ONE BATTERSEA BRIDGE

AIR QUALITY IMPACT ASSESSMENT

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Revision 02

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REVISION 2

temple

Prepared for:

Promontoria Battersea Limited

Temple contact details:

Temple Group Limited
Temple Chambers,
3-7 Temple Avenue, London
EC4Y 0DA

Tel +44 (0)20 7394 3700
aqcteam@templegroup.co.uk

www.templegroup.co.uk

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Executive Summary

Temple Group Limited (Temple) has been commissioned to prepare an air quality assessment to support of a full planning application for the comprehensive redevelopment of the site (the 'Proposed Development') at 1 Battersea Bridge Road, SW11 3BZ (the 'Site'). The Site is located within the administrative area of the London Borough of Wandsworth (LBW).

The air quality assessment has determined the following:

- Baseline air quality conditions at the Proposed Development site are likely to meet prevailing air quality objectives once the site is operational. Therefore, future site users are unlikely to be exposed to poor ambient air quality.
- The type and volume of traffic expected to be generated by construction activities was screened out of further assessment and thus considered to have a 'not significant' effect on air quality. Mitigation measures to further reduce the effects of construction vehicles have been recommended. Residual effects would remain negligible and 'not significant'.
- The risk of health impacts arising from fugitive dust and particulate matter connected with demolition related activities has been assessed as a maximum of medium. Mitigation measure to reduce the effects of fugitive dust and emissions have been recommended. Residual effects would be negligible and 'not significant'.
- The development is unlikely to have a significant effect on air quality once operational. Mitigation measures have been suggested to further reduce any residual impacts on air quality connected with vehicle movements attributable to the scheme.
- The Proposed Development has been assessed as Air Quality Neutral.
- The Proposed Development is considered to comply with national and local air quality policy.

Glossary

AADT	Annual Average Daily Traffic (flow)
AMCT	Annual mean concentration target
ASHP	Air Source Heat Pump
AQA	Air Quality Assessment
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQN	Air Quality Neutral
AQO	Air Quality Objective
AQS	Air Quality Standard
CEMP	Construction Environmental Management Plan
DMP	Dust Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
EC	European Commission
EU	European Union
EPUK	Environmental Protection UK
EU	European Union
GLA	Greater London Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
IT	Interim Target
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LBW	London Borough of Wandsworth
LBT	Legally Binding Targets
LDV	Light duty vehicle
MAGIC	Multi-Agency Geographic Information for the Countryside
MOL	Mayor of London
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NPPF	National Planning Policy Framework
NRMM	Non-road mobile machinery
PERT	Population exposure reduction target
PM_{10}	Particulate matter of size fraction approximating to <10mm diameter
$PM_{2.5}$	Particulate matter of size fraction approximating to <2.5mm diameter
RBKC	Royal Borough of Kensington and Chelsea
SSSI	Site of Special Scientific Interest
SAC	Special Area of Conservation
SPA	Special Protection Area

SPG	Supplementary Planning Guidance
Temple	Temple Group Limited
TG	Technical Guidance
UK-AIR	UK Air Information Resource

1. Introduction

Temple Group Limited (Temple) has undertaken an air quality impact assessment for a full planning application for the comprehensive redevelopment of the site (the 'Proposed Development') at 1 Battersea Bridge Road, SW11 3BZ (the 'Site'). The Site is located within the administrative area of the London Borough of Wandsworth (LBW).

The Site is located within the borough wide Wandsworth AQMA and approximately 250 metres south of the Kensington and Chelsea AQMA. The former was declared by LBW due to exceedances of the annual mean air quality objective (AQO) for nitrogen dioxide (NO_2) and the 24-hour mean AQO for particulate matter (PM_{10}). The latter was declared by the Royal Borough of Kensington and Chelsea (RBKC) due to exceedances of both the annual and 24-hour mean AQO for both NO_2 and PM_{10}. Therefore, it is likely the development could affect these AQMAs, and as such, a detailed assessment of potential air quality impacts as a result of the Proposed Development has been undertaken. The Site location plan is shown in **Figure A.1** in **Appendix A**.

It is understood that the Proposed Development will comprise the comprehensive redevelopment of the site to include demolition of existing building and erection of a part 10 storey, part 28 storey building (plus ground floor and basement levels) comprising residential use (Class C3), office use (Class E), community use (Class F2), and a restaurant (Class E), with associated car parking, cycle parking, public realm, landscaping and other associated works. Therefore, this air quality impact assessment will include a baseline assessment of local air quality, an assessment of impacts from construction dust and an operational phase assessment. Mitigation measures and/or further work have been recommended where appropriate.

2. Legislation and Policy

2.1. National Policy

The Air Quality Strategy for England[1] include ambient air quality objectives (AQOs) to be achieved and a strategy to achieve compliance with the AQOs. The ambient AQOs are established in the Air Quality (England) Regulations 2000[2], as amended[3].

The Environment Act 1995[4] requires all local authorities to carry out periodic reviews of air quality within their administrative areas. Where air quality is known or expected to exceed one or more of the AQOs, they must declare an air quality management area (AQMA) and implement an air quality action plan (AQAP) to work toward meeting the AQOs. Moreover, the European Union emissions limit values derived from the Ambient Air Quality Directive (2008/50/EC)[5] were transposed into English and Welsh law as air quality standards (AQSs) via the Air Quality Standards Regulations 2010[6], as amended[7].

The Environment Act 2021[8] amends part of the Environment Act 1995 and sets legally binding targets in priority areas including air quality, which must be met in England over a 25-year period. The Act requires for Environmental Improvement Plans to be produced by the Department for Environment, Food and Rural Affairs (Defra) to monitor progress and commit the Government to greater compliance with those targets if insufficient progress is made.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[9] set the following legally binding targets (LBTs) to be met by 2040:

- Annual mean concentration target (AMCT) of 10µg/m^3; and,
- Population exposure reduction target (PERT) of 35% compared to 2018 exposure.

[1] Department for Environment, Food and Rural Affairs, 2023. Air quality strategy: framework for local authority delivery.

[2] The Air Quality (England) Regulations 2000.

[3] The Air Quality (England) (Amendment) Regulations 2000.

[4] The Environment Act 1995.

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

[6] The Air Quality Standards Regulations 2010.

[7] The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020.

[8] The Environment Act 2021.

[9] Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

The Environmental Improvement Plan 2023[10] also set interim targets (ITs) to be met by end of January 2028:

- AMCT of 12µg/m^3; and,
- PERT of 22% (compared to 2018 exposure).

Air quality assessments should consider whether the Proposed Development would hinder compliance with the AQOs or Limit Values (i.e. AQSs), according to the National Planning Policy Framework[11] (see **Section 2.2** below).

Planning applications are not yet required to meet the LBTs or ITs (although updates to national planning guidance are being considered); however, Local Authorities are expected to work towards these targets through the planning system[12]. Therefore, the extent to which the scheme affects broad compliance with the LBT has been considered.

This air quality assessment has focussed on achieving compliance with those established for those which are considered relevant based on the nature of the Proposed Development. The AQOs and AQSs shown in **Table 2.1** below.

Table 2.1 Ambient AQOs relevant to the assessment

Pollutant	Threshold	Applicable limit values	Measured as	Dates to be achieved and maintained thereafter
NO_2	200 µg/m^3, not to be exceeded more than 18 times per year	AQO and AQS	1-hour mean	31 December 2005
	40 µg/m^3	AQO and AQS	Annual mean	31 December 2005
PM_{10}	50 µg/m^3, not to be exceeded more than 35 times per year	AQO and AQS	24-hour mean	31 December 2004
	40 µg/m^3	AQO and AQS	Annual mean	31 December 2004

[10] Department for Environment, Food and Rural Affairs, 2023. Environmental Improvement Plan 2023: First revision of the 25 Year Environment Plan.

[11] Department for Levelling Up, Housing & Communities, 2023, *National Planning Policy Framework,* December 2023.

[12] Department for Environment, Food and Rural Affairs, 2023. Air quality strategy: framework for local authority delivery.

Pollutant	Threshold	Applicable limit values	Measured as	Dates to be achieved and maintained thereafter
$PM_{2.5}$	20 µg/m^3	AQS	Annual mean	01 January 2020

2.2. Planning Policy

The National Planning Policy Framework (NPPF) was published during December 2023[11]. The NPPF establishes a framework under the Town and Country Planning Act which should be used by local authorities to make local plans and determine planning applications.

Paragraph 180 states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

"e) 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…."

Paragraph 192 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".

Its focus is on achieving compliance with the AQOs (i.e. the AQSs), hence their adoption as the assessment criteria.

The 2019 Air Quality Planning Practice Guidance[13] supports the NPPF, by including recommendations on the scope of an air quality assessment.

A draft consultation for proposed reforms to the NPPF was released on 30th July 2024 and a version of this is expected to be adopted in November 2024. It is not considered

[13] Ministry of Housing, Communities & Local Government, 2019. *Planning Practice Guidance: Air Quality.*

that the proposed changes to the framework would alter the methodology set out within this assessment.

2.3. Regional and Local Policy

The London Plan 2021

Policy SI1 of The London Plan 2021[14] states that:

"1. Development proposals should not:

i. 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

ii. Reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality

iii. Reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality

2. Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality. Particular care should be taken with development that are in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people.

3. Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should propose methods of achieving an Air Quality Positive approach through the new development.

4. Major development proposals must be at least air quality neutral and be submitted with an Air Quality Assessment.

5. 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.

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

Wandsworth Local Plan 2023-2038

Policies concerning air quality in the Wandsworth Local Plan[15] are outlined below:

[14] Mayor of London, 2021. The London Plan

[15] London Borough of Wandsworth (2023) Wandsworth Local Plan 2023-2038, Adopted July 2023

"Environmental Objectives:… 6. Reduce and mitigate environmental impacts including from pollution (such as air, noise, light, odour, fumes, water and soil) and secure improvements in air quality."

