Transformation of the Ugly Brown Building

Air Quality Addendum

November 2023

Waterman Infrastructure & Environment Limited
Pickfords Wharf, Clink Street, London, SE1 9DG
www.watermangroup.com

Client Name:	City Planning
Document Reference:	WIE11701-104-R-1-3-1
Project Number:	WIE11701

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

Issue	Date	Prepared by	Checked by	Approved by
First	October 2023	Andrew Fowler Associate Director	Andrew McDonald Director	Andrew McDonald Director
Second	October 2023	Andrew Fowler Associate Director	Andrew McDonald Director	Andrew McDonald Director
Third	November 2023	Andrew Fowler Associate Director	Andrew McDonald Director	Andrew McDonald Director

Comments

Comments

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

Appendices

1. Introduction

Overview

1.1. In September 2017, an Air Quality Assessment was submitted to support a detailed planning application (reference: 2017/5497/P) for the transformation of the Ugly Brown Building, 2-6 St Pancras Way, within the London Borough of Camden (LBC).

1.2. The planning application was divided into three plot (Plots A, B and C) for the '*demolition of existing buildings (Class B1 and B8) and erection of 6 new buildings ranging in height from 2 storeys to 12 storeys in height above ground and 2 basement levels comprising a mixed use business floorspace (B1), residential (C3), hotel (C1), gym (D2), flexible retail (A1 - A4) and storage space (B8) development with associated landscaping work'*.

1.3. Following post submission discussions with LBC there were design amendments to the Development. In February 2018, a Statement of Conformity was produced that concluded the design amendments did not materially alter the Air Quality Assessment undertaken by Waterman IE submitted for planning. The Air Quality Neutral Assessment was updated and concluded the Development remained 'air quality neutral' with respect to both transport and building emissions.

1.4. Application 2017/5497/P was granted full planning permission on the 17th March 2020 for the following development: '*Demolition of the existing building (Class B1 and B8) and erection of 6 new buildings ranging in height from 2 storeys to 12 storeys in height above ground and 2 basement levels comprising a mixed use development of business floorspace (B1), 73 residential units (C3) (10xstudio, 29x1 bed, 27x2 bed 7x3 bed), hotel (C1), gym (D2), flexible retail (A1 - A4) and storage space (B8) development with associated landscaping work'.*

1.5. In March 2021, an air quality assessment was submitted to support minor material amendments to Plot A within planning permission 2017/5497/P. The amendments were '*alterations to external paving, development of accessible roof terrace, additional secondary entrance, setting back of north facade, enlargement of plant enclosure, lowering of balustrades, and other ancillary works'*.

1.6. In May 2021, an air quality assessment, superseding the March 2021 Air Quality Assessment, was submitted to support a single application for the following: '*Demolition of existing building, and redevelopment to provide a nine-storey building with two basement levels for flexible Class E and Sui Generis Use, a two-storey Pavilion for flexible Class E and Sui Generis Use, along with associated cycle parking, servicing, hard and soft landscaping, public realm, and other ancillary works, alongside amendments to Plot C within planning permission 2017/5497/P, namely increase of affordable housing provision'*, hereafter referred to as the Development.

1.7. An air quality assessment was submitted in December 2022 (December 2022 Air Quality Assessment) to discharge Planning Condition 26 which read; '*Prior to the commencement of Plot C an Air Quality Assessment (AQA), solely for Plot C, shall be submitted to and approved in writing by the Local Planning Authority*'. The December 2022 Air Quality Assessment was written specifically concerned with amendments to Plot C only, however it also accounted for amendments to the 2017/5497/P application across the wider Site. Condition 26 was discharged in November 2023 under reference 2023/4427/P.

Report Structure

1.8. The remainder of the report is structured as follows:

- Section 2 – Review of Proposed Amendments

- Section 3 – Effect of the Proposed Amendments upon the Findings of the March 2023 Air Quality Assessment; and
- Section 4 – Summary.

1.9. The air quality assessment is supported by: Appendix A: March 2023 Air Quality Assessment.

2. Review of Proposed Amendments

2.1. The Proposed Amendments to the Development comprise:

- Increased building height and/or plant compounds and lab extract flues as required for the life science use to buildings B, C1, C2, C3 and minor adjustments to C4
- Revised residential numbers and mix to incorporate 2 escape stairs
- External landscape update to include integration of the canal bridge landing
- Affordable work space layout at Basement, Ground and additional Ground level Mezzanine floor above retail
- Various other minor external alterations to the building to suit detailed design and deliverability

2.2. The Proposed Amendments described above do not change the construction programme or activities. The effect of the Proposed Amendments on local air quality therefore focuses on operational effects only.

3. Effect of the Proposed Amendments upon the Findings of the March 2023 Air Quality Assessment

3.1. The Proposed Amendments would result in no material change to the vehicle trip generation and no change to the energy strategy assessed in the March 2023 Air Quality Assessment.

3.2. LBC monitoring baseline information from 2019 was used to inform the March 2023 Air Quality Assessment. Monitoring data collected during the COVID-19 pandemic would not be representative of the normal baseline conditions, the baseline as reported in the March 2023 Air Quality Assessment remains conservative and valid.

3.3. Although updated air quality guidance has been published, no re-assessment is necessary as a result of the Proposed Amendments owing to no material change in vehicle trips. New guidance has not been used and therefore the updated guidance does not affect the conclusions of the March 2023 Air Quality Assessment or this Air Quality Addendum.

3.4. On this basis, the likely residual air quality effects and conclusions of the March 2023 Air Quality Assessment remain valid, and no additional effects have been identified as a result of the Proposed Amendments that require further assessment.

4. Summary

4.1. The Proposed Amendments as described above would not materially alter the air quality assessment that was submitted with the planning application, considered within this Air Quality Addendum.

4.2. The potential effects, mitigation measures and likely residual effects of the Development during construction and once completed and operational would remain unchanged. On the basis of the review, no further air quality assessment is considered to be required.

APPENDICES

Appendix A March 2023 Air Quality Assessment

Transformation of the Ugly Brown Building

Air Quality Assessment

March 2023

Waterman Infrastructure & Environment Ltd
Pickfords Wharf, Clink Street, London, SE1 9DG
www.watermangroup.com

Client Name: Reef Estates Limited
Document Reference: WIE11701-R-1-6-1-AQ
Project Number: WIE11701

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

First Issue	August 2017	Andy Fowler Air Quality Consultant	Chris Brownlie Principal Consultant	Pippa Kelly Associate Director
Second Issue	January 2021	Andy Fowler Air Quality Consultant	Chris Brownlie Principal Consultant	Pippa Kelly Associate Director
Third Issue	January 2021	Andy Fowler Air Quality Consultant	Chris Brownlie Principal Consultant	Pippa Kelly Associate Director
Forth Issue	March 2021	Andy Fowler Air Quality Consultant	Chris Brownlie Principal Consultant	Pippa Kelly Associate Director
Fifth Issue	December 2022	Eleri Paterson Hughes Graduate Consultant	Andy Fowler Associate Director	Andy Fowler Associate Director
Fifth Issue	March 2023	Andy Fowler Associate Director	Ellen Smith Principal Consultant	Andy Fowler Associate Director

Comments

Comments

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

Tables

Figures

Appendices

Executive Summary

This Air Quality assessment has been prepared on behalf of Reef Estates Limited (the “Applicant”) as part of an application to the London Borough of Camden Council (“LBC or the “Council”) for the redevelopment of The Ugly Brown Building, 2-6 St Pancras Way, London NW1 0TB (the “Site”).

The air quality assessment has been undertaken to discharge Planning Condition 26 that reads; ‘*Prior to the commencement of Plot C an Air Quality Assessment (AQA), solely for Plot C, shall be submitted to and approved in writing by the Local Planning Authority.’*

The Site is in an Air Quality Management Area, which has been declared for the entire administrative area of the London Borough of Camden, for annual mean nitrogen dioxide (NO_2) and 24-hour mean particulate matter (PM_{10}).

With the implementation of a range of appropriate management practices to control dust, plant and vehicle emissions, which could be secured through a standard planning condition, effects associated with demolition and construction activities of the Development are not considered significant.

The Development would alter traffic, that could potentially change local air quality in terms of particulate matter (PM_{10} and $PM_{2.5}$) and NO_2 concentrations. However, following completion of the Development, and considering uncertainty in future nitrogen oxides (NO_x) and NO_2 reductions, the Development is predicted to have an insignificant effect on NO_2, PM_{10} and $PM_{2.5}$ concentrations within, and surrounding the Site; the overall effect of the Development on air quality is considered to be insignificant.

1. Introduction

1.1. Application 2017/5497/P was granted full planning permission on the 17th March 2020 for the following development:

'*Demolition of the existing building (Class B1 and B8) and erection of 6 new buildings ranging in height from 2 storeys to 12 storeys in height above ground and 2 basement levels comprising a mixed use development of business floorspace (B1), 73 residential units (C3) (10xstudio, 29x1 bed, 27x2 bed 7x3 bed), hotel (C1), gym (D2), flexible retail (A1 - A4) and storage space (B8) development with associated landscaping work'*, the 'Proposed Development'

1.2. This air quality assessment has been prepared on behalf of Reef Estates Limited (the "Applicant") to discharge Planning Condition 26 for the redevelopment of The Ugly Brown Building, 2-6 St Pancras Way, London NW1 0TB (the "Site"). Planning Condition 26 reads; '*Prior to the commencement of Plot C an Air Quality Assessment (AQA), solely for Plot C, shall be submitted to and approved in writing by the Local Planning Authority.'*

1.3. Please note that this application is specifically concerned with amendments to Plot C only, however it should be noted that this Air Quality Assessment has also accounted for amendments to the 2017/5497/P application across the wider Site.

1.4. The air quality assessment has been updated to meet current planning policy and guidance in place and includes dispersion modelling of emissions to ascertain the impacts of the Proposed Development on local air quality. There are no proposed changes to Plot C, therefore this document is considered sufficient to examine the impacts on air quality from both the wider development and Plot C in isolation.

Existing Site

1.5. The Site is approximately 1.14 ha in area within the administrative area of LBC and is centred on National Grid Reference TQ 29635 83733. The Site currently comprises a single office building, split into three entities of up to four storeys (plus lower ground floor and roof plant) which houses circa 26,000sqm (GIA) of office floorspace and data centre uses. On-site car parking is currently limited to circa 52 spaces, which have access from St Pancras Way. The Site is bound to the south by Granary Street, to the west by St Pancras Way (A5202) and to the east by the Regent's Canal. Immediately to the north of the Site is a five-storey building (Canal Side Studios) comprising office accommodation.

1.6. LBC has designated an Air Quality Management Area (AQMA) for annual mean nitrogen dioxide (NO_2) and 24-hour mean particulate matter (PM_{10}) across the entire Borough. The Site is therefore located within this AQMA.

Purpose of Assessment

1.7. The purpose of the air quality assessment is to provide a review of the existing air quality at and surrounding the Site and to assess the potential effect of the Development on local air quality during construction and on completion. Consideration is given to the effects of potential emissions from construction activities, as well as the effect of emissions from road traffic and heating plant associated with the completed Development on existing sensitive receptors surrounding the Site and at the proposed residential receptors on the Site. The assessment has been based on traffic data provided by Caneparo Associates. The most significant pollutants associated with road traffic emissions, in relation

to human health, are NO_2 and particulate matter (PM_{10} and $PM_{2.5}$), the assessment focuses on these pollutants.

1.8. Section 2 of this air quality assessment gives a summary of legislation and planning policy relevant to air quality. Section 3 provides details of the assessment methodology and Section 4 sets out the baseline conditions at and around the Site. The results of the assessments are presented in Section 5 and Section 6. Section 7 describes any required mitigation measures. A summary of the findings and conclusions of the assessment is given in Section 8. The air quality assessment is supported by:

- Appendix A: Air Quality Assessment Detailed Methodology;
- Appendix B: Air Quality Neutral Assessment; and
- Appendix C: Air Quality Planning Checklist

2. Air Quality Legislation and Planning Policy

Legislation

EU Framework Directive 2008/50/EC, 2008

2.1. Air pollutants at high concentrations can have adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for UK legislation and policy on air quality.

2.2. The EU Framework Directive 2008/50/EC on ambient air quality assessment and management came into force in May 2008 and was implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

Air Quality Standards Regulations, 2010

2.3. The Air Quality Standards Regulations implement Limit Values prescribed by the EU Framework Directive 2008/50/EC. The Limit Values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

The UK Air Quality Strategy, 2007

2.4. The current UK Air Quality Strategy (UK AQS) was published in July 2007 sets out the objectives for Local Planning Authorities (LPA) in undertaking their Local Air Quality Management (LAQM) duties. The 2007 UK AQS introduced a national level policy framework for exposure reduction for fine particulate matter. Objectives in the UK AQS are in some cases more onerous than the Limit Values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

The UK AQS objectives of air pollutants relevant to this assessment are summarised in **Table 1**.

Table 1: Summary of Relevant UK AQS Objectives

Pollutant	Objective		Date by which Objective to be Met
	Concentration	Measured as	
Nitrogen Dioxide (NO_2)	200µg/m^3	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m^3	Annual Mean	31/12/2005
Particulate Matter (PM_{10}) [(a)]	50µg/m^3	24 hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m^3	Annual Mean	31/12/2004

Pollutant	Objective		Date by which Objective to be Met
	Concentration	Measured as	
Particulate Matter ($PM_{2.5}$) (b)	Target of 15% reduction in concentrations at urban background locations	Annual Mean	Between 2010 and 2020
	25µg/m^3	Annual Mean	01/01/2020

Note: (a) Particulate matter with a mean aerodynamic diameter less than 10 microns (or micrometres – µm)
(b) Particulate matter with a mean aerodynamic diameter less than 2.5 microns

The Environment Act, 1995

2.5. In a parallel process, the Environment Act 1995 required the preparation of a national air quality strategy setting health-based air quality objectives for specified pollutants and outlining measures to be taken by LPAs in relation to meeting these objectives (the LAQM system).

2.6. Part IV of the Environment Act 1995 provides a system of LAQM under which LPAs are required to review and assess the future quality of the air in their area by way of a staged process. Should this process suggest that any of the AQS objectives will not be met by the target dates, the LPA must consider the declaration of an Air Quality Management Area (AQMA) and the subsequent preparation of an Air Quality Action Plan (AQAP) to improve the air quality in that area in pursuit of the AQS objectives.

Planning Policy

National Planning Policy

National Planning Policy Framework, 2021

The National Planning Policy Framework (NPPF), published in July 2021 sets out the Government's planning policies for England and how these should be applied.

Paragraph 105 states *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

Paragraph 174 states *"Planning policies and decisions should contribute to and enhance the natural and local environment by: … preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development 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"*

Paragraph 185 states *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.".*

Paragraph 186 states *"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.".*

Regional Planning Policy

The London Plan: The Spatial Development Strategy for Greater London, March 2021

The Mayor of London's London Plan will run to 2041 to provide a longer-term view of London's development to inform decision making.

Policy SI1 'Improving air quality' states that:

"A. Development plans, through relevant strategic, site specific and area-based policies should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

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

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.

C. Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the

area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

> *a) How proposals have considered ways to maximise benefits to local air quality, and*
>
> *b) What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*

D. In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E. Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development'.

It may not always be possible in practice for developments to achieve Air Quality Neutral standards or to acceptably minimise impacts using on-site measures alone. If a development can demonstrate that it has exploited all relevant on-site measures it may be possible to make the development acceptable through additional mitigation or offsetting payments".

London Environment Strategy, 2018

2.7. The London Environment Strategy includes the following proposals to improve air quality:

- The introduction of the toxicity charge (T-charge) from October 2017 and the Ultra-Low Emission Zone by 2019;
- Making the whole bus fleet zero emission by 2037 and phasing out fossil fuels in the taxi and private hire fleets;
- The Mayor working with government and other partners to seek reductions in emissions from aviation activity (in London and the south east particularly from Heathrow), and also from rail transport and at stations;
- Providing better information about air quality, especially during high and very high pollution episodes;
- Using the planning system to help ensure that new schools and other buildings that will be used by people who are particularly vulnerable to pollutants are not located in areas of poor air quality;
- The Mayor promoting and prioritising more sustainable travel in London including walking, cycling and public transport, as part of the Healthy Streets Approach; and
- Considering introducing a new Air Quality Positive standard so new building developments would ensure that emissions and exposure to pollution are reduced.

