PLANNING FOR SUSTAINABILITY

Land accessed from private lane between 25a & 25c Frognal

Application for planning consent

Air Quality Statement
November 2018

Revision Schedule

Air Quality Statement
November 2018

Rev	Date	Details	Prepared by	Reviewed by	Approved by
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1 Introduction

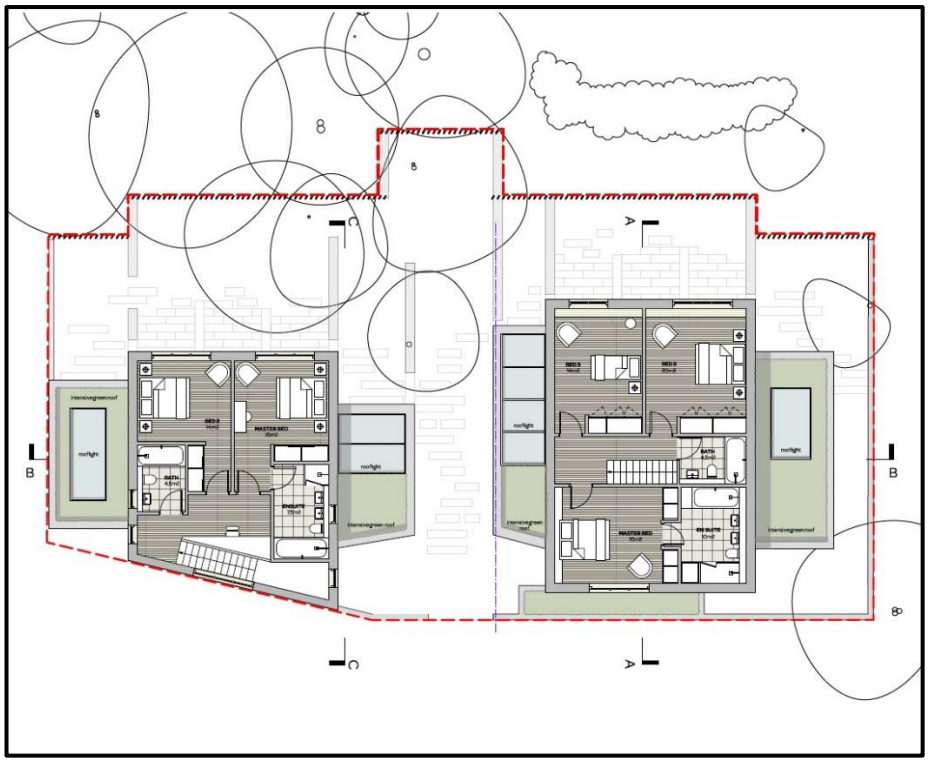
Planning For Sustainability have been commissioned to consider the potential impact on local air quality of a new residential development to be located on land to the rear of 29-33 Arkwright Road, Camden.
This technical note sets out the potential impacts from the development in terms of local air quality and considers the development in respect of relevant national and local policy.

The Site falls within the London Borough of Camden (LBC). The Council have declared the whole borough an Air Quality Management Area (AQMA) due to exceedences of the annual mean Nitrogen Dioxide (NO_2) objective. Furthermore, the Site falls just within Air Quality Focus Area (AQFA) 32. AQFA's are areas, agreed between the Greater London Authority (GLA) and individual London boroughs, where pollution levels are in exceedence of the objectives and public exposure is highest. The boroughs must work towards improvements in these areas and all new development is expected to bring with it the highest standards on design and operation to ensure improvements can be secured from the outset.
The development proposals are to provide two new residential dwellings which would be accessed via an existing access road leading off Frognal, currently providing access to two existing residential properties including 25E Frognal. A location plan and indicative masterplan of the Site are provided in Figures 1.1 and 1.2 below.