"Anchor for Change – Changes to the Wandsworth Gyratory

The TfL proposals for the Wandsworth Gyratory, including its associated public realm improvements, provide an anchor for change. Its implementation will provide a range of benefits including:

…5. Creating a healthier environment through improvements to air quality."

2.4. Technical Standards and Guidance

Land-Use Planning & Development Control: Planning for Air Quality ('the EPUK-IAQM guidance')

Published by Environmental Protection UK (EPUK) and the IAQM, this guidance[16] includes a method for screening the requirement for an air quality assessment and determining the significance of any air quality impacts associated with a development proposal. It also identifies mitigation measures which can be implemented to reduce air quality effects attributable to the scheme.

The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance ('the MOL SPG')

The MOL SPG[17] outlines a procedure for assessing and mitigating any dust and PM generated during the construction phase. It recommends that the method outlined in the equivalent guidance published by the Institute of Air Quality Management (IAQM, see below) is used to assess air quality effects but also describes mitigation measures which can be used to mitigate and monitor fugitive dust effects and controls which can be applied to non-road mobile machinery (NRMM, i.e. plant).

Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management, 2024) ('the IAQM 2024 guidance')

The guidance[18], which was published in January 2024 provides a framework for assessing the risk which fugitive dust and PM could have on air quality and suggests

[16] Environmental Protection UK & the Institute of Air Quality Management, 2017. Land-Use Planning & Development Control: Planning for Air Quality.

[17] Mayor of London, (2014), The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance

[18] Institute of Air Quality Management (2024), Guidance of the Assessment of dust from demolition and construction, Version 2.2, January 2024

appropriate dust and air emissions mitigation measures for sites according to the level of risk.

Local Air Quality Management Technical Guidance ('TG22' Local Air Quality Management Technical Guidance ('TG22') and London Local Air Quality Management Technical Guidance (Mayor of London, 2019) ('TG19')

TG22[19] includes guidance for local authorities to assess and, where required, deliver improvements in air quality within their jurisdiction. TG22 also recommends where the AQOs should be applied, as outlined in **Table 2.2**. These are broadly similar to the locations where the EU Limit Values should be applied.

Table 2.2 Examples of where the air quality objectives should apply, as per TG22

Averaging Period Objectives	Objectives should apply at	Objectives should generally not apply at
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-hour mean and 8-hour mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties (not at peripheries or front gardens unless exposure is likely there).	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1hur mean	All locations where the annual mean and: 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to	Kerbside sites where the public would not be expected to have regular access.

[19] Department for Environment, Food and Rural Affairs, 2022. Part IV of the Environment Act 1995 as amended by the Environment Act 2021: Local Air Quality Management: Technical Guidance (TG22). London: Crown.

Averaging Period Objectives	Objectives should apply at	Objectives should generally not apply at
	spend one hour or more. Any outdoor locations where members of the public might reasonably expect to spend one hour or longer.	

London Plan Guidance: Air Quality Neutral: (February 2023) ('the GLA AQN guidance)

The GLA AQN guidance[20] sets out the method which should be used to undertake an air quality neutral assessment according with the London Plan. This guidance has been followed in order to complete the assessment.

London Environment Strategy

On 31st May 2018, the Mayor of London published a London Environment Strategy[21]. Aside from establishing a series of measures to which the Mayor is committed to improve air quality, this introduced the Mayor's Commitment to introduce a guideline value for $PM_{2.5}$ of 10µg/m^3 by 2030, equating with the World Health Organisation's then-prevailing (2005) target.

Wandsworth Air Quality Action Plan (2023-2028)

The LBW AQAP[22] has implemented several actions aimed at reducing air pollution in the borough. These include initiatives to lead by example, raise awareness, improve transport, improve walking and cycling, supporting businesses, protect green spaces, protecting children and most vulnerable and improving homes and buildings.

[20] Mayor of London (2023). London Plan Guidance: Air Quality Neutral (February 2023). Greater London Authority.

[21] Mayor of London (2018). London Environment Strategy. Greater London Authority

[22] London Borough Wandsworth (2023), Wandsworth Council Air Quality Action Plan 2023- 2028

3. Air Quality Assessment Method

3.1 Overall Assessment Approach

The approach taken for assessing the potential air quality impacts of the Proposed Development is as follows:

- Baseline characterisation of local air quality;
- qualitative assessment of fugitive dust and emissions from construction related activities;
- advanced dispersion modelling assessment of air quality impacts attributable to increases in vehicle movements because of the Proposed Development while undergoing construction;
- advanced dispersion modelling assessment of air quality impacts attributable to ambient air quality on future users of the Proposed Development;
- air quality neutral assessment;
- recommendation of mitigation measures, where appropriate, to ensure any adverse effects on air quality are minimised; and
- identification of residual impacts resulting from the Proposed Development.

Pollutants

The main pollutants for consideration in this assessment are:

- Fugitive PM_{10}, $PM_{2.5}$ and dust emissions from construction related activities; and,
- NO_2, PM_{10} and $PM_{2.5}$ emissions from existing baseline traffic and additional traffic attributable to the Proposed Development.

It is understood that the intent is for all proposed dwellings to utilise air source heat pumps (ASHPs) for space heating and hot water. Therefore, the Proposed Development will be electrically powered and as such, on-site sources of combustion do not require assessment.

3.2 Baseline Assessment

There is no existing network of monitoring undertaken to monitor dust levels across the United Kingdom, nor is the assessment of dust generated by construction related activities dependent on baseline pollutant concentrations, therefore this has not been assessed.

Existing or baseline air quality refers to the concentrations of relevant substances that are already present in ambient air, including road traffic and industrial sources. Additional road traffic attributable to the Proposed Development, as well as emissions from any proposed plant, will contribute to the future baseline.

A desk-based study has been undertaken using data obtained from continuous and diffusion tube monitoring stations maintained by LBW and estimated background from the United Kingdom Air Information Resource (UK-AIR) website maintained by the Department for Environment, Food and Rural Affairs (Defra).

In **Section 4** of this assessment, these data have been described and the potential for future site users to be introduced into an area of poor ambient air quality assessed. A development would be considered as having a potentially significant effect (requiring further assessment) where it introduced receptors into an area where ambient AQOs could be exceeded when the proposed development becomes operational.

3.3 Construction Phase Assessment

Construction phase dust assessment

Potential air emissions from demolition and construction activities, particularly in the form of dust, have the potential to cause a loss of amenity (due to dust soiling) or to affect (vascular) plant species sensitive to dust. The finer fraction of dust, in the form of PM_{10} and PM of finer fractions, also has the potential to affect human health. Given the variability of construction sites and the range of activities undertaken, a quantitative assessment of the dust and air pollutants generated is rarely feasible or practicable. Instead, a qualitative assessment has been undertaken to identify best practicable means for mitigating potential emissions.

The IAQM 2024 guidance and the MOL SPG have been used to undertake the risk assessment and identify appropriate mitigation measures; the MOL SPG recommends the latest IAQM method is used to assess impacts. The method recommended by this guidance is outlined in **Appendix B**.

Construction Vehicle and Plant Emissions

While emissions from NRMM are expected to contribute to emissions of pollutants such as NOx and PM, their emissions are not typically assessed on the basis that any NRMM used within London should comply with the emissions standards specified in the MOL SPG and be registered with the Greater London Authority. Consequently, emissions from NRMM have therefore not been assessed and are considered insignificant. Mitigation measures which can be used to reduce emissions from NRMM are outlined in **Section 7.2** of this report.

The operation of vehicles powered by internal combustion engines results in the emission of NOx, PM_{10} and $PM_{2.5}$. Construction traffic will comprise haulage/ construction vehicles and vehicles used for workers' trips to and from the site. At the time of writing, information regarding the number of additional vehicle movements which may be expected as a result of construction phase activities has not been made available. However, due to the relatively short period during which construction activities will take place and the likely limited number of on-site parking spaces available

for vehicle movements, construction related traffic is unlikely to have a materially deleterious effect on air quality.

3.4 Assessment of Operational Phase Impacts

Once operational, the development may introduce future site users into an area of poor ambient air quality once operational. Therefore, detailed dispersion modelling has been undertaken.

The Proposed Development is anticipated to introduce an additional 118 vehicle movements (expressed as a net change in annual average daily traffic (AADT) flow)[23]. It will not introduce a new signalised junction or roundabout, and (considering its opening year) will not introduce any boilers or sources of combustion associated with space heating or hot water. As the Site is located within the Wandsworth AQMA, the number of vehicle movements exceeds EPUK-IAQM criteria. Therefore, an assessment of operational phase effects, for the year in which the development will be complete, has been undertaken in accordance with best practice air quality guidance.

The ADMS-Roads Extra v5 Gaussian dispersion model was used to assess emissions from road traffic attributable to the Proposed Development when it commences operation. The following scenarios were modelled:

- **Scenario 1 (S1)**: Baseline 2022: base year;
- **Scenario 2 (S2)**: Future baseline (2027), without the Proposed Development in place); and,
- **Scenario 3 (S3)**: Future baseline (2027) with the Proposed Development in place.

Full details of the assessment methodology and model input data are provided in **Appendix C**.

3.5 Significance Criteria

Construction phase

The risk of dust impacts from construction activities were defined by assessing the impact magnitude and receptor sensitivity and determining the dust impact risk based on the combined values presented.

[23] The traffic data used to assess the air quality impacts was determined by multiplying the number of people trips by the percentage of trips made by vehicle mode share, using data from the TRICS database. This used a more conservative method to estimate the net increase in traffic (from all sources) attributable to the Proposed Development than the air quality neutral assessment, which estimated the gross number of car and light van vehicle trips (excluding movements from non-occupiers such as service and delivery trips) estimated from traffic surveys in the TRICS database with limited car parking. Both methods are considered to be legitimate by the project transport consultants, Velocity Transport Planning. Revised data for the dispersion modelling was not available when data for the air quality neutral assessment were reissued to account for an intuitive overestimation of vehicle movements derived from 13 on-site car parking spaces.

