



Air Quality Assessment

Omega Works A, Hermitage Road

October 2022

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Topfling Limited

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1. Introduction

Background

- 1.1 Phlorum Limited has been commissioned by Topfling Limited to undertake an Air Quality Assessment in support of an outline planning application for a proposed residential and commercial redevelopment of land at the existing Omega Works industrial site, 167 Hermitage Road (N4 1NA), within the London Borough of Haringey (LBH). The National Grid Reference for the centre of the site is 532330, 188095. A site location plan is included in Figure 1.
- 1.2 The planning application proposes the construction of 1,041m² of commercial floorspace, 60 warehouse beds, 8 live-work units and 76 residential flats at Omega Works A.
- 1.3 Land use in the vicinity of the site includes the Crusader Industrial Estate directly to the north of the site boundary, with residential and commercial land uses located to the south, east and west.
- 1.4 The main sources of air pollution in the vicinity of the site are from vehicles travelling on the local road network, particularly Hermitage Road, and the A105 Green Lanes located at the western limit of Hermitage Road.
- 1.5 LBH, the Local Planning Authority (LPA), declared a borough-wide AQMA in 2001, due to exceedances of the Air Quality Standard (AQS) concentrations for annual mean concentrations of nitrogen dioxide (NO₂) and 24-hour mean concentrations of particulate matter (PM₁₀).

Scope of Assessment

- 1.6 This report assesses the potential for traffic generated by the proposed development to impact on local air quality at existing sensitive receptor locations in the areas surrounding the site.
- 1.7 This assessment also assesses the suitability of the site, in air quality terms, for the introduction of new, sensitive receptors, and assesses the potential for dust nuisance impacts during construction.
- 1.8 Finally, an Air Quality Neutral Assessment will be conducted to determine whether mitigation is required once the proposed development becomes operational.

2. Policy Context

The UK Air Quality Strategy

- 2.1 The UK Air Quality Strategy (UKAQS)¹ set out air quality standard (AQS) concentrations for a number of key pollutants that are to be achieved at sensitive receptor locations across the UK by corresponding air quality objective (AQO) dates. The sensitive locations at which the standards and objectives apply are those where the population are reasonably expected to be exposed to said pollutants over the particular averaging period.
- 2.2 For those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to compare concentrations against the standards are areas of residential housing. It is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time.
- 2.3 Schools and children's playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to the pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time. A summary of the AQS relevant to this assessment are included in Table 2.1, below.

Table 2.1 UK Air Quality Standards and Objectives

Pollutant	Averaging Period	Air quality standard ($\mu\text{g.m}^{-3}$)	Air quality objective
Nitrogen dioxide (NO_2)	1 hour	200	200 $\mu\text{g.m}^{-3}$ not to be exceeded more than 18 times a year
	Annual	40	40 $\mu\text{g.m}^{-3}$
Particulate Matter (PM_{10})	24-hour	50	50 $\mu\text{g.m}^{-3}$ not to be exceeded more than 35 times a year
	Annual	40	40 $\mu\text{g.m}^{-3}$
Particulate Matter ($\text{PM}_{2.5}$)	Annual	20	20 $\mu\text{g.m}^{-3}$

¹ Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007.

- 2.4 The objectives adopted in the UK are based on the Air Quality (England) Regulations 2000², as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.
- 2.5 The UKAQS for PM_{2.5} was recently amended as part of the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020³.

London Local Air Quality Management

- 2.6 The London Local Air Quality Management (LLAQM) framework⁴ is the statutory process used by London authorities to review and improve air quality within their administrative boundaries. This framework was designed to specifically meet London's needs.
- 2.7 The LLAQM framework provides London-specific policy and technical guidance (LLAQM.PG(19) and LLAQM.TG(19)) for the London boroughs. Although both are largely based on the updated national Defra LAQM guidance (2016), they incorporate London-specific elements of the LAQM system.
- 2.8 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.
- 2.9 LBH has declared one AQMA, which encompasses the entire borough. This AQMA was declared in 2001 due to exceedances of the annual mean AQS for NO₂ and both the annual mean and 24-hour mean AQS for PM₁₀.
- 2.10 LBH's *Air Quality Action Plan 2019-2024*⁵ outlines the actions and strategies being implemented to reduce pollutant emissions and subsequent concentrations across the borough. These measures include incentivising cleaner forms of transport and reducing emissions from development and buildings.
- 2.11 Objectives adopted in the UK are based on the Air Quality (England) Regulations 2000⁶, as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.

2 The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.

3 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020.

4 London Local Air Quality Management (LLAQM) Framework.

5 London Borough of Haringey. (2019). *London Borough of Haringey Air Quality Action Plan 2019-2024*.

6 The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.

- 2.12 The Greater London Authority (GLA) has designated 8 Air Quality Focus Areas (AQFA) within LBH. An AQFA is a location that has been identified by the GLA as having both high levels of NO₂ and significant human exposure. The closest focus area to the application site is the Green Lanes Town Centre AQFA, located approximately 350m to the north-west, encompassing an area spanning a section of the A105 Green Lanes, between its junctions with Umfreville Road to the south and Allison Road to the north.
- 2.13 The Mayor of London is developing the London Clean Air Action Plan. As part of this process, in addition to the existing Low Emission Zone (LEZ), the new central London Ultra-Low Emission Zone (ULEZ) was introduced on 8th of April 2019, which replaces previous interim policy interventions to tackle air pollution, such as the London Emissions Surcharge (T-charge)⁷. The site is located within the boundary of the ULEZ, which is bounded by the North and South Circular Roads.
- 2.14 The site is within the existing wider London LEZ⁸. In October 2020, LEZ standards tightened. Emissions standards, daily charges and penalties changed for lorries, buses, coaches, and other specialist vehicles over 3.5 tonnes operating within the LEZ.

