Air Quality Assessment

May 2026

EAS

Scylla Road

Hillingdon, TW6 3YH

JLP Architects

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The content of this report is based on information available as of May 2026, the validity of the statements made may therefore vary over time as planning guidance / policies and the evidence base change.

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1 Introduction

1.1 This Air Quality Assessment has been prepared in support of a planning application for the Proposed Development at Scylla Road, Hillingdon, TW6 3YH.

1.2 The applicant seeks the temporary consent for 5 Years for the erection of a demountable storage shed.

1.3 The Site is bound to the south by Stanwell Road and is approximately 135m southeast of the Southern Perimeter Road. The land-uses immediately surrounding the Site are light industrial; the nearest residential receptors are approximately 250m east-southeast of the Site boundary.

1.4 The Site falls within the Londin Borough of Hillingdon (LBH) Air Quality Management Area (AQMA) which was declared in 2003 due to measured and modelled exceedances of the annual mean air quality objective for nitrogen dioxide (NO_2).

1.5 An assessment has been undertaken to determine the potential impact on local air quality during both the construction and operational phases, with recommendations made for mitigation where appropriate.

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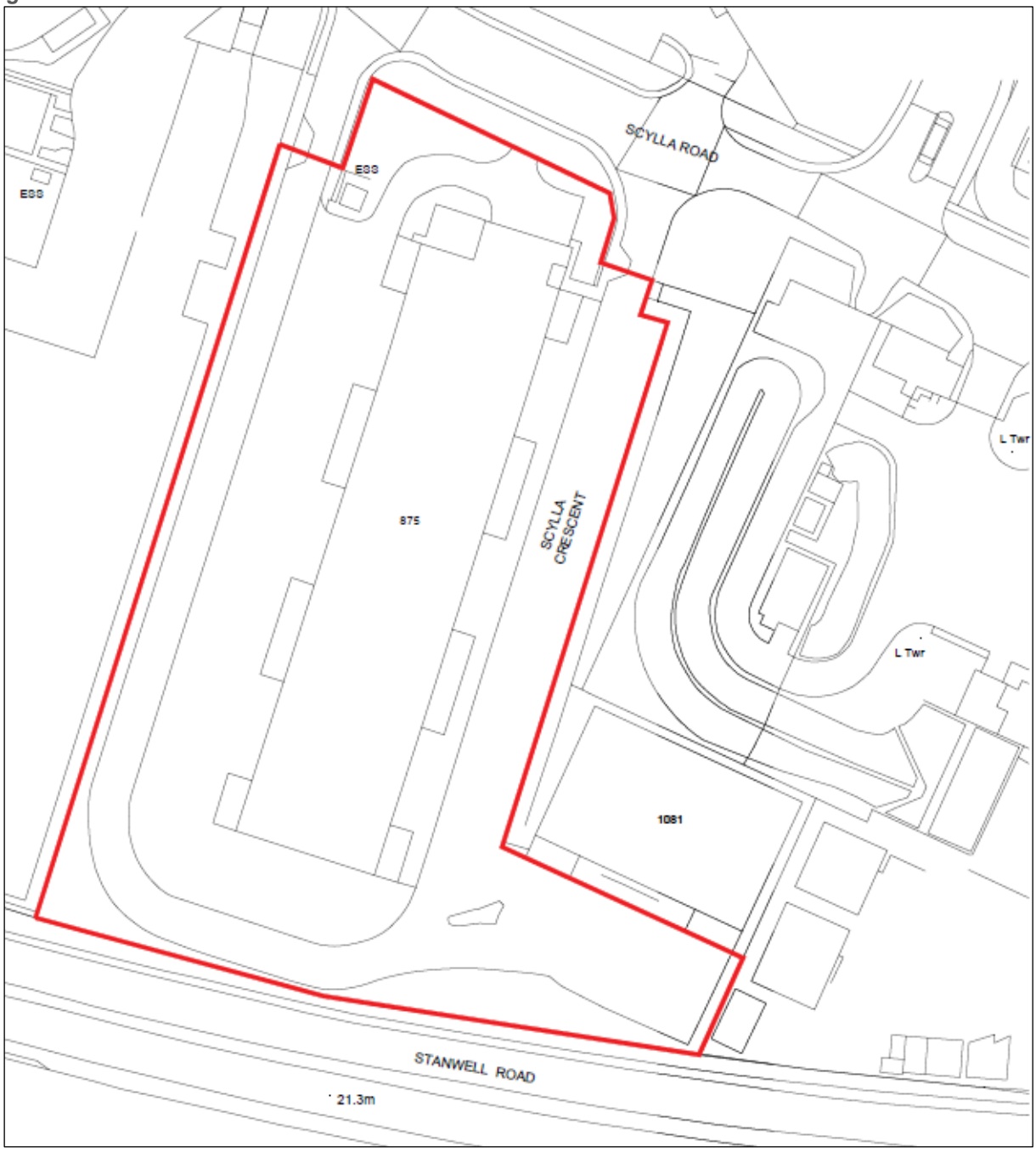
Figure 1.1 - Site Location



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2 Policy Context

National Air Quality Standards and Objectives

2.1 The assessment of potential air quality impacts associated with the proposed development has been evaluated with respect to the current air quality standards and objectives for the protection of human health, as set out in the Air Quality Regulations 2010[1] and The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[2] .

2.2 In the context of the Proposed Development, the pollutants of concern are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), which in an urban environment are primarily associated with road traffic emissions.

2.3 It is widely accepted that there is no safe level for $PM_{2.5}$ and on this basis The Environment Act (2021) required the Air Quality Regulations to be updated to include a more stringent long-term air quality target. On 31st January 2023, the Government published an Environmental Improvement Plan (EIP)[3], which included an Annual Mean Concentration Target (AMCT) of 10 µg/m^3, to be achieved by the end of 2040. This target has been adopted into UK law via the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[4]. A revised EIP[5] was published in December 2025 which brought the compliance date for the AMCT to 31st December 2030.

2.4 A summary of the air quality standards for NO_2, PM_{10} and $PM_{2.5}$, that are applicable in England, are presented in Table 2.1.

Table 2.1 – National Air Quality Standards and Objectives

Pollutant	Concentration measured as	Objective	Date by which limit value is to be met (and maintained thereafter)
NO_2	1-hour mean	200 µg/m^3, not to be exceeded more than 18 times per calendar year (a)	31st December 2005
NO_2	Annual mean	40 µg/m^3	31st December 2005
PM_{10}	24-hour mean	50 µg/m^3, not to be exceeded more than 35 times per calendar year (b)	31st December 2004
PM_{10}	Annual mean	40 µg/m^3	31st December 2004
$PM_{2.5}$	Annual mean	20 µg/m^3	1st January 2020
$PM_{2.5}$	Annual mean	10 µg/m^3 (target)	31st December 2040

[1] The Air Quality Standards Regulations 2010, SI 2010/1001 (UK)
[2] The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, SI 2020/1313 (UK)
[3] Department for Environment, Food & Rural Affairs (2023). Environmental Improvement Plan 2023. London: DEFRA.
[4] The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, SI 2023/96 (UK)
[5] Department for Environment, Food & Rural Affairs (2025). Environmental Improvement Plan 2025. London: DEFRA.

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Local Air Quality Management

2.5 The framework for Local Air Quality Management (LAQM) in the UK was introduced by the Environment Act 1995[6] . Local Authorities are required to regularly review and assess air quality to establish whether there are any locations where pollutant concentrations exceed the relevant air quality objectives or limit values. Where an exceedance is identified, the local authority is obliged to declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out measures to improve air quality and achieve compliance with the objective(s). The LAQM delivery framework for local authorities in England is set out in Defra's 2023 Air Quality Strategy[7] .

2.6 The core guidance document for use by persons involved in LAQM or considering the impacts of a development with the potential to affect air quality as covered by LAQM, is the LAQM Technical Guidance (TG22)[8] . Table 1-1 of the guidance provides examples of where the air quality objectives should and shouldn't apply, as shown in Table 2.2.

Table 2.2 – Examples of where the Air Quality Objectives Should Apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building 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 used as a 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	All locations where the annual mean objective would apply, together with hotels. 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 shorter than the 24-hour mean.
1-hour mean	All locations where the annual mean and 24-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 spend one hour or more. Any outdoor locations where members of the public might reasonably expect to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

[6] UK Government (1995). Environment Act 1995, Part IV: Air Quality, c.25. London: The Stationery Office
[7] Department for Environment, Food & Rural Affairs (2023). Air Quality Strategy: Framework for Local Authority Delivery. London: DEFRA
[8] Department for Environment, Food & Rural Affairs (2022). Local Air Quality Management Technical Guidance (TG22). London: DEFRA

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National Planning Policy Framework

2.7 The National Planning Policy Framework (NPPF)[9] serves as the key planning document in England, providing guidance for local authorities and developers on how to achieve sustainable development.

2.8 Paragraph 187 sets out the overall aim of environmental protection policies and states:

> *planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

2.9 Paragraph 198 concerns site suitability and states:

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

2.10 Paragraph 199 relates to existing local measures that are in place to improve air quality and 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.*

2.11 Paragraph 200 ensures that operations at existing businesses and facilities are not adversely affected by a proposed development and states:

2.12 *Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or*

[9] Department for Levelling Up, Housing and Communities (2024). National Planning Policy Framework.

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'agent of change') should be required to provide suitable mitigation before the development has been completed.

Planning Practice Guidance

2.13 The Planning Practice Guidance (NPPG)[10] is a web-based resource published by the UK government to support the NPPF. It provides detailed, practical guidance for local authorities, developers, and planning professionals on how to interpret and implement planning policies.

2.14 Specific guidance relating to air quality was published in November 2019[11]. It outlines the role of Local Plans in promoting sustainability and providing limitations on development in areas of poor air quality. An emphasis is placed on consultation with the planning authority to determine whether there are any local issues with the potential to affect the scope of an air quality assessment.

2.15 With regard to planning decisions, the NPPG states that the following need to be established to determine whether air quality is a relevant consideration:

- *the 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- *whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- *whether occupiers or users of the development could experience poor living conditions or health due to poor air quality*.

The London Plan 2021

2.16 Policy SI1 (Improving Air Quality) of the London Plan[12] sets out the Greater London Authority's (GLA) commitment to improving air quality and public health and states:

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

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

1. Development proposals should not:

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[10] https://www.gov.uk/government/collections/planning-practice-guidance
[11] Department for Levelling Up, Housing and Communities (2019). Planning Practice Guidance: Air Quality
[12] The London Plan 2021, The Spatial Development Strategy for Greater London, Greater London Authority, March 2021.

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lead to further deterioration of existing poor air quality.

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.

create unacceptable risk of high levels of exposure to poor air quality.

2. In order to meet the requirements in Part 1, as a minimum:

Development proposals must be at least air quality neutral.

Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures.

Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1.

Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people, which do not demonstrate that design measures have been used to minimise exposure should be refused.

C. Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

How proposals have considered ways to maximise benefits to local air quality, and

What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

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

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

2.17 The Air Quality Neutral London Plan Guidance (LPG)[13] sets out the maximum permissible (benchmarked) emissions of NO_2 and $PM_{2.5}$ from a Proposed Development, based on its size and

[13] Greater London Authority (GLA) (2023) Air Quality Neutral London Plan Guidance, February 2023

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use-class. All developments are required to meet or improve upon these benchmarks to minimise impacts on local air quality. Two sets of benchmarks are provided:

- Building Emissions Benchmark (BEB) – emissions associated with supplying heat and energy to the development; and
- Transport Emissions Benchmark (TEB) – emissions from private vehicles travelling to and from the development.

