



AIR QUALITY IMPACT ASSESSMENT

AT: Coppetts Wood, Muswell Hill, London

CLIENT: Rydon Construction

DATE: August 2022

STROMA PROJECT REF: PRO-074157

Please find below the link to the online feedback form:

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1 INTRODUCTION

1.1 Scope

Stroma Built Environment Ltd has been commissioned to undertake an air quality assessment based on the potential impacts of existing and future traffic levels on a proposed development at Coppetts Wood, London. The pollutants modelled as part of this assessment are nitrogen oxides (NO_x) and particulate matter (PM₁₀).

The impacts of vehicle emissions have been assessed using the techniques detailed within the Sustainable Design and Construction Supplementary Planning Guidance (SPG)¹ and the Air Quality Neutral Planning Support Update

An Air Quality Neutral assessment for building emissions has been undertaken in accordance with the London Plan.

1.2 Site Description

The proposed development site is located at Coppetts Wood, Muswell Hill in London. The proposed development is for 77 new residential properties – 66 flats and 11 houses across a total of 6 blocks.

¹ Sustainable Design and Construction Supplementary Planning Guidance (SPG), Mayor of London, April 2014

2 POLLUTANTS & LEGISLATION

2.1 Pollutant Overview

In most urban areas of the UK, traffic generated pollutants have become the most common pollutants. These are nitrogen dioxide (NO₂), fine particulates (PM₁₀), carbon monoxide (CO), 1,3-butadiene and benzene, as well as carbon dioxide (CO₂). This air quality assessment focuses on NO₂ and PM₁₀, as these pollutants are least likely to meet their Air Quality Strategy objectives near roads. Table 1 provides an overview of NO₂ and PM₁₀.

Table 1 – Overview of NO₂ and PM₁₀

Pollutant	Properties	Anthropogenic Sources	Natural Sources	Potential Effects
Particles (PM₁₀)	Tiny particulates of solid or liquid nature suspended in the air	Road transport; Power generation plants; Production processes e.g. windblown dust	Soil erosion; Volcanoes; Forest fires; Sea salt crystals	Asthma; Lung cancer; Cardiovascular problems
Nitrogen Dioxide (NO₂)	Reddish-brown coloured gas with a distinct odour	Road transport; Power generation plants; Fossil fuels – extraction & distribution; Petroleum refining	No natural sources, although nitric oxide (NO) can form in soils	Pulmonary edema; Various environmental impacts e.g. acid rain

2.2 Air Quality Strategy

The UK Government and the devolved administrations published the latest Air Quality Strategy for England, Scotland, Wales and Northern Ireland on 17 July 2007². The Strategy provides an over-arching strategic framework for air quality management in the UK.

With regards to this assessment, the Air Quality Strategy contains national air quality standards and objectives established by the Government to protect human health. The objectives for nitrogen dioxide and particulates (PM₁₀ and PM_{2.5}) have been set, along with seven other pollutants (benzene, 1,3-butadiene, carbon monoxide, lead, PAHs, sulphur dioxide and ozone). Those which are limit values required by EU Daughter Directives on Air Quality have been transposed into UK law through the Air Quality Standards Regulations 2010 which came into force on 11th June 2010 and amended in The Air Quality Standards (Amendment) Regulations 2016. Table 2 provides the UK Air Quality Objectives for NO₂ and PM₁₀. Table 2 provides the UK Air Quality Objectives for NO₂ and PM₁₀.

² The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department for Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland, July 2007

3 PLANNING POLICY & GUIDANCE

3.1 National Planning Policy & Guidance

3.1.1 National Planning Policy Framework

On a national level, air quality can be a material consideration in planning decisions. The National Planning Policy Framework (NPPF)³ for England, revised and released on 20th July 2021, is considered a key part of the Governments reforms to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. The NPPF replaces the Planning Policy Statement 23 (PPS23) Planning and Pollution Control⁴.

Paragraph 174 within the NPPF states that “planning policies and decisions should contribute to and enhance the natural and local environment” and that developments “should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans”

It goes on to state in paragraph 186 that “planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and 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 and 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”.

3.1.2 Planning Practise Guidance (PPG)

As defined within section 2, the UK Government has legally binding limits for concentrations of outdoor air pollutants. Development of any size can influence air quality through the construction and in use phases. The PPG for air quality outlines the considerations for developments in relation to air quality and the scenarios to be considered where appropriate. Furthermore the PPG outlines that any assessment needs to be “proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions”. Once these considerations and assessments have been undertaken, mitigation which is specific to the locality should be agreed between the planning authority and developer “to ensure new development is appropriate for its location and unacceptable risks are prevented”.

³ National Planning Policy Framework, Secretary of State for Ministry of Housing, Communities and Local Government, February 2019

⁴ Planning Policy Statement 23: Planning and Pollution Control, Office of the Deputy Prime Minister (ODPM), November 2004

3.1.3 Land-Use Planning & Development Control

In January 2017, Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) produced guidance to ensure that air quality is adequately considered in the land-use planning and development control processes⁵.

The guidance document is particularly applicable to assessing the effect of changes in exposure of members of the public resulting from residential and mixed-use developments, especially those within urban areas where air quality is poorer. It is also relevant to other forms of development where a proposal could affect local air quality and for which no other guidance exists.