National Planning Policy Framework

- 2.15 The National Planning Policy Framework (NPPF)⁹, which was updated in July 2021, sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should "contribute to conserve and enhance the natural and local environment". In achieving this, it states in paragraph 174 that:

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

preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability [...]"

- 2.16 With regard to assessing cumulative effects the NPPF states the following at paragraph 185:

"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

7 Central London ULEZ: <https://tfl.gov.uk/modes/driving/ultra-low-emission-zone>

8 London LEZ: <https://tfl.gov.uk/modes/driving/low-emission-zone>

9 Department for Communities and Local Government (DCLG) (2021). *National Planning Policy Framework*.

the potential sensitivity of the site or the wider area to impacts that could arise from the development."

- 2.17 Regarding compliance with relevant limit values and national objectives for pollutants the NPPF, paragraph 186 states:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

- 2.18 The NPPF offers a broad framework but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

National Planning Practice Guidance

- 2.19 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)¹⁰, which was updated in June 2021, provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.
- 2.20 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision, stating:

"Considerations that may be relevant to determining a planning application include whether the development would:

-  *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing*

¹⁰ Planning Practice Guidance (PPG) 32. (Updated June 2021). Air Quality.
<http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>.

traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;

-  *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*
-  *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
-  *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
-  *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."*

2.21 Details are also provided of what should be included within an air quality assessment. Key considerations include:

-  Baseline local air quality;
-  Whether the proposed development could significantly affect local air quality during construction/operation; and
-  Whether the development is likely to expose more people to poor air quality.

2.22 Examples of potential air quality mitigation measures are also provided in the PPG.

London Specific Planning Policy

2.23 The Mayor's Air Quality Strategy to tackle air quality across London as a whole was published in 2010. This was replaced by the Mayor's Environment Strategy in 2018, and is supported by the recently published London Plan¹¹, which was published in 2021.

2.24 Policy SI1 'Improving Air Quality' of the new London Plan states that:

11 Greater London Authority. (2021). *The London Plan*.

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

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

1) Development proposals should not:

- a) lead to further deterioration of existing poor air quality*
- b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*
- c) create unacceptable risk of high levels of exposure to poor air quality.*

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

- a) development proposals must be at least Air Quality Neutral*
- b) development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures*
- c) major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1*
- d) development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.*

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:

- 1) how proposals have considered ways to maximise benefits to local air quality, and*
- 2) 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."

London Low Emissions Zone for Non Road Mobile Machinery

- 2.25 London has introduced the Central Activity Zone (CAZ) for Non-Road Mobile Machinery (NRMM) to reduce emissions from construction site machinery in key areas of London.
- 2.26 The NRMM CAZ was introduced as current estimates of emissions from NRMM used on construction sites were shown to be responsible for 7% of NO_x emissions, 14% for PM_{2.5} and 8% of PM₁₀ emissions across the Capital.
- 2.27 It must be ensured that all NRMM comply with London's current and future NRMM policy. The current London Policy for NRMM¹² states the following:
- "NRMM on all sites within Greater London is required to meet Emission Stage IIIB as a minimum; and NRMM on all sites within either the Central Activity Zone (CAZ) or Opportunity Areas (OAs) is required to meet Emission Stage IV as a minimum".*
- 2.28 LBH is not located within the NRMM CAZ, although eastern areas of the borough have been designated within the Upper Lea Valley Opportunity Area (OA). The site is not located within this OA, and is therefore bound by the emission requirements of the current London NRMM policy for Greater London.
- 2.29 Therefore, any NRMM operating on site during the construction of the proposed development will meet stage IIIB of EU Directive 97/68/EC as a minimum. Furthermore, all constant speed engines such as those typically found in generators will be required to meet Stage V.
- 2.30 Standards will continue to tighten in the future, with all NRMM expected to meet Stage IV emission requirements from 1st January 2025.

Local Planning Policy

- 2.31 LBH's Development Plan is made up of the following:

¹² Greater London Authority. (2022). *Non-Road Mobile Machinery Practical Guide*.

- Strategic Policies Development Plan Document (DPD)¹³;
- Development Management Policies DPD¹⁴;
- Site Allocations DPD¹⁵;
- Tottenham Area Action Plan¹⁶, along with
- 'Saved' Policies from the *Haringey Unitary Development Plan*¹⁷.

2.32 LBH's *Strategic Policies 2013-2026 DPD*¹³ was adopted in 2013 with the intention of guiding development within the borough through to 2026, to improve both the quality of people's lives and the environment in which they live.