Local Planning Policy

London Borough of Camden Local Plan, 2017

2.8. The Local Plan[1] forms the basis for planning decisions and future development in the borough. Policy CC4 Air quality of the Local Plan states:

[1] LBC, 2017, Camden Local Plan, adopted June 2017

"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."

Guidance

Camden Planning Guidance on Air Quality, January 2021

2.9. The Camden Planning Guidance on Air quality[2] to support the policies in the Camden Local Plan 2017. The 'Assessing air quality impacts' section explains when assessments for air quality are required and the level of information they should include according to the Development.

Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019

2.10. Published in January 2019 the Clean Air Strategy sets out a coherent framework and national action to improve air quality throughout the UK.

2.11. The Strategy is underpinned by new national powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to act in areas with an air pollution problem. The Strategy also supports the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms.

Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017

2.12. The UK Government was required by the High Court to release an Air Quality Plan to meet the NO_2 Limit Value in the shortest timescale as possible. This document was adopted on 26th July 2017.

2.13. The plan focuses on reducing concentrations of NO_x and NO_2 around road vehicle emissions within the shortest possible time. With the principal aims to:

a. reduce emissions of NOx from the current road vehicle fleet in problem locations now; and

b. accelerate road vehicle fleet turnover to cleaner vehicles to ensure that the problem remains addressed and does not move to other locations.

2.14. The other aims include reducing background concentrations of NO_x from:

- Other forms of transport such as rail, aviation and shipping;

[2] Camden Planning Guidance on Air Quality, January 2021

- Industry and non-road mobile machinery; and
- Buildings, both commercial and domestic, and other stationary sources.

2.15. The Plan provides measures to reduce NO_x and NO_2 concentrations in the UK, such measures include:

- Mandate local authorities to implement Clean Air Zones within the shortest possible time;
- Consultation on proposal for a Clean Air Zone Framework for Wales;
- Consultation on a draft National Low Emission Framework for Scotland;
- Commitment to establishing a Low Emission Zone for Scotland by 2018;
- Tackling air pollution on the English Road network;
- New real driving emissions requirement to address real world NOx emissions;
- Additional funding to accelerate uptake of hydrogen vehicles and infrastructure;
- Additional funding to accelerate the uptake of electric taxis;
- Further investment in retrofitting alongside additional support of low emission buses and taxis;
- Regulatory changes to support the take up of alternatively fuelled light commercial vehicles;
- Exploring the appropriate tax treatment for diesel vehicles;
- Call for evidence on updating the existing HGV Road User Levy;
- Call for evidence on use of red diesel;
- Ensure wider environmental performance is apparent to consumers when purchasing cars;
- Updating Government procurement policy;
- New emissions standards for non-road mobile machinery;
- New measures to tackle NOx emissions from Medium Combustion Plants; and
- New measures to tackle NOx emissions from generators.

2.16. The above measures do not provide any actions which are relevant to the operation or design of the Development.

2.17. A High Court ruling[3] on 21st February 2018, stated the UK Governments air quality improvement plan adopted on 31st July 2017 was unlawful as '*it does not contain measures sufficient to ensure substantive compliance with the 2008 Directive and the English Regulations'*. The UK Government '*must ensure steps are taken to achieve compliance as soon as possible, by the quickest route possible and by a means that makes that outcome likely'*.

2.18. The judgement stated that the UK Government must produce a supplementary plan, setting out requirements for feasibility studies to be undertaken in the 33 Local Authority Areas. Greater London including LBC is not considered within this judgement.

2.19. In May 2018, it was announced the European Union (EU) was going to take the UK to the European Commission over failure to meet the Limit Values for NO_2.

[3] https://www.judiciary.gov.uk/judgments/the-queen-on-the-application-of-clientearth-no-3-claimant-v-secretary-of-state-for-environment-food-and-rural-affairs-and-othrs/

Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017

2.20. Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) provide guidance for air quality considerations within the local development control processes, promoting a consistent approach to the treatment of air quality issues.

2.21. The EPUK and IAQM guidance explains how development proposals can adopt good design principles to reduce emissions and contribute to better air quality. The guidance also provides a method for screening the need for an air quality assessment and a consistent approach for describing the impacts at individual receptors. The EPUK and IAQM Guidance, advises that:

"In arriving at a decision about a specific Development the local planning authority is required to achieve a balance between economic, social and environmental considerations. For this reason, appropriate consideration of issues such as air quality, noise and visual amenity is necessary. In terms of air quality, particular attention should be paid to:

- *Compliance with national air quality objectives and of EU Limit Values;*
- *Whether the development will materially affect any air quality action plan or strategy;*
- *The overall degradation (or improvement) in local air quality; or*
- *Whether the development will introduce new public exposure into an area of existing poor air quality".*

Planning Practice Guidance: Air Quality, 2019

The Government's online Planning Practice Guidance (PPG) states that all development plans can influence air quality in several ways including the development proposals, location and any provision made for sustainable transport. Consideration of air quality issues at the plan-making stage can ensure a strategic approach to air quality and help secure net improvements in overall air quality where possible.

Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

Where air quality is a relevant consideration the local planning authority may need to establish:

the 'baseline' local air quality, including what would happen to air quality in the absence of the development;

whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and

whether occupiers or users of the development could experience poor living conditions or health due to poor air quality.

Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014

2.22. The IAQM Construction Dust Guidance provides guidance to consultants and Environmental Health Officers (EHOs) on how to assess air quality impacts from construction related activities. The guidance provides a risk based approach based on the potential dust emission magnitude of the site (small, medium or large) and the sensitivity of the area to dust impacts. The importance of professional judgement is noted throughout the guidance. The guidance recommends that once the risk class of the site has been identified, the appropriate level of mitigation measures are implemented to ensure that the construction activities have no significant impacts.

London Local Air Quality Management Policy Guidance, 2019

The London Local Air Quality Management Policy Guidance LLAQM.PG(19) provides additional guidance on how London Boroughs can better manage air pollution in their authority. Setting out requirements within their Process and Responsibilities, Air Quality Management Areas, Air Quality Action Plans, $PM_{2.5}$ and Public Health and Planning and the Building Control System.

The Mayor's Air Quality Strategy 'Clearing the Air', 2010

2.23. The Greater London Authority (GLA) Act 1999[4] requires the GLA to produce an AQS for Greater London that sets out air quality objectives (to be no less stringent than national objectives) and present measures that the Mayor, GLA and London Boroughs will take towards meeting these objectives. The Mayor's AQS[5] aims to improve air quality within London by targeting the reduction of emissions related to transport and construction. Some of the initiatives proposed are as follows:

- Targeted measures for areas with poor air quality; and
- Use of the planning system for reducing emissions from new developments.

Mayor of London's Supplementary Planning Guidance: Sustainable Design and Construction, 2014

2.24. The Sustainable Design and Construction Supplementary Planning Guidance (SPG) provides guidance to support the implementation of the London Plan. Section 4.3 of the SPG focusses on air pollution and the effects from the construction and operation of new developments to ensure that they are 'Air Quality Neutral'. Emission benchmarks are provided within the SPG for:

- Emissions from buildings; and
- Transport emissions.

2.25. The SPG sets out the criteria for when an Air Quality Neutral Assessment is required. This includes:

- For dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares); and/or
- For all other uses: where the floor space is 1000 square metres or more (or the size area is 1 hectare or more,

2.26. Section 4.3.17 and Appendix 5 of the SPG note that two sets of Building Emission Benchmarks (BEBs) have been defined for a series of land-use classes, one for NO_x and one for PM_{10}. Section 4.3.18 and

[4] Greater London Authority (GLA), 'The Mayor's Air Quality Strategy: Cleaning London's Air', London, 2002.
[5] Greater London Authority (2010), 'Clearing the air – The Mayor's Air Quality Strategy', GLA, London.

Appendix 6 of the SPG note that the design of a development should encourage and facilitate walking, cycling and the use of public transport, thereby minimising the generation of air pollutants.

2.27. An Air Quality Neutral Assessment has been completed which compares the Development against the relevant BEBs to determine whether the Development is Air Quality Neutral. This concludes the Development would be Air Quality Neutral and that no further mitigation measures are required. Details of the Air Quality Neutral Assessment are provided in **Appendix B: Air Quality Neutral Assessment**.

Mayor of London: The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, 2014

2.28. The Control of Dust and Emissions during Construction and Demolition SPG seeks to reduce emissions of dust, PM_{10} and $PM_{2.5}$ from construction and demolition activities in London. It also aims to manage emissions of NO_x from construction and demolition plant by means of a new non-road mobile machinery Ultra-Low Emissions Zone (ULEZ). The SPG provides guidance on the implementation of London Plan Policy 7.14 'Improving Air Quality', as well as a range of policies that deal with environmental sustainability, health and quality of life.

London Borough of Camden Air Quality Action Plan, 2019-2022

2.29. The LBC Air Quality Action Plan (AQAP), Camden's Clean Air Action Plan 2019-2022[6] outlines the action to improve air quality in Camden between 2019 and 2022, replacing the previous action plan, 2016-2018[7]. The aim of the action plan is to make Camden a clean, vibrant and sustainable place where no one experiences poor health because of the air they breathe. To achieve this LBC will address emissions from the following seven key themes:

- Building emissions;
- Construction emissions;
- Transport emissions;
- Communities and schools;
- Delivery servicing and freight;
- Public health and awareness raising; and
- Lobbying.

London Borough of Camden Guide for Contractors Working in Camden, 2008

2.30. LBC have produced a guide[8] to reduce disturbances due to dust and smoke arising from demolition and construction work on all building sites within the Borough. The document sets out Best Practicable Means (BPM) to mitigate dust emissions from construction sites these include:

"a. Carry out demolition and construction work in accordance with the Best Practise Guidance Note 'The control of dust and emissions from construction and demolition' (2006). This outlines BPM to effectively manage construction work in order to mitigate air pollution emissions.

b. When carrying out demolition or construction work during periods of dry or windy weather, there can often be dust problems on sites bordered by homes. You must take measures to reduce the formation and spread of dust. You must control dust at source by using a continuous fine-water spray. You must

[6] London Borough of Camden Air Quality Action Plan, 2019-2022
[7] LBC, 2013, 'Camden's Clean Air Action Plan 2016-2018'
[8] LBC, 2008, 'Guide for Contractors Working in Camden'

provide a suitable water supply, and make sure there are enough hoses to reach all parts of the site and a way of getting rid of wastewater.

c. There must be adequate screening and damping down during all demolition activities, sandblasting, clearance work, breaking up of existing ground services and other site preparations and activities. You must use existing features of the site, such as boundary walls to provide screening where practicable.

d. You must enclose scaffolding with appropriate sheeting material.

e. You must provide easy-to-clean hard-standings for vehicles.

f. You must keep heavily used areas clean by brushing vehicles and spraying them with water regularly.

g. You must control the cutting or grinding of materials on the site.

i. Buildings or structures that are being demolished, or small areas of land that are being prepared for development must be damped down using high-pressure hoses.

k. On sites where a large amount of dust has been produced and is laying on the ground, you must use a specialist vehicle to remove dust (by vacuuming) before you damp down the site.

l. Major haul routes on the site must be watered as necessary to reduce dust. Where practical, you must compact the route to reduce the amount of soil and other material that is moved around the site. This applies especially near to exits. If machinery movements produce dust, you must set effective speed limits and reschedule work if necessary. If the development involves machinery moving across open land, you must create a suitable track to reduce the amount of dust produced.

m. You must enclose materials at all times, and damp down dusty materials using water sprays during dry weather.

n. All materials that create dust, including soil, must be stored away from the site boundary, screened to prevent wind spreading the dust and damped down where practical. You will need to consider the size and shape of stockpiles to reduce dust.

o. Paved roads near to exits must be kept clean. Vehicles transporting materials onto or off the site must be suitably covered where necessary to prevent dust.

p. You must use rubble chutes and skips where appropriate. There must be an effective close-fitting cover over the skip to contain all the dust and other rubbish. The chutes must be continuous until they reach the skip, with no gaps, and maintained in good condition.

q. You must not allow rubbish and waste materials to build up on the site.

r. You must plant, turf or securely cover completed earthworks to stabilise the surface.

s. Reducing dust, fumes or other nuisance or environmental effects, which may cause offence to the local community or environment.

t. Reduce environmental effects which may cause offence to the local community by promoting proactive community relations."

Central London Air Quality Cluster Group: Cost Effective Actions to Cut Central London Air Pollution, 2012

2.31. The Central London Air Quality Cluster Group consists of the amalgamation of eight central London Boroughs, including LBC, to improve air quality within central London. The 'Cost Effective Actions to Cut Central London Air' guidance[9] provides action measures which London Boroughs can implement to

[9] Central London Air Quality Cluster Group, 2012, 'Cost Effective Actions to Cut Central London Air Pollution'

improve air quality. Such measures range from business engagement, car clubs, encouraging cycling, to energy efficiency in buildings and ultra-low NO_X boilers. The following measures are applicable to the Development:

- New buildings to be air quality neutral;
- New buildings to include a Level 4 BREEAM assessment; and
- Boilers are replaced by ultra-low NO_X models instead of Class 4 or 5.

3. Assessment Methodology and Significance

Assessment Methodology

3.1. This air quality assessment was undertaken using a variety of information and procedures as follows:

- consultation with a Sustainability Officer at LBC to agree the methodology to be used within the assessment (see Appendix **A: Air Quality Assessment Detailed Methodology**);
- review of LBC's air quality Review and Assessment statutory reports published as part of the LAQM regime to determine baseline conditions around the Site;
- review of the local area to identify potentially sensitive receptor locations that could be affected by changes in air quality arising from the construction works and the operation of the Development;
- identification of air quality sensitive receptors within the Site, to determine air quality conditions that future users of the Site would be exposed too;
- review and use of relevant traffic flow data from the Applicant's transport consultant (Caneparo Associates);
- dispersion modelling of pollutant emissions using the ADMS-Roads model[10] to predict the likely pollutant concentrations at the Site and the likely effect of the completed and operational Development on local air quality in terms of traffic emissions generated. The latest NO_2 from NO_x Calculator available from the LAQM Support website[11] has been applied to derive the road-related NO_2 concentrations from the modelled NO_x concentrations;
- comparison of the predicted air pollutant concentrations with monitored concentrations from the LBC diffusion tube located on Camden Road (CA23), and adjustment of modelled results where necessary (model verification details are provided in **Appendix A: Air Quality Assessment Detailed Methodology**) relevant AQS objectives;
- determination of the likely significant effects of construction works and activities, and consideration of the environmental management controls likely to be employed during the works;
- determination of the likely significant effects of the operational phase of the Development on air quality, based on the application of the EPUK/ IAQM Guidance significance criteria to the modelled results; and
- identification of mitigation measures, where appropriate.

3.2. Emissions of total NO_x from motor vehicle exhausts comprise nitric oxide (NO) and nitrogen dioxide (NO_2). NO oxidises in the atmosphere to form NO_2.

3.3. The most significant pollutants associated with road traffic emissions, in relation to human health, are NO_2 and PM_{10}. LBC has declared an AQMA for the entire Borough for annual mean NO_2 and 24-hour mean PM_{10}, attributable to road traffic emissions (referred to later in this Report). This assessment therefore focuses on NO_2 and particulate matter (PM_{10} and $PM_{2.5}$).

[10] Cambridge Environmental Research Consultants Ltd, ADMS-Roads, 2020, Version 5.0.1.3.
[11] AEA, NOx to NO_2 Calculator, http://laqm1.defra.gov.uk/review/tools/monitoring/calculator.php Version 8.1, June 2020.

Construction Phase Assessment Methodology

Dust Emissions

3.4. As requested by LBC, the effects of dust emissions from the construction phase has been based on the Mayors 'The Control of Dust and Emissions during Construction and Demolition SPG', which takes account of the guidance published by the IAQM.