2.18 In accordance with the Guidance, the following development types are assumed to meet the benchmarks and are Air Quality Neutral:

- Developments that meet the London Plan definition of 'car-free'; and
- Developments with a 100% electric energy strategy.

2.19 In addition, minor developments are considered Air Quality Neutral if the proposed parking provision does not exceed the maximum permissible level, as set out in Policy T6 of the London Plan (2021).

London Environment Strategy

2.20 Chapter 4 of the London Environment Strategy[14] outlines the Greater London Authority's (GLA) commitment to improving air quality in London. The strategy aims plan to significantly reduce NO2 and particulate (PM_{10}, $PM_{2.5}$ and black carbon) concentrations through a number of key objectives and policies:

Objective 4.1 support and empower London and its communities, particularly the most disadvantaged and those in priority locations, to reduce their exposure to poor air quality.

Policy 4.1.1 Make sure that London and its communities, particularly the most disadvantaged and those in priority locations, are empowered to reduce their exposure to poor air quality.

Policy 4.1.2 Improve the understanding of air quality health impacts to better target policies and action.

Objective 4.2 achieve legal compliance with UK and EU limits as soon as possible, including by mobilising action from London boroughs, government and other partners.

Policy 4.2.1 Reduce emissions from London's road transport network by phasing out fossil fuelled vehicles, prioritising action on diesel, and enabling Londoners to switch to more sustainable forms of transport.

Policy 4.2.2 Reduce emissions from non-road transport sources, including by phasing out fossil fuels.

[14] London Environment Strategy, GLA, May 2018

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Policy 4.2.3 Reduce emissions from non-transport sources, including by phasing out fossil fuels.

Policy 4.2.4 The Mayor will work with the government, the London boroughs and other partners to accelerate the achievement of legal limits in Greater London and improve air quality.

Policy 4.2.5 The Mayor will work with other cities (here and internationally), global city and industry networks to share best practice, lead action and support evidence-based steps to improve air quality.

Objective 4.3 establish and achieve new, tighter air quality targets for a cleaner London by transitioning to a zero emission London by 2050, meeting World Health Organization health-based guidelines for air quality.

Policy 4.3.1 The Mayor will establish new targets for $PM_{2.5}$ and other pollutants where needed. The Mayor will seek to meet these targets as soon as possible, working with government and other partners.

Policy 4.3.2 The Mayor will encourage the take up of ultra-low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines.

Policy 4.3.3 Phase out the use of fossil fuels to heat, cool and maintain London's buildings, homes and urban spaces, and reduce the impact of building emissions on air quality.

Policy 4.3.4 Work to reduce exposure to indoor air pollutants in the home, schools, workplace and other enclosed spaces.

2.21 With regard to Policy 4.3.1, the Mayor of London has set a target for compliance with the now superseded WHO guideline value for $PM_{2.5}$ of 10 µg/m^3 by 2030.

Greater London Authority Air Quality Focus Areas

2.22 Air Quality Focus Areas (AQFAs) have been identified by the GLA where there is high human exposure in locations where the annual mean air quality objective for NO_2 is exceeded. The purpose of the Focus Areas is to allow local authorities to target actions to improve air quality where it is most needed and to inform the planning process with regard to the air quality impact of new developments.

2.23 The Proposed Development is located within the Heathrow AQFA, as shown in Figure 2.1.

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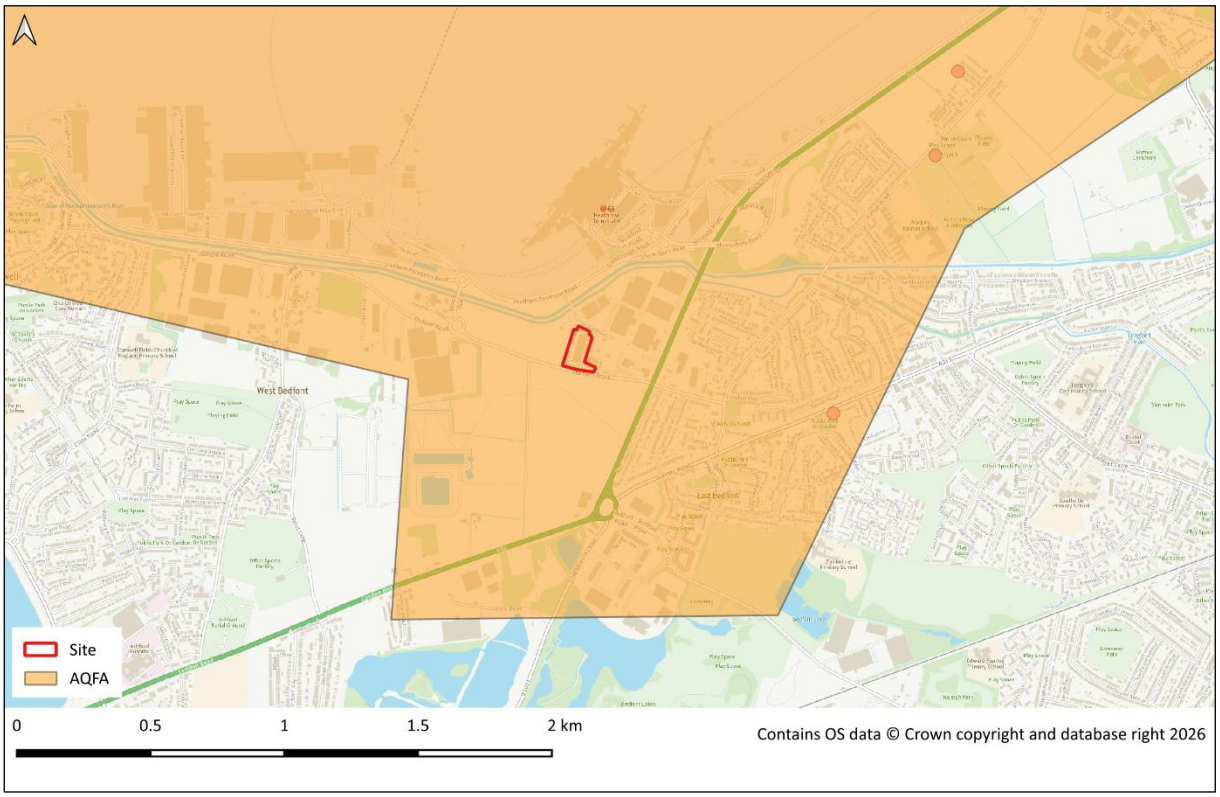
Figure 2.1 Location of Site relative to Heathrow AQFA



London Borough of Hillingdon Air Quality Action Plan

2.24 LBH carries out frequent review and assessments of air quality within the area and produces Annual Status Reports (ASR's) in accordance with the requirements of Defra.

2.25 Historically, routine monitoring of NO_2 concentrations within the Borough identified many areas where the air quality objectives were exceeded. Consequently, in 2003 the Council declared an AQMA and produced an AQAP outlining their commitment to improving local air quality.

2.26 The current Hillingdon Air Quality Action Plan[15] outlines the Council's commitment to improving air quality in the Borough. Borough-wide actions include:

- Leading by example by reducing emissions from the Council's vehicle fleet and buildings.
- Reducing public exposure and improving air quality around schools.
- Implementation of improvement strategies in the AQ Focus Areas.

[15] London Borough of Hillingdon (2019), Air Quality Action Plan 2019–2024. Adopted 2019

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- Ensure the integration of the 'Health Streets' approach in relevant council work programmes.
- Ensure the planning system supports the achievement of air quality improvements in relation to new developments.
- Raise awareness via targeted campaigns.

2.27 In April 2025 LBH published a draft new Action Plan[16], which is currently under consultation. The core aims of the plan are as follows:

1) To reduce pollutant emissions within our Borough to the maximum possible extent, with all emissions being mitigated.

2) To reduce pollution concentrations, striving to achieve the World Health organization (WHO) guidelines in the shortest time possible.

3) Remove inequalities in exposure to poor air quality and protect the vulnerable.

4) Continue to use the planning system to ensure:

- *new development does not contribute additional air pollution; and*
- *new development in our Focus Areas contribute improvements in air quality.*

5) Raise awareness on the health impacts and preventive measures to be taken to safeguard health.

6) Influence change and lead by example.'

2.28 Progress against the Action Plan is evaluated by the ongoing monitoring programme and reported annually within the Council's ASR..

Hillingdon Local Plan

2.29 The Hillingdon Local Plan: Part 2[17] sets out strategic objectives and policies for development in the Borough. Policy DMEI 14 relates specifically to air quality and states that:

A. Development proposals should demonstrate appropriate reductions in emissions to sustain compliance with and contribute towards meeting EU limit values and national air quality objectives for pollutants.

B. Development proposals should, as a minimum:

be at least "air quality neutral".

[16] London Borough of Hillingdon (2025) Draft Air Quality Action Plan 2025–2030, Published for consultation April 2025
[17] London Borough of Hillingdon. (2020), Hillingdon Local Plan Part 2: Development Management Policies. Adopted 16 January 2020

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include sufficient mitigation to ensure there is no unacceptable risk from air pollution to sensitive receptors, both existing and new; and

actively contribute towards the continued improvement of air quality, especially within the Air Quality Management Area.

2.30 In addition, policy DMEI 1 (Living Walls and Roofs and on-site Vegetation) states that: *Major development in Air Quality Management Areas must provide onsite provision of living roofs and/or walls. A suitable offsite contribution may be required where onsite provision is not appropriate.*

World Health Organization (WHO) Air Quality Guidelines

2.31 The WHO's 2021 Air Quality Guidelines[18] (AQG's) provide evidence-based thresholds for key air pollutants to protect human health. The guidelines are considerably more stringent than the current UK statutory air quality standards and objectives. The AQG's for NO_2, PM_{10} and $PM_{2.5}$ are set out in Table 2.3. Interim targets are also included to support gradual progress, acknowledging that the guidelines are currently significantly exceeded in many parts of the world.

2.32 The AQG's are not legally binding, however LBH have set a target for compliance with the long-term AQG's for NO_2 and $PM_{2.5}$ in the shortest possible time.

Table 2.3 – WHO Air Quality Guidelines

Pollutant	Averaging Period	Interim Target (µg/m³)				AQG Level (µg/m³)
		1	2	3	4	
NO_2	24-hour mean (a)	120	50	-	-	25
NO_2	Annual mean	40	30	20	-	10
PM_{10}	24-hour mean (a)	150	100	75	50	45
PM_{10}	Annual mean	70	50	30	20	15
$PM_{2.5}$	24-hour mean (a)	75	50	37.5	25	15
$PM_{2.5}$	Annual mean	35	25	15	10	5
(a) 99th percentile (3-4 exceedances per year)						

[18] World Health Organization (2021), WHO global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva: World Health Organization. ISBN 9789240034228.

3 Methodology

Scope

3.1 The scope of the assessment is as follows:

- A review of local air quality monitoring data to establish existing baseline air quality in the area around the Site.
- A construction dust risk assessment to identify best practice dust control measures that will be required to minimise impacts associated with the Site.
- An assessment of potential construction and operational traffic-related impacts.
- A qualitative assessment of the site suitability with respect to the potential exposure of future occupants to poor air quality.
- A summary of proposed construction and operational phase mitigation measures.
- An air quality neutral assessment.

3.2 Details of the assessment methodology are provided below. The key guidance, data sources and tools used to support the assessment are summarised in Appendix A.

Construction Phase

Construction Dust Emissions

3.3 The potential impact on local air quality of dust generated during site enabling and construction works at the Proposed Development has been undertaken in accordance with the latest Institute of Air Quality Management (IAQM) construction dust guidance[19] .