2.33 Of indirect relevance to air quality, the Strategic Policies DPD sets out Strategic Policy 7: *Transport*, as follows:

"Delivering Action on Climate Change and Air Quality and Healthy Places

In line with London Plan policies, the Council will work with its partners to promote the following travel demand management schemes to tackle climate change, improve local place shaping and public realm, and environmental and transport quality and safety by:

- *Minimising congestion and addressing the environmental impacts of travel;*
- *Promoting public transport, walking and cycling (including minimum cycle parking standards);*
- *Promoting road safety and pedestrian movement particularly in town centres and close to local services;*
- *Promoting car sharing and establishing car clubs;*
- *Seeking to locate major trip generating developments in locations with good access to public transport and so better integrate transport and land use planning;*
- *Adopting maximum car parking standards and car free housing wherever feasible;*
- *Seeking to mitigate the impact of road based freight and to promote alternatives;*

13 London Borough of Haringey. (2013). *Strategic Policies 2013-2026* (consolidated with alterations since 2017).

14 London Borough of Haringey. (2017). *Development Management DPD* (Adopted July 2017).

15 London Borough of Haringey. (2017). *Site Allocations DPD* (Adopted July 2017).

16 London Borough of Haringey. (2017). *Tottenham Area Action Plan* (Adopted July 2017).

17 London Borough of Haringey. (2013). *Haringey Unitary Development Plan Saved Policies (post Local Plan Adoption)*.

-  *Supporting measures to influence behavioral change such as promoting low carbon vehicles; and*
-  *Requiring the submission of transport assessments and travel plans for large scale proposals in line with TfL guidance."*

2.34 Haringey's Unitary Development Plan was adopted in 2006, with certain policies 'saved' in 2013. The Unitary Development Plan aims to shape development within the borough to meet the needs of its inhabitants. The Unitary Development Plan sets out several policies of both direct, and indirect relevance to air quality, including the following:

Core Policy UD1: Planning Statements

"Where appropriate, all development proposals (except 'householder development' are to be accompanied by one or more of the following:

- g) transport assessment, for development likely to have a significant traffic impact;*
- h) travel plan, for employment, retail, education, leisure and services where there will be a significant traffic impact;*
- i) air quality statement, for significant impact on air quality; [...]*

In addition to this, all proposals for major developments or those of significant local interest, a pre-application consultation exercise should be undertaken."

Core Policy UD3: General Principles

"The Council will require development proposals to demonstrate that:

- a) there is no significant adverse impact on residential amenity or other surrounding uses in terms of loss of daylight or sunlight, privacy, overlooking, aspect and the avoidance of air, water, light and noise, pollution (including from the contamination of groundwater/water courses or from construction noise) and fume and small nuisance [...]."*

Policy ENV7: Air, Water and Light Pollution

"The council will control potential pollution resulting from development in the borough by:

- a) requiring development to locate close to facilities and public transport;*
- b) requiring developments to include measures to avoid, reduce and only then mitigate the emissions of pollutants, where appropriate;*

- c) separating potentially polluting activities from sensitive areas (green belt, MOL, or ecologically valuable sites) or uses (schools, hospital, homes); and*
- d) requiring developments that may cause pollution to locate in areas such as the defined employment areas to minimise their impact on the environment.*

The Council will adopt the precautionary principle to the issue of pollution, by taking decisions on planning applications so as to avoid possible environmental damage when the scientific evidence for acting is inconclusive but the potential damage could be great."

- 2.35 LBH's *Development Management DPD* details Haringey's spatial strategy for managing development and growth within the borough through to 2026. The DPD outlines policies of relevance to air quality, including *Policy DM23: Environmental Protection*, which states the following:

"Air Quality

- A. All development proposals should consider air quality and be designed to:
 - a) Improve or mitigate the impact on air quality in the Borough; and*
 - b) Improve or mitigate the impact on air quality for the occupiers of the building or users of the development.**
- B. Air quality assessments will be required for all major developments and other development proposals, where appropriate.*
- C. Where necessary, adequate mitigation must be provided."*

3. Assessment Methodology

Guidance

- 3.1 Defra's *Local Air Quality Management Technical Guidance* (LAQM.TG(16))¹⁸ and the London *Local Air Quality Management Technical Guidance* (LAQM.TG(19))⁴ was followed in carrying out the assessment.
- 3.2 The latest EPUK & IAQM guidance on *Planning for Air Quality*¹⁹ was also referred to throughout the assessment.
- 3.3 Guidance published by the IAQM on the *Assessment of Dust from Demolition and Construction*²⁰ was also used to assess the risk of dust emissions during the construction phase of the proposed development.
- 3.4 The Greater London Authority (GLA) *Supplementary Planning Guidance*²¹ on the control of dust from construction has also been referred to, which is considered best practice guidance for the UK. It details a number of mitigation measures that should be adopted to minimise adverse impacts from dust and fine particles.
- 3.5 Finally, the Air Quality Neutral Planning Support Update²², which supports the GLA Sustainable Design and Construction SPD²³, has been followed for the air quality neutral assessment.

Baseline Conditions

- 3.6 The baseline air quality conditions in the vicinity of the site are established through the compilation and review of appropriately sourced background concentration estimates and local monitoring data.
- 3.7 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website²⁴. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km² National Grid square locations across the UK. At the time of writing, the most recent background maps were from August 2020 and based on monitoring data from 2018.