3.5. The approach to the assessment includes:

- consideration of planned construction activities and their phasing; and
- a review of the sensitive uses in the area immediately surrounding the Site in relation to their distance from the Site.

3.6. Following the Mayors SPG, construction activities can be divided into the following four distinct activities:

- Demolition – any activity involved in the removal of an existing building;
- Earthworks – the excavation, haulage, tipping and stockpiling of material, but may also involve levelling the site and landscaping;
- Construction – any activity involved with the provision of a new structure; and
- Trackout – the movement of vehicles from unpaved ground on a site, where they can accumulate mud and dirt, onto the public road network where dust might be deposited.

3.7. The Mayors SPG considers three separate dust effects, with the proximity of sensitive receptors being taken into consideration for:

- annoyance due to dust soiling;
- potential effects on human health due to significant increase in exposure to PM_{10}; and
- harm to ecological receptors.

3.8. To determine the risk of the construction phase, the following four step process, as set out in Table 2, has been undertaken.

Table 2: Summary of the Mayors SPG for Undertaking a Construction Dust Assessment

Step		Description
1	Screen the Need for a Detailed Assessment	Simple distance based criteria are used to determine the requirement for a detailed dust assessment. An assessment will normally be required where there are 'human receptors' within 50m of the boundary of the site and / or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance or 'ecological receptors' within 50m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance.
2	Assess the Risk of Dust Impacts	The risk of dust arising in sufficient quantities to cause annoyance and/or health or ecological effects should be determined using four risk categories: negligible, low, medium and high based on the following factors:

Step		Description
		• the scale and nature of the works, which determines the risk of dust arising (i.e. the magnitude of potential dust emissions) classed as small, medium or large; and • the sensitivity of the area to dust effects, considered separately for ecological and human receptors (i.e. the potential for effects) defined as low, medium or high. Provide a map of nearest receptors.
2a	Define the potential Dust Emission Magnitude	Classify the magnitude of the likely risk as small, medium or large for the four activities.
2b	Define the Sensitivity of the Areas	Define the sensitivity of receptors as High, Medium or Low. Define sensitivity of people to Dust Soiling Effects and define the sensitivities of people to the health effects of PM_{10}.
2c	Define the Risk of Impacts	Combine the magnitude (as detailed in 2a) and the sensitivity (in 2b) to determine the risk of impacts with no mitigation applied. Summaries the risk of dusts impacts for the four activities in a table

3.9. Following the above air quality dust risk assessment appropriate dust and pollution measures are provided to ensure the air quality impacts of construction are minimised and any mitigation measures employed are effective.

3.10. The potential impacts and effects of construction activities on local air quality were based on professional judgement and with reference to the criteria set out in the Majors SPG guidance. This includes an assessment of the risk of dust effects arising from the likely construction activities, based on the magnitude of potential dust emissions and the sensitivity of the area.

Construction Vehicle Exhaust Emissions

3.11. The IAQM guidance on assessing demolition and construction effects states that:

"*Experience of assessing the exhaust emissions from on-site plant and site traffic suggests that they are unlikely to make a significant effect on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed.*"

3.12. Given the area of the Site (approximately 1.1ha) and the duration of the construction phase (approximately eight years), in accordance with the IAQM guidance, a quantitative assessment of the exhaust emissions from construction traffic is not required, and a qualitative assessment is appropriate.

Construction Plant Emissions

3.13. All construction plant now need to comply with the London Low Emission Standards set out for Non-Road Mobile Machinery (NRMM), as such it is considered that no significant effects are predicted for construction plant and no quantitative assessment is required.

Operational Phase Assessment Methodology

Model

3.14. The likely effects on local air quality from traffic emissions generated from the completed and operational Development have been assessed using the atmospheric dispersion model ADMS-Roads. **Appendix A: Air Quality Assessment Detailed Methodology** presents the details of the dispersion modelling.

3.15. For the purposes of modelling, traffic data for the relevant local road network, inclusive of traffic flows for committed developments near the Site, has been provided by the Applicant's transport consultant (Caneparo Associates). Further details are provided in **Appendix A: Air Quality Assessment Detailed Methodology**. The baseline year of 2019 has been assessed together with the 'without Development' and 'with Development' scenarios for the year 2025, the anticipated year of completion of the Development.

3.16. The ADMS-Roads dispersion model predicts how emissions from roads, the car park and small scale industrial sources combine with local background pollution levels, taking account of meteorological conditions, to affect local air quality. The model has been run for the completion year, using background data and vehicle emission rates for 2025 as inputs. For the verification assessment (referred to later in this Report), background data and vehicle emission rates for 2019 have been used, which would be higher than the 2025 data. Pollutant concentrations have been modelled at locations representative of nearby sensitive receptors.

3.17. Full details of the dispersion modelling study, including the road traffic used in the assessment, are presented within **Appendix A: Air Quality Assessment Detailed Methodology**.

Model Uncertainty

3.18. Analyses of historical monitoring data by Defra[12] have identified a disparity between actual measured NO_x and NO_2 concentrations and the expected decline associated with emission forecasts which form the basis of air quality modelling as described above. The precise reason for the disparity is not fully understood but is thought to be related to the on-road performance of certain vehicles compared to calculations based on Euro emission standards which inform emission forecasts.

3.19. The note 'Projecting NO_2 Concentrations'[13] published by Defra provides alternative approaches that can be followed in air quality assessments, in relation to the modelling of future NO_2 concentrations, considering that future NO_x/NO_2 road-traffic emissions and background concentrations may not reduce as previously expected. This includes the use of revised background pollution maps, alternative projection factors and revised vehicle emission factors. However, the Defra note does not form part of statutory guidance and no prescriptive method is recommended for use in an air quality assessment.

3.20. This air quality assessment has been based on current guidance, i.e. using existing forecast emission rates and background concentrations to the completion year of 2025, which assumes a progressive reduction compared to the baseline year 2019.

3.21. The Camden Planning Guidance on Air Quality states that modelling should not predict improvements to future years (future vehicle emissions or future background concentrations). Therefore, in addition, a sensitivity analysis has been undertaken based on no future NO_x and NO_2 reductions by 2025 (i.e. considering the likely significant effect of the Development against the baseline 2019 conditions, assuming no reduction in background concentrations or road-traffic emissions rates between 2019 and

12 http://laqm.defra.gov.uk/faqs/faqs.html.
13 Defra, 2012, Local Air Quality Management: Note on Projecting NO2 Concentrations.

2025). The results of this sensitivity analysis, which represent a more conservative assessment scenario was agreed with LBC and is presented in **Appendix A: Air Quality Assessment Detailed Methodology**.

3.22. However, the Defra analysis acknowledges that NO_x and NO_2 concentrations are likely to reduce when there is a greater uptake of Euro 6 emission vehicles. Given that the Development is to be completed in 2025, it is very likely that concentrations will be significantly lower than those presented in the sensitivity analysis, as Euro 6 emission vehicles will have been taken up by then.

Background Pollutant Concentrations

3.23. To estimate the total concentrations due to the contribution of any other nearby sources of pollution, background pollutant concentrations need to be added to the modelled concentrations. Full details of the background pollution data used within the air quality assessment are included in **Appendix A: Air Quality Assessment Detailed Methodology**.

Model Verification

3.24. Model verification is the process of comparing monitored and modelled pollutant concentrations and, if necessary, adjusting the modelled results to reflect actual measured concentrations, to improve the accuracy of the modelling results. The model has been verified by comparing the predicted annual mean NO_2 concentrations for the baseline 2019, with the results from the nearest LBC diffusion tube to the Site, located on Camden Road. Modelled concentrations have then been adjusted accordingly. The verification and adjustment process is described in detail in **Appendix A: Air Quality Assessment Detailed Methodology**.

Potentially Sensitive Receptors

3.25. The approach adopted by the UK AQS is to focus on areas at locations at, and close to, ground level where members of the public (in a non-workplace area) are likely to be exposed over the averaging time of the objective in question (i.e. over 1-hour, 24-hour or annual periods). Objective exceedances principally relate to annual mean NO_2 and PM_{10}, and 24-hour mean PM_{10} concentrations, so that associated potentially sensitive locations relate mainly to residential properties and other sensitive locations (such as hospitals) where the public may be exposed for prolonged periods.

3.26. **Table 3** presents existing sensitive receptors selected due to their proximity to the road network likely to be affected by the Development. **Table 3** also presents future sensitive receptor locations which are representative of sensitive uses proposed within the Development itself. The future sensitive receptor locations represent areas of the Development that would likely be exposed to the worst-case air quality conditions, i.e. the lowest residential level of the Development that would be closest to road traffic. The location of the selected existing and future receptors assessed are presented in **Figure 1**.

Table 3: Selected Receptor Locations

ID	Receptor Location	Receptor Type	Grid Reference		Height Above Ground (m)
1	144 Camden Road	Residential	529346	184390	0
2	Bernard Shaw Court	Residential	529236	184298	0

ID	Receptor Location	Receptor Type	Grid Reference		Height Above Ground (m)
3	128 Camden Road	Residential	529242	184251	3
4	Alan Chalmers House	Residential	529347	184220	0
5	100 Camden Road	Residential	529188	184145	0
6	44 St. Pancras Way	Residential	529403	184044	0
7	16 St. Pancras Way	Residential	529528	183854	3
8	St Pancras Hospital	Hospital	529608	183649	0
9	Goldington Buildings	Residential	529607	183516	0
10	Goldington Crescent	Residential	529689	183433	0
11	**Proposed:** East Façade 1st Floor	Residential	529685	183746	4.9
12	**Proposed:** South Façade 1st Floor	Residential	529681	183716	4.9
13	**Proposed:** West Façade 1st Floor	Residential	529668	183723	4.9

Note: 0m was modelled to represent the location closest to the tailpipe emissions from road traffic 3m was modelled to represent the first-floor level
Heights of proposed receptors have been taken from scale plans

Limitations and Assumptions

3.27. For the purposes of the assessment of dust nuisance during construction it has been assumed that the works would be carried out at the boundary of the Development to provide a worst-case assessment.

3.28. Currently there is no methodology to assess and determine the impact of a development against the EU Limit Values. In addition, compliance with the EU Limit Values is the UK Government's responsibility given that national measures (such as vehicle scrappage schemes and increased diesel fuel prices) would be required to meet compliance. As such the effect of the Development has been assessed against the UK AQS objectives rather than the EU Limit Values. To demonstrate that the Development would have a positive influence on air quality, a summary of measures which are likely to lead to a benefit to air quality have been outlined.

3.29. There is no standard or recognised methodology to predict the reduction in pollutant concentrations from all air quality mitigation measures or measures likely to have a positive impact on local air quality (such as cycle spaces, electric charging points, sustainable transport options, green infrastructure etc) as these measures are either based on holistic behavioural changes and/or there is a lack of real-world quantifiable data (in $\mu g/m^3$).

3.30. The heating and hot water for the Development would be supplied by air source heat pumps (ASHP). ASHPs do not produce any emissions to air and would not impact local air quality. Heating plant has therefore not been considered within the air quality assessment.

3.31. The Development would provide two diesel generators, located at roof level of Plots C2 and C3. These generators would only be used for life safety and would not be used at other times when electricity is available from the grid. A building management plan would be produced on completion of the Development, stating these generators would only be used for life safety and would not be used at other

times when electricity is available from the grid. The impact of these generators has therefore not been considered further within the air quality assessment.

Determining Significance of Effects

Demolition and Construction

Dust Emissions

3.32. The potential effects of construction activities on local air quality were based on professional judgement and with reference to the criteria set out in IAQM's Construction Dust Guidance. Appropriate mitigation that would be implemented to minimise any adverse effects on air quality were also considered. Details of the assessor's experience and competence to undertake the dust assessment is provided in **Appendix A: Air Quality Assessment Detailed Methodology**.

3.33. The assessment of the risk of dust effects arising from the likely construction activities, as identified by the IAQM's Construction Dust Guidance, is based on the magnitude of potential dust emissions and the sensitivity of the area. The risk category matrix for construction activity types, taken from the IAQM guidance, is presented in **Table 4** to **Table 7**. Examples of the magnitude of potential dust emissions for each construction activity and factors defining the sensitivity of an area are provided in **Appendix A: Air Quality Assessment Detailed Methodology**.

Table 4: Risk Category from Demolition Activities

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

Table 5: Risk Category from Earthworks Activities

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

Table 6: Risk Category from Construction Activities

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

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

Table 7: Risk Category from Trackout Activities

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

3.34. The risk category determined for each construction activity type was used to define the appropriate mitigation measures that should be applied. The IAQM's Construction Dust Guidance recommends that significance is only assigned to the effect after considering mitigation, and assumes that all actions to avoid or reduce the effects are inherent within the design of the development. In the case of construction mitigation, this would be secured through planning conditions, legal requirements or required by regulations.

3.35. Experience of implementing mitigation measures for construction activities demonstrates that total mitigation is normally possible. Accordingly, the IAQM guidance recommends that the significance of effects should only be considered post-mitigation where the likely residual effects (in accordance with the above evidence-based theory) would not be 'significant'. It therefore follows that, within this assessment, no significance is identified for the pre-mitigation effects of the construction activities.

Construction Vehicle Exhaust Emissions

3.36. The significance of the effects of construction vehicle exhaust emissions on air quality is based on professional judgement.

Construction Plant Emissions

3.37. The significance of the effects from construction plant emissions on air quality is also based on professional judgement, because all construction plant is required to meet the NRMM emissions standards for NO_2 and PM_{10} in the London Plan.

Completed Development

3.38. The EPUK / IAQM guidance provides an approach to assigning the magnitude of changes as a result of a development as a proportion of a relevant assessment level, followed by examining this change in the context of the new total concentration and its relationship with the assessment criterion to provide a description of the impact at selected receptor locations.

3.39. **Table 8** presents the IAQM framework for describing the impacts (the change in concentration of an air pollutant) at individual receptors. The term Air Quality Assessment Level (AQAL) is used to include air quality objectives or limit values, where these exist.

Table 8: Impact Descriptors for Individual Receptors

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 - 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 - 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 - 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Note: AQAL may be an air quality objective, EU limit value, or an Environment Agency 'Environmental Assessment Level (EAL)'
The table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers. Changes of 0% (i.e. less than 0.5%) are described as Negligible.
The table is only to be used with annual mean concentrations

3.40. The approach set out in the EPUK / IAQM guidance provides a method for describing the impact magnitude at individual receptors only. The guidance outlines that this change may have an effect on the receptor depending on the severity of the impact and other factors that may need to be taken into account. The assessment framework for describing impacts can be used as a starting point to make a judgement on the significance of the effect. However, whilst there may be 'slight', 'moderate' or 'substantial' impacts described at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.

3.41. Following the approach to assessing significance outlined in the EPUK / IAQM guidance, the significance of likely residual effects of the completed Development on air quality was established through professional judgement and the consideration of the following factors:

- the geographical extent (local, district or regional) of effects;
- their duration (temporary or long term);
- their reversibility (reversible or permanent);
- the magnitude of changes in pollution concentrations;
- the exceedance of standards (e.g. AQS objectives); and
- changes in pollutant exposure.

4. Baseline Conditions

London Borough of Camden Review and Assessment Process

4.1. Between 1998 and 2001 LBC undertook the first round of Review and Assessment of air quality[14] which concluded that it was necessary to declare the whole Borough as an AQMA for the annual mean objective for NO_2 and the 24-hour mean objective for PM_{10}.

4.2. The Updating and Screening Assessments (USAs) completed in August 2003[15], 2006[16] and 2009[17] concluded that the LBC AQMA designation should remain and no further Detailed Assessment for air quality were required.

4.3. The fourth round of Review and Assessment[18] identified that Camden no longer exceeded the 24-hour mean objective for PM_{10} at three of their automatic monitoring sites. However, LBC attributed this to the change in the methodology used to measure PM_{10} concentrations rather than improvements in emissions, and therefore, the AQMA order remained unchanged.

4.4. The fourth round of Review and Assessment additionally indicated that a number of diffusion tube sites and one automatic site at roadside locations exceeded the 1-hour mean NO_2 AQS objective. LBC undertook further modelling work to understand the spatial distribution of PM_{10} and NO_2 exceedances across the Borough. The modelling revealed that a number of roads in Camden which experience high volumes of traffic and a large proportion of HGV vehicles, such as St Pancras Way adjacent to the Site, exceeded both short and long term NO_2 and PM_{10} AQS objectives.