3.4 A detailed assessment of dust impacts is required where there are human receptors within:

- 250m of the site boundary; or
- 50m of the route(s) used by construction vehicles on public roads, up to 250m from the site entrance(s).

3.5 For ecological receptors, the screening criteria are:

- 50m of the site boundary; or

[19] Institute of Air Quality Management. (2024). Guidance on the Assessment of Dust from Demolition and Construction (Version 2.2). London: Institute of Air Quality Management

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- 50m of the route(s) used by construction vehicles on public roads, up to 250m from the site entrance(s).

3.6 A full description of the construction dust risk assessment methodology is provided in Appendix B. The methodology allows the potential risk of dust soiling and human health effects to be determined, based on the sensitivity of nearby receptors (human and ecological) and the anticipated magnitude of the dust emission due to:

- demolition;
- earthworks;
- construction; and
- trackout[20].

3.7 The assessment of dust risk is also based on professional judgement taking into account factors such as the prevailing wind direction, the proposed construction phasing, the likely duration of dust raising activities, local topography and existing air quality.

3.8 A range of best practice mitigation measures are provided within the guidance, which are dependent on the level of dust risk attributed to the site. Where required, the measures should be incorporated into an Air Quality and Dust Management Plan (AQDMP) for the Proposed Development and approved by LBH prior to the commencement of works on site.

3.9 The significance of the residual impacts following appropriate mitigation is determined by professional judgement.

Traffic Emissions

3.10 Detailed information relating to construction traffic associated with the Proposed Development is not currently available, however the proposed shed is a prefabricated structure, which will be installed on an existing concrete base. On this basis, very few trips are likely to be generated. In addition, the construction phase is expected to take less than 1 month and therefore the annual average daily trip (AADT) generation is expected to be minimal. The temporary impact of vehicular emissions of NO_2, PM_{10} and $PM_{2.5}$ from construction traffic, will therefore be negligible.

Non-Road Mobile Machinery (NRMM) Emissions

3.11 All NRMM will meet the emissions standards specified in Table 3.1.

[20] Re-suspended dust from HGV movements

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Table 3.1 – NRMM Emission Standards

NRMM	Emission Standard
Engines with a power rating between 37 kW and 560 kW	Stage IV of the 97/68/EC Directive
Machines with constant speed engines e.g., generators	Stage V of the 97/68/EC Directive
Variable speed engines below 56 kW	Stage V of the 97/68/EC Directive

3.12 The contractor will ensure that all NRMM used on-Site are registered[21] and meet the relevant standards. The impact of emissions from on-site machinery on local air quality is therefore anticipated to be negligible.

Operational Phase

Traffic Emissions

3.13 A summary of the existing and proposed trip generation associated with the Site is presented in Table 3.2. The Proposed Development will result in 21 additional vehicle movements on the local road network per day, of which a maximum of 11 are expected to be HDV's.

3.14 All trips are expected to route to and from the M25 vis the Southern Perimeter Road and Airport Way.

3.15 Detailed dispersion modelling of the traffic emissions has been undertaken using the ADMS-Roads dispersion model, using hourly sequential meteorological data from Heathrow Airport.

3.16 The following scenarios have been assessed:

- 2026 Baseline; and
- 2026 Baseline + Development.

3.17 The 2026 (opening year) baseline flows have been derived from 2024 Department for Transport automatic traffic counts and 2022 London Atmospheric Emission Inventory (LAEI) traffic data with a TEMPro growth factor applied to account for the cumulative impact of traffic associated with other committed/ proposed developments in the area. A summary of the model input parameters is presented in Appendix C.

3.18 Concentrations of NOx, PM_{10} and $PM_{2.5}$ have been predicted using baseline (2024) vehicle emission factors from the latest version of the Emissions Factor Toolkit (EFTv14.0) in conjunction with 2024 background concentrations.

[21] https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/non-road-mobile-machinery-register/login/register

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3.19 The predicted NOx concentrations have been converted to NO_2 using version 9.1 of the NOx to NO_2 calculator, available from the Defra air quality website[22].

3.20 There is an inherent level of uncertainty associated with any assessment process; however, the methodology presented has been developed to minimise errors where possible. Potential errors in predicted concentrations due to uncertainties in the assessment source activity data (e.g., traffic flows and emission factors) and the estimated background concentration are minimised by the verification of modelled concentrations using local monitoring data.

3.21 TG22 recommends that modelled concentrations should be within 25% of monitored concentrations, ideally within 10%. Where there is a large discrepancy between modelled and measured concentrations, it is considered necessary to adjust the model results to reflect local air quality more accurately.

3.22 The modelled concentrations have been verified using 2024 data from roadside air quality monitoring sites in the area. Full details of the model verification process are presented in Appendix D.

3.23 Impacts on air quality have been evaluated at four locations, representing worst-case residential exposure (closest to Airport Way and the Southern Perimeter Road), as shown in Figure 3.1. Concentrations have also been predicted at the façade of the Proposed Development to determine whether mitigation is required on Site to protect future occupants from exposure to poor air quality. A summary of the sensitive receptors is presented in Table 3.2.

3.24 Concentrations have been predicted at 1.5m above road level, representing the typical ground-floor level exposure zone.

Table 3.2 – Sensitive Receptors

ID	Location	Type	Easting	Northing
1	Riverbank	Residential	504553	175181
2	60 Bedfont Road	Residential	506222	174355
3	28 Cleveland Park	Residential	506396	174314
4	Stanwell Farm	Residential	506869	174243
5	Proposed Development 1	Commercial	507855	173899
6	Proposed Development 2	Commercial	507898	174035

[22] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/

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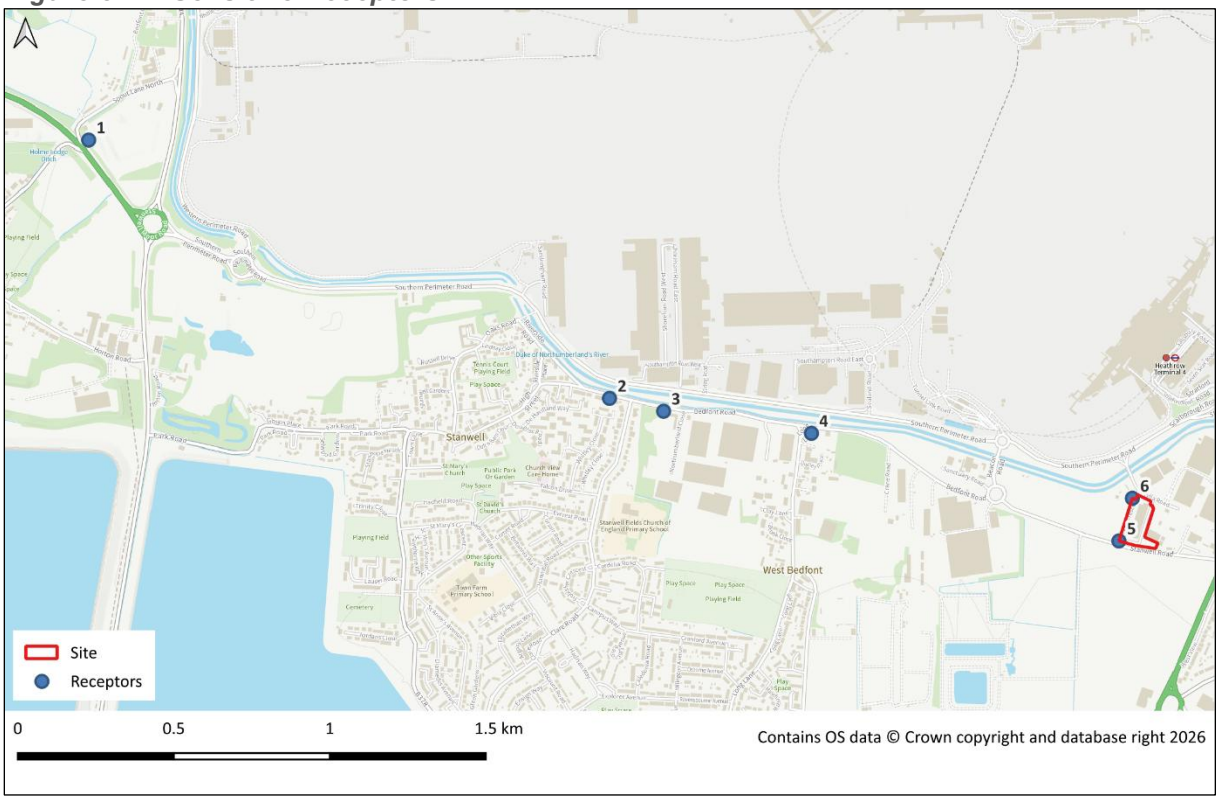
Figure 3.1 – Sensitive Receptors



3.25 The significance of the predicted impact on NO_2 and $PM_{2.5}$ concentrations has been evaluated in accordance with LBH criteria, as set out in Tables 3.3 and 3.4, respectively. The significance of the predicted impact on PM_{10} concentrations has been determined in accordance with the EPUK/ IAQM Planning Guidance, as set out in Table 3.5.

3.26 The descriptors are based on the predicted increase in the annual mean pollutant concentration and existing air quality.

3.27 The IAQM/EPUK guidance states that the percentage change in the PM_{10} concentration (relative to the AQAL) should be rounded up or down to the nearest whole number. Changes of less than 1%, but greater than or equal to 0.5%, should be rounded up to 1%. Changes of less than 0.5% are described as 'negligible'.

3.28 The overall significance of an impact is determined by professional judgement, taking into account the sensitivity of individual receptors and other factors such as the number of people or properties that will be exposed to a change in air quality.

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Table 3.3 – LBH Significance Matrix for NO_2

Annual mean at receptor (µg/m³)	Change in Concentration (µg/m³)				
	<0.05	≥0.05 - <0.15	≥0.15 - <0.55	≥0.55 - <0.95	≥0.95
<7.5	Negligible	Negligible	Negligible	Slight	Moderate
7.6 – 9.4	Negligible	Negligible	Slight	Moderate	Moderate
9.5 – 10.2	Negligible	Slight	Moderate	Moderate	Substantial
10.3 – 10.9	Negligible	Moderate	Moderate	Substantial	Substantial
>11	Negligible	Moderate	Substantial	Substantial	Substantial

Table 3.4 – LBH Significance Matrix for $PM_{2.5}$

Annual mean at receptor (µg/m³)	Change in Concentration (µg/m³)				
	<0.05	≥0.05 - <0.15	≥0.15 - <0.55	≥0.55 - <0.95	≥0.95
< 5	Negligible	Negligible	Slight	Moderate	Moderate
5 - 7	Negligible	Slight	Moderate	Substantial	Substantial
8 – 10	Slight	Moderate	Substantial	Substantial	Substantial
>10	Moderate	Substantial	Substantial	Substantial	Substantial

Table 3.5 – Impact Descriptors for Individual Receptors (PM_{10})

Annual mean at receptor (µg/m³)	% Change in Concentration relative to Air Quality Assessment Level (AQAL)			
	1%	2 – 5%	6 – 10%	>10%
≤ 30	Negligible	Negligible	Slight	Moderate
30.4 – 37.6	Negligible	Slight	Moderate	Moderate
38 – 40.8	Slight	Moderate	Moderate	Substantial
41.2 – 44	Moderate	Moderate	Substantial	Substantial
>44	Moderate	Substantial	Substantial	Substantial

Building Emissions

3.29 The energy strategy for the Proposed Development is 100% electric. There will be no combustion emissions associated with the building and therefore no impact on local air quality.