The significance of the potential for dust to affect sensitive receptors before mitigation has been assessed using professional judgement but based on the risk of dust impacts. For example, where there is a medium or high risk of dust impacts in the absence of mitigation, this would be viewed as having a moderately or highly significant impact.

The significance of effects following the implementation of mitigation has then been reassessed. In this regard, the IAQM 2024 guidance indicates that *"For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant."*

Operational Phase

The significance of effects attributable to impacts from vehicle movements (whether construction or operational) has been determined separately to account for impacts generated in connection with each of the following:

- The impacts of the Proposed Development on air quality at existing sensitive receptors using the assessment criteria in the EPUK-IAQM guidance; and,
- The number of future site users exposed to poor ambient air quality.

Impacts on Existing Receptors

The potential impacts of the Proposed Development were assessed by comparing estimated pollutant concentrations with the AQOs (**Table 2.1**), with and without the Proposed Development in place. In addition to the AQOs, the EPUK-IAQM guidance descriptors for magnitude of impact were used to assess the annual mean changes in NO_2, PM_{10} and $PM_{2.5}$ concentrations, primarily because they consider effects in terms of the magnitude of change from predicted concentrations and also relative to the AQOs.

Table 3.3 shows the EPUK-IAQM guidance impact descriptors that take account of the percentage change in concentration relative to the air quality assessment level (AQAL), such as the annual mean objectives, and the annual mean concentration at the receptor during the assessment year.

Table 3.1: Air quality impact descriptors for changes to annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations

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: The AQAL is relevant ambient AQO. For annual mean NO_2, for instance, the AQO 40 µg/m^3. The AQAL is therefore 40 µg/m^3 for annual mean NO_2.

Changes in the hourly mean NO_2 and daily mean PM_{10} concentrations should not be assessed using the EPUK-IAQM guidance criteria specified above. Consequently, the following impacts would be considered to exert significant effects at a specific receptor location:

- Where the Proposed Development causes a receptor to exceed an annual mean NO_2 concentration of 60µg/m^3, where it did not without the Proposed Development in place; and/or,
- Where the Proposed Development causes a receptor to exceed the daily mean PM_{10} AQO more than the 35 times per year permissible.

The overall significance of effects on local air quality, including background pollutant concentrations, has been established through consideration of the following factors:

- the existing and future air quality in the absence of the Proposed Development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

Impacts on Proposed Receptors

To determine the potential for future users of the Proposed Development to be introduced into an area of poor ambient air quality, concentrations at the on-site receptors were compared to the appliable AQOs (summarised in **Table 2.1**).

Before mitigation, an effect has been identified as significant where the annual mean AQO is exceeded or close to being exceeded at one or more of the on-site receptor locations representative of relevant exposure.

3.6 Air Quality Neutral Assessment

An air quality neutral (AQN) assessment has been considered in accordance with the GLA AQN guidance in **Section 6.3**.

4. Baseline Conditions

4.1 Site Environs and Presence of AQMAs

The Site is adjacent to Battersea Bridge Road A3220, a major 'through' road carrying a large volume of baseline road traffic with the potential to affect air quality at the Site.

The whole borough of LBW has been declared as an AQMA declared for exceedances of the annual and hourly mean NO_2 and 24-hour mean Particulate Matter (PM_{10}) AQOs. These AQOs are derived from the Air Quality (England) Regulations 2000, as amended, and are the objectives against which conclusions are proposed to be made for the purposes of our assessment.

In addition, the Site is located approximately 400 m to the southeast of an Air Quality Focus Area (Fulham Broadway from roundabout Dawes Road/ Fulham Road to Edith Grove/ Cheyne Walk) identifying a zone where NO_2 annual mean objective exceedances coincide with significant levels of human exposure.

Existing air quality in the area is therefore relatively poor, largely due to high traffic volumes on Battersea Bridge Road (A3320).

4.2 Local Authority Air Quality Monitoring

According to the Air Quality Annual Status Reports for LBW[24], there were six monitoring sites measuring for annual mean NO_2 concentrations within 1.5 km of the Site during 2022, the latest year for which monitoring data are available. The results of the monitoring data collected from 2018 to 2022 at the LBW monitoring locations are shown in **Table 4.1**, below. **Figure A.1** presents the monitoring locations. **Table 4.1** shows that annual mean NO_2 concentrations were below the AQO at Site, during 2022, with the exception of monitoring location YR6, with an annual mean NO_2 concentration that breached the AQO.

Table 4.1: Annual mean NO_2 concentrations monitored at LBW monitoring locations within 1.5 km of the Site (µg/m³) from 2018-2022

Site Name	Site Type	Distance from Site (km)	2018	2019	2020	2021	2022
YR3 (Cotton Row)	Urban Background	1.4	31.0	29.0	24.0	24.0	20.0
YR4 (York Road)	Kerbside	1.1	**49.0**	**49.0**	38.0	38.0	31.0
YR5 (Battersea Park Road)	Kerbside	1.2	**73.0**	**70.0**	**52.0**	**55.0**	**43.0**

[24] London Borough of Wandsworth (2023), The London Borough of Wandsworth Air Quality Annual Status Report for 2022, Published May 2023

Site Name	Site Type	Distance from Site (km)	2018	2019	2020	2021	2022
YR6 (Battersea Square)	Kerbside	0.6	**44.0**	**43.0**	32.0	30.0	27.0
NE2 (Chesterton School)	Roadside	1.1	35.0	34.0	24.0	25.0	22.0
NE8 (Battersea Park)	Urban Background	0.9	24.0	20.0	15.0	16.0	14.0

Note: Exceedances are in **bold**

As well as monitoring for NO_2, LBW also undertakes monitoring for hourly mean NO_2, PM_{10} and $PM_{2.5}$ concentrations within its jurisdiction, with the nearest monitoring site (WAA, which only monitors NO_2 and PM_{10}) being approximately 2km from the Site. From 2018 to 2022, the annual mean NO_2 and PM_{10} concentrations, as well as the 1-hour NO_2 and 24-hour mean PM_{10} AQOs were not breached at this monitoring location.

4.3 Estimated Background Data

Estimated background data are available from the United Kingdom Air Information Resource (UK-AIR) website[25] operated by Defra. The website provides estimated annual average background concentrations of NO_2, PM_{10} and $PM_{2.5}$ on a 1 km^2 grid basis.

Table 4.2 presents estimated annual average background NO_2, PM_{10} and $PM_{2.5}$ concentrations for the grid square containing the Site (527500, 177500) for the years 2024 and 2027.

The estimated background concentrations are well below the relevant AQOs for NO_2, PM_{10} and $PM_{2.5}$.

Table 4.2: Estimated Background Annual Average NO_2, PM_{10} and $PM_{2.5}$ Concentrations at the Site

Assessment Year	Estimated Annual Average Pollutant Concentrations Derived from the LAQM Support Website		
	Annual Average NO_2 ($\mu g/m^3$)	Annual Average PM_{10} ($\mu g/m^3$)	Annual Average $PM_{2.5}$ ($\mu g/m^3$)
2024	23.9	17.5	11.4
2027	22.6	17.3	11.2
Air Quality Objective	40	40	20

As background concentrations are predicted to fall with time, background concentrations in future years would not be expected to exceed their respective AQOs.

[25] Department for Environment, Food and Rural Affairs (2024), *Background Mapping data for local authorities – 2018 based* , Accessed 17th January 2024

In addition to local air quality monitoring data, estimated background concentrations are available from the London Atmospheric Emissions Inventory (LAEI)[26], maintained by Kings College London on behalf of the Mayor of London. The 2019 LAEI pollutant maps show that annual mean PM_{10} and $PM_{2.5}$ concentrations were estimated to be below the 40 and 20µg/m^3 annual mean AQOs respectively although annual mean NO_2 concentrations exceeded the AQO in areas closest to the nearby main road, A3220 Battersea Bridge Road.

4.4 Summary of Current and Future Baseline

According to the EPUK-IAQM guidance, the 24-hour mean PM_{10} AQO will not be exceeded unless the annual mean PM_{10} AQO exceeds ~31µg/m^3. TG22 indicates that exceedances of the hourly mean NO_2 AQO should not be excepted if annual mean NO_2 concentrations are below 60µg/m^3.

Annual mean PM_{10} concentrations did not exceed 31µg/m^3 at or around the Site, as shown in the UK-AIR background maps. Annual mean $PM_{2.5}$ concentrations did not exceed the AQO. Moreover, annual mean NO_2 concentrations did not exceed 60µg/m^3 at Site or in the surrounding area (excluding some areas along YR5 on Battersea Park Road in the LAEI). As such, air quality at the Site and surrounding environs is generally good regarding annual mean PM_{10} and $PM_{2.5}$, 24-hour mean PM_{10}, and 1-hour mean NO_2 concentrations.

As shown in **Table 4.1** above, the annual mean NO_2 AQO was breached during 2018 and 2019 along York Road, (YR4), Battersea Park Road (YR5) and Battersea Square (YR6). Concentrations remained above the AQO at Battersea Park Road (YR5) until 2022.

Emissions of nitrogen oxides (NO_X), PM_{10} and $PM_{2.5}$ from vehicles are expected to decrease with time, as newer, less polluting vehicles replace older ones using local roads (although PM_{10} and $PM_{2.5}$ concentrations will eventually level off). As such, air quality by the Proposed Development opening year is generally expected to comply with all five AQOs at and around the Site.