4.5. The report published by LBC as part of the fifth round of Review and Assessment[19] confirmed that the NO_2 annual mean AQS objective was still being exceeded at all the Council's automatic monitoring sites and the vast majority of the NO_2 diffusion tube sites. Although the report confirmed that PM_{10} concentrations now meet the AQS objectives at all monitoring sites, no amendment to the AQMA order has been suggested.

4.6. The latest report[20] published by LBC and available on their website confirmed the findings of the previous rounds of review and assessment and while there has been a declining trend in NO_2 levels across the borough, exceedences of the annual mean objective remain and therefore the AQMA should be retained.

Local Monitoring

4.7. LBC currently undertakes air quality monitoring at four automatic monitors within the Borough. The nearest monitor is located on Euston Road approximately 1.1km south of the centre of the Site and is classified at a roadside location. The monitoring results for NO_2 and PM_{10} at the Euston Road automatic monitor are presented in **Table 9** for the latest years available.

[14] LBC, June 1998, 'Statutory Review and Assessment of Air Quality in the London Borough of Camden Stages 1 and 2'
[15] LBC, August 2003, 'Second Round of Review and Assessment of Air Quality: Updating and Screening Assessment'
[16] LBC, August 2006, 'Third Round of Review and Assessment of Air Quality: Updating and Screening Assessment'
[17] LBC, August 2009, '2009 Air Quality Updating and Screening Assessment for London Borough of Camden'
[18] LBC, June 2010, '2009 Progress Report for London Borough of Camden'
[19] LBC, July 2013, '2013 Air Quality Progress Report for the London Borough of Camden'
[20] LBC, July 2020, 'London Borough of Camden Air Quality Status Report for 2019, July 2020

Table 9: Monitored Concentrations at the Euston Road Automatic Monitor

Pollutant	Averaging Period	AQS Objective	Year					
			2014	2015	2016	2017	2018	2019
NO_2	Annual Mean	40µg/m^3	**98**	**90**	**88**	**83**	**82**	**70**
	1 Hour Mean (Number of Exceedences)	200µg/m^3 not to be exceeded more than 18 times per year	**221**	**54**	**39**	**25**	18	7
PM_{10}	Annual Mean	40µg/m^3	29	18	24	20	21	22
	24-Hour Mean (Number of Exceedences)	50µg/m^3 not to be exceeded more than 35 times per year	5	5	10	3	2	8
$PM_{2.5}$	Annual Mean	25µg/m^3	-	17	17	14	15	14

Notes: Data obtained from London Borough of Camden Air Quality Status Report for 2019
Exceedances of the AQS Objectives shown in **bold** text

4.8. The monitoring results in **Table 9** indicate that the annual mean NO_2 objectives were exceeded at the Euston Road automatic monitor in all years from 2014 to 2019 and the hourly mean NO_2 objectives from 2014 to 2017. The PM_{10} and $PM_{2.5}$ objectives were met in all years.

4.9. In addition to the above automatic monitors, NO_2 is measured at 33 locations using diffusion tubes within LBC. The nearest diffusion tube is CA23: Camden Road located approximately 0.5km north-west from the Site boundary and classified as a roadside site. The most recent results from this location are presented in **Table 10**.

Table 10: Monitored Annual Mean NO_2 Concentrations at the Camden Road diffusion tube operated by LBC

Site I.D	AQS Objective	2014	2015	2016	2017	2018	2019
CA23: Camden Road	40µg/m^3	**72.2**	**63.3**	**61.7**	**69.3**	**55.6**	**52.5**

Notes: Data obtained from 'London Borough of Camden Air Quality Status Report for 2019
Exceedances of the AQS Objectives shown in **bold text**

4.10. The monitoring results in **Table 10** indicate that the annual mean NO_2 objective of 40µg/m^3 was exceeded at the Camden Road diffusion tube from 2014 to 2019.

5. Construction Phase Effects

Nuisance Dust

5.1. The construction assessment assesses the construction of the Development as a whole and not in phases. Assessing the construction phase as a whole, rather than in phases is a conservative assessment and allows for flexibility should any of the phases overlap.

Site Evaluation / Screen the Need

5.2. The nearest residential properties are located within 20m of the Site, located on the opposite side of St Pancras Way to the north and west of the Site. Additionally, Saint Pancras Hospital and the Regent's Canal (a Site of Metropolitan Importance) are located adjacent to the south and east of the Site respectively. The Construction Phase Assessment Bands are presented in **Figure 2**. In accordance with **Table 2**, the assessment will proceed to detailed assessment.

Potential Dust Emission Magnitude

5.3. The risk of dust impacts from the demolition and construction phase has been considered based upon the magnitude of works as detailed in the Mayor's SPG. This includes:

- Demolition - The estimate for the total volume of buildings to be demolished would exceed 50,000m^3. Based on this, and considering the criteria in paragraph 4.27 of Mayor's SPG, the potential dust emissions during demolition activities would be of **large** magnitude.
- Earthworks - The area of the Site is 1.1412 ha, or 11,412m^2. Given the area surrounding the Site and the size of the Site it is estimated that there could be more than 10 heavy earth moving vehicles active at any one time. Based on this, and considering the criteria in paragraph 4.29 of Mayor's SPG, the potential dust emissions during earthworks activities would be of **large** magnitude.
- Construction - In the absence of the total volume of buildings to be constructed, it was estimated that this would be over 100,000m^3 and the construction work would involve piling. Based on this, and considering the criteria in paragraph 4.31 of Mayor's SPG, the potential dust emissions during construction activities would be of **large** magnitude.
- Trackout – Given the surrounding site location and the size of the Site it is estimated that the number of HDVs could exceed 50 HDV trips in any one day. Based on this, and considering and considering the criteria in paragraph 4.33 of Mayor's SPG, the potential for dust emissions due to trackout activities would be of **large** magnitude.

5.4. A summary of the potential Dust Emission Magnitude is presented in **Table 11.**

Table 11: Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	Large
Earthworks	Large
Construction	Large
Trackout	Large

Sensitivity of the Area

5.5. As detailed in the Mayor's SPG the sensitivity of the area has taken account of the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- The local background PM_{10} concentration; and
- Site-specific factors, such as whether there are trees or other vegetation to reduce the risk of wind-blown dust.

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

5.6. As discussed above, the nearest residential properties are located within 20m of the Site, located on the opposite side of St Pancras Way to the north and west of the Site. Additionally, Saint Pancras Hospital is located adjacent to the south of the Site.

5.7. Based on Table 4.2 of the Mayor's SPG, given that there are 10-100 High Sensitivity receptors within 20m, it is considered the area is highly sensitive to dust and soiling effects on people and property.

5.8. The summary of the sensitivity of people to Dust and Soiling Effects is detailed in **Table 12**.

Table 12: Sensitivity of the Area to Dust and Soiling Effects on People and Property

Activity	Sensitivity of Area to Dust and Soiling Effects
Demolition	High
Earthworks	High
Construction	High
Trackout	High

Sensitivity of the Area to Human Health Impacts

5.9. As shown in Table A12 of **Appendix A: Air Quality Assessment Detailed Methodology**, the annual mean background PM_{10} concentration at the Site was predicted to be 21.3ug/m^3 in 2016. This is below the annual mean Air Quality Strategy Objective for PM_{10} of 40ug/m^3.

5.10. Based on Table 4.3 of the Mayor's SPG, given that there are estimated to be 10-100 receptors within 20m and that PM_{10} concentrations are below 24ug/m^3, it is considered the area is of low sensitivity to human health impacts.

5.11. The summary of the sensitivity of people to the health effects of particulate matter is detailed in **Table 13** below.

Table 13: Sensitivity of the Area to Human Health Impacts

Activity	Sensitivity of Area to Human Health Impacts
Demolition	Low
Earthworks	Low

Activity	Sensitivity of Area to Human Health Impacts
Construction	Low
Trackout	Low

Sensitivity of the Area to Ecological Impacts

5.12. As discussed above, the Regent's Canal is located adjacent to the east of the Site. The Regent's Canal is a low sensitivity receptor, and based on Table 4.4 of the Mayor's SPG Guidance, it is considered that the area is of low sensitivity to ecological impacts.

5.13. The summary of the sensitivity of the area to ecological impacts is detailed in **Table 14**.

Table 14: Sensitivity of the area to Ecological Impacts

Activity	Sensitivity of Area to Ecological Impacts
Demolition	Low
Earthworks	Low
Construction	Low
Trackout	Low

Risk of Impacts

5.14. Based on the dust emissions magnitude as set out in **Table 11** and taking account of the sensitivity of the area as detailed in **Tables 12, 13** and **14**, the overall risk impacts have been identified and presented in **Table 15**. This is based on the matrices set out in Tables 4.6 to 4.9 of the Mayor's SPG. The predicted impacts are prior to, and do not take account of, mitigation applied.

Table 15: Summary of Dust Risk

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High Risk	High Risk	High Risk	High Risk
Human Health	Low Risk	Low Risk	Low Risk	Low Risk
Ecological	Low Risk	Low Risk	Low Risk	Low Risk

5.15. The Site is considered **high risk** to dust soiling impacts consequently, mitigation would be required to ensure that adverse impacts be minimised, reduced and, where possible, eliminated.

Construction Vehicle Exhaust Emissions

5.16. Plant operating on the Site and construction related vehicles entering and egressing the Site from / to the local road network would have the potential to increase local air pollutant concentrations, particularly in respect of NO_2 and particulate matter (both PM_{10} and $PM_{2.5}$).

5.17. At this stage, the number of HDVs associated with the construction of the Development is not known. However, based on the size of the Site, it is estimated that number of HDVs could exceed 50 HDV trips in any one day. However, emissions from construction traffic would be relatively small compared to existing road traffic emissions on St. Pancras Way (5,330 daily vehicles including 2.8% HDV's in 2019). Further details on existing traffic flows is contained within **Appendix A: Air Quality Assessment Detailed Methodology**.

5.18. Considering the current traffic movements and background pollutant concentrations around the Site, the likely effect of construction vehicles entering and egressing the Site on air quality would in the worst-case, give rise to a **temporary**, **local**, **adverse effect** of **minor significance** during the construction period.

Construction Plant Emissions

5.19. In accordance with the London Plan all construction plant would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely effect of construction plant on local air quality would be **insignificant**.

6. Operational Phase Effects

6.1. Effects on local air quality associated with the completed and operational Development would likely result from changes to traffic emissions associated with the Development.

6.2. The results of the ADMS-Roads air quality modelling of operational traffic, based on current guidance, with reduced emission rates and background concentration to the completion year of 2025 are presented in **Table 16** and **Table 17**. Full details are provided within **Appendix A: Air Quality Assessment Detailed Methodology**.

6.3. **Table 16** and **Table 17** presents the predicted concentrations at relevant existing receptors and receptors introduced as part of the Development for the lowest residential nearest to road traffic. These locations represent the worst-case air quality conditions that would likely result. The predicted concentrations at other floors across the Development are presented in **Tables A11 to A15** of **Appendix A: Air Quality Assessment Detailed Methodology**.

Nitrogen Dioxide (NO_2)

Table 16: Results of the ADMS Modelling at Sensitive Receptors (NO_2)

ID	Receptor Location	NO_2 Annual Mean (µg/m^3)			
		2019 Baseline	2025 Without Development	2025 With Development	2025 Change
1	144 Camden Road	38.8	31.1	31.1	0.0
2	Bernard Shaw Court	**42.1**	33.4	33.4	0.0
3	128 Camden Road	**44.3**	34.8	34.8	0.0
4	Alan Chalmers House	36.4	29.5	29.5	0.0
5	100 Camden Road	**44.8**	35.1	35.1	0.0
6	44 St. Pancras Way	35.5	28.9	28.9	0.0
7	16 St. Pancras Way	35.7	29.0	29.0	0.0
8	St Pancras Hospital	36.6	29.7	29.7	0.0
9	Goldington Buildings	36.1	29.3	29.4	0.1
10	Goldington Crescent	36.3	29.5	29.5	0.0
11	**Proposed:** East Façade 1st Floor	-	-	27.8	-
12	**Proposed:** South Façade 1st Floor	-	-	28.0	-
13	**Proposed:** West Façade 1st Floor	-	-	27.9	-

Note: For accuracy, the changes arising from the Development have been calculated using the exact output from the ADMS-Road model rather than the rounded numbers within Table 16.

6.4. The results in **Table 16** indicate that for 2019 the annual mean NO_2 objective is exceeded at three of the ten existing receptor locations. These results are consistent with the Development being located within the LBC AQMA. The highest concentration is predicted at Receptor 5 (44.8µg/m^3).

6.5. As discussed in **Appendix A: Air Quality Assessment Detailed Methodology**, the 1-hour mean AQS objective for NO_2 is unlikely to be exceeded at a roadside location where the annual mean NO_2 concentration is less than 60µg/m^3. As shown in **Table 16**, the predicted NO_2 annual mean concentrations in 2019 are below 60µg/m^3 at all the existing locations and as such it is likely that the 1-hour mean objective is met at these locations.

6.6. In 2025, both 'without' and 'with' the Development, all existing receptors are predicted to be below the NO_2 annual mean objective. Therefore, the 1-hour mean objective is also predicted to be met at all existing receptor locations.

6.7. Using the impact descriptors outlined in **Table 8**, the Development is predicted to result in a 'negligible' impact at all ten existing receptors. Using professional judgement, based on the severity of the impact and the concentrations predicted at the sensitive receptors it is considered that the effect of the Development on local air quality would be **insignificant**.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Table 17: Results of the ADMS Modelling at Sensitive Receptors (PM_{10} and $PM_{2.5}$)

ID	PM_{10} Annual Mean (µg/m³)				PM_{10} - Number of Days >50µg/m³				$PM_{2.5}$ Annual Mean (µg/m³)			
	2019 Baseline	2025 Without Development	2025 With Development	2025 Change	2019 Baseline	2025 Without Development	2025 With Development	2025 Change	2019 Baseline	2025 Without Development	2025 With Development	2025 Change
1	21.1	19.5	19.5	0.0	4	2	2	0	13.5	12.4	12.4	0.0
2	21.3	19.6	19.7	0.1	5	2	2	0	13.6	12.5	12.5	0.0
3	21.8	20.2	20.2	0.0	6	3	3	0	13.9	12.8	12.8	0.0
4	20.4	18.7	18.7	0.0	3	2	2	0	13.0	12.0	12.0	0.0
5	21.9	20.2	20.2	0.0	6	3	3	0	14.0	12.8	12.8	0.0
6	20.3	18.6	18.6	0.0	3	1	1	0	13.0	11.9	11.9	0.0
7	20.4	18.8	18.8	0.0	3	2	2	0	13.0	11.9	11.9	0.0
8	20.6	19.0	19.0	0.0	4	2	2	0	13.1	12.0	12.0	0.0
9	20.4	18.8	18.8	0.0	3	2	2	0	13.0	11.9	11.9	0.0
10	20.7	19.1	19.1	0.0	4	2	2	0	13.2	12.1	12.1	0.0
11	-	-	18.4	-	-	-	1	-	-	-	11.7	-
12	-	-	18.5	-	-	-	1	-	-	-	11.8	-
13	-	-	18.4	-	-	-	1	-	-	-	11.7	-

Note: For accuracy, the changes arising from the Development have been calculated using the exact output from the ADMS-Road model rather than the rounded numbers within Table 17.

6.8. As shown in **Table 17**, the annual mean concentrations of PM_{10} are predicted to be well below the objective of 40µg/m³ in 2019 and in 2025 both 'without' and 'with' the Development at all the existing receptor locations considered. The maximum predicted concentration in all scenarios tested is 21.9µg/m³ at Receptor 5 in 2019. Using the impact descriptors outlined in **Table 8**, the Development is predicted to result in a 'negligible' impact at all existing receptors.