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4 Baseline Air Quality

Local Air Quality Monitoring Data

4.1 Ambient air quality is measured in London using a combination of automatic air quality monitoring stations (AQMS) and passive NO_2 diffusion tubes. Details of the monitoring sites that are considered relevant to the assessment are provided in Table 4.1. The monitoring locations relative to the Proposed Development are shown in Figure 4.1 and Figure 4.2.

Table 4.1 – Air Quality Monitoring Sites

ID	Location	Type	Easting	Northing	Pollutants
Automatic					
BAA_OAKS/ T54	Heathrow Oaks Road	Urban Background	505729	174496	NO_2, PM_{10}, $PM_{2.5}$
HS7	Hatton Cross	Urban Background	509334	174997	NO_2, PM_{10}, $PM_{2.5}$
Diffusion Tube					
SP14	Flintock Close, Stanwell	Urban Background	504228	175098	NO_2
SP16/ SP17/ SP18	Oaks Road, Stanwell	Urban Background	505729	174496	NO_2
SP19	Bedfont Road, Stanwell	Roadside	506856	174247	NO_2
SP26	St Marys Crescent, Stanwell	Urban Background	505635	173949	NO_2
SP31	Ashford Hospital, Stanwell	Roadside	506265	172681	NO_2
SP47	Hadrian Way, Stanwell	Urban Background	506194	173445	NO_2
SP48	Riverside Road, Stanwell	Kerbside	506010	174516	NO_2
SP60	Stanwell Moor Road	Roadside	504736	174338	NO_2
SP61	Horton Road	Roadside	504426	174580	NO_2
SP62	Park Road, Stanwell	Roadside	505397	174237	NO_2
SP63	Northumberland Close	Roadside	506442	174275	NO_2
SP64	London Road (junction with Short Lane)	Roadside	506924	172968	NO_2
SP65	Spout Lane	Kerbside	504469	175169	NO_2

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Figure 4.1 – Automatic Air Quality Monitoring Stations

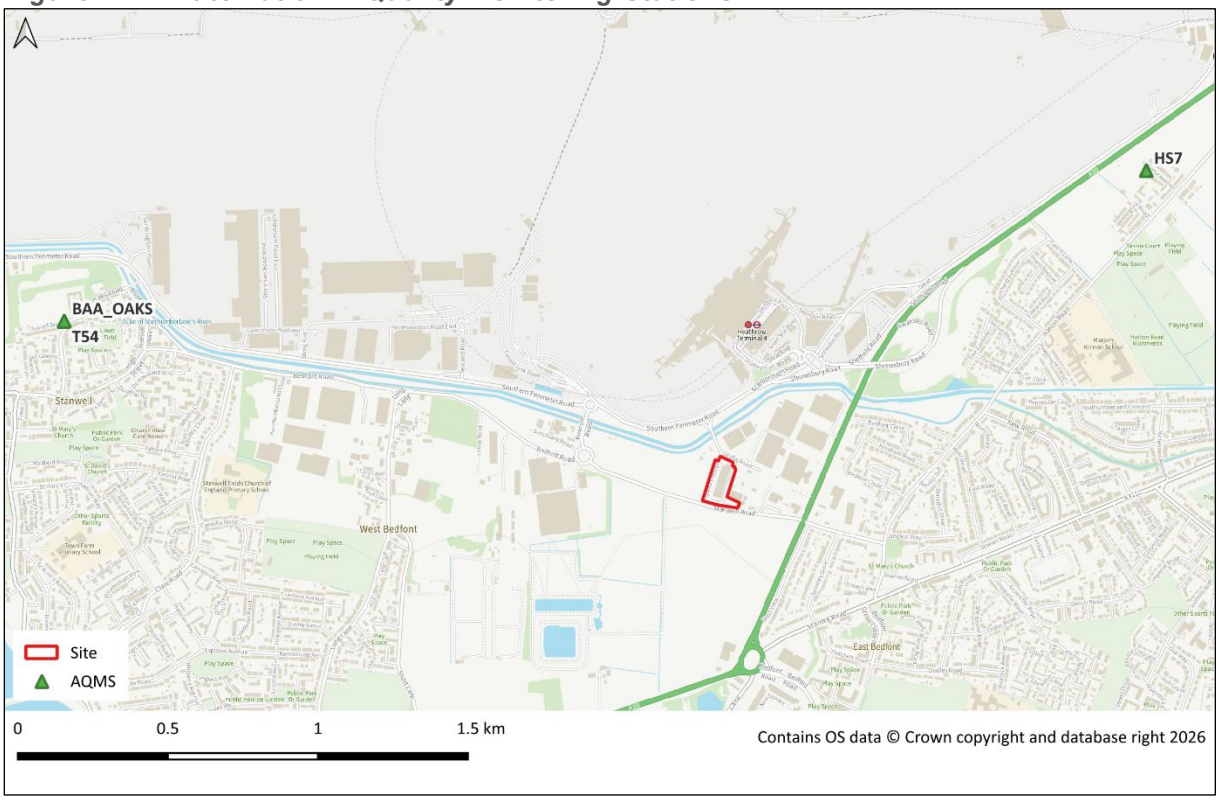
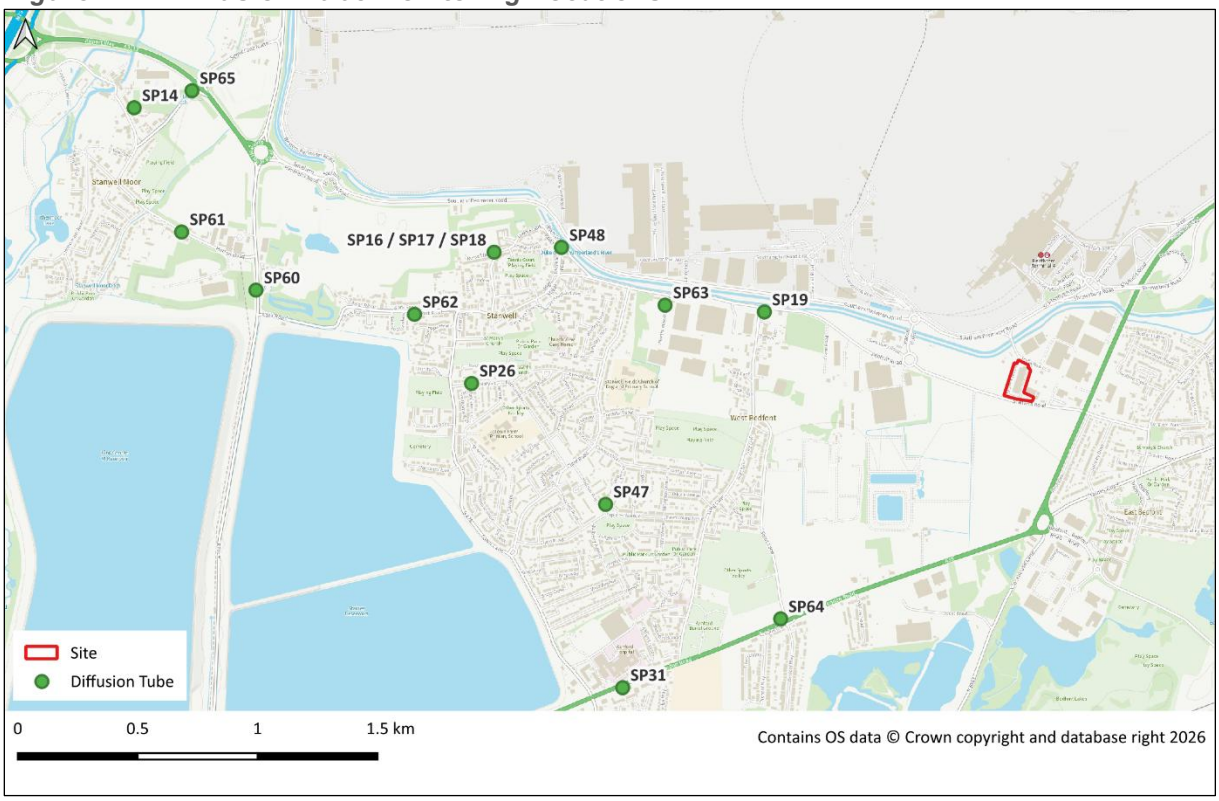


Figure 4.2 – Diffusion Tube Monitoring Locations



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Nitrogen Dioxide

4.2 A summary of NO_2 concentrations measured between 2019 and 2025 is presented in Table 4.2. Exceedances of the objective are highlighted in bold. The data have been obtained from LBH's and the neighbouring London Borough of Spelthorne and London Borough of Hounslow's air quality status reports[23],as well as Air Quality England[24].

4.3 The data show that there was a significant drop in NO_2 concentrations in 2020, due to reductions in traffic associated with the Covid-19 pandemic lockdown measures. As traffic levels have recovered, NO_2 have gradually increased but have remained well below pre-pandemic level. The data indicates that concentrations in the area declined slightly in 2024, likely due to the expansion of the Ultra-Low Emission Zone (ULEZ) and the ongoing uptake of low emission vehicles.

4.4 There were no recorded exceedances of the 1-hour mean objective at the two urban background automatic monitoring sites between 2019 and 2025. It is not possible to measure short-term NO_2 concentrations using diffusion tubes, however measurements across the UK[25] have shown that an exceedance of the 1-hour objective is unlikely where the annual mean concentration is less than 60 µg/m^3. The concentrations measured in the area since 2019 are well below this threshold, therefore it is also very unlikely that the short-term objective is being exceeded at roadside locations.

Table 4.2 – NO_2 Monitoring Data

ID	2019	2020	2021	2022	2023	2024	2025 (a)
Annual Mean (µg/m^3)							
BAA_OAKS/ T54	26 (b)	17	19	20	20	18	20
HS7	28 (b)	17	18	20	19	18	18
SP14	28.0	16.2	18.3	21.0	17.6	16.5	-
SP16/ SP17/ SP18	29.2	17.4	18.5	20.3	19.7	18.5	-
SP19	35.8	22.6	23.1	24.7	21.8	21.2	-
SP26	31.9	19.9	21.5	22.3	23.6	19.1	-
SP31	34.8	23.0	25.3	24.8	23.6	18.1 (b)	-
SP47	25.7	16.8	18.5	18.2	15.6	15.5	-

[23] London Borough of Croydon (2023), Air Quality Annual Status Report for 2022, May 2023 / London Borough of Sutton (2025), Air Quality Annual Status Report for 2024, August 2025
[24] https://londonair.org.uk/
[25] Laxen, D. and Marner, B. (2003). *Analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites*, Report for the UK Department for Environment, Food and Rural Affairs

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ID	2019	2020	2021	2022	2023	2024	2025 (a)
SP48	35.5	21.3	23.0	24.1	25.3	19.3 (b)	-
SP60	**57.0**	36.1	37.2	**40.8**	29.1	24.3	-
SP61	31.2	18.9	19.6	20.4	16.7	16.9	-
SP62	29.7	18.2	20.0	22.2	20.6	19.5	-
SP63	**40.2**	24.7	25.5	25.8	26.0	22.8	-
SP64	32.3	23.5	23.2	23.4	19.7	18.6	-
SP65	34.6	21.2	22.5	23.4	22.5	18.7	-
Number of 1-Hour Means > 200 µg/m^3							
BAA_OAKS/ T54	0 (b)	0	0	0	0	0	0
HS7	0 (b)	0	0	0	0	0	0
(a) Provisional data (b) Data capture < 90%							

Particulate Matter

4.5 A summary of PM_{10} and $PM_{2.5}$ concentrations measured automatically between 2019 and 2025 is presented in Table 4.3.

4.6 The data indicates that annual mean background concentrations in the area are well within the current air quality standards. The data also indicates compliance with the 2025 EIP target for $PM_{2.5}$ of 10 µg/m^3.