Figure 1.1: Location of Site

Given the small scale of the development proposals, during operation there would not be a significant number of additional vehicle trips generated on the adjacent road network. Furthermore, no biomass or combined heat and power (CHP) plant are proposed, therefore there would be no significant onsite emissions source. The impact of the operational development on local air quality would therefore be negligible and any further assessment of operational emissions has been scoped out.

Figure 1.2: Layout of Site



As set out within the London Plan[1] and the Mayors Air Quality Strategy[2] all developments in London are required to be Air Quality Neutral (AQN). However, based on guidance produced by Greater London Authority[3] the AQN policy should only apply to developments of more than 10 residential units. The proposed development falls below these criteria and therefore has not been assessed any further in terms of the AQN policy and guidance. In terms of potential emissions during construction, due to the size of the development proposals, the risk of significant effects on adjacent residential properties would be low based on the assessment criteria set out within the Mayor of London's Supplementary Planning Guidance on the control of dust from construction[4]. The contractor would implement best practice measures during construction of the development which would be set

[1] Greater London Authority (March 2016) The London Plan: The Spatial Development Strategy for London Consolidated with Alterations Since 2011

[2] Mayor of London (2010) Clearing the Air, The Mayor's Air Quality Strategy, December 2010

[3] GLA (2014) Air Quality Neutral Planning Support Update: GLA 80371

[4] Mayor of London (2014) Control of Dust and Emissions During Construction and Demolition

out within a site-specific Construction Management Plan (CMP). Measures proposed for inclusion within the CMP are provided in Appendix A. It is likely that a requirement for a CMP would be conditioned as part of any planning permissions. The impact of any dust and plant emissions during construction is therefore unlikely to be significant following implementation of the CMP. Impacts associated with construction activities has not therefore been considered any further.

Given the location of the Site (within the Camden AQMA and AQFA 32) there is the potential for pollution levels at the Site to be exceeding the annual mean NO_2 objective. A baseline assessment has therefore been carried out to assess the impact of the proposals in terms of exposure.

2 Planning Policy

International Legislation and Policy

The EU Directive 2008/50/EC[5] on ambient air quality and cleaner air for Europe (the CAFE directive) sets out the ambient air quality standards for a number of pollutants and the dates by which these objectives should be met. The Air Quality Standards Regulations 2010[6] implements the requirements of the Directive into UK legislation. The Directive contains a series of limit values for the protection of human health and critical levels for the protection of vegetation. These limit values are legally binding and the UK may incur infringement action if it does not meet the required objective limits within the agreed time limits. The UK is currently exceeding the objective limits for NO_2 and PM_{10} within London and a number of other air quality zones within the UK.

National Legislation and The UK Air Quality Strategy

The Government's policy on air quality within the UK is set out in the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland (AQS) published in July 2007[7], pursuant to the requirements of Part IV of the Environment Act 1995. The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in the UK. The AQS is designed to be an evolving process that is monitored and regularly reviewed.

Table 1: Relevant Objectives set out in the Air Quality Strategy

Pollutant	Concentrations	Measured As	Date to be Achieved By
Nitrogen Dioxide (NO_2)	200 μgm^{-3} not to be exceeded more than 18 times per year	1 hour mean	31 December 2005
	40 μgm^{-3}	Annual mean	31 December 2005
Particulate Matter (PM_{10})	50 μgm^{-3} not to be exceeded more than 35 times per year	24 hour mean	31 December 2004
	40 μgm^{-3}	Annual mean	31 December 2004
Particulate Matter ($PM_{2.5}$)	25 μgm^{-3}	Annual mean	-

[5] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

[6] Air Quality Regulations 2010 – Statutory Instrument 2010 No. 1001

[7] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – July 2007

The AQS sets standards and objectives for ten main air pollutants to protect health, vegetation and ecosystems, which includes NO_2 and particulate matter (PM_{10}), the two main pollutants of concern within the LBC. The current statutory standards and objectives for NO_2 and PM_{10} in relation to human health are set out in Table 1.