Sensitive Receptors

There are several sensitive receptors within the study area which may be affected by the Proposed Development during the construction and operational phases, including:

[26] Greater London Authority and Transport for London, (2022), *London Atmospheric Emissions Inventory (LAE) 2019*

- Occupants of nearby dwellings and other places frequented by people within 200 m[27] of roads carrying traffic travelling to and from the Site, both whilst construction activities are ongoing and once operational;
- Users of nearby buildings or amenity space[28], which may experience a loss of amenity due to dust soiling, or whose health may be affected, as a result fugitive dust and pollutants such as NO_2 and PM_{10} generated by construction related activities or NRMM); and,
- Future occupants of the Proposed Development, which may be affected by poor ambient air quality. Impacts here may be exacerbated by emissions of pollutants such as NO_2, PM_{10} and $PM_{2.5}$ generated both by road traffic once the scheme is operational.

A search of the Multi-Agency Geographic Information for the Countryside (MAGIC) maps website[29] operated by Natural England indicates that there are no designated Special Areas of Conservation, Special Protection Areas, Ramsar Sites, Sites of Special Scientific Interest, National or Local Nature Reserves or Ancient Woodland within 2 km of the Site. Therefore, they have been screened out of both the construction dust assessment and the road traffic emissions assessment.

[27] This is based on the criteria from the 'LA105: Air quality' (Highways England et al., 2019) guidance regarding the maximum distance from roads which should be considered in an air dispersion modelling assessment.

[28] The IAQM 2024 guidance indicates that the requirement for a fugitive dust and emissions assessment can be screened out where the Proposed Development is located within 250 metres of a Site boundary, or within 50 metres of routes used by construction vehicles on the public highway, up to 250 metres from the site entrance(s). These criteria are therefore considered to be the maximum distances over which fugitive dust and emissions from construction related activities could affect nearby receptors.

[29] Natural England (2024). *Multi-Agency Geographic Information for the Countryside (MAGIC) website*, Accessed 17th January 2024

5. Construction Phase Assessment

5.1 Construction Dust

The dust emission magnitudes for each of the four construction related activities (demolition, earthworks, construction and trackout) are informed by the types of construction related activities expected to take place at the Proposed Development site. These comprise:

- Demolition: the Site is currently is occupied by a glass fronted office building, which is to be demolished;
- Earthworks: this stage would include the soil-stripping from the open land, ground levelling, defining the site access locations, excavation and landscaping ready for the next stage of construction;
- Construction: erection of mixed-use development up to 28 storeys comprising of residential units (Class C3) with affordable housing, community use, commercial use, landscaping and associated works. The services being integrated, the buildings being constructed, insulated, tiled, windows and doors inserted and internal fit out. The later stages of construction include car parking spaces and landscaping; and
- Trackout: According to the IAQM 2024 guidance, trackout is defined as *'The transport of dust and dirt from the construction/ demolition site when HDVs leave the site (having travelled over muddy ground) onto the public road network, where it may be deposited and then re-suspended by vehicles using the network.'*

Potential dust emission magnitudes from each of the construction related activities has been assessed using the IAQM 2024 guidance criteria (described in **Appendix B**) and are detailed in **Table 5.1**.

Table 5.1 Dust Emission Magnitudes

Type of work	Description of site characteristics with reference to IAQM 2024 guidance	Dust emissions magnitude
Demolition	The existing office building on the Site are to be demolished. Total building volume between 12,000 and 75,000m^3, corresponding to a medium dust emission magnitude in the IAQM guidance. Crushing and screening may take place. Demolition activities >20 m above ground.	Medium
Earthworks	The total Site is less than 18,000m^2. Anticipated 5 to 10 heavy earth moving vehicles will be active at any one time. Stockpiles anticipated to be 4-8m in height.	Medium
Construction	The development will involve the construction of >75,000m^3.	High

Type of work	Description of site characteristics with reference to IAQM 2024 guidance	Dust emissions magnitude
	Concrete may be used and on-site concrete batching may take place.	
Trackout	HGVs will travel over <50m of unpaved ground on site. <20 HDV outward movements from site expected on any one day	Small

Step 2B: Define sensitivity of the area

Using the IAQM 2024 guidance process outlined in **Appendix B,** the sensitivity of the surrounding area was determined. This is shown in **Table 5.2**.

Table 5.2 Sensitivity of the surrounding area

Type of work	Demolition	Earthworks	Construction	Trackout
Dust soiling	**Medium:** 10-100 high sensitivity receptors located within <50m of site boundary	**Medium:** 10-100 high sensitivity receptors located within <50m of site boundary	**Medium:** 10-100 high sensitivity receptors located within <50m of site boundary	**Medium:** 10-100 high sensitivity receptors located within <50m of routes along which trackout may arise.
Human health impacts	**Low:** 10-100 high sensitivity receptors located within <50m of site boundary and annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site.	**Low:** 10-100 high sensitivity receptors located within <50m of site boundary and annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site.	**Low:** 10-100 high sensitivity receptors located within <50m of site boundary and annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site.	**Low:** 10-100 high sensitivity receptors located within <50m of routes along which trackout may arise and annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site.
Ecological	**Negligible:** According to the MAGIC Maps website, there are no SACs, SPAs, Ramsar sites, SSSIs, National Nature Reserves or Ancient Woodlands within 50m of the Proposed Development site or routes along which trackout could arise. It is therefore assumed that there are no species sensitive to the impacts of dust deposition within the vicinity of the Proposed Development site.			

Step 2C: Define the risk of dust impacts

Using the IAQM 2024 guidance process outlined in **Appendix B**, the risk of dust impacts derived from the different on-site activities is shown in **Table 5.3**.

Table 5.3 Summary of the dust risk from site activities

Potential Impact	Dust Risk Summary			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium risk	Medium risk	Medium risk	Low risk
Health Effects	Low risk	Low risk	Low risk	Negligible risk
Ecological	Negligible Risk			

The overall dust risk from the Proposed Development site is predicted to be a maximum of medium, in connection with dust soiling risks attributable to demolition, earthworks and construction activities. Therefore, in the absence of mitigation, effects on air quality are assessed as significant. Mitigation measures will help to negate some of the potential negative air quality impacts resulting from fugitive dust attributable to construction related activities and will avoid significant dust effects. This is further discussed in the mitigation section.

6. Operational Phase Assessment

6.1 Impacts of the Development

Air quality effects attributable to emissions from road traffic associated with the Proposed Development during operational phase was assessed.

Table 6.1 presents the predicted annual mean NO_2 concentrations at each of the existing receptors for S2 and S3. It also shows the percentage change in pollutant concentrations (with the Proposed Development in place) relative to the AQAL (i.e. the annual mean AQO) in S2 and S3, the S3 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance descriptor.

The Proposed Development would not expose any of the modelled existing receptors to NO_2 in concentrations breaching the annual mean AQO.

The largest change in annual mean NO_2 concentrations was 0.01µg/m^3 (<0.5% increase relative to the AQO). As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the modelled receptors.

None of the existing receptors modelled are exposed to annual mean NO_2 concentrations exceeding 60µg/m^3 with the Proposed Development in place, either without or with the Proposed Development. Therefore, in accordance with TG22, the potential for the Proposed Development to lead to hourly mean NO_2 AQOs being breached has been screened out.

Table 6.1: Estimated annual mean NO_2 (µg/m^3) at modelled existing receptors (Operational phase) in S2 and S3 and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method

Receptor ID	Predicted annual mean concentration (µg/m^3)		Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
	S2 Without Development	S3 With Development			
R1	23.33	23.34	<0.5	58.4	Negligible
R2	23.27	23.27	<0.5	58.2	Negligible
R3	24.19	24.19	<0.5	60.5	Negligible
R4	24.03	24.03	<0.5	60.1	Negligible
R5	24.41	24.41	<0.5	61.0	Negligible
R6	24.06	24.06	<0.5	60.2	Negligible
R7	23.90	23.91	<0.5	59.8	Negligible

R8	23.71	23.71	<0.5	59.3	Negligible
R9	23.92	23.92	<0.5	59.8	Negligible
R10	23.24	23.24	<0.5	58.1	Negligible
R11	24.06	24.07	<0.5	60.2	Negligible
R12	22.72	22.72	<0.5	56.8	Negligible
R13	23.41	23.41	<0.5	58.5	Negligible
R14	22.55	22.55	<0.5	56.4	Negligible
R15	22.71	22.71	<0.5	56.8	Negligible
R16	23.28	23.28	<0.5	58.2	Negligible
R17	22.99	22.99	<0.5	57.5	Negligible
R18	23.49	23.49	<0.5	58.7	Negligible
R19	23.57	23.57	<0.5	58.9	Negligible
R20	27.87	27.87	<0.5	69.7	Negligible
R21	27.71	27.71	<0.5	69.3	Negligible
R22	24.49	24.50	<0.5	61.3	Negligible
R33	23.18	23.18	<0.5	58.0	Negligible

Table 6.2 presents the predicted annual mean PM_{10} concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S2 and S3. It also shows the percentage change in pollutant concentrations (with the Proposed Development in place) relative to the AQAL (i.e. the annual mean PM_{10} AQO) in S2 and S3, the S3 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance descriptor.

The predicted pollutant concentrations suggest that the Proposed Development would not expose any of the modelled existing annual mean sensitive receptors to concentrations in excess of the annual mean AQO.

The largest change in annual mean concentrations was 0.01µg/m^3 (<0.5% increase relative to the AQO). As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the modelled receptors sensitive to changes in annual mean PM_{10} concentrations.

The largest concentration was below the ~31µg/m^3 annual mean PM_{10} concentration, meaning that the 50µg/m^3 24-hour mean AQO threshold is unlikely to be exceeded on more than the 35 occasions permissible per annum.