4.7 The number of exceedances of the short-term (24-hour mean) PM_{10} standard of 50 µg/m^3 is consistently well below the 35 allowable per annum.

Table 4.3 – PM_{10} and $PM_{2.5}$ Monitoring Data

ID	2019	2020	2021	2022	2023	2024	2025 (a)
Annual Mean PM_{10} (µg/m^3)							
BAA_OAKS/ T54	15 (b)	13	12	13	12	12	14
HS7	20 (b)	18	19	23	20	19 (b)	16 (b)
Number of 24-Hour Means > 50 µg/m^3							
BAA_OAKS/ T54	4 (b)	0	0	2	0	0	0
HS7	7 (b)	4	2	2	1	0 (b)	3 (b)
Annual Mean PM_{10} (µg/m^3)							

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ID	2019	2020	2021	2022	2023	2024	2025 (a)
BAA_OAKS/ T54	10 (b)	7	7	8	7	7	7
HS7	-	-	-	-	-	-	10 (b)
(a) Provisional data (b) Data capture < 90%							

Defra Mapped Background Concentrations

4.8 Baseline (2024) annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations at the Proposed Development have been obtained from the Defra UK Background Air Pollution maps[26] . These 1km resolution maps are derived from a complex modelling exercise that takes into account emissions inventories and measurements of ambient air pollution from both automated and non-automated sites. The latest background maps were issued in November 2024 and are based on 2021 monitoring data, with projections for future years.

4.9 The mapped concentrations at the Site, the identified receptors and verification locations are presented in Table 4.4.

Table 4.4 – Mapped Background Concentrations

Location	NO_2	PM_{10}	$PM_{2.5}$
Receptors			
1 - Riverbank	18.8	14.4	8.0
2 - 60 Bedfont Road	26.7	12.7	7.9
3 - 28 Cleveland Park	26.7	12.7	7.9
4 - Stanwell Farm	26.7	12.7	7.9
5 - Proposed Development 1	18.8	12.9	7.7
6 - Proposed Development 2	18.8	12.9	7.7
Verification Locations			
SP19	26.7	12.7	7.9
SP60	17.5	14	7.9
SP64	16.5	12.2	7.6

[26] https://uk-air.defra.gov.uk/data/laqm-background-home

4.10 The mapped background NO_2 concentrations at receptors 2, 3 and 4 fall in the same grid square as Heathrow Airport. The concentrations measured at roadside monitoring locations in the same grid square (SP19, SP48 and SP63) are considerably lower, indicating that the mapped concentration is likely a significant overprediction of the existing background NO_2 concentration for these receptors.

4.11 The mapped NO_2 concentrations at all other locations are broadly in line with background concentrations measured in the area. On this basis, the measured NO_2 concentration for the nearest/most appropriate background monitoring site to the receptor/verification site has been used in the assessment.

4.12 The mapped particulate concentrations are slightly higher than the measured concentrations at the nearest automatic monitoring site (T54). In the absence of a local roadside particulate monitoring site, the model verification has been undertaken for NO_2 only. On this basis, the worst-case (mapped) PM_{10} and $PM_{2.5}$ concentrations have been used in the assessment to predict concentrations at sensitive receptor locations.

4.13 To ensure a conservative assessment of the impact of the development traffic on local air quality, the 2024 data have been used to predict concentrations at the receptor locations in the opening year (2026).

4.14 A summary of the mapped concentrations used in the assessment for each receptor and verification location is presented in Table 4.5. For NO_2, the monitoring location used is presented in brackets.

Table 4.5 – Assessment Background Concentrations

Location	NO_2	PM_{10}	$PM_{2.5}$
Receptors			
1 - Riverbank	16.5 (SP14)	14.4	8.0
2 - 60 Bedfont Road	18 (T54)	12.7	7.9
3 - 28 Cleveland Park	18 (T54)	12.7	7.9
4 - Stanwell Farm	18 (T54)	12.7	7.9
5 - Proposed Development 1	18 (T54)	12.9	7.7
6 - Proposed Development 2	18 (T54)	12.9	7.7
Verification Locations			
SP19	18 (T54)	12.7	7.9
SP60	18 (T54)	14	7.9
SP64	15.5 (SP47)	12.2	7.6

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5 Construction Dust Risk Assessment

Screening

5.1 The area around the Site that has the potential to be affected by dust generated during on-site works (demolition, earthworks and construction) or by the re-suspension of material tracked by out of the Site onto the local road network (trackout) is shown in Figure 5.1 and Figure 5.2, respectively. The affected area includes both residential properties and commercial premises; a detailed assessment is therefore required to inform the construction phase mitigation strategy for the Proposed Development.

5.2 There are no dust sensitive habitat sites within 50m of the Site or roads used by construction traffic (up to 250m from the Site), therefore ecological effects have been scoped out of the assessment.

Figure 5.1 – Screening Distances for Effects from Demolition, Earthworks and Construction

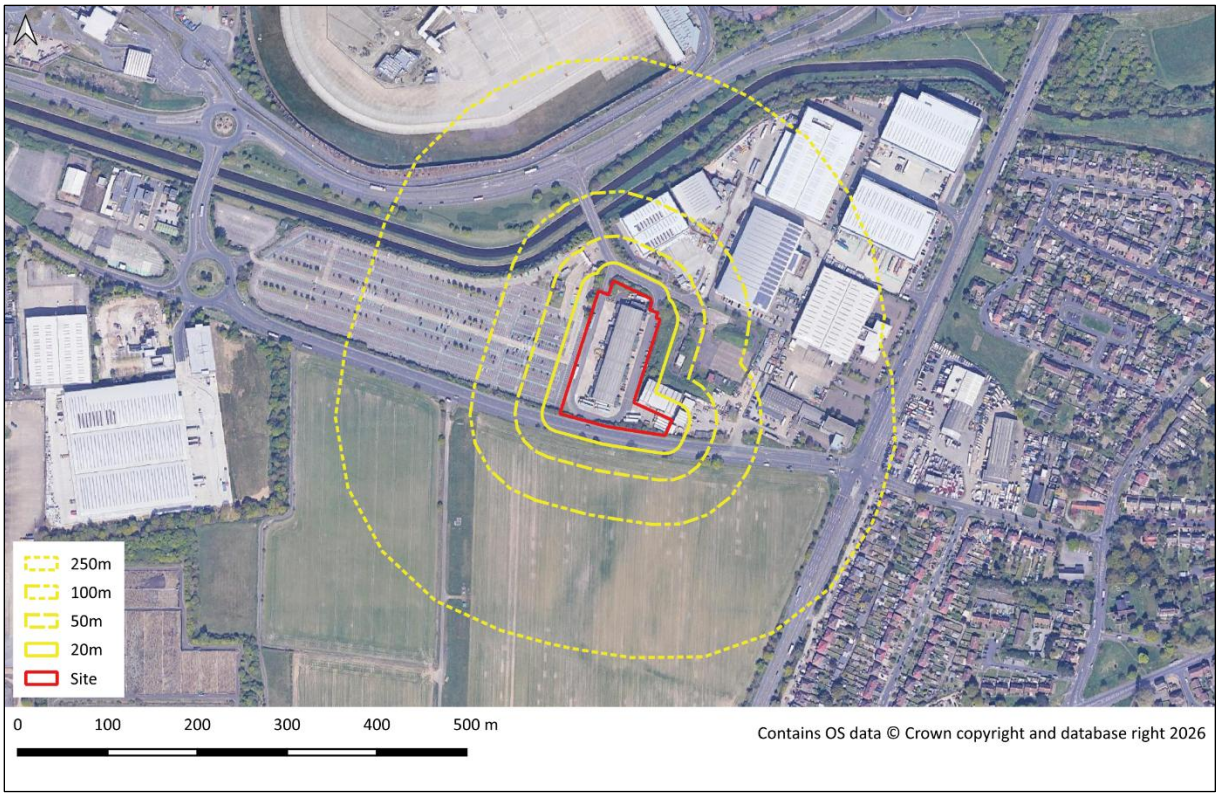

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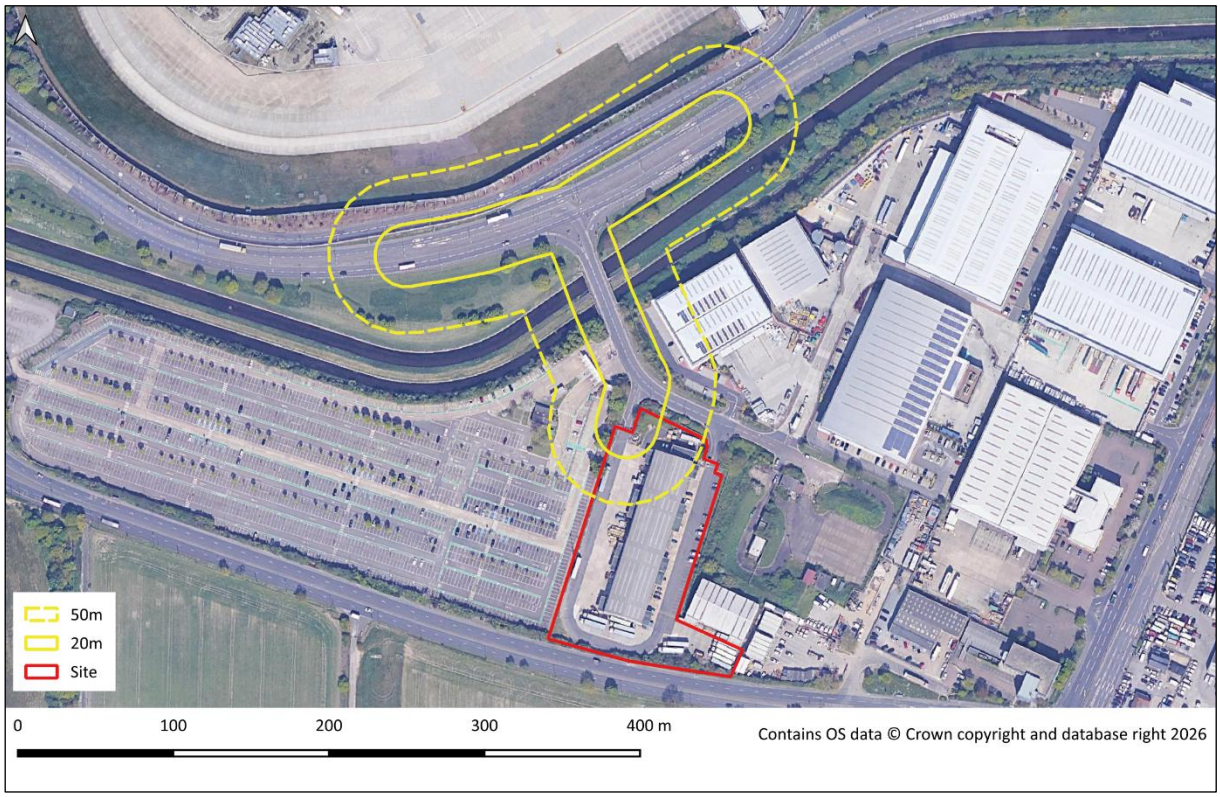
Figure 5.2 – Screening Distances for Effects from Trackout



Baseline Conditions

5.3 The precise behaviour of dust, its residence time in the atmosphere and the distance it may travel before being deposited depends on many factors including wind direction and strength, local topography and the presence of intervening structures (buildings, trees etc.). Dust is also naturally supressed by rainfall and consequently works undertaken during wetter times of the year are less like to result in significant effects off-Site.