6.9. The results in **Table 17** indicate that in 2019 and in 2025 both 'without' and 'with' the Development, all existing receptor locations are predicted to be below the 24-hour mean PM_{10} objective value of 35 days exceeding 50µg/m³. The maximum predicted concentration in all scenarios tested is six days at Receptors 3 and 5 in 2019.

6.10. The results in **Table 17** indicate that in 2019 and in 2025 both 'without' and 'with' the Development, all existing receptor locations are predicted to be below the annual mean $PM_{2.5}$ objective value of 25µg/m³. The maximum predicted concentration in all scenarios is 14.0µg/m³ at Receptor 5 in 2019. Using the impact descriptors outlined in **Table 8**, the Development is predicted to result in a 'negligible' impact at all existing receptors.

6.11. Using professional judgement, based on the severity of the impact and the concentrations predicted at the sensitive receptors it is considered that the effect of the Development on local air quality would be **insignificant**.

Nitrogen Dioxide Sensitivity Analysis Results

6.12. The results of the sensitivity analysis in relation to NO_2 (i.e. considering the potential impact of the Development against the current baseline, 2019, conditions) are presented in **Table 18**.

Table 18: Results of the ADMS-Roads Assessment for 2025 Assuming no Improvement in NO_x and NO_2

ID	Receptor Location	Without Development	With Development	µg/m^3 Change
1	144 Camden Road	39.3	39.3	0.1
2	Bernard Shaw Court	**42.8**	**42.8**	0.0
3	128 Camden Road	**45.2**	**45.2**	0.0
4	Alan Chalmers House	36.7	36.7	0.0
5	100 Camden Road	**45.7**	**45.7**	0.0
6	44 St. Pancras Way	35.7	35.7	0.0
7	16 St. Pancras Way	35.9	35.9	0.0
8	St Pancras Hospital	36.9	36.9	0.1
9	Goldington Buildings	36.4	36.4	0.1
10	Goldington Crescent	36.5	36.6	0.1
11	**Proposed:** East Façade 1st Floor	-	33.7	-
12	**Proposed:** South Façade 1st Floor	-	34.1	-
13	**Proposed:** West Façade 1st Floor	-	33.9	-

6.13. The overall predicted concentrations in **Table 18** are higher than those presented in **Table 16** for 2025 due to higher background concentrations and vehicle emissions rates in 2019 than 2025. The results in **Table 18** show that the NO_2 annual mean concentrations are predicted to be above the objective value of 40µg/m^3, 'without' and 'with' the Development, at three of the existing sensitive receptors modelled, when assuming no improvements to NOx and NO_2. These results are consistent with the existing receptors being located within the AQMA declared by LBC.

6.14. These exceedences are a worse case assessment, as there will likely be a reduction in NO_2 concentrations following the introduction of Euro 6 vehicles. Also of relevance is the recent High Court ruling[21], which requires the UK to improve NO_2 concentrations in the shortest timeframe possible and the UK Government have produced a revised air quality improvement plan, which was adopted on 31st July 2017.

6.15. The predicted annual mean NO_2 concentrations are below 60µg/m^3 at all receptor locations both 'without' and 'with' the Development when assuming no improvement to NO_x and NO_2, and as such the 1-hour mean objective is likely to be met at these locations.

6.16. Using professional judgement, based on the severity of the impact, the existing concentrations at the sensitive receptors and taking into account the recent High Court ruling and the introduction of Euro 6

[21]https://www.judiciary.gov.uk/judgments/clientearth-v-secretary-of-state-for-the-environment-food-and-rural-affairs/

vehicles, it is considered that the effect of the Development on NO_2 concentrations, when assuming no improvements in future NOx and NO_2 concentrations, would be **insignificant**.

Conditions within the Development

6.17. As shown by the results in **Tables 16 - 18**, and **Tables A11** to **A15** in **Appendix A: Air Quality Assessment Detailed Methodology** the predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations for locations within the Development itself are below the relevant objectives in 2025 for all residential floor levels. As such, it is considered that, for the NO_2, PM_{10} and $PM_{2.5}$ objectives, the effect of introducing residential users to the Site is **insignificant**.

7. Mitigation Measures and Residual Effects

Construction

Nuisance Dust

7.1. A range of environmental management controls would be developed and set out in the Construction Management Plan, regarding the IAQM guidance relating to High Risk sites and would include:

7.2. Real-time monitoring undertaken in the construction phase, to be agreed with LBC;

- enclosure of material stockpiles at all times and damping down of dusty materials during dry weather;
- provision of appropriate hoarding and / or fencing to reduce dust dispersion and restrict public access;
- maintenance of Site fencing, barriers and scaffolding clean using wet methods;
- control of cutting or grinding of materials on the Site and avoidance of scabbling;
- dust generating machinery e.g. disk cutters to be fitted with vacuums;
- appropriate handling and storage of materials, especially stockpiled materials;
- restricting drop heights onto lorries and other equipment;
- fitting equipment with dust control measures such as water sprays, wherever possible;
- using a wheel wash, avoiding of unnecessary idling of engines and routing of Site vehicles as far from sensitive properties as possible;
- ensuring bulk cement and other fine powder materials are delivered in enclosed tankers and stored silos with suitable emission control systems to prevent escape of material and overfilling during delivery;
- using gas powered generators rather than diesel if possible and ensuring that all plant and vehicles are well maintained so that exhaust emissions do not breach statutory emission limits;
- switching off all plant when not in use;
- no fires would be allowed on the Site; and
- ensuring that a road sweeper is available to clean mud and other debris from hard-standing, roads and footpaths.

7.3. Such measures are routinely and successfully applied to major construction projects throughout the UK, and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the various stages of construction work. It is considered that with these measures the residual effects would be **insignificant**.

Construction Vehicle Exhaust Emissions

7.4. All construction traffic logistics would be agreed with LBC. Consideration would also be given to the avoidance, or limited use of, traffic routes in proximity to sensitive routes (i.e. residential roads etc.) and the avoidance (or limited) use of roads during peak hours, where practicable. However, it is anticipated that the likely residual effect of construction vehicles entering and egressing the Site to air quality would remain as per the likely effect. That is, during the construction period the likely worst-case residual effect would be **temporary**, **local** and of **minor adverse** significance.

Construction Plant Emissions

7.5. In accordance with the London Plan all construction plant would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely residual effects of construction plant on local air quality would be **insignificant**.

Operational Development

7.6. As identified earlier in this report, even in the absence of mitigation, the Development is predicted to have an **insignificant** effect on local air quality. Accordingly, mitigation measures would not be required so **residual effects** would be **insignificant**.

7.7. However, air quality mitigation measures have been included as part of the Development, which are likely to have a benefit to air quality and to ensure the operational Development does not delay compliance to the EU Limit Value.

7.8. **Table 19** presents the air quality mitigation measures included as part of the Development.

Table 19: Summary of Mitigation Measures included as part of the Development

Phase	Mitigation Measures
Inherent – Measures included in the design of the Development	Residential units not located on ground floor level, away from road traffic sources
	Limited number of car parking spaces provided – only 32 parking spaces
	Provision of 808 long-stay and approximately 104 short-stay cycle spaces
	Provision of trees and plants in both the public and private amenity space
	Provision of district heating systems. Emissions to be in accordance with the London Plan SPG
Operational Development	Provision and monitoring of Residential and Employee Travel Plans

8. Summary and Conclusions

8.1. The main likely effects on local air quality during construction relates to dust. A range of measures to minimise or prevent dust would be implemented and it is considered that following mitigation, the effects from nuisance dust emissions would be **insignificant**.

8.2. Emissions from construction vehicles would be small in comparison to the emissions from the large volume of vehicles travelling on roads in the surrounding area of the Site and would not significantly affect air quality. In the worst-case, it is anticipated that the effect of construction vehicles entering and egressing the Site during the construction period would have a **temporary, local** and of **minor adverse** significance, in the context of local background pollutant concentrations and existing local road traffic emissions.

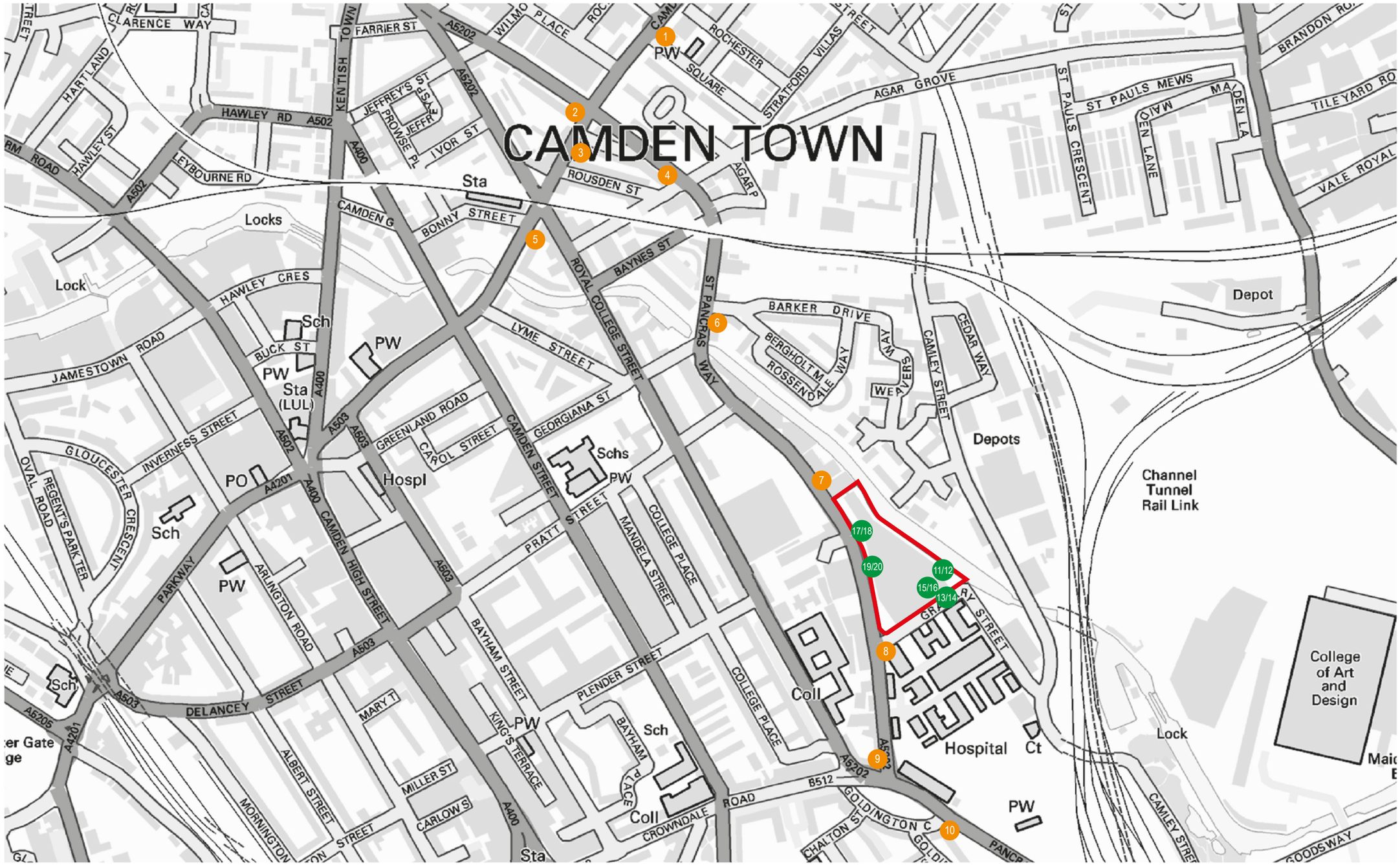
8.3. In accordance with the London Plan all construction plant would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely effect of construction plant on local air quality would be **insignificant**.

8.4. Following completion of the Development, the Development is predicted to have an **insignificant** effect on NO_2, PM_{10} and $PM_{2.5}$ concentrations, at all existing and future receptors considered when assuming future improvements in air quality and therefore mitigation measures would not be required.

8.5. Following completion of the Development, and considering uncertainty in future NO_x and NO_2 reductions, the Development is predicted to have an **insignificant** effect on NO_2, PM_{10} and $PM_{2.5}$ concentrations, at all existing and future receptors considered. As such, the overall effect of the Development on air quality is therefore considered to be **insignificant**.

FIGURES

Figure 1: Site Plan and Receptor Locations



Site Boundary

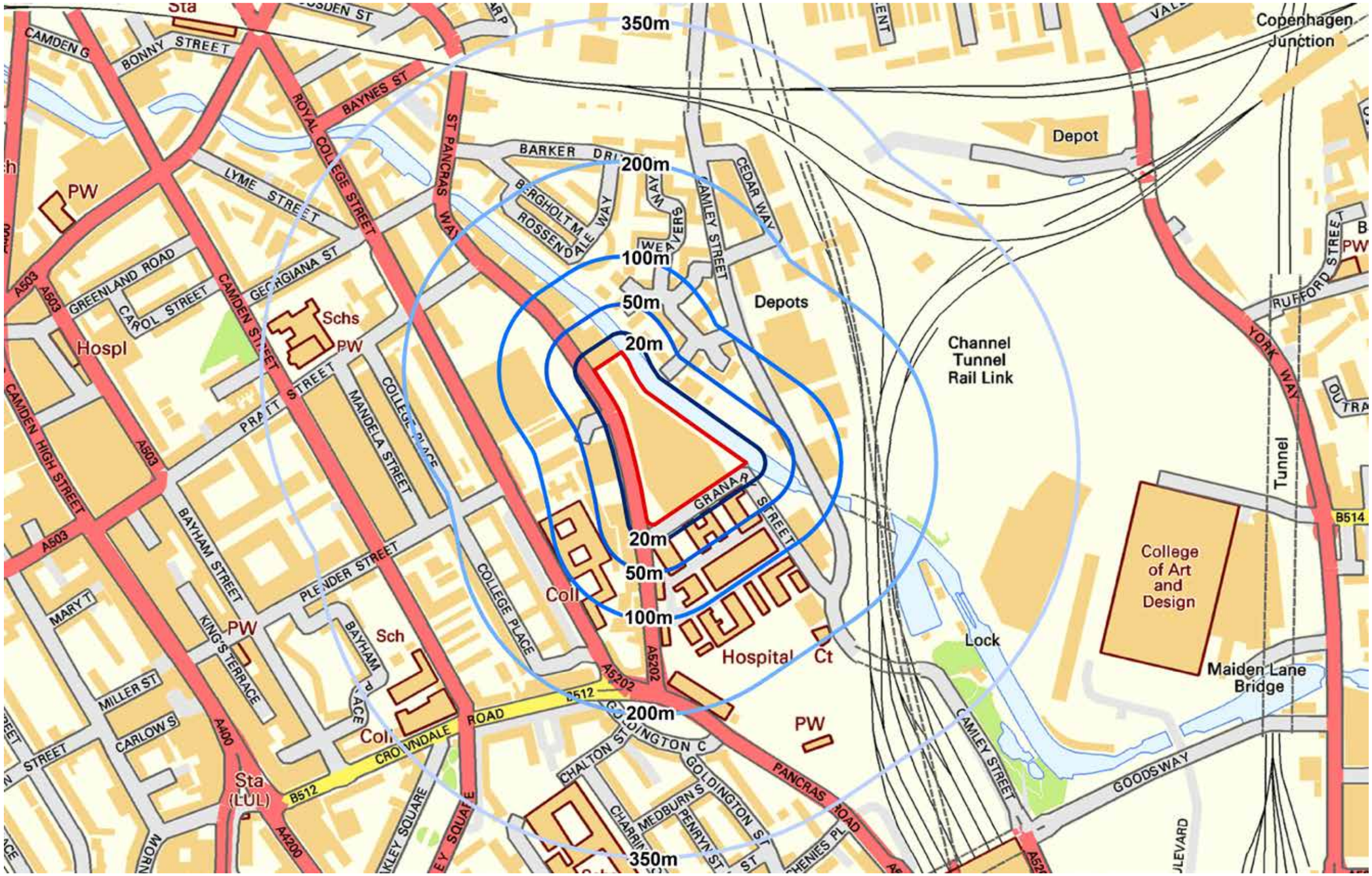
Existing Receptors

Proposed Receptors

N

Project Details	WIE11701-100: Ugly Brown Buildings, London
Figure Title	Figure 1: Site Plan and Receptor Locations
Figure Ref	WIE11701-100_GR_AQ_1A
Date	April 2017
File Location	\\s-lncs\wiel\projects\wie11701\100\graphics\sraqissued figures

Figure 2: Construction Phase Assessment Bands



Site Boundary

N

Project Details	WIE11701-100: Ugly Brown Buildings, London
Figure Title	Figure 2: Construction Phase Assessment Bands
Figure Ref	WIE11701-100_GR_AQ_2A
Date	April 2017
File Location	\\s-lncs\wiel\projects\wie11701\100\graphics\sraqissued figures

APPENDICES

Appendix A: Air Quality Assessment Detailed Methodology

Appendix A: Air Quality Assessment Detailed Methodology

1.1 This appendix presents the technical information and data upon which the air quality assessment is based.

Operational Development Assessment

ADMS-Roads

1.2 In urban areas, pollutant concentrations are primarily determined by the balance between pollutant emissions that increase concentrations, and the ability of the atmosphere to reduce and remove pollutants by dispersion, advection, reaction and deposition. An atmospheric dispersion model is used as a practical way to simulate these complex processes; which requires a range of input data, which can include pollutant emissions rates, meteorological data and local topographical information.