18 Defra. (2021). Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management, Technical Guidance LAQM. TG(16). London: Defra.

19 EPUK & IAQM. (2017). *Land-Use Planning & Development Control: Planning for Air Quality*.

20 IAQM. (2014). *Guidance on the assessment of dust from demolition and construction*.

21 Greater London Authority. (2014). *The Control of Dust and Emissions During Construction and Demolition*.

22 Greater London Authority & Air Quality Consultants. (2014). *Air Quality Neutral Planning Support Update: GLA 80371*.

23 Greater London Authority. (2014). *Sustainable Design and Construction SPD*.

24 Defra: UK-AIR. www.uk-air.defra.gov.uk

- 3.8 Being background concentrations, the UK-AIR data are intended to represent a homogenous mixture of all emissions sources within the general area of a particular grid square location. Concentrations of pollutants at various sensitive receptor locations can, therefore, be calculated by modelling the emissions from a nearby pollution source, such as a busy road, and then adding this to the appropriate UK-AIR background datum.
- 3.9 The London Atmospheric Emissions Inventory²⁵ (LAEI) provided modelled ground level concentrations of key pollutants at 20m grid resolution across Greater London. Concentration estimates for NO₂, PM₁₀ and PM_{2.5} are included for the year 2019. These data within the vicinity of the site have also been reviewed.
- 3.10 LBH's automatic and non-automatic local pollutant monitoring data was also considered an appropriate source for establishing baseline air quality at the application site. The most recent available data from LBH's *2020 Air Quality Annual Status Report*²⁶ (ASR) have been included and referenced.

Construction Phase

- 3.11 The construction phase of the proposed development will involve a number of activities that could potentially produce polluting emissions to air. Predominantly, these will be emissions of dust. However, they could also include releases of odours and/or more harmful gases and particles.
- 3.12 The IAQM's guidance to assess the impacts of construction on human and ecological receptors has been followed in carrying out this air quality assessment. The guidance suggests that where a receptor is located within 350m (50m for statutory ecological receptors) of a site boundary and/or 50m of a route used by construction vehicles, up to 500m from the site entrance, a dust assessment should be undertaken. High sensitivity receptors are considered particularly sensitive when located within 20m of a works area. Figure 2 shows receptors that could be sensitive to dust that are located within 350m of the boundaries of the site.
- 3.13 The Multi Agency Geographic Information for the Countryside (MAGIC) website²⁷, which incorporates Natural England's interactive maps, has been reviewed to identify whether any statutory ecological sensitive receptors are situated within 50m of the site boundary or within 50m of any routes used by construction vehicles on the public highway, up to 500m from the site entrance.

25 London Emissions Atmospheric Inventory. (2022). Available at: <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>

26 London Borough of Haringey. (2021). *Air Quality Annual Status Report 2020*.

27 Natural England and MAGIC partnership organisations. Multi Agency Geographic Information for the Countryside. <http://www.magic.gov.uk/> [Accessed August 2022].

Construction Significance

- 3.14 The IAQM guidance suggests that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.
- 3.15 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a "technically competent assessor". The construction phase assessment therefore relies on the experience of the appraiser.
- 3.16 As such, attempts to define precisely what constitutes a negligible, small, medium or large dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and time, the construction materials and the plant to be used must be considered.
- 3.17 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:
- "the sensitivity of the area takes into account a number of factors:*
-  *the specific sensitivities of receptors in the area;*
 -  *the proximity and number of those receptors;*
 -  *in the case of PM₁₀, the local background concentrations; and*
 -  *site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."*
- 3.18 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.
- 3.19 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the stages assessed. Again, this is subject to professional judgement.
- 3.20 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the site will also be released. However, the volumes and periods over which these releases will occur are unlikely to result in any significant peaks in local air pollution concentrations and therefore this has been scoped out of the assessment.

Operational Phase

Road Transport Sources

- 3.21 Vehicle emissions will arise from the combustion of fossil fuels in vehicle engines and their subsequent release to atmosphere via tailpipe exhausts. The most significant pollutants released by cars and other vehicles are oxides of nitrogen (NO₂/NO_x) and particulate matter (PM₁₀ and PM_{2.5}). Releases of carbon monoxide (CO) and some volatile hydrocarbons (e.g. benzene and 1,3-butadiene) are of less significance and are not assessed further in this report.
- 3.22 As it is elevated annual mean concentrations of NO₂ and PM₁₀ that have resulted in the declaration of most AQMAs across the UK, these are the pollutants of most concern and they have therefore been the focus of this air quality assessment. PM_{2.5}, which is another fraction of particulate matter, has also been considered.

Roads Assessment

- 3.23 The latest EPUK & IAQM planning guidance¹⁹ provides indicative thresholds for changes in traffic flows which would require a detailed air quality assessment, when not in or close to an AQMA. Given the proposed development's location within the borough-wide Haringey AQMA, these are a change in 24-hour average annual daily traffic (AADT) flows of >100 light duty vehicles (LDV) and/or >25 HDV. Changes below these thresholds can be reasonably considered to have an insignificant impact on air quality.
- 3.24 In addition, it is necessary to determine whether the proposed development could introduce sensitive receptors into an area of existing poor air quality. The need to include a dispersion model to both assess the potential impact of the development at existing receptor locations and to assess the suitability of the site, in air quality terms, has been scoped out. Further details of the screening process are provided in Section 6 of this assessment.