5.4 A five-year average (2020 to 2024) wind rose for London Heathrow Airport is presented in Figure 5.3. The prevailing wind direction is from the west-southwest and southwest, therefore receptors to the east-northeast and northeast are most likely to be affected by dust generated on Site.

5.5 There are no large structures or vegetation that are likely to significantly attenuate dust effects at the nearest sensitive receptors to the Site.

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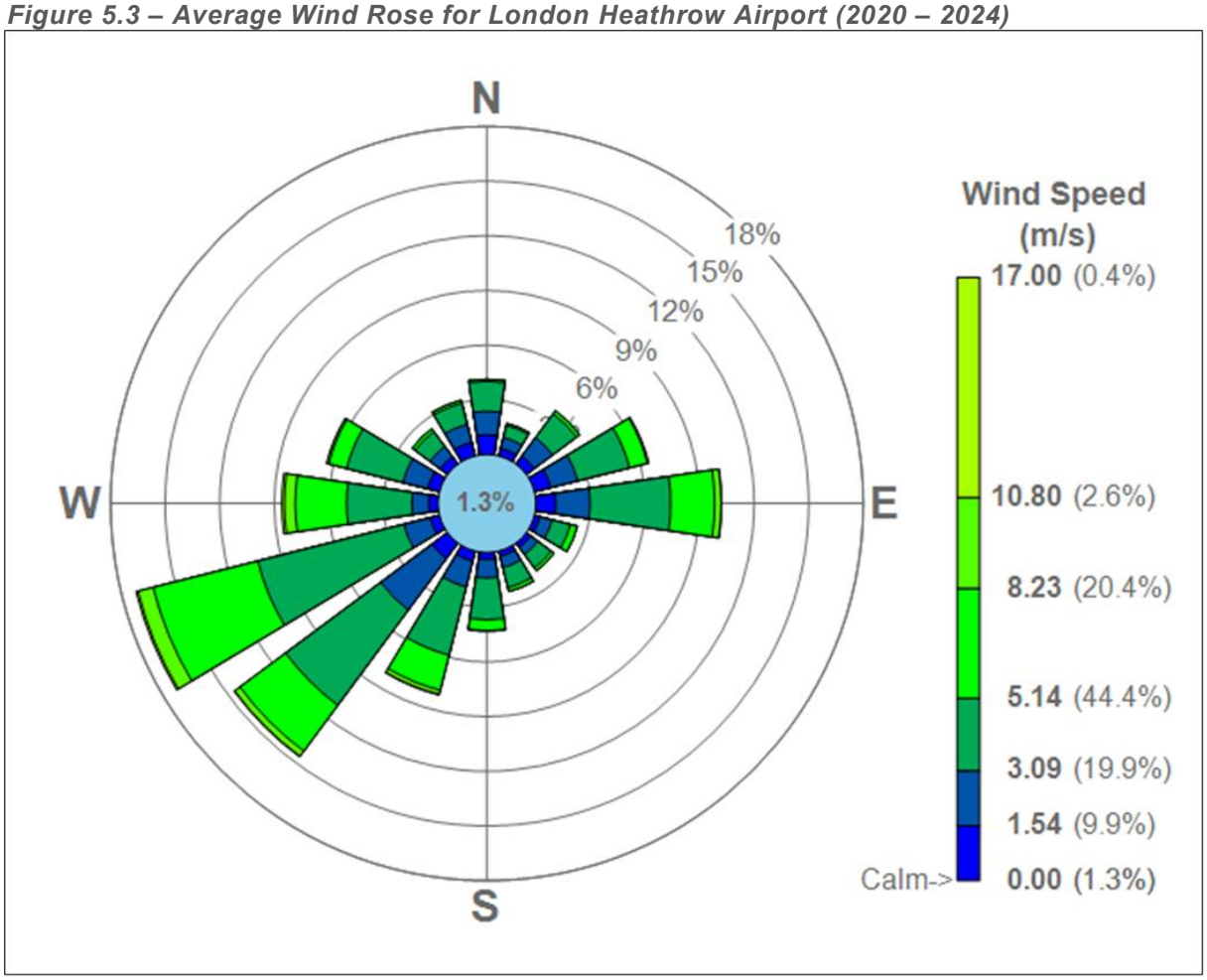
Figure 5.3 – Average Wind Rose for London Heathrow Airport (2020 – 2024)



Sensitivity of the Area to Dust Effects

Dust Soiling

5.6 A summary of the sensitivity of the area to dust soiling effects, based on the proximity of the most sensitive receptors to the Site and roads used by construction traffic is presented in Table 5.1.

5.7 The nearest residential properties are approximately 250m from the Site boundary and there are no residential properties adjacent to Scylla Road or the Southern Perimeter Road within 250m of the access to the Proposed Development. However, the Site is adjacent to a long-term airport car park, where vehicles have the potential to be affected by deposited dust. The sensitivity of the area to dust soiling effects is therefore assessed as 'high'.

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Table 5.1 – Sensitivity of the Area to Dust Soiling Effects

Receptor	Sensitivity to Dust Soiling Effects	Distance from Site / Roads used by Construction Traffic	Approx. Number of Receptors	Area Sensitivity
Demolition, Earthworks and Construction				
Residential	High	<100m <250m	0 <10	Low
Commercial units	Medium	<20m <250m	<10 <10	Low
Airport parking	High	<20m	-	High
Trackout				
Commercial units	Medium	<20m <50m	<10 <10	Low

Health Effects

5.8 A summary of the sensitivity of the area to health effects is presented in Table 5.2. The sensitivity of the area to health impacts depends not only the proximity of the most sensitive receptors, but also on existing PM_{10} concentrations and the potential for additional dust generated during the construction phase to result an exceedance of the short or long-term air quality objectives.

5.9 The Defra mapped background data indicate that PM_{10} concentrations in the area are unlikely to exceed 50% of the air quality objective of 40 µg/m^3. Existing PM_{10} concentrations within 250m of the Site are anticipated to be below 24 µg/m^3, the lowest threshold within the guidance for assessing potential impacts on human health.

5.10 The sensitivity of the area to dust-related health effects is assessed as 'low'.

Table 5.2 – Sensitivity of the Area to Health Effects

Receptor	Sensitivity to Dust Soiling Effects	Distance from Site / Roads used by Construction Traffic	Approx. Number of Receptors	Area Sensitivity
Demolition, Earthworks and Construction				
Residential	High	<100m <250m	0 <10	Low

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Commercial units	Medium	<20m <250m	<10 <10	Low
Airport parking	Low	<20m	-	Low
Trackout				
Commercial units	Medium	<20m <50m	<10 <10	Low

Dust Emission Magnitude

5.11 The magnitude of the likely dust emission from demolition, earthworks, construction and trackout is presented in Table 5.3.

Table 5.3 – Evaluation of Dust Emission Magnitude

Source	Proposed Works	Dust Emission Magnitude
Demolition	No structures will require demolition at the Site.	n/a
Earthworks	No earthworks are required.	n/a
Construction	The shed is a prefabricated structure, and the construction will generate negligible dust.	Negligible
Trackout	The Site may generate 2-3 outward HDV trips on any one day during the construction phase. However, road-going vehicles will not travel over unpaved ground.	Negligible

Risk of Dust Impacts Prior to Mitigation

5.12 A summary of the potential risk of dust impacts is presented in Table 5.4.

5.13 The overall risk of dust impacts is assessed as 'negligible'.

Table 5.4 – Risk of Dust Impacts Prior to Mitigation

Receptor	Demolition	Earthworks	Construction	Trackout
Dust Soiling	n/a	n/a	Negligible	Negligible
Human Health	n/a	n/a	Negligible	Negligible

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6 Operational Traffic Impacts

Nitrogen Dioxide

6.1 Annual mean NO_2 concentrations predicted at the identified receptor locations are presented in Table 6.1. The predicted concentrations at the existing sensitive receptors (1 to 3) are well below the current air quality objective of 40 µg/m^3 but significantly exceed the WHO AQG of 10 µg/m^3.

6.2 The maximum increase in concentration due to the operational traffic is 0.01 µg/m^3 and occurs at receptor 1, which is close to Airport Way. In accordance with the LBH Impact Matrix (see Table 3.3) the significance of the impact is 'negligible'.

6.3 With respect to exposure at the Proposed Development, the predicted annual mean NO_2 concentrations on Site are well within the current air quality standard, but again, exceed the AQG.

Table 6.1 – Predicted Annual Mean NO_2 Concentrations (µg/m^3)

ID	Receptor	Baseline	Baseline + Development	Impact	Significance
1	Riverbank	20.6	20.6	0.01	Negligible
2	60 Bedfont Road	20.8	20.8	0.01	Negligible
3	28 Cleveland Park	20.5	20.5	<0.01	Negligible
4	Stanwell Farm	20.2	20.3	0.01	Negligible
5	Proposed Development 1	22.6	22.6	n/a	n/a
6	Proposed Development 2	19.1	19.1	n/a	n/a

Particulate Matter (as PM_{10})

6.4 Annual mean PM_{10} concentrations predicted at the identified receptor locations are presented in Table 6.2. The predicted concentrations are well below the air quality objective of 40 µg/m^3 and are also compliant with WHO AQG Interim target 4.

6.5 The maximum increase in concentration is <0.01 µg/m^3, therefore in accordance with the IAQM/ EPUK criteria (see Table 3.5), the significance of the impact on PM_{10} concentrations is 'negligible'.

6.6 The predicted concentrations on Site are also well below the air quality objective of 40 µg/m^3 and are also compliant with WHO AQG Interim target 4.

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Table 6.2 – Predicted Annual Mean PM_{10} Concentrations (µg/m³)

ID	Receptor	Baseline	Baseline + Development	Impact	Significance
1	Riverbank	17.3	17.3	<0.01	Negligible
2	60 Bedfont Road	14.6	14.6	<0.01	Negligible
3	28 Cleveland Park	14.4	14.4	<0.01	Negligible
4	Stanwell Farm	14.2	14.2	<0.01	Negligible
5	Proposed Development 1	15.8	15.8	n/a	n/a
6	Proposed Development 2	13.6	13.6	n/a	n/a

Particulate Matter (as $PM_{2.5}$)

6.7 Annual mean $PM_{2.5}$ concentrations predicted at the identified receptor locations are presented in Table 6.3.

6.8 The predicted concentrations at the existing residential receptors are well below the air quality standard (AQAL) of 20 µg/m³ and the 2025 EIP target for 2030 of 10 µg/m³ but exceed the WHO AQG of 5 µg/m³. The maximum increase in concentration is less than 0.01 µg/m³ therefore in accordance with the LBH Impact Matrix (see Table 3.4), the significance of the impact on $PM_{2.5}$ concentrations is 'negligible'.

6.9 The predicted concentrations on Site are compliant with both the air quality standard and the EIP target but exceed the WHO AQG.

Table 6.3 – Predicted Annual Mean $PM_{2.5}$ Concentrations (µg/m³)

ID	Receptor	Baseline	Baseline + Development	Change	Significance
1	Riverbank	9.8	9.8	<0.01	Negligible
2	60 Bedfont Road	9.1	9.1	<0.01	Negligible
3	28 Cleveland Park	9.0	9.0	<0.01	Negligible
4	Stanwell Farm	8.9	8.9	<0.01	Negligible
5	Proposed Development 1	9.6	9.6	n/a	n/a
6	Proposed Development 2	8.1	8.1	n/a	n/a

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7 Air Quality Neutral

Building-Related Emissions

7.1 The energy strategy is fully electric; therefore, the proposed development is Air Quality Neutral with respect to building-related emissions

Transport-Related Emissions

7.2 The air quality neutral assessment for transport-related emissions compares the trips generated by the Proposed Development with benchmark trip rates (TEB) for Outer London, based on land-use.