⁵ Land-Use Planning & Development Control: Planning for Air Quality. Guidance from Environmental Protection UK and the Institute of Air Quality Management for the consideration of air quality within the land-use planning and development control processes. EPUK & IAQM. January 2017

3.2 Regional Planning Policy

3.2.1 The Mayor's Air Quality Strategy

In October 2010, the Mayor's Air Quality Strategy⁶ was released. The strategy sets out a framework for delivering improvements to London's air quality and includes measures aimed at reducing emissions from transport, homes, offices and new developments, as well as raising awareness of air quality issues and its impact on health.

3.2.2 The New London Plan

The New London Plan was adopted by the Greater London Authority in February 2021 with the aim of providing a 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. The Plan brings together the geographic and locational aspects of the Mayor's other strategies, including a range of environmental issues such as climate change (adaptation and mitigation), air quality, noise and waste.

Policy SI1 Improving Air Quality relates specifically to improving air quality and states the following:

"Poor air quality is a major issue for London which is failing to meet requirements under legislation. Poor air quality has direct impacts on the health, quality of life and life expectancy of Londoners. The impacts tend to be most heavily felt in some of London's most deprived neighbourhoods, and by people who are most vulnerable to the impacts. London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced."

It goes on to state the following with regards to planning decisions:

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. create unacceptable risk of high levels of exposure to poor air quality.
2. In order to meet the requirements in Part 1, as a minimum:
 - a. Development proposals must be at least air quality neutral
 - b. Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures
 - c. Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1
 - d. Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people, which do not demonstrate that design measures have been used to minimise exposure should be refused.

⁶ Clearing the Air: The Mayor's Air Quality Strategy. October 2010

3.2.3 Supplementary Planning Guidance (SPG)

Sustainable Design and Construction SPG

The Greater London Authority (GLA) released the “Sustainable Design and Construction” SPG in July 2014⁷. The SPG aims to support developers, local planning authorities and neighbourhoods to achieve sustainable development. It provides guidance on to how to achieve the London Plan objectives effectively, supporting the Mayor’s aims for growth, including the delivery of housing and infrastructure.

In relation to air quality the SPG provides guidance on the following key areas:

- assessment requirements;
- construction and demolition;
- design and occupation;
- air quality neutral policy for buildings and transport; and
- emissions standards for combustion plant

⁷ Sustainable Design and Construction SPG. Greater London Authority, July 2014

4 AIR QUALITY NEUTRAL ASSESSMENT

4.1 Introduction

Policy 7.14 within the London Plan states that every “major” development in Greater London be at least “air quality neutral” and not lead to further deterioration of existing poor air quality. This definition comes from the Town and Country Planning Order⁸, to which the London Plan refers.

Within the London Plan, a “major” development is defined by the following criteria:

- 10 or more residential dwellings (or where the number is not given, an area of more than 0.5 ha); or
- For all other uses, where floor space is 1,000 sq m or more (or the site is 1 ha or more).

As such, the proposed development is classified as a “major” development in accordance with 1,000 sq m or more floor space.

The air quality neutral assessment has followed the methodology outlined in the Sustainable Design and Construction Supplementary Planning Guidance (SPG)⁹ and the Air Quality Neutral Planning Support Update¹⁰. Within these documents, benchmarks have been provided in relation to building and transport emissions, together with a methodology for calculating the building related emissions for a particular development. The building and transport related emissions are then compared to the Building Emissions Benchmarks (BEBs). If so, then mitigation measures are required to reduce the site emissions, either by on-site measures or by off-setting.

4.2 Building Emissions

The Building Emissions Benchmark (BEBs) for the land use category applicable to hotels is provided in Table 2. Emissions of PM₁₀ have not been considered as oil and/or solid fuel are not proposed to be used at the development.

Table 2 – Building Emissions Benchmarks (BEBs)

Land Use Class	NOx (g/m ² /annum)
C2	68.5

Using the method described within the Air Quality Neutral Planning Support Update, the site specific benchmarked emissions have been calculated using the emission rate in Table 2. These are summarised in Table 3. The total building NOx emissions have then been calculated and are summarised in Table 4.

⁸ Town and Country Planning (Development Management Procedure)(England) Order, March 2015

⁹ Sustainable Design and Construction Supplementary Planning Guidance (SPG), Mayor of London, April 2014

¹⁰ Air Quality Neutral Planning Support Update: GLA 80371, April 2014

Table 3 – Calculation of Benchmarked NOx Emissions Using Building Emissions Benchmarks for Each Land Use Category

Land Use	GFA (m ²)	Building Emissions Benchmarks (g/m ² /annum)	Benchmarked Emissions (kg/annum)
C2	4,661.4	68.5	319.3
Total Benchmarked Building NOx Emission			319.3 kg/annum

Table 4 – Calculation of Total Building NOx Emissions

Land Use	Boiler Gas Usage (kWh/annum)	Emission Factors (kg/kWh)	Total Building Emissions (kg/annum)
C2	237,300	0.000043	10.2
Total Building NOx Emission			10.2 kg/annum

Based on the comparison between the total building emissions and Building Emissions Benchmarks (see Table 5) the proposed development does meet the air quality neutral requirements and therefore, no mitigation is required.

Table 5 – Comparison of Total Building NOx Emissions and Building Emissions Benchmarks

Land Use	Total Benchmarked Emissions (kg/annum)	Total Building Emissions (kg/annum)	Difference (kg/annum)
C2	319.3	10.2	-309.1
Total			-309.1

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Impact of Air Quality Neutral Assessment

The Air Quality Neutral Building Assessment for the proposed development demonstrated that it is below the benchmark. As such, the development is considered air quality neutral in regards to building emissions and therefore no further mitigation is required.