Air Quality Neutral Assessment

- 3.25 For some time, the standard approach for air quality assessments was to predict the change in pollution concentrations through the use of a screening or detailed dispersion model and, where the potential for a significant impact was identified, recommend mitigation measures so that the significance of effect can be kept to an acceptable level. However, this type of assessment does little to consider the overall emissions from a development and its contribution to broader background concentrations, which can gradually increase due to incremental changes from successive developments, particularly in a large city such as London.
- 3.26 As a result of these effects, an air quality neutral policy was included in the London Plan. It aims to ensure that developments are air quality neutral or better, particularly in areas where any AQSS are being breached.

- 3.27 Since the publication of the 2016 London Plan, there has been considerable debate as to how the concept should be assessed and implemented. The Air Quality Neutral Support Update²² was produced in order to further develop the policy and discuss assessment options. The two principal options for the application of the policy were to compare the emissions of a proposed development with the site's previous use, or to establish benchmarks for acceptable emissions for particular planning uses. A combination of these two approaches would also be possible.
- 3.28 It was decided that a purely benchmarking route should be taken, rather than working on a site-by-site basis, as it would provide a means of ensuring that developments across London as a whole remain air quality neutral. It also allows for the development of long-derelict sites and does not permit large pollution-headroom for former industrial sites, which would be a key problem with the alternative method. The guidance provides building emissions benchmarks for NO_x and also states that PM₁₀ benchmarking need not be considered where natural gas is the only fuel used on site.
- 3.29 It was also concluded that emissions from buildings and transport should be treated separately, with the intent that each should attain air quality neutrality.
- 3.30 The Air Quality Neutral Planning Support Update²², published by the GLA, and the Sustainable Design and Construction SPG²¹ which supports the London Plan, state that air quality neutral policy applies to all major developments in Greater London.
- 3.31 An Air Quality Neutral Assessment has been undertaken in Section 7 of this report.

4. Baseline Assessment

- 4.1 This chapter is intended to establish prevailing air quality conditions in the vicinity of the development site.

UK-AIR Background Pollution

- 4.2 The UK-AIR²⁴ predicted background concentrations for NO₂, PM₁₀ and PM_{2.5} for 2019 to 2024 are presented in Table 4.1. These data were taken from the central grid square location closest to the application site (i.e. grid reference: 532500, 188500).

Table 4.1: 2019 to 2024 Background Concentrations of Pollutants at the site.

Pollutant	Predicted background concentration (µg.m ⁻³)						Averaging Period	Air quality standard concentration (µg.m ⁻³)
	2019	2020	2021	2022	2023	2024		
NO ₂	24.1	22.5	21.8	21.0	20.5	19.8	annual mean	40
PM ₁₀	18.7	18.2	18.0	17.8	17.5	17.3	annual mean	40
PM _{2.5}	12.3	12.0	11.8	11.7	11.6	11.4	annual mean	20

- 4.3 The data in Table 4.1 show that annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5}, in the vicinity of the application site between 2019 and 2024, were predicted to be well below their respective AQSS.
- 4.4 The data show that for 2022, annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were predicted to be below their respective AQSS by 47.5%, 55.6% and 41.5% respectively. As such, annual mean background pollutant concentrations are likely to be below their respective AQSS at, and within the vicinity of, the site.
- 4.5 Concentrations of all pollutants were predicted to decline each year. These reductions are principally due to the forecast effect of the roll out of cleaner vehicles, but also due to UK national and international plans to reduce emissions across all sectors.

London Atmospheric Emissions Inventory

- 4.6 The LAEI modelled pollution concentrations for NO₂, PM₁₀ and PM_{2.5} for 2019 are presented in Table 4.2, below. This data was taken from the 20m grid square located at the closest point at which proposed residential dwellings at Omega A will be located to Hermitage Road.

Table 4.2: LAEI Modelled Concentrations for 2019

LAEI Grid Square	Pollutant	Modelled Concentration ($\mu\text{g.m}^{-3}$)	Averaging Period	Air quality standard concentration ($\mu\text{g.m}^{-3}$)
		2019		
532340, 188080	NO ₂	28.8	Annual Mean	40
	PM ₁₀	16.8	Annual Mean	40
	PM _{2.5}	10.8	Annual Mean	20

- 4.7 The data in Table 4.2 shows that modelled annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} within the application site are predicted to be below the respective AQSS. Along the southern boundary of the application site, an NO₂ concentration of 28.8 $\mu\text{g.m}^{-3}$ was modelled; 28% below the 40 $\mu\text{g.m}^{-3}$ AQS.