7.3 The benchmarked trip rates are compared with the expected trip generation in Table 7.1.

7.4 The proposed trips are above the benchmark; therefore, the Proposed Development is not Air Quality Neutral with respect to transport-related emissions.

Table 6.3 – Development and Benchmarked Trip Rates

Land-Use	GIA (m^2)	TEB (trips/m^2/yr)	Trips/ year
Benchmarked (Storage and distribution	420	6.5	2,730
Proposed Development			3650 (a)
(a) Based on an AADT LDV trip generation of 10.			

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8 Mitigation

Construction Phase

8.1 The proposed construction works are primarily internal, therefore the risk of dust soiling and human health impacts from dust generated by the Site has been assessed as 'negligible' (see Table 5.4). However, the following best practice mitigation is recommended to ensure that air quality impacts associated with the Site are minimised:

- Ensure all non-road mobile machinery (NRMM) comply with the correct 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.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Avoid site runoff of water or mud.

Operational Phase

8.2 The predicted impact of the emissions associated with worst-case operational traffic on local air quality has been assessed as negligible.

8.3 The predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ on Site are well within the current statutory air quality standards and objectives for the protection of health. Ongoing improvements in air quality are expected, therefore future pollutant concentrations at the Site are anticipated to remain within the objectives.

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9 Summary and Conclusions

9.1 An air quality impact assessment has been undertaken to assess both construction and operational impacts associated with the Proposed Development.

9.2 An assessment of the potential dust impacts during the construction phase has been carried out in accordance with IAQM guidance which has shown that significant releases of dust and PM_{10} are unlikely to occur during site activities. The residual dust impacts are expected to be negligible.

9.3 The Proposed Development will generate additional traffic on the local road network (21 AADT, of which a maximum of 11 will be HDV's). A worst-case assessment of potential traffic-related impacts on air quality has been undertaken using the ADMS-Roads dispersion model. The significance of the impact on concentrations of NO_2, PM_{10} and $PM_{2.5}$ at existing receptor locations is predicted to be negligible.

9.4 Predicted concentrations at the Site are well below the relevant air quality standards and objectives.

9.5 The energy strategy is 100% electric, therefore there will be no impact on air quality.

9.6 The Proposed Development is air quality neutral with respect to building-related emissions but not transport-related emissions. Consultation is required with LBH to agree suitable mitigation measures to offset the excess emissions, noting that this is a temporary scheme (5 years).

9.7 Based on the results of the assessment, air quality is not considered a constraint to the development of the Site, as proposed.

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Appendix A – Guidance, Data Sources and Tools

Table A1 – Guidance used in the Assessment

Guidance	Author(s)	Description
Defra Local Air Quality Management Technical Guidance (LAQM.TG22)	Defra	Best practice for monitoring, modelling and assessing air quality.
Air Quality Neutral London Plan Guidance (AQN LPG)	GLA	Benchmarks for development to ensure that transport and building emissions do not worsen air quality.
Guidance on land-use planning and development control: Planning for air quality 2017 v1.2	IAQM and EPUK	Best practice framework for assessing air quality for planning applications.
Assessment of dust from demolition and construction 2024 V2.2	IAQM	Best practice methodology for assessing construction phase dust impacts.

Table A2 – Data Sources and Tools used in the Assessment

Data Source / Tool		Description / Comment
Dispersion model	ADMS-Roads Version 5.1	Software tool developed by Cambridge Environmental Research Consultants used extensively in the UK for assessing traffic-related impacts on air quality.
Meteorological data	Hourly sequential data for Heathrow Airport	Supplied by ADM Ltd
Road geometry and building heights	Ordnance survey API data	Detailed street-level mapping of Great Britain, viewed using QGIS.
Background pollutant concentrations	IAQM Defra Background Pollutant Maps https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021	Modelled 1 x 1km resolution UK background pollutant concentrations based on 2021 monitoring data and emission inventories with projections up to 2040.
Local air quality monitoring data	London Borough of Hillingdon Annual Air Quality Status Reports https://www.hillingdon.gov.uk/article/1135/Air London Borough of Hounslow Annual Air Quality Status Reports https://www.hounslow.gov.uk/environment/air-quality-pollution-aviation-noise/3 Spelthorne Borough Council Annual Air Quality Status Reports https://www.spelthorne.gov.uk/page/1087/air-quality-reports Air Quality England https://www.londonair.org.uk/LondonAir/Default.aspx	Concentrations measured automatically and by diffusion tube from 2019 to 2025.
Vehicle emission factors	Defra Emission Factors Toolkit (EFTv14.0) https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/	Standardised emission factors for a wide range of vehicle types, engine sizes, and fuel types. The data are regularly updated to reflect the latest vehicle

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		fleet compositions, emissions standards and driving conditions.
Baseline traffic data	DfT Automatic Traffic Counts (ATC) https://roadtraffic.dft.gov.uk/#6/55.250/-1.000/basemap-regions-countpoints	National network of temporary and permanent roadside sensors providing AADT flows and fleet composition.
Traffic growth factors	DfT National Trip End Model (NTEM) trip growth forecasts. https://www.data.gov.uk/dataset/11bc7aaf-ddf6-4133-a91d-84e6f20a663e/national-trip-end-model-ntem	Viewed using the Trip End Model Presentation program (TEMPro) version 8.1 https://www.gov.uk/government/publications/tempro-downloads
Vehicle speeds	2022 London Atmospheric Emissions Inventory (LAEI) https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-laei-2022-2lg5g/	LAEI traffic speeds used, in addition to professional judgement, taking into account congestion and turning traffic.
NOx to NO_2 conversion	Defra NOx to NO_2 Calculator version 9.1.	Tool used to derive NO_2 concentrations from modelled NOx concentrations. Also used to calculate the road component of NOx from roadside NO_2 concentrations measured by diffusion tube for model verification purposes.

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Appendix B – Construction Dust Risk Asseessment Methodology

Factors defining the sensitivity of a receptor to dust impacts are presented in Table B1.

Table B1 – Receptor Sensitivity

Human Health	
High	• Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day) (a). • Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
Medium	• Locations where the people exposed are workers (b), and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). • Indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.
Low	• Locations where human exposure is transient (c) • Indicative examples include public footpaths, playing fields, parks and shopping streets.
Dust Soiling	
High	• Users can reasonably expect (d) enjoyment of a high level of amenity; or • The appearance, aesthetics or value of their property would be diminished by soiling; and • The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. • Indicative examples include dwellings, museums and other culturally important collections, medium- and long-term car parks and car showrooms.
Medium	• Users would expect (d) to enjoy a reasonable level of amenity, but would not reasonably expect (d) to enjoy the same level of amenity as in their home; or • The appearance, aesthetics or value of their property could be diminished by soiling; or • The people or property wouldn't reasonably be expected (d) to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. • Indicative examples include parks and places of work.
Low	• The enjoyment of amenity would not reasonably be expected (d); or • property would not reasonably be expected (d) to be diminished in appearance, aesthetics or value by soiling; or • There is transient exposure, where the people or property would reasonably be expected (d) to be present only for limited periods of time as part of the normal pattern of use of the land. • Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks (e) and roads.
Ecological	
High	• Locations with an international or national designation and the designated features may be affected by dust soiling; or • Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain (g). • Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	• Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or • Locations with a national designation where the features may be affected by dust deposition. • Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	• Locations with a local designation where the features may be affected by dust deposition. • Indicative example is a local Nature Reserve with dust sensitive features.
(a) This follows Defra guidance as set out in LAQM.TG22. (b) Notwithstanding the fact that the air quality objectives 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	

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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) There are no standards that apply to short-term exposure, e.g., one or two hours, but there is still a risk of health impacts, albeit less certain.

(d) People's expectations will vary depending on the existing dust deposition in the area.

(e) Car parks can have a range of sensitivities depending on the duration and frequency that people would be expected to park their cars there, and the level of amenity they could reasonably expect whilst doing so. Car parks associated with workplace or residential parking might have a high level of sensitivity compared to car parks used less frequently and for shorter durations, such as those associated with shopping. Cases should be examined on their own merits.

(f) The advice of an ecologist should be sought to determine the need for an assessment of dust impacts on sensitive habitats and plants. 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., Special Conservation Areas (SACs), Special Protection Areas (SPAs) designated under the Habitats Directive (92/43/EEC) and RAMSAR sites.

(g) Cheffing C. M. & Farrell L. (Editors) (2005), The Vascular Plant. Red Data List for Great Britain, Joint Nature Conservation Committee.

The sensitivity of the area as a whole is dependent on the number of receptors within each sensitivity class and their distance from the source. Human health impacts are also dependent on the existing PM_{10} concentrations in the area.

Tables B2 and B3 summarise the criteria for determining the overall sensitivity of the area to dust soiling and health impacts respectively. The sensitivity of the area to ecological impacts is presented in Table B4.

Table B2 – Sensitivity of the Area to Dust Soiling Effects on People and Property

Sensitivity of Area	Number of Receptors	Distance from the Source			
		<20m	<50m	<100m	<250m
High	>100	High	High	Medium	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

Table B3 – Sensitivity of the Area to Health Impacts from Dust

Sensitivity of Area	Annual Mean PM_{10}	Number of Receptors	Distance from the Source			
			<20m	<50m	<100m	<250m
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28 - 32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24 - 28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low

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	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28 - 32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24 - 28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table B4 – Sensitivity of the Area to Ecological Impacts from Dust

Sensitivity of Area	Distance from the Source	
	<20m	<50m
High	High	Medium
Medium	Medium	Low
Low	Low	Low

The magnitude of the dust impacts for demolition, earthworks, construction and trackout is classified as small, medium or large depending on the scale of the proposed works as detailed in Table B5.

Table B5 – Dust Emission Magnitude Criteria

Dust Source	Large	Medium	Small
Demolition	• Total building volume >75,000m^3 • Potentially dusty material (e.g. concrete) • Onsite crushing and screening • Demolition activities >12m above ground level.	• Total building volume 12,000 - 75,000m^3 • Potentially dusty construction material • Demolition activities 6 - 12m above ground level.	• Total building volume <12,000m^3 • Construction material with low potential for dust release (e.g. metal timber or cladding) • Demolition activities <6m above ground level • Demolition during wetter months

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Earthworks	• Total site area >110,000m^2 • Potentially dusty soil type (e.g., clay) • >10 heavy earth moving vehicles active at any one time. • Formation of bunds >6m in height	• Total site area 18,000 - 110,000m^2 • Moderately dusty soil type (e.g., silt) • 5 - 10 heavy earth moving vehicles active at any one time. • Formation of bunds 3 - 6m in height	• Total site area <18,000m^2 • Soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time. • Formation of bunds <3m in height
Construction	• Total building volume >75,000m^3 • On site concrete batching	• Total building volume 12,000 - 75,000m^3 • Potentially dusty construction material (e.g., concrete) • On site concrete batching	• Total building volume <12,000m^3 • Material with low potential for dust release (e.g. metal cladding or timber)
Trackout	• >50 HDV movements in any one day (a) • Potentially dusty surface material (e.g. high clay content) • Unpaved road length >100m	• 20 - 50 HDV movements in any one day (a) • Moderately dusty surface material (e.g. silt) • Unpaved road length 50 - 100m	• <20 HDV movements in any one day (a) • Surface material with low potential for dust release • Unpaved road length <50m
(a) HDV movements refer to outward trips (leaving the site) by vehicles of over 3.5 tonnes.			

For each dust emission source, the worst-case area sensitivity is used in combination with the dust emission magnitude to determine the risk of dust impacts prior to mitigation as illustrated in Tables B6 and B7.