The statutory standards and objectives apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within Local Air Quality Management Technical Guidance 2016 (LAQM.TG(16))[8] issued by DEFRA for Local Authorities on where the objectives apply, as detailed in Table 2. The objectives do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (i.e. centre of roadways).

Table 2: Locations Where Air Quality Objectives Apply

Averaging Period	**Objectives should apply at:**	**Objectives should generally not apply at:**
Annual Mean	All locations where members of the public might be regularly exposed.	Building facades of residential properties, schools, hospitals, libraries etc. Building facades of offices or other places of work where members of the public do not have regular access. Gardens of residential properties. Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
24 Hour Mean	All locations where the annual mean objective would apply. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1 Hour Mean	All locations where the annual mean and 24 hour mean objectives apply. Kerbside Sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend 1-hour or more. Any outdoor locations where the public might reasonably be expected to spend 1-hour or longer.	Kerbside sites where the public would not be expected to have regular access.

[8] DEFRA (2016) Local Air Quality Management Policy Guidance (LAQM.TG(16))

Regional Legislation and Policy

The Mayor of London's Air Quality Strategy

The Mayor of London's AQS sets out a series of policies and proposals for the implementation of the UK AQS and for the achievement of the air quality standards and objectives in Greater London. With regards the proposed development the following policies are of relevance:

> *Policy '6 - Reducing emissions from construction and demolition sites': The London Council's Best Practice guidance will be reviewed and updated, and more vigorously implemented;*
>
> *Policy '7 - Using the planning process to improve air quality - new developments in London as a minimum shall be 'air quality neutral': 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;*

The London Plan

The London Plan 2016 is the overall strategic plan for London setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. It specifically addresses how development can help support the implementation of the Mayor's Air Quality Strategy and achieve a reduction in pollutant emissions and public exposure to pollution.

Policy 7.14 – Improving Air Quality requires all development proposals to:

- *Minimise increased exposure to existing poor air quality, make provision to address local problems of air quality (particularly within AQMAs) and promote greater use of sustainable transport modes through travel plans;*
- *Promote sustainable design and construction to reduce emissions from demolition and construction of buildings including following current best practice guidance;*
- *Be at least 'air quality neutral' and therefore not leading to further deterioration of existing poor air quality;*
- *Look, in the first instance, to implement measures on-site to reduce emissions from a development. If inappropriate or impractical, other measures should be considered and where found to provide equivalent air quality benefits, planning obligations or planning conditions should be used to ensure their implementation;*
- *Permission will only be granted where a detailed assessment of biomass boilers shows no adverse impact from emissions.'*

The Emerging London Plan

The Emerging London Plan[9] is currently out for consultation. In dealing with Air Quality the plan sets out the following:

[9] Mayor of London, Draft New London Plan, 2017

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

1. Development proposals should not:

a) Lead to further deterioration of existing poor air quality

b) Create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits;

c) Reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality;

d) Create unacceptable risk of high levels of exposure to poor air quality.

2. 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. Particular care should be taken with developments that are 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.

3. The development of large-scale redevelopment areas, such as Opportunity Areas and those subject to an Environmental Impact Assessment should propose methods of achieving an Air Quality Positive approach through the new development. All other developments should be at least Air Quality Neutral.

4. Development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emissions Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

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

6. Development proposals should ensure that where emissions need to be reduced, this is done on-site. Where it can be demonstrated that on-site provision is impractical or inappropriate, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated'.

Local Air Quality Management

Local authorities are seen to play a particularly important role. The AQS describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to undertake regular reviews and assessments of air quality within its area to identify whether the objectives have been or will be achieved at relevant locations by the applicable date. If the objectives are not being met, the authority must declare an Air Quality Management Area (AQMA) and prepare an action plan which identifies measures that will be introduced in pursuit of the objectives.