Local Sources of Monitoring Data

- 4.8 Air quality monitoring is considered an appropriate source of data for the purposes of describing baseline air quality. At the time of writing, the most recent ASR²⁶ released by LBH included local pollutant monitoring data from 2020. Furthermore, given the close proximity of the application site to the boundaries of the London Borough of Islington (LBI) and the London Borough of Hackney (LBHK), local automatic and non-automatic monitoring data from these authoritative bodies was also analysed. Both LBI's²⁸ and LBHKs²⁹ latest ASRs include monitoring data from 2020.
- 4.9 Despite this, data from 2019 was chosen for analysis due to the heavy reductions in traffic flow numbers, and hence NO₂ concentrations, as a result of the onset of the COVID-19 Pandemic. This ensures a 'worse-case', conservative approach is maintained when analysing the potential impacts the proposed scheme may have on local air quality.

Automatic Monitoring

- 4.10 Each of the three London Boroughs undertook automatic (continuous) monitoring within their boundaries in 2019. The most recent available NO₂ monitoring data from local automatic stations located within 3.0km of the application site are included in Table 4.3, below.

Table 4.3: LBH's and LBI's Automatic NO₂ Monitoring Data

Monitor	Type	Distance from the Site (km)	Annual mean NO ₂ concentration ($\mu\text{g.m}^{-3}$)			
			2017	2018	2019	2020
IS6 (Islington)	UB	2.2	31.0	27.0	25.0	20.0

28 London Borough of Islington. (2021). *Annual Status Report for 2020*.

29 London Borough of Hackney. (2021). *Annual Status Report for 2020*.

Haringey South (Haringey)	UB	2.4	24.0	23.0	22.0	16.0
IS2 (Islington)	R	2.8	49.0	47.0	40.0	31.0
Haringey Roadside (Haringey)	R	3.0	40.0	39.0	37.0	33.0

Note: "R" = Roadside; "UB" = Urban Background.

- 4.11 The data in Table 4.3 show that the annual mean NO₂ concentration recorded at the selected monitors located within Urban Background locations, were consistently below the 40 µg.m⁻³ AQS between 2017 and 2020. However, at monitors located adjacent to major road links and junctions, such as IS2, concentrations have exceeded the respective AQS. Furthermore, both Monitors IS6 and Haringey South, displayed an overall decrease in NO₂ concentration levels throughout the 2017 to 2020 monitoring period.
- 4.12 The closest automatic monitor to the application site is IS6, set within an urban background setting adjacent to Arsenal Tube Station. This monitor recorded an annual mean concentration of 25.0 µg.m⁻³ for NO₂; 37.5% below the AQS.
- 4.13 The highest recorded concentration between 2017 and 2020, was registered at Monitor IS2; located adjacent to a major four-way junction centred on the A1 Holloway Road. This monitor recorded an annual mean concentration of 40.0 µg.m⁻³ for NO₂ in 2019; the equivalent of the respective AQS.
- 4.14 The most recent available PM₁₀ monitoring data is included in Table 4.4, below.

Table 4.4: LBI's Automatic PM₁₀ Monitoring Data

Monitor	Type	Distance from the Site (km)	Annual mean PM ₁₀ concentration (µg.m ⁻³)			
			2017	2018	2019	2020
IS6 (Islington)	UB	2.2	18.0	20.0	19.0	17.0
IS2 (Islington)	R	2.8	21.0	20.0	20.0	18.0

Note: "R" = Roadside; "UB" = Urban Background.

- 4.15 Both of the monitors recorded PM₁₀ concentrations well below the 40 µg.m⁻³ annual mean AQS throughout the monitoring period.
- 4.16 Monitor IS2 recorded the highest annual mean PM₁₀ concentration in 2019 (20.0 µg.m⁻³), although this still remains well below the annual mean AQS by 50.0%. Furthermore, due to the monitors location adjacent to the major road junction, it is expected that mean annual PM₁₀ concentrations would be reduced at the application site in comparison, given the site's distance from the closest major roads.
- 4.17 Automatic monitoring of PM_{2.5} was conducted by LBHK only at one location in 2019, adjacent to the A501 Old Street; situated 5.5km south of the application site. The most recent available data for this monitor is included within Table 4.5, below.

Table 4.5: LBHK's Automatic PM_{2.5} Monitoring Data

Monitor	Type	Distance from the Site (km)	Annual mean PM _{2.5} Concentration (µg.m ⁻³)			
			2017	2018	2019	2020
HK6 (Hackney)	UB	5.5	11.7	10.2	9.1	7.8

Note: "UB" = Urban Background.

4.18 The data in Table 4.5 shows that monitor HK6 recorded PM_{2.5} concentrations well below the 20 µg.m⁻³ annual mean AQS throughout the monitoring period.

4.19 In 2019, Monitor HK6 recorded a mean PM_{2.5} concentration of 9.1 µg.m⁻³; below the AQS by 54.5%.

Non-Automatic Monitoring

4.20 An extensive non-automatic NO₂ diffusion tube monitoring network exists in strategic locations within close proximity to the application site. To analyse data considered most representative of those at the application site, monitoring stations located within 1.0km of the application site have been included. The most recent available NO₂ monitoring data for 2019 have been included in Table 4.6, below.