Table B6 – Risk of Dust Impacts from Demolition

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

Table B7 – Risk of Dust Impacts from Earthworks, Construction and Trackout

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

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Appendix C – Model Input Parameters

Table C1 – Summary of ADMS-Roads Input Parameters

Parameter	2024 verification	2026 Impact and Exposure
ADMS-Roads Model Version	5.1	5.1
Vehicle Emission Factors	EFTv14.0 for 2024	EFTv14.0 for 2024
Meteorological Data	Hourly sequential data from Heathrow Airport (2024)	Hourly sequential data from Heathrow Airport (2024)
Surface Roughness	1.0m	1.0m
Monin-Obukhov Length	75m	75m
Street Canyon Effects	Not modelled	Not modelled

Table C2 – Traffic Data (2024 Verification)

Road Link	AADT	HDV (%)	Average Speed (kph)	Source
Stanwell Moor Road	13,576	4.6	32	DfT ATC 92186 (2024)
Southern Perimeter Road	29,596	10.5	48	DfT ATC 942678 (2024)
Bedfont Road	4,204	6.3	32	LAEI 2022 with Tempro 2022 – 2024 'high' growth factor applied.
A30 London Road	22,532	4.3	64	DfT ATC 38579 (2024)

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Table C3 – Traffic Data (2026 Impact and Exposure)

Road Link	AADT	HDV (%)	Average Speed (kph)	Source
Baseline				
Airport Way	34372	9.4	64	DfT ATC 88085 (2024) with Tempro 2024 – 2026 'high' growth factor applied.
Southern Perimeter Road	30143	10.5	48	DfT ATC 88085 (2024) with Tempro 2024 – 2026 'high' growth factor applied.
Stanwell Road	14769	6.7	32	DfT ATC 88085 (2024) with Tempro 2024 – 2026 'high' growth factor applied.
Bedfont Road	4281	6.3	32	LAEI 2022 with Tempro 2022 – 2026 'high' growth factor applied.
Scylla Road	1019	20.0	24	Based on estimated 2024 flow of 1000 AADT (20% HDV) with Tempro 2024 – 2026 'high' growth factor applied.
Baseline + Development				
Airport Way	34377	9.4	64	As above plus 5 AADT (3 HDV)
Southern Perimeter Road	30148	10.5	48	As above plus 5 AADT (3 HDV)
Stanwell Road	14769	6.7	32	As above (no development traffic)
Bedfont Road	4281	6.3	32	As above (no development traffic)
Scylla Road	1024	20.2	24	As above plus 5 AADT (3 HDV)

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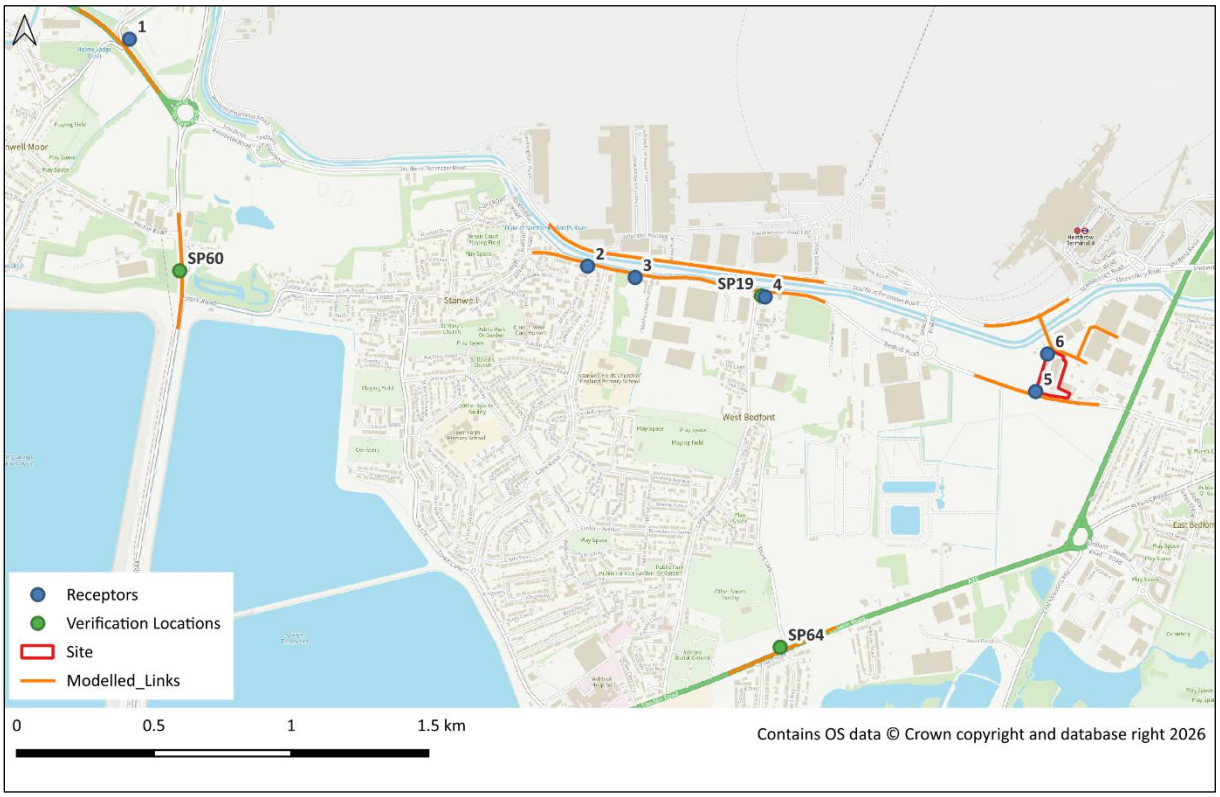
Figure C1 – Modelled Road Network



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Appendix D – Model Verification

Nitrogen Dioxide

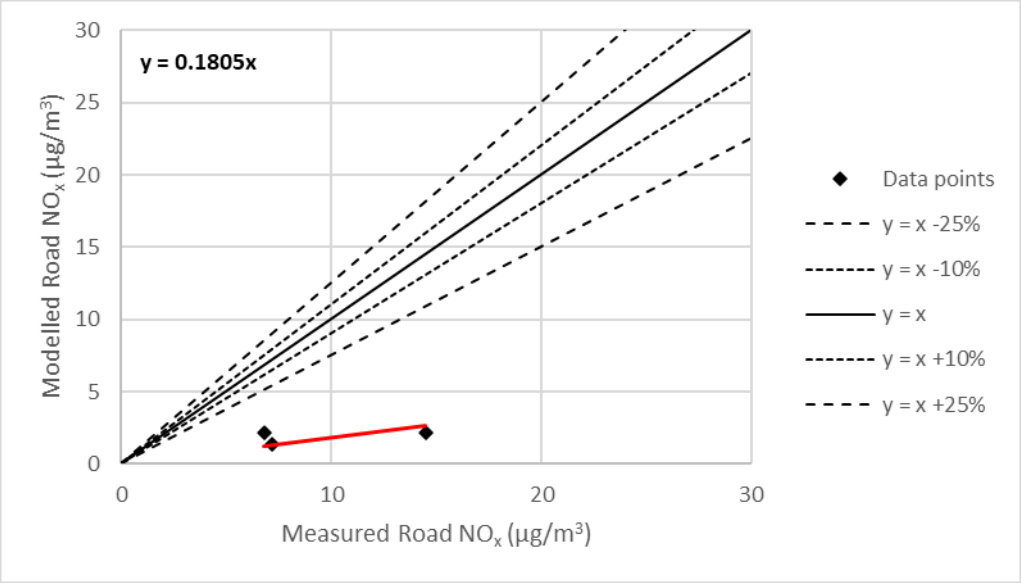
Most nitrogen dioxide (NO_2) is produced in the atmosphere by the reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant (NOx) emissions. Verification of concentrations predicted by the ADMS-Roads model has followed the methodology presented in LAQM.TG22.

Predicted annual mean concentrations of NOx have been compared with the 2024 annual mean concentration measured at the following diffusion tube monitoring locations:

- SP19 Bedfont Road, Stanwell
- SP60 Stanwell Moor Road
- ST64 London Road (junction with Short Lane)

A Road-NOx (i.e. the component of total NOx coming from road traffic) concentration has been derived using the Defra NOx to NO_2 calculator using the 2024 background concentration at each location (see Table 4.5). The measured Road-NOx concentrations are compared with the modelled Road-NOx concentrations in Figure D1.

Figure D1 – Measured and Modelled Road-NOx Concentrations



A primary adjustment factor is determined as the ratio between the measured Road-NOx concentration and the modelled Road-NOx concentration, forced through zero (1/0.1805 = 5.54).

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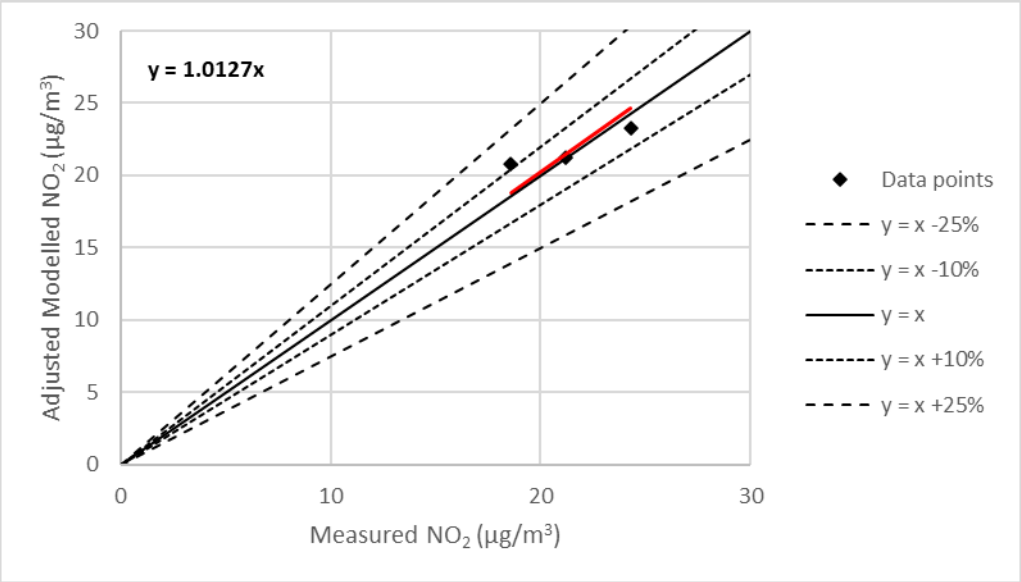
This factor is then applied to the modelled Road-NOx concentration at each monitoring location to calculate adjusted modelled Road-NOx concentrations. The equivalent Road-NO_2 concentration is then determined using the Defra NOx from NO_2 calculator and added to the mapped background NO_2 concentration, for comparison with the measured NO_2 concentration (see Figure D2).

Figure D2 – Measured and Adjusted Modelled NO_2 Concentrations



The average performance of the model can be expressed as the Root Mean Square Error (RMSE), which in accordance with LAQM.TG22 should ideally be less than 10% and not more than 25% of the relevant air quality standard (in this case, the annual mean NO_2 objective of 40 µg/m^3). The RMSE for the comparison of the adjusted modelled and measured NO2 concentrations is 1.4 µg/m^3, 3.5% of the air quality objective. Since the RMSE is below 10% of the objective, further adjustment is not required.

Particulate Matter

In the absence of a representative particulate monitoring site, the Road-NOx adjustment factor has been applied to the modelled Road-PM_{10} and Road-$PM_{2.5}$ concentrations, in accordance with the guidance.

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