Table 6.2 Estimated annual mean PM_{10} (µg/m^3) at modelled existing receptors (Operational phase) in S2 and S3 and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method

Receptor ID	Predicted annual mean concentration (µg/m^3)		Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
	S2 Without Development	S3 With Development			
R1	17.96	17.96	<0.5	44.90	Negligible
R2	17.89	17.89	<0.5	44.73	Negligible
R3	18.65	18.65	<0.5	46.63	Negligible
R4	18.36	18.36	<0.5	45.90	Negligible
R5	18.58	18.58	<0.5	46.45	Negligible
R6	18.49	18.49	<0.5	46.23	Negligible
R7	18.32	18.32	<0.5	45.80	Negligible
R8	18.19	18.19	<0.5	45.48	Negligible
R9	18.46	18.46	<0.5	46.15	Negligible
R10	19.02	19.03	<0.5	47.58	Negligible
R11	19.57	19.57	<0.5	48.93	Negligible
R12	18.66	18.67	<0.5	46.68	Negligible
R13	19.26	19.26	<0.5	48.15	Negligible
R14	18.59	18.60	<0.5	46.50	Negligible
R15	18.74	18.74	<0.5	46.85	Negligible
R16	17.90	17.90	<0.5	44.75	Negligible
R17	17.69	17.69	<0.5	44.23	Negligible
R18	18.07	18.07	<0.5	45.18	Negligible
R19	18.14	18.14	<0.5	45.35	Negligible
R20	20.10	20.10	<0.5	50.25	Negligible
R21	20.00	20.00	<0.5	50.00	Negligible
R22	18.70	18.70	<0.5	46.75	Negligible
R23	17.82	17.82	<0.5	44.55	Negligible

Emissions of PM_{10} from vehicles are expected to decrease with time, as newer, less polluting vehicles replace older ones using local roads (although concentrations will

eventually level off). As such, air quality by the Proposed Development's opening year (for the year of first occupation) is generally expected to comply with the PM_{10} AQOs at and around the Site.

Table 6.3 presents the predicted annual mean $PM_{2.5}$ concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S2 and S3. It also shows the percentage change in pollutant concentrations (with the Proposed Development in place) relative to the AQAL (i.e. the annual mean $PM_{2.5}$ AQO), the S3 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance descriptor.

The predicted pollutant concentrations suggest that the Proposed Development would not expose any of the modelled existing annual mean sensitive receptors to concentrations in excess of the annual mean AQO.

The largest change in annual mean concentrations was 0.01µg/m^3 (<0.5% increase relative to the AQO). As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the relevant modelled receptors.

Table 6.3 Estimated annual mean $PM_{2.5}$ (µg/m^3) at modelled existing receptors (Operational phase) in S2 and S3 and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method.

Receptor ID	Predicted annual mean concentration (µg/m^3)		Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
	S2 Without Development	S3 With Development			
R1	11.57	11.57	<0.5	57.85	Negligible
R2	11.54	11.54	<0.5	57.70	Negligible
R3	11.93	11.93	<0.5	59.65	Negligible
R4	11.78	11.79	<0.5	58.95	Negligible
R5	11.90	11.90	<0.5	59.50	Negligible
R6	11.85	11.85	<0.5	59.25	Negligible
R7	11.76	11.76	<0.5	58.80	Negligible
R8	11.70	11.70	<0.5	58.50	Negligible
R9	11.84	11.84	<0.5	59.20	Negligible
R10	12.21	12.21	<0.5	61.05	Negligible
R11	12.49	12.49	<0.5	62.45	Negligible
R12	12.02	12.02	<0.5	60.10	Negligible
R13	12.34	12.34	<0.5	61.70	Negligible

Receptor ID	Predicted annual mean concentration (µg/m³)		Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
	S2 Without Development	S3 With Development			
R14	11.99	11.99	<0.5	59.95	Negligible
R15	12.06	12.07	<0.5	60.35	Negligible
R16	11.54	11.54	<0.5	57.70	Negligible
R17	11.44	11.44	<0.5	57.20	Negligible
R18	11.63	11.63	<0.5	58.15	Negligible
R19	11.67	11.67	<0.5	58.35	Negligible
R20	12.71	12.71	<0.5	63.55	Negligible
R21	12.65	12.65	<0.5	63.25	Negligible
R22	11.96	11.96	<0.5	56.70	Negligible
R23	11.51	11.51	<0.5	56.65	Negligible

Significance assessment

Based on the EPUK-IAQM guidance, the change in annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations associated with operation of the Proposed Development results in the air quality impact being classified as negligible for all modelled receptors. Moreover, the Proposed Development does not expose any additional existing receptors to concentrations of the hourly mean NO_2 or 24-hour mean AQOs exceeding the AQO where they were not predicted to without the Proposed Development in place.

For these reasons, the effect of road traffic associated with operation of the Proposed Development on local air quality is therefore considered to be not significant.

6.2 Impacts on Future Receptors Introduced by the Proposed Development

The results of the modelling and the impact of the completed and operational Proposed Development on NO_2, PM_{10} and $PM_{2.5}$ concentrations at each modelled Proposed Receptor (PR) are presented in **Table 6.4**.

Table 6.4 shows that the annual mean NO_2 AQO was also below 60µg/m³ at all of the modelled receptor locations, indicating that the hourly mean NO_2 AQO is unlikely to be exceeded at the Proposed Development site.

It also shows that the on-site modelled pollution concentrations are all well below the annual mean NO_2, PM_{10} and $PM_{2.5}$ AQOs. The largest concentration was below the ~31µg/m³ annual mean PM_{10} concentration which can be expected prior to the 50µg/m³

24-hour mean AQO threshold being exceeded on more than the 35 occasions permissible per annum.

For these reasons, air quality at the Site is expected to be acceptable.

Table 6.4 Concentrations of NO_2, PM_{10} and $PM_{2.5}$ at New Receptors for S3

Receptor ID	Height (m)	S3 With Proposed Development 2025		
		Annual mean NO_2	Annual mean PM_{10}	Annual mean $PM_{2.5}$
PR1	8.6	23.05	17.72	11.45
PR2	8.6	23.04	17.71	11.45
PR3	8.6	23.05	17.72	11.45
PR4	8.6	23.08	17.74	11.46
PR5	8.6	23.08	17.75	11.47
PR6	8.6	23.09	17.75	11.47
PR7	11.8	22.86	17.57	11.37
PR8	11.8	22.85	17.56	11.37
PR9	11.8	22.85	17.56	11.37
PR10	11.8	22.90	17.60	11.39
PR11	11.8	22.91	17.61	11.39
PR12	11.8	22.92	17.62	11.40

6.3 Air Quality Neutral Assessment

Building Emissions

The Development would meet its energy demand using air source heat pumps (ASHP), which do not generate emissions. The Proposed Development is thus considered air quality neutral in terms of building emissions.

Transport Emissions

The Proposed Development would have approximately 18 car parking spaces five of which would be blue badge parking spaces. The transport consultant confirmed that the residential units will generate 38 two-way daily car trips as a result of the Proposed Development.

The calibrated Transport Emissions Benchmark (TEB) was calculated by multiplying the number of proposed dwellings by the TEBs specified in the GLA AQN guidance of an Inner London site. The benchmarked transport emissions are shown in Table 6.5 below.

Table 6.5 Calculations to calibrate the TEB

Description	Number of dwellings	Benchmark applied	TEB (trips/ m²/ annum or trips/ dwelling/ annum)	Calibrated TEB (trips/ annum)
Residential dwellings	142	Residential	114	16,188

As shown in Table 6.6 below, the number of trips for the Site were calculated by summing the gross AADT for the Site (excluding taxis, service and delivery vehicle movements, as per the GLA AQN guidance), for the residential units only.

Table 6.6: Calculated residential transport emissions for the Proposed Development

Plant	Trips per annum
Residential dwellings	38 trips per day * 365 days per annum = 13,870

As the total number of trips generated by the Site per annum is lower than the TEB, the Proposed Development is therefore considered to be air quality neutral in terms of transport emissions. Therefore, the no further mitigation measures are required.

7. Mitigation

7.1 Construction Dust

Under best practice guidance, the Proposed Development will constitute a maximum of medium risk for construction dust. The use of appropriate mitigation measures throughout the construction period will ensure that impacts to sensitive receptors are minimised.

The following is a set of best-practice measures from the MOL SPG that should be incorporated into the specification for the works. These measures should ideally be written into a Dust Management Plan (DMP), Construction Environmental Management Plan (CEMP) or similar, which can be done at the post-consent stage. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the DMP. The measures in italics are classified as desirable in the MOL SPG guidance, the others being highly recommended.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.

Monitoring

- *Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local*

authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.

- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and Maintaining the Proposed Development Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating vehicles/machinery and sustainable travel

- Maintain non-road mobile machinery (NRMM) to relevant standards.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel- or petrol- powered generators and use mains electricity or battery powered equipment where practicable.
- *Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas.*
- *Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).*

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.

- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Demolition

- *Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).*
- Ensure water suppression is used during demolition operations.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

Measures Specific to Earthworks

- *Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Measure should be sufficient to prevent dust generation.*
- *Use Hessian, mulches or trackifiers where it is not possible to cover, seed and/or fence stockpiles sufficiently, as soon as practicable.*
- *Only remove the cover in small areas during work and not all at once.*

Measures Specific to Construction

- *Avoid scabbling (roughening of concrete surfaces) if possible.*
- Ensure sand and other aggregate are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- *Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.*
- *For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.*

Measures Specific to Trackout

- *Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.*
- *Avoid dry sweeping of large areas.*

- *Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.*
- *Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).*

With the proposed construction activities mitigation measures as described in place, the likely residual impact of dust connected to works undertaken during the construction phase on local air quality can be considered as 'not significant'.

7.2 Mitigating Emissions Attributable to Construction Vehicle Movements and Plant

It is recommended that plant used on-site comply with the NOx, PM and carbon monoxide emissions standards specified in the EU Directive 97/68/EC and subsequent amendments as a minimum (as required to comply with the MOL SPG), where they have net power of between 37kW and 560kW. The emissions standards vary depending on the net power the engine produces. The following actions can be taken to enable compliance:

- Reorganising the fleet;
- Replacing equipment if required;
- Installing retrofit abatement technology (such as by diesel particulate filters in existing NRMM); and,
- Re-engining.