Table 4.6: Non-Automatic NO₂ Diffusion Tube Monitoring Data Within 1.0km of the Site

Monitor	Type	Distance from the site (km)	NO ₂ annual mean concentration (µg.m ⁻³)			
			2017	2018	2019	2020
135 (Hackney)	K	0.3	-	-	-	24.0
134 (Hackney)	K	0.4	56.0	47.0	45.0	36.0
HR35 (Haringey)	R	0.6	22.0	31.0	30.5	22.3
19 (Hackney)	R	0.6	66.0	61.0	60.0	45.0
54 (Hackney)	R	0.7	-	-	43.0	32.0
88 (Hackney)	K	0.7	-	-	-	24.0
25 (Hackney)	K	0.8	-	-	42.0	29.0
HR27 (Haringey)	R	0.9	33.0	31.0	36.4	29.0
24 (Hackney)	K	0.9	-	-	37.0	28.0
142 (Hackney)	K	0.9	-	-	30.0	23.0
143 (Hackney)	K	0.9	-	-	26.0	21.0

Note: "R" = Roadside; "U" = Urban; "UB" = Urban Background; "O" = Other.

- 4.21 The data in Table 4.6 show that annual mean concentrations of NO₂ at monitored locations within 1.0km of the proposed development have regularly recorded concentrations above the 40 µg.m⁻³ AQS in recent years.
- 4.22 The closest monitor to the application site that recorded data in 2019, Monitor 134, recorded an annual mean NO₂ concentration of 45.0 µg.m⁻³; 12.5% above the AQS. Positioned kerbside to the eastbound carriageway of the A503 Seven Sisters Road, traffic volumes are very high, which explains the elevated NO₂ concentration levels at this location.
- 4.23 Alike the application site, Monitor HR35 is distanced considerably from any major source of NO₂. In 2019, this monitor recorded an annual mean NO₂ concentration of 30.5 µg.m⁻³; 23.8% below the annual mean AQS. Located approximately 60m from the B152 St Annes Road, on Black Boys Lane, this monitoring location can be considered more representative of the application site due to its similarity with the LAEI concentration modelled at the southern boundary of the proposed development (29.8 µg.m⁻³).
- 4.24 Between 2017 and 2020, the data recorded at LBH and LBHK's non-automatic diffusion tube monitors largely declined overall; with the exception of monitoring locations HR35 and HR27, although these still remained below the respective AQS.

5. Construction Phase Impacts

- 5.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust.
- 5.2 The estimates for the dust emission magnitude for demolition, earthworks, construction and trackout below are based on the professional experience of Phlorum's consultants, information provided by the client and Google Earth imagery.

Dust Emission Magnitude

Demolition

- 5.3 It is understood that the total volume of the demolished building is 16,543m³, with the demolished building heights being below 10m. It is unknown whether any mobile crushing equipment will be on site during the course of the demolition phase.
- 5.4 For conservative purposes, the overall dust emission magnitude for the demolition stage is considered to be *Medium*.

Earthworks

- 5.5 The total site area is approximately 0.4 hectares, which can be classified as *Medium* with reference to the IAQM guidance.
- 5.6 It is not known whether any bunds will be formed on-site, but approximately 10 heavy-earthmoving vehicles will likely be present at any given time during the construction phase. With reference to the IAQM guidance, the overall dust emission magnitude should therefore be considered *Medium*.
- 5.7 Based on the criteria outlined above and the IAQM's magnitude categorisation, the overall dust emission magnitude for the earthworks stage would thus be considered *Medium*.

Construction

- 5.8 During construction, activities that have the potential to cause emissions of dust may include metal cladding, piling and concrete batching. Localised use of cement powder and general handling of construction materials (such as aggregate for road construction) also have the potential to generate dust emissions, as does the effect of wind-blow from stockpiles of friable materials. It is anticipated that piling will be required during construction.

- 5.9 It is expected that the total building volume of the proposed residential development will be between 25,000-100,000m³, falling into the IAQM's *Medium* dust emission category.
- 5.10 Therefore, with reference to the IAQM guidance, the overall dust emission magnitude for the construction phase is considered to be *Medium*.

Trackout

- 5.11 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and to also add soil to the local road network. During dry weather, soiled roads can lead to dust being emitted due to physical and turbulent effects of vehicles. However, no unpaved road surfaces will be utilised by construction vehicles accessing the site.
- 5.12 It is expected that fewer 10 HDVs will access the site in any one day, falling within the IAQM's *Small* dust emission magnitude category.
- 5.13 As such, the overall dust emission magnitude is considered to be *Small* with reference to the IAQM guidance.

Emission Magnitude Summary

- 5.14 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction and Trackout as specified in the IAQM guidance, and discussed above, are listed in Table 5.1 below.

Table 5.1: Dust Emission Magnitude for the construction activities, based on the IAQM's guidance.

Activity	Dust Emission Magnitude
Demolition	Medium
Earthworks	Medium
Construction	Medium
Trackout	Small

Sensitivity of the Area

- 5.15 Having established the emission magnitudes for each phase above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor.
- 5.16 High sensitivity human receptors include residential dwellings, schools and hospitals, but can include locations such as car showrooms when considering the impacts of dust soiling.

- 5.17 The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source.
- 5.18 With the exponential decline in dust with distance from dust generating activities, it is considered that for receptors more than 350m from the site boundary, the risk is negligible. Furthermore, the risks at over 100m only have the potential to be significant in certain weather conditions, e.g. downwind of the source during dry periods.
- 5.19 The approximate number of high sensitivity human receptors in the vicinity of the site is detailed in Table 5.2 below and shown in Figure 2.

