrations drawn into the ventilation system intakes to below legislated limit values. Details of the ventilation systems should be provided at detailed design stage.

ii. Residual Effects

With a suitable mechanical ventilation system in place, future residents of the Proposed Development will not be exposed to annual mean NO₂ concentrations that exceed the AQS objectives.

8. Summary and Conclusions

A qualitative assessment of the potential effects on local air quality from construction activities has been carried out for this phase of the Proposed Development based on the IAQM construction assessment procedure. This assessment identified that the Proposed Development is considered to be a Medium Risk Site in respect of demolition, earthworks general construction activities and trackout. However, through good site practice and the implementation of suitable mitigation measures, the effect of dust and PM_{10} releases will be reduced and excessive releases prevented. The residual effects of the construction phase on air quality are therefore considered to be temporary, short-medium term, local and of **negligible significance** according to IAQM's significance criteria.

The predictions of the new exposure assessment indicated that annual mean NO₂ concentrations anticipated in the opening year may exceed the objective for this pollutant at residential units representing new exposure locations within the Application Site. Using the London Council's exposure criteria for annual mean NO₂ concentrations at residential dwellings, the Proposed Development is estimated to be classed as **APEC Level C** for the lower level residential units facing Finchley Road and **APEC Level B** for all other units in terms of annual mean NO₂ concentrations in the opening year. This translates to a need for appropriate mitigation to be presented in the air quality assessment, detailing anticipated outcomes of mitigation measures. Therefore, it is recommended that the Proposed Development is mechanically ventilated using a system that has the appropriate filters fitted to remove exceeding concentrations of NO_x/NO₂ from the incoming air.

The Camden Core Strategy (2010-2025) identifies that mixed use developments can lead to benefits in terms of air quality, in that growth within the borough in the form of such developments may reduce commuting and the need for some other journeys. This assessment has concluded that the Proposed Development would present a feasible provision of such mixed used, while at the same time being able to ensure that future occupants would not suffer the effects of poor air quality within their homes.

Overall, with the recommended mitigation measures in place, the Proposed Development will comply with European and National air quality legislation, and local planning policy.

Should you have any queries or comments, please do not hesitate to contact either of the undersigned.

Yours sincerely,

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9. References

- [1] Air Quality Directive 2008/50/EC
- [2] The Air Quality (England) Regulations 2000 Statutory Instrument 2000 No.928
- [3] The Air Quality (England) (Amendment) Regulations 2002- Statutory Instrument 2002 No.3043
- [4] The Air Quality Standards Regulations 2010- Statutory Instrument 2010 No. 1001
- [5] The Environmental Protection Act 1990
- [6] The Environment Act 1995
- [7] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007
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