The plant should be registered at www.nrmm.london, which also details the applicable emissions standards.

While the impacts of emissions from construction related traffic on air quality are unlikely to be significant, the client could consider implementing a Construction Logistics Plan to manage the sustainable delivery of goods and materials, implementing a Travel Plan which supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) and/or providing or signposting nearby electric vehicle charge points for construction workers. Information on nearby car clubs, public transport routes and electric vehicle charge points could be signposted using a billboard and measures implemented during toolbox talks signposted while construction related activities are undertaken.

Following the implementation of the above mitigation measures, the magnitude of effects associated with construction related vehicle movements on air quality will be reduced/ will be insignificant.

7.3 Operational Phase

This assessment has shown that the Proposed Development is unlikely to impact local air quality once operational. The development has also been assessed as air quality neutral.

As such, no mitigation is required for the operational phase of the Proposed Development.

A travel plan has been submitted to accompany the planning application for the Site. It includes cycle parking amongst other measures to encourage active travel.

Where an emergency generator is ultimately proposed, it is recommended that it is designed to minimise the effects on air quality by:

- Where possible, prioritise the use of generators not powered by fossil fuels or run using fossil fuels with a lesser effect on air quality over diesel generators;
- Where the generator must be fuelled by an on-site source of combustion, ensuring servicing and testing resulting in emissions to air is not undertaken during 15 hours per annum or greater, thereby allowing for three hours per annum for the generator to operate during power outages before there is a risk of the hourly mean NO_2 AQO being breached at Site. Three hours is substantially greater than the average length of time per annum over which power outages have been reported by the National Grid. It should discharge vertically via a flue and should meet the emissions limit value of 400mgNOx/Nm^3 cited in the EPUK-IAQM guidance. Exhaust flues should not be located in the vicinity of any inlets to the mechanical ventilation system or facades of buildings used by members of the public.

Following the implementation mitigation measures to control emissions from the generator, the impacts of the Proposed Development on local air quality are expected to remain insignificant. The other measures recommended will ensure the insignificant effects identified in Section 6 remain insignificant.

7.4 Mitigating Effects of Air Quality on Future Site Users

The Proposed Development is not expected to introduce receptors into an area of poor ambient air quality and as such no mitigation has been recommended.

8. Conclusions

The air quality assessment has determined the following:

- The dust risk assessment has identified that construction activities pose up to a medium risk of causing loss of amenity, a low risk of impacting upon human health, and a negligible risk at ecological receptors. However, with the implementation of the mitigation measures detailed in the relevant section of this report, the activities are not anticipated to result in significant effects on local receptors.
- The assessment of air quality in relation to roads during the construction stage has determined that there will be a negligible impact on air quality as a result of construction traffic and therefore its effect will not be significant.
- The assessment of air quality in relation to roads during the operational stage has determined that there will be a negligible impact on air quality at nearby existing sensitive receptors and therefore its effect will not be significant.
- The assessment of air quality in relation to the road traffic has determined that the Proposed Development will not expose future Site users to poor ambient air quality.
- The Proposed Development has been assessed as air quality neutral.
- The assessment concludes that the Proposed Development is acceptable from an air quality perspective and accords with the relevant national and local planning policies and guidance.

Appendix A Figures

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Appendix B Construction Phase Assessment

Construction Phase Dust Assessment Methodology

The qualitative construction dust and PM_{10} risk assessment method outlined in the IAQM 2024 guidance is summarised below.

Step 1: Identify the need for a detailed assessment

An assessment would normally be required where there is:

- A human receptor within 250 metres of the boundary of the proposed scheme; and/or within 50 metres of the access route(s) used by the construction vehicles on the public highway up to 250 metres from the study area site entrance(s); and/or
- An ecological receptor within 50 metres of the proposed scheme and/or within 50 metres of the access route(s) used by construction vehicles on the public highway up to 250 metres from the entrance(s).

A human receptor refers to any location where a person or property may experience the adverse effects of airborne dust or dust-soiling, or exposure to PM_{10} over a period relevant to the ambient AQOs.

An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a National Nature Reserve, Ramsar site, Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Special Protection Areas (SPA), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate, such as a Site of Importance for Nature Conservation.

Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible' and any effects would be 'not significant'.

Step 2: Assess the risk of dust impacts

A site is allocated a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the allocation of mitigation measures. Risks are described as low, medium or high for each of the four separate activities (demolition, construction, earthworks and trackout). Site-specific mitigation is required, proportionate to the level of risk.

Step 2A: Define the potential dust emission magnitude

The potential dust emission magnitude is based on the scale of the anticipated works and should be classified as small, medium or large. **Table B.1** presents the dust emission criteria outlined for each construction activity.

Table B.1: Potential dust emission magnitude criteria

Construction activity	Large	Medium	Small
Demolition	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level.	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level.	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.
Earthworks	Total site area >110,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height.	Total site area <18,000 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	Total building volume >75,000 m^3, on site concrete batching, sandblasting.	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching.	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).
Trackout	>50 HDV (>3.5 t) outward movements[a] in any one day[b], potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.	20-50 HDV (>3.5 t) outward movements[a] in any one day[b], moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.	<20 HDV (>3.5 t) outward movements[a] in any one day[b], surface material with low potential for dust release, unpaved road length <50 m.

a. A vehicle movement is a one way journey. i.e. from A to B and excludes the return journey.
b. HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.

Step 2B Define the sensitivity of the area

The sensitivity of the area is described as low, medium or high. It takes into account a number of factors:

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

Table B.2 presents indicative examples of classification groups for the varying sensitivities of people to dust soiling effects and to the health effects of PM_{10}; and the sensitivities of receptors to ecological effects. A judgement is made at the site-specific level where sensitivities may be higher or lower, for example a soft fruit business may be more sensitive to soiling than an alternative industry in the same location. Box 6, Box 7 and Box 8 within the IAQM 2024 guidance outlines more detailed information on defining sensitivity.

Table B.2: Indicative examples of the sensitivity of different types of receptors

Sensitivity of receptor	Sensitivities of people and ecological receptors		
	Dust soiling effects [a]	Health effects of PM_{10} [b]	Ecological effects [c]
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling (e.g. SAC/SPA/Ramsar). Locations where there is a community of a species particularly sensitive to dust such as vascular species included in the Red Data list for Great Britain.
Medium	Parks, places of work.	Office and shop workers not occupationally exposed to PM_{10}.	Locations where there is a particularly important plant species, where dust sensitivity is uncertain or unknown. Locations with a national designation where the features may be affected by dust deposition (e.g. SSSIs).
Low	Playing fields, farmland (unless commercially-sensitive horticultural),	Public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition (e.g. Local Nature Reserves).

Sensitivity of receptor	Sensitivities of people and ecological receptors		
	Dust soiling effects [a]	Health effects of PM_{10} [b]	Ecological effects [c]
	footpaths, short-term car parks and roads.		

a. People's expectations would vary depending on the existing dust deposition in the area.
b. This follows the Department for Environment, Food and Rural Affairs (Defra, 2016) guidance as set out in Local Air Quality Management Technical Guidance (LAQM.TG (16)). Notwithstanding the fact that the ambient AQOs and limit values do not apply to people in the workplace, such people can be affected to exposure of PM_{10}. However, they are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children are not normally workers. For this reason workers have been included in the medium sensitivity category.
c. Only if there are habitats that might be sensitive to dust. A Habitat Regulation Assessment of the site may be required as part of the planning process if the site lies close to an internationally designated site i.e. SACs, SPAs and Ramsar sites.

The IAQM 2024 guidance advises consideration of the risk associated with the nearest receptors to construction activities.

The sensitivity and distance of receptors from the source of dust (i.e. demolition activities, earthworks, etc.) are then used to determine the potential dust risk for each dust effect for each construction activity as shown in **Table B.3**, **Table B.4** and **Table B.5**. It is noted that distances are to the dust source and so a different area may be affected by trackout than by on-site works.

For trackout, the distances should be measured from the side of the roads used by construction HDVs. Without site specific mitigation, trackout may occur from roads up to 500 metres from large sites, 200 metres from medium sites and 50 metres from small sites, as measured from the site exit. The impact declines with distance from the site. It is only necessary to consider trackout impacts up to 50 metres from the edge of the road.

Table B.3: Sensitivity of the area to dust soiling effects on people and property [a]

Receptor area sensitivity	Number of Receptors [b]	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Low	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

a. Estimate the total number of receptors within the stated distance. Only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20

metres of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 metres is 102. The sensitivity of the area in this case would be high.

b. Exact counting of number of human receptors not required. It is instead recommended that judgement is used to determine the approximate number of receptors within each distance band. For example, a residential unit is one receptor. For receptors which are not dwellings, professional judgement should be used to determine the number of human receptors. For example a school or hospital is likely to be within the >100 receptor category.

Table B.4: Sensitivity of the area to human health impacts [a b c]

Receptor sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<250
High	>32 µg/m³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

a. Estimate the total within the stated distance (e.g. the total within 350 metres and not the number between 200 and 350 m), noting that only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20 metres of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 metres is 102. If the annual mean PM_{10} concentration is 29 µg/m³, the sensitivity of the area would be high.

b. Annual mean PM_{10} concentrations are most straightforwardly taken from the national background maps but should also take account of local sources. The values are based on 32 $\mu g/m^3$ being the annual mean concentration at which an exceedance of the 24-hour objective is likely in England, Wales and Northern Ireland.
c. In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, simply include the number of properties.

Table B.5: Sensitivity of the area to ecological impacts

Receptor Sensitivity	Distance from the Source (m)[a]	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

a. Only the highest level of area sensitivity from the table needs to be considered.

Step 2C Define the risk of impacts

The dust emission magnitude is then combined with the sensitivity of the area to determine the overall risk of impacts with no mitigation measures applied. The matrices in **Table B-6** provide a method of assigning the level of risk for each activity. These can then be used to determine the level of mitigation that is required.