1.3 The potential effects of the Development on local air quality was assessed using the advanced atmospheric dispersion model ADMS-Roads, taking into account the contribution of emissions from forecast road-traffic on the local road network by the completion year (taken to be 2025).

1.4 The ADMS-Roads model is a comprehensive tool for investigating air pollution in relation to road networks. On review of the Site, and its surroundings, ADMS-Roads was considered appropriate for the assessment of the potential long and short term effects of the Development on air quality. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions of air pollutant concentrations. It can predict long-term and short-term concentrations, including percentile concentrations. The use of the ADMS-Roads model was agreed with the Sustainability Officer at London Borough of Camden (LBC) (see correspondence at the end of this appendix).

1.5 ADMS-Roads model is a formally validated model, developed in the United Kingdom (UK) by CERC (Cambridge Environmental Research Consultants). This includes comparisons with data from the UK's air quality Automatic Urban and Rural Network (AURN) and specific verification exercises using standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation and their models were compared favourably against other E.U and U.S. EPA systems. Further information in relation to this is available from the CERC website at www.cerc.co.uk.

Model Scenarios

1.6 To assess the potential effects of the Development on local air quality, future 'without Development' and 'with Development' scenarios were assessed. The Development is anticipated to be complete in 2025 and therefore this is the year in which these future scenarios were modelled.

1.7 The year 2019 was also modelled to establish the existing baseline situation because it is the latest full year of existing monitoring data from LBC surrounding the Site against which the air quality model is verified (discussed further below). Base year traffic data for 2016 and meteorological data for 2019 were also used to be consistent with the verification year.

1.8 Taking into account recent analyses by Defra[1] showing that historical NO_x and NO_2 concentrations are not declining in line with emission forecasts, as outlined in the Air Quality Assessment, a sensitivity analysis was undertaken on the basis of no future reductions in NO_x/NO_2 concentrations (i.e. considering the potential effects of the Development against the current baseline 2019 conditions by applying the 2025 road traffic data to 2019 background concentrations and road traffic emission rates). The results for this sensitivity analysis are presented further below.

Traffic Data

1.9 Traffic flow data comprising Annual Average Daily Traffic (AADT) flows, traffic composition (% Heavy-Duty Vehicles (HDVs)) were used in the model as provided by the project transport consultants (Caneparo Associates) for the surrounding road network, inclusive of traffic flows for committed developments near the Site. **Table A1** presents the traffic data used within the Air Quality Assessment.

1.10 The methodology for calculating the expected change in vehicle trips as a result of the Development, once completed and operational, is set out in detail within the Transport Assessment (submitted separately with the planning application) and covers all of the proposed land uses. The assessment covers all traffic generated by the Development, including servicing and delivery trips. For the future year flows, local traffic growth factors were applied to take into account traffic growth in the area.

Table A1: 24 hour AADT Data Used within the Assessment

Ref.	Link Name	Speed (kph)	Base 2019		Without 2025		With 2025	
			AADT	%HDV	AADT	%HDV	AADT	%HDV
1	Pancras Road, south of junction with Crowndale Road	40	13,687	12.3	14,274	12.3	14,572	12.6
2	Granary Street, east of junction with St Pancras Way	41	2,648	15.6	2,755	15.6	2,881	16.4
3	St Pancras Way, north of site	40	5,330	2.8	5,558	2.8	5,558	2.9
4	Camden Road, west of St Pancras Way	40	32,103	6.6	33,406	6.6	33,449	6.8
5	Camden Road, east of St Pancras Way	40	25,235	7.9	26,260	7.9	26,303	8.2

Vehicle Speeds

1.11 To take into account the presence of slow moving traffic along the links in the area, the speed at the junctions were reduced using the following criteria recommended within LLAQM.TG(22)[2]:

- Traffic on the carriageway approaching the lights when red, e.g. 5-20 kph, depending on the time of day and level of congestion at the junction;

1 http://laqm.defra.gov.uk/faqs/faqs.html: Measured nitrogen oxides (NOx) and/or nitrogen dioxide (NO_2) concentrations in my local authority area do not appear to be declining in line with national forecasts.

2 Defra, 2022, London Local Air Quality Management Technical Guidance LAQM.TG (22)

- Traffic approaching the lights when green, e.g. 20-50 kph; and
- Traffic on the carriageway approaching the lights when red, e.g. 5-20 kph, depending on the time of day and how congested the junction is.

1.12 Initially the model assumed a speed of 20kph at all junctions included within the model. However, following a comparison of the model and monitored results, the speed was subsequently further reduced to 10kph at some junctions. The Camden Road west of St. Pancras Way road link was reduced to 15kph to take account of the slow-moving traffic along the links in the area. St Pancras Way was reduced to 32kph to correspond with the speed limit set for the road.

Diurnal Profile

1.13 The ADMS-Roads model uses an hourly traffic flow based on the daily (AADT) flows. Traffic flows follow a diurnal variation throughout the day and week. Therefore, a diurnal profile was used in the model to replicate how the average hourly traffic flow would vary throughout the day and the week. This was based on data (the latest available at the time of the assessment) collated by Waterman from the Department for Transport (DfT) statistics Table TRA0307: 'Traffic Distribution by Time of Day on all roads in Great Britain', 2019[3]. **Figure A1** presents the diurnal variation in traffic flows which has been used within the model.

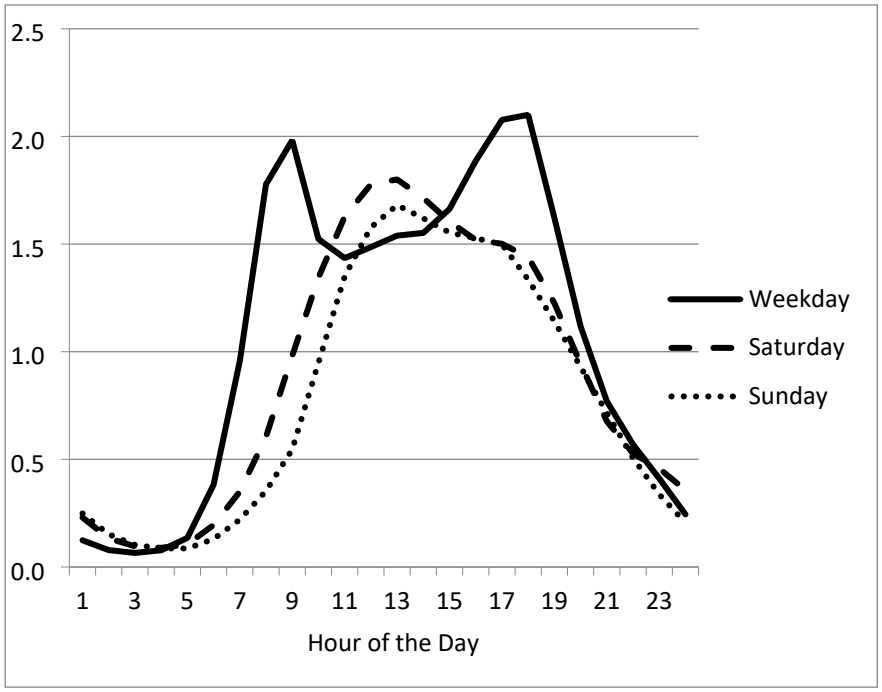


Figure A1: Department for Transport 2019 Diurnal Traffic Variation

Street Canyon Effect

1.14 Narrow streets with tall buildings on either side have the potential to create a confined space, which can interfere with the dispersion of traffic pollutants and may result in pollutant

[3] Department for Transport (DfT) Statistics, www.dft.gov.uk/statistics/series/traffic

emissions accumulating in these streets. In an air quality model, these narrow streets are described as street canyons.

1.15 ADMS-Roads includes a street canyon model to take account of the additional turbulent flow patterns occurring inside such a narrow street with relatively tall buildings on both sides. LAQM.TG(22) identifies a street canyon *"as narrow streets where the height of buildings on both sides of the road is greater than the road width."*

1.16 Following a review of the road network to be included within the model, it was considered that modelled roads are relatively wide and the existing buildings along these roads are not considered to be tall. The Development would not cause any street canyons to be created. Therefore, no street canyons were included within the model for any of the scenarios considered.

Road Traffic Emission Factors

1.17 The latest version of the ADMS-Roads model (version 5.0.1.3) was used for the assessment. The model was input with the latest vehicle emission factors published by Defra in the Emission Factors Toolkit (v11.0 published in November 2021) and is based on the latest COPERT database published by the European Environment Agency.

1.18 The EFT uses several parameters (traffic flow, percentage of HDV, speed and road type) to calculate road traffic emissions for the selected pollutants.

Background Pollutant Concentrations

1.19 Background pollutant concentration data (i.e. concentrations due to the contribution of pollution sources not directly taken into account in the dispersion modelling) have been added to contributions from the modelled pollution sources, for each year of assessment.

1.20 Urban background pollution monitoring is undertaken by LBC at one automatic monitor located in Bloomsbury (530120, 182034) approximately 1.8km south of the Site. **Table A4** shows the most recent concentrations measured at the Bloomsbury monitor.

Table A2: Measured Concentrations at the Bloomsbury Urban Background Monitor (µg/m^3)

Pollutant	Averaging Period	AQS Objective	2014	2015	2016	2017	2018	2019
NO_2	Annual Mean (µg/m^3)	40µg/m^3	**45**	**48**	**42**	38	36	32
	1-Hour Mean (No. of Hours)	200µg/m^3 not to be exceeded more than 18 times a year	0	0	0	0	0	0
PM_{10}	Annual Mean (µg/m^3)	40µg/m^3	20	22	20	19	17	18
	24-Hour Mean (No. of Days)	50µg/m^3 not to be exceeded more than 35 times a year	11	6	9	6	1	9
$PM_{2.5}$	Annual Mean (µg/m^3)	40µg/m^3	-	11	12	13	10	11

Notes: 2014 and 2015 Data obtained from LBC Air Quality Annual Status Report for 2015
2016 Data obtained from www.londonair.org.uk
Exceedences of the AQS Objectives shown in **bold** text.

1.21 **Table A2** indicates the annual mean NO_2 objective of 40µg/m^3 was exceeded from 2014 to 2016 but has been since 2017. The NO_2 1-hour mean objective, PM10 and $PM_{2.5}$ objectives were met in all years at the Bloomsbury urban background monitor. The Bloomsbury monitor is

located close to the A4200 and has been discounted as it is not considered representative of the background at the Site.

1.22 LBC also undertakes background air quality monitoring of NO_2 at four diffusion tube locations within the Borough as presented in **Table A3**.

Table A3: Annual Mean NO_2 Concentrations at LBC Urban Background Diffusion Tubes

Site ID	Address	Distance from Site Centre	AQS Objective	2014	2015	2016	2017	2018	2019
CA10	Tavistock Gardens	1.4km	Annual mean 40µg/m³	**46.5**	**44.6**	39.7	46.2	35.4	33.1
CA28	St. George Gardens East	1.5km		-	-	-	-	-	27.7
CA6	Wakefield Gardens	1.5km		36.4	35.8	31.3	34.8	26.7	24.7
CA7	Frognal Way	3.9km		28.6	27.8	27.9	29.6	22.1	22.8

Notes: Data obtained from London Borough of Camden Air Quality Status Report for 2019
Exceedence of the annual mean NO_2 AQS Objective shown in **bold**
All data has been adjusted for bias

1.23 **Table A3** shows that in 2014 and 2015, the monitored annual mean NO_2 concentrations exceeded the annual mean NO_2 objective of 40µg/m³ at Tavistock Gardens. The annual mean NO_2 objective of 40µg/m³ has been met at Tavistock Gardens since 2016 and at the other two diffusion tubes in all years.

1.24 In addition to the background monitoring undertaken by LBC, background concentrations of NO_x, NO_2, PM_{10} and $PM_{2.5}$ are available from the Defra Local Air Quality Management website[4] for 1x1km grid squares, for years 2018 to 2030. **Table A4** presents the Defra mapped NO_2 background concentrations for the grid square the Site is located within (529500, 183500;) for 2019 and 2025.

Table A4: Defra background maps in 2016 and 2025 for the grid square at the site

Pollutant	Annual Mean Concentration (µg/m³)	
	2019	2025
NO_x	53.7	42.1
NO_2	32.5	26.9
PM_{10}	19.9	18.3
$PM_{2.5}$	12.7	11.6

1.25 **Tables A3** and **A4** show that the 2016 monitored urban background NO_2 concentration of 33.1µg/m³ at LBC's diffusion tube at Tavistock Gardens (the closest to the Site) is higher than the Defra background maps for the grid square at the Site (as 32.5µg/m³). As the Tavistock Gardens diffusion tube shows a higher concentration, it has been used, as a conservative assumption.

1.26 Excluding the Bloomsbury monitor, LBC do not undertake any background monitoring of NOx, PM_{10} and $PM_{2.5}$. Therefore, background concentrations have been obtained from the Defra background maps. The background concentrations used in the assessment are shown in **Table A5** presents the background concentrations used within the air quality assessment.

4 http://uk-air.defra.gov.uk/

Table A5: Background concentrations used in the assessment

Pollutant	Annual Mean Concentration (µg/m^3)	
	2019	2025
Grid Square 529500, 184500; Verification DT CA23, Receptors 1-6		
NO_2	33.1	27.4
PM_{10}	19.8	18.2
$PM_{2.5}$	12.7	11.6
Grid Square 529500, 183500; Receptors 7-15		
NO_2	33.1	27.4
PM_{10}	19.9	18.3
$PM_{2.5}$	12.7	11.6

Note: Adjustment factors were obtained from Defra Maps to calculate 2025 NO_2 concentrations; 0.8263 for Grid Square 529500, 184500 & 0.8267 for Grid Square 529500, 183500

Meteorological Data

1.27 Local meteorological conditions strongly influence the dispersal of pollutants. Key meteorological data for dispersion modelling include hourly sequential data including wind direction, wind speed, temperature, precipitation and the extent of cloud cover for each hour of a given year. As a minimum ADMS-Roads requires wind speed, wind direction, and cloud cover.

1.28 Meteorological data to input into the model were obtained from the London City Airport Meteorological Station, which is the closest to the Site and considered to be the most representative. The 2019 data were used to be consistent with the base traffic year and model verification year. It was also used for the 2025 scenario for the air quality assessment. **Figure A2** presents the wind-rose for the meteorological data.