Camden Planning Policy

The Camden Local Plan 2017[10] sets out the policies to guide development across the borough. In terms the Plan sets out policy CC4 which states that 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'*. Under the policy the Council will take account of both exposure of new occupants and the effect of the development on air quality, requiring an air quality assessment to be undertaken and appropriate mitigation to be identified and adopted, where significant effects are identified.

[10] LBC (2017) Camden Local Plan

3 Baseline Assessment

LBC undertake monitoring of NO_2, PM_{10} and $PM_{2.5}$ at a number of locations across the borough. PM_{10} concentrations are monitored at 3 locations using automatic monitoring equipment; Bloomsbury (background location), Euston Road (roadside location) and Swiss Cottage (roadside location). During 2017 all three sites recorded annual mean PM_{10} concentrations of between 18.5 – 20.5 µg/m^3, less than 75% of the objective limit of 40 µg/m^3. However, data recorded shows 98th percentile concentrations of the 24-hour PM_{10} of 46 µg/m^3 (Euston Road), 49 µg/m^3 (Bloomsbury) and 59 µg/m^3 (Swiss Cottage). The 24-hour objective limit is 50 µg/m^3, therefore the short-term PM_{10} objective is being exceeded at the Swiss Cottage site but met at the other two sites.

The nearest site to Arkwright Road is at Swiss Cottage. The Swiss Cottage site is located directly adjacent to the A41, one of the main traffic routes through the borough, and close to the junction with Fitzjohn's Avenue. The development site is located 115m to the north-east of the A41 and 50m to the south of Arkwright Road. Pollution concentrations at the development site are therefore predicted to be considerably lower than recorded at the Swiss Cottage site given the higher separation distance from the A41. It has been found that pollutant concentrations decline rapidly away from source and can reach background concentrations within 50-100 m from roadside locations.

As annual mean PM_{10} concentrations at the Swiss Cottage roadside site are less than 75% of the 40 µg/m^3 objective limit it can be concluded that concentrations at the development site are also meeting the objective limit. It is also predicted that short-term PM_{10} concentrations would have declined sufficiently within the 115 m between the A41 and the site to fall below the 24-hour objective limit, with concentrations predicted to be similar to those recorded at background locations i.e. at the Bloomsbury monitoring site which has recorded concentrations of less than 50 µg/m^3. The impact in terms of exposure to PM_{10} is therefore considered to be negligible.

$PM_{2.5}$ is also measures at the three automatic monitoring sites and during 2017 concentrations in the range of 13.5 to 15.9 µg/m^3 were recorded. This is below the annual mean objective of 25 µg/m^3. $PM_{2.5}$ concentrations at the development site are therefore predicted to be meeting the annual mean objective and impacts in terms of exposure also negligible for this pollutant.

NO_2 concentrations are monitored extensively across the borough using both automatic monitoring equipment and diffusion tubes. In the vicinity of Arkwright Road there are three diffusion tube sites operated by LBC, one located on Frognal Way, one on Fitzjohn's Avenue and the other at Swiss Cottage, co-located with the Swiss Cottage Automatic monitoring site. In addition, during 2017 residents were invited to apply for and set up diffusion tube sites to extend the existing monitoring carried out by the Council. Two sites where set up at Longland Gardens, however no data is available. A further two sites were set up at Holly Bush, which provided

data during August and September 2017. Data from the above sites has been reviewed to ascertain likely NO_2 concentrations at the development site. The data is set out in Table 3.

Monitoring data set out in Table 3 shows annual mean NO_2 concentrations exceeding the 40 µg/m^3 objective limit at Swiss Cottage and 47 Fitzjohn's Avenue. As detailed above, the Swiss Cottage site is located directly adjacent to the A41, which experiences in the region of 50,000 vehicles per day, while the Fitzjohn's Avenue site is located directly adjacent to the roadside and experiences in excess of 15,000 vehicles per day.