Table B.6: Risks of dust impacts

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
Low	Low Risk	Low Risk	Negligible

Step 3 Site-specific mitigation

Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low-, medium- or high-risk site. The highest risk category of a site (of all activities being undertaken) is recommended when considering appropriate mitigation measures for the site. Where risk is assigned as 'negligible', no mitigation measures beyond those required by legislation are required. However, additional mitigation measures may be applied as good practice.

A selection of these measures is specified as suitable to mitigate dust emissions from activities, based on professional judgement.

Step 4 Determine significant effects

Following Step 2 (definition of the proposed scheme and the surroundings and identification of the risk of dust effects occurring for each activity), and Step 3 (identification of appropriate site-specific mitigation), the significance of the potential dust effects can be determined. The recommended mitigation measures should normally be sufficient to reduce construction dust impacts to a not significant effect.

The approach in Step 4 of the IAQM dust assessment guidance has been adopted to determine the significance of effects with regard to dust emissions. The guidance states the following:

'*For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'*.'

IAQM guidance also states that:

'*Even with a rigorous DMP* [Dust Management Plan] *in place, it is not possible to guarantee that the dust mitigation measures will be effective all the time, and if, for example, dust emissions occur under adverse weather conditions, or there is an interruption to the water supply used for dust suppression, the local community may experience occasional, short-term dust annoyance. The likely scale of this would not normally be considered sufficient to change the conclusion that with mitigation the effects will be 'not significant'*.'

Step 4 of IAQM guidance recognises that the key to the above approach is that it assumes that the regulators ensure that the proposed mitigation measures are implemented. The management plan would include the necessary systems and procedures to facilitate on-going checking by the regulators to ensure that mitigation is being delivered, and that it is effective in reducing any residual effect to 'not significant' in line with the guidance.

Appendix C Detailed Dispersion Modelling Assessment Method

Modelling Software

The ADMS-Roads detailed dispersion model (version 5) was used to assess direct effects from the additional traffic on local air quality during 2022 and 2027.

The ADMS-Roads model considers the key variables that influence pollutant emission and dispersion (meteorology, surface roughness, diurnal traffic flows, predicted future traffic mixes and predicted future engine emission standard mixes). Annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted at a number of locations in the vicinity of the Proposed Development. The receptors chosen include those that are representative of worst-case exposure locations within the modelled study area.

Assessment Scenarios

Predictions of NO_2, PM_{10} and $PM_{2.5}$ were made for the following scenarios:

- **Scenario 1 (S1)**: base year, using 2022 traffic data and 2022 background pollutant concentrations and emissions factors;
- **Scenario 2 (S2)**: traffic flows anticipated during 2027, without the Proposed Development in place but inclusive of committed / consented development traffic and committed infrastructure improvements, using 2027 background pollutant concentrations and 2027 emissions factors; and
- **Scenario 3 (S3)**: traffic flows anticipated during 2027, with the Proposed Development in place and inclusive of committed / consented development traffic and committed infrastructure improvements, using 2027 background pollutant concentrations and 2027 emissions factors.

Traffic Data

The AADT, the percentage of HDVs (%HDVs) and vehicle speeds for the local roads of interest were obtained from the Transport Consultants, Velocity Transport Planning[30], or from the Department for Transport website. Vehicle speeds were adjusted with reference to the advice on modelling junctions and congestion provided within TG22, and professional judgement. **Table C.1** summarises the information used within the assessment (AADT and %HDVs). The roads and receptors included in the dispersion modelling assessment are also presented in **Figure A.1** in **Appendix A**.

[30] The distribution of Site traffic was based on professional judgement by Velocity Transport Planning.

Table C.1: Traffic Data for all modelled scenarios

Link Name	S1		S2		S3		Speed (kph)
	AADT	%HDV	AADT	%HDV	AADT	%HDV	
A3220 Battersea Bridge Road (South of Site)	14,603	16.52	15064	16.52	15094	16.49	39.0
A3220 Cheyne Walk / A3212 Chelsea Embankment (EB)	24,815	17.45	25599	17.45	25605	17.45	28.0
A3220 Cheyne Walk / A3212 Chelsea Embankment (WB)	24,012	10.70	24770	10.70	24788	10.70	28.0
Beaufort Street	16,297	8.05	16812	8.05	16830	8.04	25.0
Parkgate Road	7,712	9.35	7956	9.35	7986	9.32	29.0
Albert Bridge Road	9,749	5.17	10057	5.17	10075	5.16	33.0
A3220 Prince of Wales Drive	9,749	5.17	10057	5.17	10075	5.16	33.0
Westbridge Road / Vicarage Crescent	15,005	9.10	15479	9.10	15503	9.08	30.0
A3205 York Road	20,396	18.31	21040	18.31	21064	18.29	30.0
A3205 Battersea Park Road	17,228	14.90	17773	14.90	17796	14.89	36.0
Battersea Church Road	8,172	10.51	8430	10.51	8442	10.50	25.0
A3220 Battersea Bridge Road (North of Site)	22,715	15.75	23433	15.75	23516	15.70	30.0
Falcon Road[1]	11,150	12.09	N/A	N/A	N/A	N/A	48

[1] Link only used for verification purposes, data obtained from DfT Road Traffic Statistics Website (https://roadtraffic.dft.gov.uk/)

Vehicle Emissions Factors

The ADMS-Roads model assesses the volume of pollutants generated along each stretch of modelled road based on inputted 'emissions factors' (g/km/s). Defra's emissions factors toolkit (2022 and 2027, as appropriate) was used to determine the emissions of NO_X, PM_{10} and $PM_{2.5}$ from operational traffic along the affected links. London (Inner) settings were selected.

Modelled Receptors

Sensitive existing human and ecological receptors were selected at a range of locations (including worst-case ones) where members of the public are expected to be present and potentially regularly exposed to air pollutants. In addition, receptors were selected within the Site to assess whether future users may be exposed to poor ambient air quality when the Proposed Development is operational. The receptors included are

shown in **Table C.2** below. Moreover, the human receptors are presented in **Figure A.1** of **Appendix A**.

The assessment has assumed that all human receptors at ground floor level are elevated to 1.5m, to represent the average breathing height for a human. For the proposed receptors (PR) at the Site, heights were taken from provided elevation plans. It is understood that no residential dwellings will be present on the ground and first floor, and as such receptors are located at heights corresponding to the second and third floors.

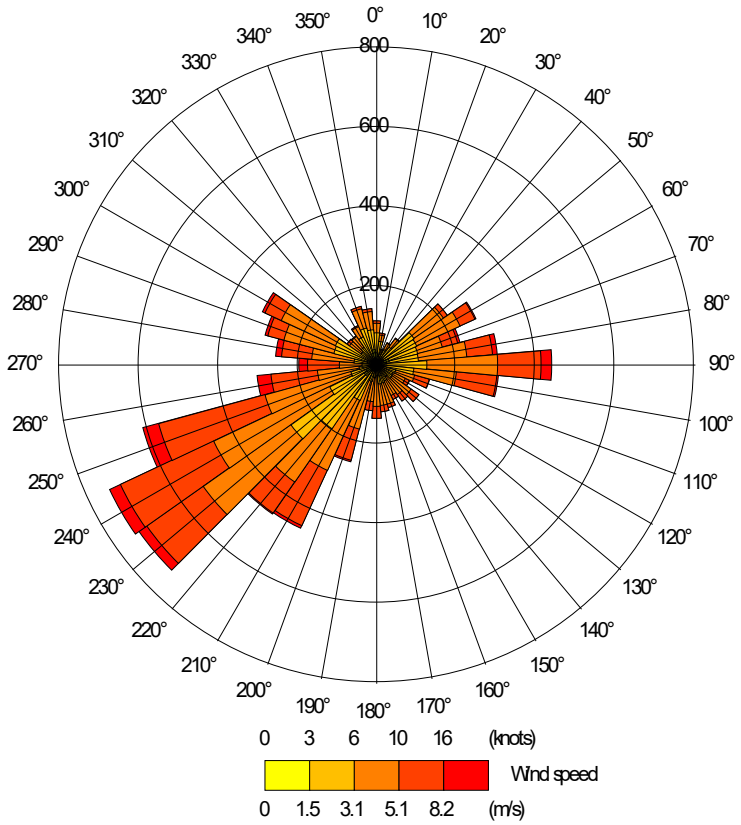
Table C.2: List of receptors modelled in all scenarios