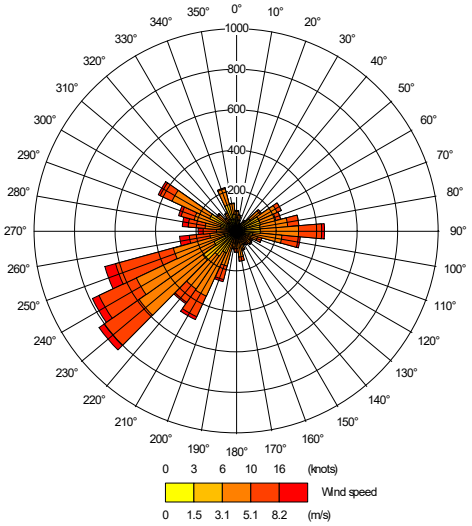


Figure A2: 2019 Wind Rose for the London City Airport Meteorological Site

1.29 Most dispersion models do not use meteorological data if they relate to calm winds conditions, as dispersion of air pollutants is more difficult to calculate in these circumstances. ADMS-Roads treats calm wind conditions by setting the minimum wind speed to 0.75 m/s. It is

recommended in LLAQM.TG(22) that the meteorological data file be tested within a dispersion model and the relevant output log file checked, to confirm the number of missing hours and calm hours that cannot be used by the dispersion model. This is important when considering predictions of high percentiles and the number of exceedances. LLAQM.TG(22) recommends that meteorological data should only be used if the percentage of usable hours is greater than 85%. 2019 meteorological data from London City Airport includes 8,600 usable hours, which equates to 98.2%. The London City Airport meteorological data is above the 85% threshold and therefore adequate for the dispersion modelling.

1.30 A surface roughness value of 1.0 was used for the London City Airport Meteorological Station, which is representative of cities and is considered appropriate following a review of the local area surrounding the Meteorological Station.

Model Data Processing

1.31 The modelling results were processed to calculate the averaging periods required for comparison with the Air Quality Strategy Objectives.

1.32 NO_X emissions from combustion sources (including vehicle exhausts) comprise principally nitric oxide (NO) and NO_2. The emitted NO reacts with oxidants in the air (mainly ozone) to form more NO_2. Since only NO_2 is associated with impacts on human health, the air quality standards for the protection of human health are based on NO_2 and not total NO_X or NO.

1.33 The ADMS-Roads model was run without the Chemistry Reaction option to allow verification (see below). Therefore, a suitable NO_X:NO_2 conversion was applied to the modelled NO_X concentrations. There are a variety of different approaches to dealing with NO_X:NO_2 relationships, a number of which are widely recognised as being acceptable. However, the current approach was developed for roadside sites, and is detailed within the Technical Guidance LLAQM.TG(22).

1.34 The LAQM Support website provides a spreadsheet calculator[5] to allow the calculation of NO_2 from NO_X concentrations, accounting for the difference between primary emissions of NO_X and background NO_X, the concentration of O_3, and the different proportions of primary NO_2 emissions, in different years. This approach is only applicable to annual mean concentrations.

1.35 LLAQM.TG(22) states that where stacks are included within models representing wider urban areas and where the annual mean concentrations are the main focus (as is the case in this assessment) then the spreadsheet calculator, described above, can be used for the conversion of total annual mean NO_X to annual average NO_2 concentrations. This guidance was followed for the assessment NO_X concentrations due to the heating plant emissions.

1.36 Research[6] undertaken in support of LLAQM.TG(22) has indicated that the hourly mean limit value and objective for NO_2 is unlikely to be exceeded at a roadside location where the annual-mean NO_2 concentration is less than 60µg/m^3. The hourly objective is, therefore, not considered further within this assessment where the annual-mean NO_2 concentration is predicted to be less than 60µg/m^3.

1.37 To calculate the number of daily exceedances of 50µg/m^3 PM_{10}, the relationship between the number of 24-hour exceedances of 50µg/m^3 and the annual mean PM_{10} concentration from LLAQM.TG (22) was applied as follows:

---

[5] AEA, NO_X to NO_2 Calculator, http://laqm1.defra.gov.uk/review/tools/monitoring/calculator.php Version 7.1, April 2019

[6] Defra (2016), 'Local Air Quality Management Policy guidance PG(16)', DEFRA, London

Number of Exceedances = -18.5+0.00145 x annual mean^3 + (206/annual mean)

Other Model Parameters

1.38 There are other parameters that are used within the ADMS-Roads model, which are described for completeness and transparency:

- The model requires a surface roughness value to be inputted.
  - A value of 1.5 was used for the Site, which is representative of large urban areas; and
  - A value of 1.0 was used for the London City Airport Meteorological Station, which is representative of cities and woodlands;
- The model requires the Monin-Obukhov length (a measure of the stability of the atmosphere) to be inputted. A value of 100m (representative of large conurbations >1 million) was used for the modelling; and
- The model requires the Road Type to be inputted. *'London [Central]'* was selected and used for the modelling of the road links.

Model Verification

1.39 Model verification is the process of comparing monitored and modelled pollutant concentrations for the same year, at the same locations, and adjusting modelled concentrations if necessary to be consistent with monitoring data. This increases the robustness of modelling results.

1.40 Discrepancies between modelled and measured concentrations can arise for several reasons, for example:

- Traffic data uncertainties;
- Background concentration estimates;
- Meteorological data uncertainties;
- Sources not explicitly included within the model (e.g. car parks and bus stops);
- Overall model limitations (e.g. treatment of roughness and meteorological data, treatment of speeds); and
- Uncertainty in monitoring data, particularly diffusion tubes.

1.41 Verification is the process by which uncertainties such as those described above are investigated and minimised. Disparities between modelling and monitoring results are likely to arise as result of a combination of these aspects.

Nitrogen Dioxide

1.42 The dispersion model was run to predict annual mean NO_x concentrations at the LBC diffusion tube located on Camden Road (CA 23). The monitoring location is roadside and considered appropriate for the model verification.

1.43 Box 7.15 in LAQM.TG(22) indicates a method based on comparison of the road NO_X contributions and calculating an adjustment factor. This requires the roadside NO_X contribution to be calculated. In addition, monitored NO_X concentrations are required, which were calculated from the annual mean NO_2 concentration at the diffusion tube site using the NO_X to NO_2 spreadsheet calculator as described above. The steps involved in the adjustment process are presented in **Table A8**. The background data for 2019, as presented in **Table A7** were used.

Table A6: 2019 Annual Mean NO_2 Modelled and Monitored Concentrations

Site ID	Modelled Total NO_2 (µg/m³)	Monitored Total NO_2 (µg/m³)	% Difference
CA23	41.8	52.5	-20.40

1.44 Table **A6** indicates the model underpredicts at the CA23 diffusion tube. Technical Guidance LAQM.TG(22) suggests that where there is a disparity of more than 10% between modelled and monitored results, adjustment of the modelling results is necessary. The steps involved in the adjustment process are presented in **Table A7**.

Table A7: Model Verification Result for Adjustment NO_x Emissions

Site ID	Monitored Annual Mean NO_2 (µg/m³)	Monitored Road NO_x (µg/m³)	Modelled Road NO_x (µg/m³)	Ratio of Monitored Road Contribution NO_x/Modelled Road Contribution NO_x
CA23	52.5	47.4	19.7	2.4

1.45 Consequently, in **Table A8** the adjustment factor (2.4) is applied to the modelled NO_x Roadside concentrations before being converted to annual mean NO_2 using the NO_x:NO_2 spreadsheet calculator.

Table A8: Comparison of Adjusted Road NO_x Emissions

Site ID	Adjusted Modelled Road NOx (µg/m³)	Modelled Total NO_2 (µg/m³)	Monitored Annual Mean NO_2 (µg/m³)	% Difference (modelled – monitored)
CA23	47.4	52.5	52.5	0

1.46 The results of **Table A8** indicates an agreement between monitored and modelled annual mean NO_2 results compared to the unadjusted/unverified model shown in **Table A6**.

1.47 The NO_x adjustment process was subsequently applied to all roadside NO_x modelling for 2019 and 2025 'without' and 'with' the Development in place, at the specific receptors locations assessed, before the predicted concentrations were converted to NO_2.

Particulate Matter (PM_{10} and $PM_{2.5}$)

1.48 PM_{10} and $PM_{2.5}$ monitoring data is not available for the Site area. Therefore, the roadside modelled NOx adjustment factor of 2.4 was subsequently applied to all the roadside PM_{10} and $PM_{2.5}$ modelling results.

Verification Summary

1.49 Any atmospheric dispersion model study will always have a degree of inaccuracy due to a variety of factors. These include uncertainties in traffic emissions data, the differences between available meteorological data and the specific microclimate at each receptor location, and simplifications made in the model algorithms that describe the atmospheric dispersion and chemical processes. There will also be uncertainty in the comparison of predicted concentrations with monitored data, given the potential for errors and uncertainty in sampling methodology (technique, location, handling, and analysis) as well as processing of any monitoring data.

1.50 Whilst systematic under or over prediction can be taken in to account through the model verification / adjustment process, random errors will inevitably occur and a level of uncertainty will still exist in corrected / adjusted data.

1.51 Model uncertainties arise because of limited scientific knowledge, limited ability to assess the uncertainty of model inputs, for example, emissions from vehicles, poor understanding of the interaction between model and / or emissions inventory parameters, sampling and measurement error associated with monitoring sites and whether the model itself completely describes all the necessary atmospheric processes.

1.52 Overall, it was concluded that with the adjustment factors applied to the ADMS-Roads model, it is performing well and modelled results are suitable to determine the potential effects of the Development on local air quality.

Predictions at Height within the Development

1.53 The Air Quality Assessment presents data for the locations within the Development that are likely to be exposed to the worst-case air quality conditions i.e. the lowest floor levels of the Development that would be the nearest to road traffic and the highest residential levels of the Development closest to heating plant emissions. **Tables A9** to **A15** present predicted concentrations at various heights, representative of sensitive receptors (refer to **Table 3** of the Air Quality Assessment) at different floor levels.

Table A9: Predicted Annual Mean NO_2 Concentrations (µg/m^3) in 2025 at Receptors Introduced as part of the Development for Differing Floor Heights

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
Upper Ground	28.4	-	-	-	-
1	28.0	28.0	27.8	28.0	27.9
2	27.7	27.7	27.7	27.9	27.8
3	-	-	27.7	27.7	27.7
4	-	-	27.7	27.7	27.7
5	-	-	27.6	27.6	27.6
6	-	-	27.6	27.6	27.6
7	-	-	27.6	27.6	27.6
8	-	-	27.6	27.6	27.6
9	-	-	27.5	27.5	27.5
10	-	-	27.5	27.5	27.5
11	-	-	27.5	27.5	27.5

Table A10: Predicted Annual Mean PM_{10} Concentrations (µg/m^3) in 2025 at Receptors Introduced as part of the Development for Differing Floor Heights

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
Upper Ground	18.6	-	-	-	-
1	18.5	18.5	18.4	18.5	18.4
2	18.4	18.4	18.4	18.4	18.4
3	-	-	18.4	18.4	18.4
4	-	-	18.4	18.4	18.4
5	-	-	18.3	18.3	18.3
6	-	-	18.3	18.3	18.3
7	-	-	18.3	18.3	18.3
8	-	-	18.3	18.3	18.3
9	-	-	18.3	18.3	18.3
10	-	-	18.3	18.3	18.3
11	-	-	18.3	18.3	18.3

Table A11: Predicted Daily Mean PM_{10} Concentrations (number of days >50µg/m^3) in 2025 at Receptors Introduced as part of the Development for Differing Floor Heights

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
Upper Ground	1	-	-	-	-
1	1	1	1	1	1
2	1	1	1	1	1
3	-	-	1	1	1
4	-	-	1	1	1
5	-	-	1	1	1
6	-	-	1	1	1
7	-	-	1	1	1
8	-	-	1	1	1
9	-	-	1	1	1
10	-	-	1	1	1
11	-	-	1	1	1

Table A12: Predicted Annual Mean $PM_{2.5}$ Concentrations (µg/m^3) in 2025 at Receptors Introduced as part of the Development for Differing Floor Heights

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
Upper Ground	11.8	-	-	-	-
1	11.7	11.7	11.7	11.8	11.7
2	11.7	11.7	11.7	11.7	11.7
3	-	-	11.7	11.7	11.7
4	-	-	11.7	11.7	11.7
5	-	-	11.7	11.7	11.7
6	-	-	11.7	11.7	11.7
7	-	-	11.7	11.7	11.7
8	-	-	11.7	11.7	11.7
9	-	-	11.7	11.7	11.7
10	-	-	11.7	11.7	11.7
11	-	-	11.7	11.7	11.7

Table A13: Predicted Annual Mean NO_2 Concentrations (µg/m^3) in 2025 at Receptors Introduced as part of the Development for Differing Floor Heights, Assuming no Improvement in NO_x and NO_2

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
Upper Ground	34.8	-	-	-	-
1	34.1	34.1	33.7	34.1	33.9

Floor Level	Plot A/B		Plot C		
	N	S	E	S	W
2	33.6	33.6	33.6	33.8	33.8
3	-	-	33.6	33.7	33.7
4	-	-	33.5	33.5	33.6
5	-	-	33.5	33.5	33.5
6	-	-	33.4	33.4	33.4
7	-	-	33.4	33.4	33.4
8	-	-	33.3	33.3	33.3
9	-	-	33.3	33.3	33.3
10	-	-	33.3	33.3	33.3
11	-	-	33.3	33.3	33.2

London Borough of Camden Correspondence

Hi [redacted]

Thanks for your email. We are happy with this approach. We recommend that developers follow the EPUK Land-Use Planning & Development Control: Planning For Air Quality Guidance when doing an AQA.

If CHP is proposed (which I believe it is) then the CHP standards set out in the Mayor's Sustainable Design and Construction SPG must be met. We will also look to see stack heights and locations are carefully designed to limit sensitive receptor exposure and that any other relevant mitigation measures are put in place.

Dispersion modelling should also take into account other proposed developments in the area.

We expect developers to follow The Mayors SPG on Control of Dust and Emissions, in their AQAs and Construction Management Plans (CMP). Mitigation measures appropriate to the identified level of risk should be included and stated within the AQA. These will then be secured through the CMP.

The LAQM website includes our AQ progress reports from monitoring as well as the AQ action plan – these should be used to inform all AQAs. I've attached the latest one which might not be uploaded onto the website yet.

Thanks,

[redacted]
Sustainability Officer

Telephone: [redacted]

From: [redacted]
Sent: 04 April 2017 15:07
To: [redacted]
Cc: [redacted]
Subject: RE: The Ugly Brown Building, 6A St. Pancras Way - Air Quality Assessment

[redacted]

Thanks for getting in touch.

My colleague, [redacted], can assist you with this.

Regards

[redacted]

[redacted]
Energy and Sustainability Manager

Telephone: [redacted]

From: [redacted]
Sent: 04 April 2017 15:00
To: [redacted]
Subject: The Ugly Brown Building, 6A St. Pancras Way - Air Quality Assessment
Importance: High

Good afternoon [redacted]

Waterman have been instructed by Reef Estates to undertake an air quality assessment to accompany the planning application for the proposed redevelopment of the Ugly Brown Building on St. Pancras Way (centred on National Grid Reference 529635, 183733), and I would like to agree with the London Borough of Camden the scope and methodology for the assessment.

In terms of our approach we propose to use the detailed dispersion model ADMS roads and would model the existing, future without development and future with development scenarios at sensitive receptors in proximity to the Site and within the roads modelled. The model will also consider the future concentrations future users of the Site would be exposed too. In addition the ADMS air quality model will consider the impact of emissions from the heating and energy plant.

As traffic flows follow a diurnal variation throughout the day and week, the AMDS-Roads model will therefore include a diurnal traffic profile.

To take into account the trend that NO_x and NO_2 concentrations are not declining as expected, the results will include an uncertainty section which will assess the future traffic on the basis of no future reductions (i.e. considering the potential effect of the Development against the current baseline conditions and assuming no improvements in vehicle emissions).

To ensure the performance of the model, a comparison between monitored and modelled concentrations (model verification) at the diffusion tube on Camden Road located approximately 600m north-west from the centre of the Site would be undertaken.

To assist us in the assessment, please may you provide the bias adjusted diffusion tube data for both 2015 and 2016 and also the latest review and assessment reports?

Further to the operational assessment, a qualitative assessment of the potential impacts of the development on local air quality during demolition and construction

would be undertaken, including predicted construction traffic. This would use the IAQM best practice guidance to assess dust nuisance and construction plant/ vehicles, detailing any mitigation measures required.