NO_2 concentrations are known to decline rapidly away from source with concentrations falling to the equivalent of background levels within 100-200 m of a roadside. The Frognal Way monitoring site is located approximately 150 m to the west of Fitzjohn's Avenue and has recorded annual mean NO_2 concentrations consistently less than 75% of the annual mean objective since 2015. Both the Holly Bush sites are located approximately 50-60 m west of Fitzjohn's Avenue and data recorded at both sites indicates concentrations below the annual mean objective. The data shows a rapid decline in concentrations away from Fitzjohn's Avenue with concentrations declining by over 30 µg/m^3 within 150 m. As detailed above, the development site is located over 115 m from the A41. It is therefore predicted that NO_2 concentrations will have declined sufficiently to be meeting the annual mean objective at the site.

Table 3: NO_2 Monitoring Data (µg/m^3)

Site	Year		
	2015	2016	2017
Swiss Cottage Automatic Site	60.8	65.9	52.2
Swiss Cottage 1 (diffusion tube)	71.9	68.2	67.2
47 Fitzjohn's Avenue	-	56.4	63.5
Frognal Way	25.7	27.9	26.4
Holly Bush (Romneys House)	-	-	Aug – 35.1 Sept – 21.4
Holly Bush	-	-	Aug – 35.4

Diffusion tubes are unable to monitor short-term NO_2 concentrations. However, research[11] has concluded that exceedences of the 1-hour mean objective are generally unlikely to occur where annual mean concentrations do not exceed 60 µg/m^3. Given the separation distance between the A41 and the development site it is predicted

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

that annual mean concentrations would be meeting the objective limit of 40 µg/m^3, so below 60 µg/m^3. Short-term concentrations at the site are therefore predicted to be meeting the 1-hour objective limit.

Given that NO_2 concentrations at the Site are predicted to be meeting both the annual mean and short-term NO_2 objectives the impact of the proposals in terms of exposure would be negligible.

4 Conclusion

It is proposed to development land at the rear of 29-33 Arkwright Road to provide 2 new residential dwellings. Due to the small scale of the proposed development impacts in terms of operational emissions would not be significant. There would also be a low risk of significant effects during the construction of the two buildings. However, due to the site falling within the Camden AQMA and AQFA32, a baseline assessment of local air quality has been carried out to assess impacts in terms of new exposure.

Based on local monitoring, which shows a significant decline in pollutant concentrations with increasing distance from the main traffic routes, PM_{10} and NO_2 concentrations at the Site are predicted to meet the annual mean and short-term objective limits. The impact of the development in terms of new exposure would therefore be negligible.

A review of the proposals against the relevant legislation and policy shows that the development would meet all relevant policies in relation to air quality.

Appendix A – Construction Mitigation measures for Inclusion in CMP

- Display the name and contact details of persons accountable for air quality issues on the site boundary;
- Record and respond to all dust and air quality emissions complaints;
- Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results and make log available to LA when asked;
- Record any exceptional incidents that cause dust and air pollutant emissions, either on or off the site, and action taken to resolve the situation;
- Plan site layout locating machinery and dust causing activities as far from receptors as possible;
- Erect solid screens around site or dust causing activities at least as high as any stockpiles;
- Fully enclose site or specific operations where there is a high potential for dust production;
- Avoid site runoff of water or mud;
- Keep fencing, barriers and scaffolding clean using wet methods;
- Remove materials from site as soon as possible;
- Ensure all on-road vehicles comply with the requirements of the London Low Emissions Zone;
- Ensure all non-road mobile machinery comply with the standards set out within the Mayors SPG;
- Ensure all vehicles switch off engines when stationary;
- Avoid the use of diesel or petrol-powered generators;
- Ensure an adequate water supply on the site for effective dust mitigation;
- Use enclosed chutes and covered skips;
- Minimise drop heights from loading shovels, hoppers etc;
- Reuse and recycle waste to reduce dust;
- Avoid bonfires and burning of waste materials;
- Avoid scabbling if possible;
- Ensure sand and other aggregates are stored in enclosed areas or bunded areas;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering or leaving site are securely covered to prevent escape of materials;