Receptor ID	Receptor Type	X	Y	Z
R1	Residential Dwelling on Albion Riverside	527092.9	177281.3	1.5
R2	Residential Dwelling on Hester Road	527136.8	177221.3	1.5
R3	Residential Dwelling on Battersea Bridge Road	527099.2	177191.8	1.5
R4	Residential Dwelling on Battersea Church Road	527117.4	177142.8	1.5
R5	Residential Dwelling on Battersea Bridge Road	527137.6	177135.8	4.5
R6	Residential Dwelling on Parkgate Road	527202.3	177065.9	4.5
R7	Residential Dwelling on Westbridge Road	527171.4	177061.2	1.5
R8	Residential Dwelling on Westbridge Road	527166.6	177052.7	1.5
R9	Residential Dwelling on Battersea Bridge Road	527198.2	177032.0	1.5
R10	Residential Dwelling on Battersea Park Road	527499.8	176399.2	4.5
R11	Residential Dwelling on Battersea Park Road	527535.8	176414.9	1.5
R12	Residential Dwelling on Latchmere Road	527533.3	176390.4	4.5
R13	Residential Dwelling on Albert Bridge Road	527717.3	176488.3	1.5
R14	Residential Dwelling on Battersea Park Road	527713.9	176461.6	4.5
R15	Residential Dwelling on Albert Bridge Road	527694.9	176481.2	4.5
R16	Residential Dwelling on Parkgate Road	527480.8	177195.3	1.5
R17	Residential Dwelling on Albert Bridge Road	527440.7	177348.3	4.5
R18	Residential Dwelling on Cheyne Walk	527354.9	177680.3	1.5
R19	Residential Dwelling on Cheyne Walk	527314.3	177655.1	4.5
R20	Residential Dwelling on Beaufort Street	526937.1	177511.6	1.5
R21	Residential Dwelling on Beaufort Street	526908.2	177501.6	1.5
R22	Residential Dwelling on Parkgate Road	527193.4	177077.2	4.5
R23	Residential Dwelling on Albert Bridge Road	527468.9	177234.8	1.5
PR1	Proposed Receptor Second Floor	527101.7	177219.9	8.6
PR2	Proposed Receptor Second Floor	527086.5	177246.4	8.6
PR3	Proposed Receptor Second Floor	527073.3	177270.5	8.6
PR4	Proposed Receptor Second Floor	527085.7	177276.8	8.6
PR5	Proposed Receptor Second Floor	527100.2	177254.1	8.6
PR6	Proposed Receptor Second Floor	527116.3	177227.8	8.6
PR7	Proposed Receptor Third Floor	527101.7	177219.9	11.8
PR8	Proposed Receptor Third Floor	527086.5	177246.4	11.8
PR9	Proposed Receptor Third Floor	527073.3	177270.5	11.8
PR10	Proposed Receptor Third Floor	527085.7	177276.8	11.8
PR11	Proposed Receptor Third Floor	527100.2	177254.1	11.8
PR12	Proposed Receptor Third Floor	527116.3	177227.8	11.8

Meteorological data

This study utilised the 2022 year of monitored meteorological data, which was used due to its proximity to the Site relative to other meteorological stations and similar terrain. The wind rose (showing the wind direction and speed) for each year of meteorological data used are set out in **Figure C.1**, below.

Figure C.1: Wind rose from London City Airport during 2022



Background Concentrations

The total concentration of a pollutant comprises those from the modelled local emission sources and background pollutant concentrations, which are transported into an area by the wind from further away.

The Defra UK-AIR concentration applicable to the assessed year and 1km^2 grid within which each receptor is located has been used at the modelled existing and proposed receptor locations.

The annual mean NO_2, PM_{10} and $PM_{2.5}$ background concentrations applied (following adjustment) at each of the receptor locations is shown in **Table C.3**.

Table C.3: Background annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations applied at each of the modelled receptor locations

Grid Square	NO_2		PM_{10}		$PM_{2.5}$	
	2022	2027	2022	2027	2022	2027
527500,177500	25.34	22.56	17.95	17.33	11.68	11.25
526500,176500	25.65	23.19	17.12	16.51	11.21	10.78
527500,176500	24.09	21.41	18.37	17.75	11.98	11.55
528500,176500	22.92	20.38	18.22	17.60	11.90	11.47
526500,177500	28.35	25.44	18.94	18.31	12.22	11.77

Summary of additional model inputs

A summary of the additional parameters considered in the dispersion modelling study are outlined in **Table D.4** below.

Table C.4: Summary of additional model input parameters

Parameter	Input into model
Road elevation	No terrain file used.
Road width	Road widths determined based on approximate measurement of roads using online measurement tools.
Canyon heights	The building configuration on both sides of the road did not lead to the formation of street canyons.
Surface roughness	A value of 1.5 at the dispersion site and 0.5 at the meteorological site, representative of 'large urban areas' and 'parkland, open suburbia' respectively.
Monin-Obukhov length	Assumed to be 100m at the site (representative of large conurbations > 1 million). Was not set for meteorological data site and instead was calculated by the model.

Post-processing of modelled results

At each human receptor, the following method was used to estimate total annual mean pollutant concentrations:

- Modelled road NO_X, PM_{10} and $PM_{2.5}$ concentrations were adjusted (as part of model verification) using the method set out below, as per TG22;
- The road source NO_2 at each receptor was estimated from the modelled NO_X concentration using version 8.1 of the NO_X to NO_2 calculator; and,
- Adjusted annual mean road NO_2, PM_{10} and $PM_{2.5}$ concentrations were added to the applicable background contribution.

According to the EPUK-IAQM guidance, the 24-hour mean PM_{10} AQO will not be exceeded unless the annual mean PM_{10} AQO exceeds ~31µg/m^3. TG22 indicates that exceedances of the hourly mean NO_2 AQO should not be excepted if annual mean NO_2 concentrations are below 60µg/m^3. These criteria have been used to determine whether

the Proposed Development is likely to expose human receptors into an area where the relevant short-term AQOs may be exceeded.

Model Verification

Model verification refers to checks that are carried out on model performance in relation to roads modelling at a local level. Modelled concentrations are compared with the results of local monitoring and, where there is a disparity between modelled and monitored concentrations, an adjustment may be applied to the final model output.

Model verification for NO_2 was undertaken for this assessment using 2022 data monitored at diffusion tubes YR6, YR4, and NE2. These monitoring locations were selected as they are the nearest 'roadside' monitoring sites to the Proposed Development site.

Model verification for PM_{10} and $PM_{2.5}$ was undertaken using the NO_X verification factor. This approach is recommended in TG22 where there are no suitable 'roadside' verification sites within the vicinity of the Proposed Development site.

Table C.5 and **Chart C.1** below summarises the comparison of monitored versus modelled NOx concentrations at the diffusion tube used for model verification and assessment purposes. The monitored road NOx was calculated by converting roadside NO_2 (i.e. monitored NO_2 – background NO_2) to NOx using the latest version of the NOx to NO_2 calculator. The model was identified as overpredicting modelled pollutant concentrations by a factor of 0.72. In order to undertake a robust assessment, an adjustment factor of 1.0 was therefore applied to all modelled road concentrations before being combined with background concentrations.

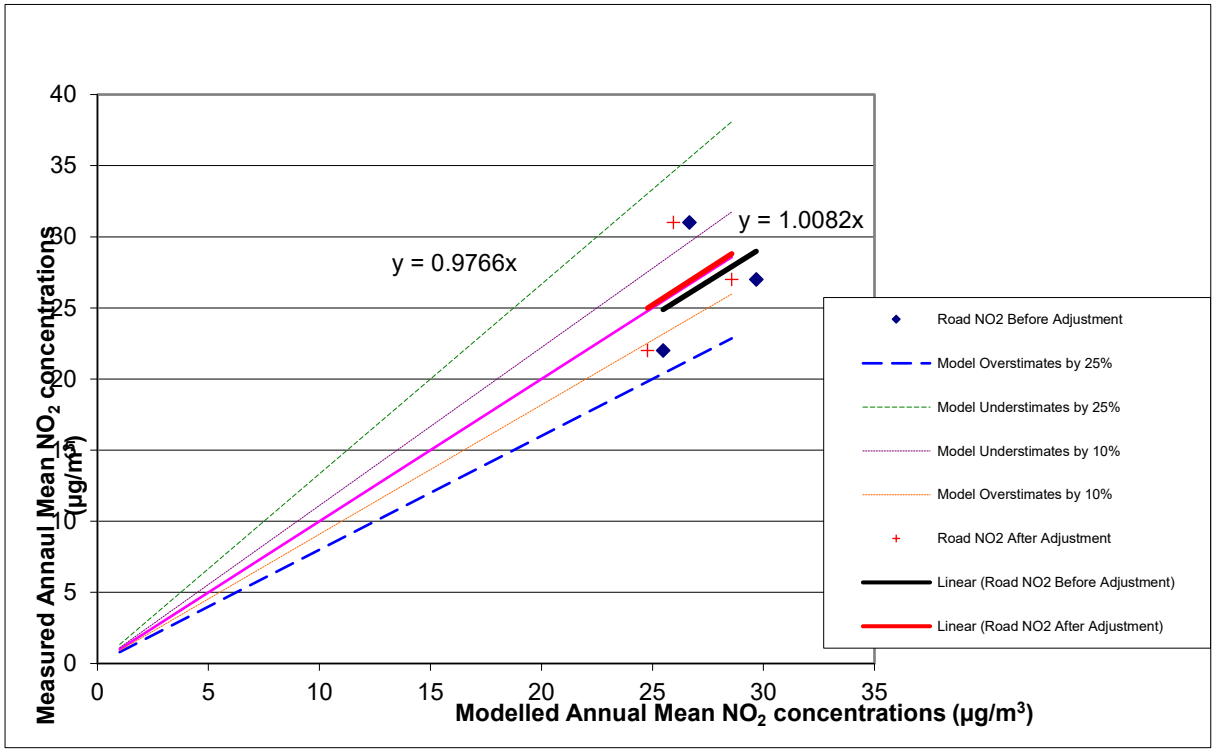
Table C.5: Verification Table for NO_X in the study area

Site number	YR6	YR4	NE2
Monitored total NO_2 (µg/m^3)	27.0	31.0	22.0
Background NO_2 (µg/m^3)[31]	25.65	24.09	22.92
Modelled road contribution NOx (µg/m^3)	8.42	5.31	5.25
Monitored road contribution NOx (µg/m^3)	2.79	14.62	-1.85
Monitored NOx / Modelled NOx (Correction Factor)	**0.7211 (rounded to 1.0)**		

To determine whether the unadjusted modelled NOx concentrations are suitable post-adjustment, the percentage difference between the total modelled NO_2 and total

monitored NO_2 at each monitoring site is required to be within 25% or ideally within 10%. **Chart C.1** below displays the modelled verses the monitored NO_2 concentrations before and after adjustment.

Chart C.1: Comparison of modelled and monitored Road NOx before and after adjustment at model verification locations considered in this assessment.



temple

CREATING SUSTAINABLE FUTURES

London
Temple Chambers,
3-7 Temple Avenue,
London, EC4Y 0DA

+44 (0)20 7394 3700
enquiries@templegroup.co.uk
templegroup.co.uk