Separate to the air quality assessment, an Air Quality Neutral Assessment would be completed in accordance with the London Plan, and in accordance with the Sustainable Design and Construction SPG.

I welcome your thoughts on the above scope and would appreciate any recommendations.

Kind regards,

[redacted]

[redacted]
Consultant
Waterman Infrastructure & Environment Ltd

Pickfords Wharf | Clink Street | London SE1 9DG
t +[redacted]
www.watermangroup.com | LinkedIn | Twitter

Assessor Experience

Name: Eleri Paterson Hughes

Years of Experience: 1

Qualifications:

- BSc (Hons)
- Msc (Hons)
- Associate Member of IAQM
- Associate Member of IES

Eleri is a graduate air quality consultant with experience in preparing the technical delivery of a wide range of air quality projects for a variety of clients in both the public and private sector.

Name: Andy Fowler

Years of Experience: 11

Qualifications:

- CEnv
- BSc (Hons)
- Member of the IAQM
- AIEMA (Associate Member of the Institute of Environmental Management and Assessment)
- Full Member of the Institution of Environmental Sciences (IES)

Andy has been responsible for the technical delivery of a wide range of air quality projects for a variety of clients in both the public and private sector. These projects include consideration of emissions from both transportation and industrial sources, through both monitoring and modelling, and therefore he has an in depth understanding of the regulatory requirements for these sources and the published technical guidance for their assessment.

Appendix B: Air Quality Neutral Assessment

Appendix B: Air Quality Neutral Assessment

Introduction

Calculations have been undertaken by Waterman Infrastructure & Environment (Waterman IE) to discharge Planning Condition 26 for the redevelopment of The Ugly Brown Building, 2-6 St Pancras Way, London NW1 0TB (the "Site"). Planning Condition 26 reads; '*Prior to the commencement of Plot C an Air Quality Assessment (AQA), solely for Plot C, shall be submitted to and approved in writing by the Local Planning Authority.'*

The purpose of the calculations is to demonstrate how the proposed Development performs against relevant 'air quality neutral' benchmarks.

Assumptions, Exclusions and Limitations

The heating strategy would be served by air source heat pumps, which do not produce any emissions to air. As such, it is considered the heating plant would not impact local air quality and the Development would be 'Air Quality Neutral' with regard building emissions. Building emissions have therefore not been considered further within the air quality neutral assessment.

The Air Quality Neutral assessment has been based on the Greater London Authority's Sustainable Design and Guidance – Supplementary Planning Guidance (SPG) and Air Quality Consultants Air Quality Neutral Planning Support: GLA 80371, April 2014, referred to later in the report. These guidance documents apply an emission benchmark based on the Land Use Classes detailed in the Use Classes Order 1987 (as amended) in force at that time. However, the most recent amendment of the Use Classes Order of 1st September 2020[1] resulted in a change to the list of Land Use Classes. However, for consistency with the guidance documents, the Land Use Classes referred to in this report reflect those in place prior to September 2020.

Proposed Development

The total amount of gross internal area (GIA) of floorspace proposed by the Development is set out below in **Table A1**.

[1] https://www.legislation.gov.uk/uksi/1987/764/contents/made

Table A1: The Proposed Development

Land Use	Use Class		Residential Units	GIA Floorspace (m^2)
	Pre- September 2020	Current		
Residential	C3	C3	73	7,561
Office	B1	E		54,522
Retail	A1-A4	E		5,858
Basement Self-Storage	B8	B8		6,011
Gym	D2	F2		1,601
Proposed - Pavilion for flexible Class E and Sui Generis Use	B1/Sui Generis	E / Sui Generis		19,568
Total				**95,121**

Planning Policy and Guidance

The London Plan: The Spatial Development Strategy for Greater London; Consolidated with Alterations since 2011, 2016

Policy 7.14 'Improving air quality' of the London Plan[2] states that development proposals should:

"…be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as AQMAs);…"

Intend to Publish London Plan: The Spatial Development Strategy for Greater London, December 2019

The Examination in Public on the London Plan was held between 15th January and 22nd May 2019. The Panel of Inspectors appointed by the Secretary of State issued their report and recommendations to the Mayor on 8th October 2019.

The Mayor considered the Inspectors' recommendations and, on the 9th December 2019, issued to the Secretary of State his intension to publish the London Plan along with a clean and tracked version of the Intend to Publish London Plan Plan[3].

Policy SI1 Improving air quality states that:

"…a) development proposals must be at least Air Quality Neutral…"

The Mayor's Air Quality Strategy 'Clearing the Air', 2010

Similarly, the Mayor's Air Quality Strategy[4] states that:

"New developments in London shall as a minimum be 'air quality neutral' through the adoption of best practice in the management and mitigation of emissions".

2 Greater London Authority (2016): The 2015 London Plan with Minor Alterations 2016, Spatial Development Strategy for Greater London, GLA, London.
3 Greater London Authority (2019): Intend to Publish London Plan: The Spatial Development Strategy for Greater London, December 2019, GLA, London
4 Greater London Authority (GLA), 'The Mayor's Air Quality Strategy: Cleaning London's Air', London, 2002.

Sustainable Design and Construction - Supplementary Planning Guidance, 2014

The Sustainable Design and Guidance – Supplementary Planning Guidance (SPG) provides updated guidance to support the implementation of the London Plan.

Further to Policy 7.14 of the London Plan, Section 4.3 of the SPG focusses on air pollution and the effects from the operation of new developments within Greater London. The SPG requires all new developments to be at least 'air quality neutral'.

Paragraph 4.3.15 of the SPG states:

"This policy applies to all major developments in Greater London. Developers will have to calculate the NO_x and / or PM_{10} emissions from the buildings and transport elements of their developments and compare them to the benchmarks set out in Appendix 5 and 6."

The SPG presents emission benchmarks for buildings (associated with emissions from combustion plant introduced as part of a development to provide heating and power) and transport (associated with vehicle trips related to the operation of the development). It is considered that where a development does not exceed these benchmarks, it would be 'air quality neutral' and would not increase NO_x (oxides of nitrogen) and PM_{10} (particulate matter of 10µm diameter or less) emissions across London as a whole. A discussion on the Transport Emission Benchmarks (TEBs) as set out within the SPG is presented below.

Air Quality Neutral Planning Support: GLA 80371, April 2014

In April 2014, the GLA published the Air Quality Neutral Planning Support (AQNPS): GLA 80371[5] to provide support to the development of the Mayor's policy related to 'air quality neutral' developments. The report provides a method to enable a development to be assessed against the air quality neutral benchmarks set out in the Sustainable Design and Construction SPG.

The report provides a methodology required to apply the air quality neutral policy. It requires the transport and building emissions for the development to be identified and then compared to the benchmark emissions. The report notes that the building and transport emissions should be calculated separately and not combined.

Transport Emissions Benchmarks

Paragraph 4.3.18 and Appendix 6 of the SPG sets out the TEBs defined by a series of land-use class for both NO_x and PM_{10}. The TEBs are presented in **Table A2**.

5 Air Quality Consultants Environ Air Quality Neutral Planning Support: GLA 80371. April 2014

Table A2: 'Air Quality Neutral' Emissions Benchmarks for Transport

Land Use	London Central Activity Zone	Inner	Outer
NO_x (g/m²/annum)			
Retail (A1)	169	219	249
Office (B1)	1.27	11.4	68.5
NO_x (g/dwelling/annum)			
Residential (C3)	234	558	1553
PM_{10} (g/m²/annum)			
Retail (A1)	29.3	39.3	42.9
Office (B1)	0.22	2.05	11.8
PM_{10} (g/dwelling/annum)			
Residential (C3)	40.7	100	267

Section 4.3.18 of the SPG notes that the design of a development should encourage and facilitate walking, cycling and the use of public transport, thereby minimising the generation of air pollutants.

Air Quality Neutral Calculation

The Air Quality Neutral Assessment of the Development has been based on the approach and methodology detailed within the Air Quality Neutral Planning Support Document. The calculations are presented below.

Transport Emissions

The Benchmarked Transport Emissions for the residential element of the Development were calculated by multiplying the number of residential units (73 units) with the TEBs.

The Benchmarked Transport Emissions for the other land uses within the Development were calculated by multiplying the relevant GIA (m^2) with the TEBs presented in **Table A2**.

There are no transport emission benchmarks for the A2 – A4, B8, C1, D2 or sui generis land use classes. In line with guidance the following benchmarks have been used:

- A1 benchmark used for Use Classes A2-A4;
- B1 benchmark used for Use Classes D2, B8 and sui generis; and
- C3 Benchmark used for Use Class C1.

The total benchmarked transport emissions for the Development are presented in **Table A3**.

Table A3: Calculation of the Benchmarked Transport Emissions

Land Use	Pre-September 2020 Use Class	Number of units / GIA m²	Transport Emissions Benchmark (g/m² or dwelling/annum)		Benchmarked Emissions (kg/annum)	
			NO_x	PM_{10}	NO_x	PM_{10}
Residential	C3	73 units	558	100	40.7	7.3
Office	B1	54,522	11.4	2.05	621.6	111.8
Retail	A1-A4	5,858	219	39.3	1282.9	230.2
Basement Self-Storage	B8	6,011	11.4	2.05	68.5	12.3
Gym	D2	1,601	11.4	2.05	18.3	3.3
Proposed - Pavilion for flexible Class E and Sui Generis	B1/Sui Generis	19,568	11.4	2.05	223.1	40.1
Total Transport Emissions					**2,255.0**	**405.0**

As shown in **Table A3**, based on the TEBs, the calculated total benchmarked transport emissions for the Development are 2,255.0kgNO_x/annum and 405.0kgPM_{10}/annum.

Details of the trip generation per day for each land-use class, including servicing trips, have been provided by Caneparo Associates (the Transport Consultant for the Development). The calculation of the total transport emissions for the components of the Development, as set out within the Air Quality Neutral planning support document, are presented in **Table A4**.

Table A4: Calculation of the Transport Emissions

Land Use	Trips per day	Trips per annum	Average Distance per trip[a]	Distance travelled km/annum	Emission Factors (g/vehicle-km)[b]	Transport Emission (kg/annum)	
						NO_x	PM_{10}
Residential (C3)	19	6,935	3.7	25,660		9.5	1.7
Office (B1)	153	55,845	7.7	430,007		159.1	28.6
Retail (A1-A4)*	38	13,870	5.9	81,833	NO_x: 0.370 PM_{10}: 0.0665	30.3	5.4
Basement Self-Storage (B8)	38	13,870	7.7	106,799		39.5	7.1
Gym (D2)	1	365	7.7	2,811		1.0	0.2
Total Transport Emissions						**239.5**	**43.0**

Note: [a] Average distance travelled by car per trip for sites within Outer London
[b] Emissions factors used as presented in Table 10 of the Air Quality Neutral Planning Support Document
No additional vehicle trips associated with the proposed pavilion

The total Transport Emissions for NOx (239.5kgNOx/annum) are significantly lower than the Transport Benchmark NOx Emissions (2,255.0kgNOx/annum). Similarly, the Total Transport Emissions for PM_{10} (43.0kgPM_{10}/annum) are lower than the Transport Benchmark PM_{10}

Emissions (405.0kgPM_{10}/annum). Therefore, the Development is considered to be 'Air Quality Neutral' in relation to transport emissions, and no further mitigation measures would be required.

Conclusion

The air quality neutral assessment has identified the Development is considered to be 'Air Quality Neutral' in relation to both building and transport emissions.

Appendix C: Air Quality Planning Checklist

Air Quality Planning Checklist

This document is to be completed for all developments that are subject to an Air Quality Assessment (AQA).

Travel and Transport

1) If there will be parking in the development, will electric vehicle charging point/s be included?

   Yes. There will be 32 car parking spaces provided within the Development, this is a reduction in the number of spaces from the current provision of 52.

2) Will secure cycle storage be provided for users of the building?

   Yes. Provision of 808 long-stay and approximately 104 short-stay cycle spaces.

Energy

3) If a CHP is to be included, did you ensure that this technology is suitable for the energy requirements of the building? Please see Camden's Boiler Guidance Manual B for more information.

   NO

4) If CHP is to be included, will it adhere to the GLA CHP Emissions Limits outlined in the *GLA's* Sustainable Design and Construction SPG?

   N/A

5) Has the impact of the CHP been modelled within the air quality assessment?

   N/A

Exposure

6) If located in an area of poor air quality and/or next to a busy road or diesel railway line, does the AQA include details of the way in which the building has been designed to reduce the exposure of occupants (e.g. through orientation, greening, placement of residential properties, or, only for developments in areas of very poor air quality, mechanical ventilation?)

Yes. Residential not located on ground floor level, away from road traffic sources. Provision of trees and plants in both the public and private amenity space.

Construction Dust

7) Does the project have a Construction Management Plan written in accordance with the recommendations in the Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, including an assessment of the risk? And, if the risk is Medium or High, a real time monitoring proposal?

Yes. A draft construction management plan has been produced. Real time monitoring is proposed to be undertaken by the main contractor and to be discussed with LBC to agree methodology and locations.

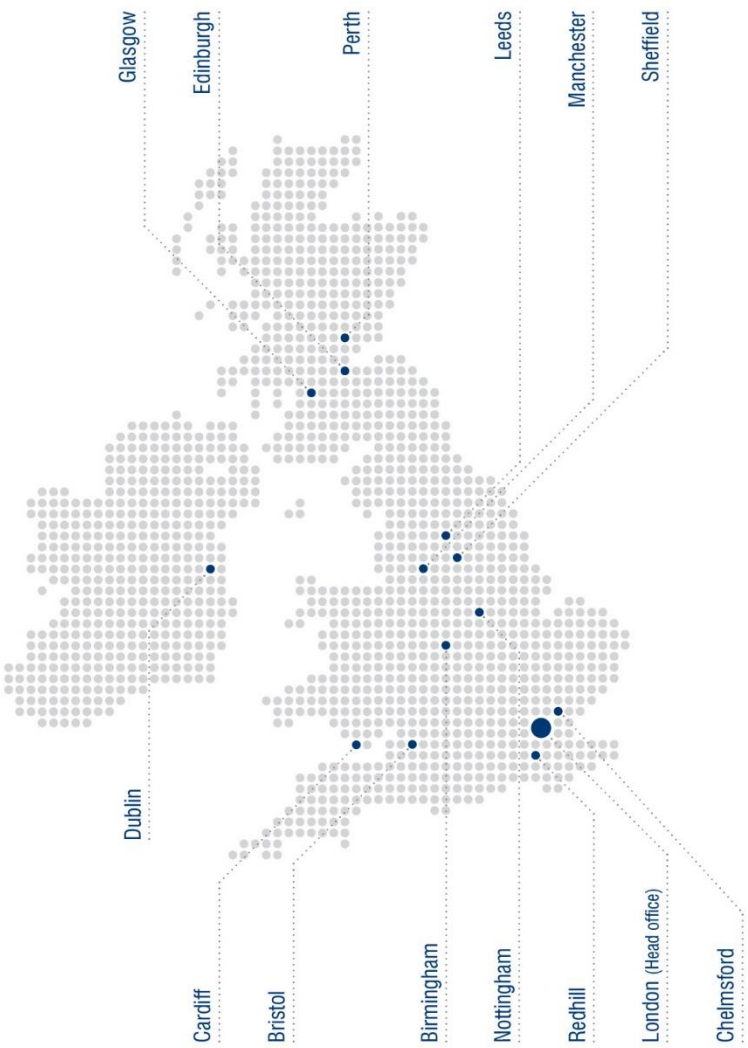
Air Quality Neutral

8) Does the AQA include an assessment against the GLA's Air Quality Neutral Standard?

Yes

Please return this form with your AQA with your Planning Application

UK and Ireland Office Locations



We are Waterman, where every project matters

We deliver progressive, sustainability-driven environmental and engineering consultancy services across every sector. We think differently, and we're harnessing our collective expertise to deliver greener, healthier and well-connected communities, networks and built environments.

Based in strategic locations throughout the UK and Ireland, our team of specialists is at the forefront of tackling the climate emergency and forging a path to a Net Zero built environment.

UK & Ireland Office Locations