Table 5.2: Approximate number of High Sensitivity Receptors close to the site.

Distance to site (m)	Approximate number of receptors	Receptor Details
<20	>10	Residential Dwellings
<50	>30	Residential Dwellings
<100	Approx. 150	Residential Dwellings
<350	Approx. 4,000	Residential Dwellings; Moorfields Eye Hospital; Woodberry Down Primary School; Tiverton Primary School; and Skinners Academy.

- 5.20 Figure 3 shows that the predominant wind direction at the closest relevant meteorological station at London City Airport (2019) is from the south-west and east. However, as shown in Table 5.2 (above) and Figure 2, there are a number of highly sensitive receptors in close proximity to the application site. As such, the sensitivity of the area to dust soiling impacts is defined as *High*.
- 5.21 LAEI and local monitoring data from each borough's respective automatic monitoring networks suggest that annual mean concentrations of PM₁₀ are likely to be below 24.0 µg.m⁻³ at the site. This provides a good indication that PM₁₀ concentrations for both annual mean and daily mean concentrations are likely to be below the respective long-term AQS at receptors located on the southern boundary of the application site. Therefore, the sensitivity of the area to human health impacts is defined as *Low*.

- 5.22 The closest statutory ecological site is the Railway Lands, a local nature reserve (LNR), located approximately 470m north-west of the application site boundary. Therefore, based on distance alone, the construction of the proposed development can be considered to have a *Negligible* effect on ecological sites.

Risk of Impacts

- 5.23 Having established the potential dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 5.3.

Table 5.3: Summary of Impact Risk by Construction Stage based on the IAQM's dust guidance.

Stage	Impact Risk		
	Nuisance Dust	Ecology	PM ₁₀
Demolition	Medium	Negligible	Low
Earthworks	Medium	Negligible	Low
Construction	Medium	Negligible	Low
Trackout	Low	Negligible	Negligible

- 5.24 Overall, and using professional judgement, the proposed development is considered to be *Medium Risk* for nuisance dust soiling effects, *Low Risk* for PM₁₀ health effects and to be *Negligible* for ecology, in the absence of mitigation.

Site Specific Mitigation

- 5.25 The GLA guidance²¹ suggests a number of mitigation measures that should be adopted in order to minimise impacts from dusts and fine particles. Appropriate measures that could be included during construction of the proposed development include:
- 🌱 ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
 - 🌱 where such work must take place, water suppression should be used to reduce the amount of dust generated;
 - 🌱 skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;
 - 🌱 no burning of any materials should be permitted on site;

- any excess material should be reused or recycled on-site in accordance with appropriate legislation;
 - developers should produce a waste or recycling plan;
 - following earthworks, exposed areas and soil stockpiles should be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
 - stockpiles should be stored in enclosed or bunded containers or silos and kept damp where necessary;
 - hard surfaces should be used for haul routes where possible;
 - haul routes should be swept/washed regularly;
 - vehicle wheels should be washed on leaving the site;
 - all vehicles carrying dusty materials should be securely covered; and
 - delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.
- 5.26 In addition, the IAQM lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended mitigation measures for *Medium Risk* sites are included in Appendix A of this report.
- 5.27 Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures should be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of activities that are likely to generate a particularly significant amount of dust.

Residual Effects

- 5.28 After the implementation of the mitigation measures listed above and in Appendix A, the significance of each phase of the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*.

6. Operational Phase

Site Suitability

- 6.1 LLAQM.TG(19) guidance classifies monitoring locations based on their relation and distance to sources of pollution. The guidance states that roadside sites are typically found “*within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases)*”.
- 6.2 The AEA *Diffusion Tube for Ambient NO₂ monitoring: Practical Guidance* (AEA guidance)³⁰ provides further detailed definitions which help to classify urban background sites. Specifically, Section 3.2.2 states that, where a site meets the following criteria, they can be reasonably defined as being in an urban background location, away from adverse impacts associated with emissions from road sources:
-  >50m from any major source of NO₂ (e.g. multi-storey car parks);
 -  >30m from any ‘very busy’ road (>30,000 vehicles per day);
 -  >20m from a ‘busy’ road (10,000 – 30,000 vehicles per day);
 -  >10m from any ‘main’ road; and
 -  >5m from locations where vehicles may stop with their engines idling.
- 6.3 Traffic data from counts collated with the LAEI database show that in 2019, Hermitage Road, the primary access route for the proposed development, had an estimated AADT flow of 1,888 vehicles.
- 6.4 Given that the closest residential receptor is expected to be located approximately 5m from this potential source of pollution, based on the criteria outlined above, the application site would be considered to be situated in *Roadside* setting.
- 6.5 However, given that the modelled concentration is very similar to that of the one recorded at LBH’s *urban background* Monitor HR35 (30.5 µg.m⁻³), and that it is located well distanced from any major sources of pollution, the site is considered to be location within an *urban background* setting for the purpose of this assessment.

30 AEA Energy and Environment. (2008). *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*.

- 6.6 LLAQM.TG(19) states that where the annual mean NO₂ concentration is below 40 µg.m⁻³, there are not likely to be exceedances of the 1-hour mean objective (200 µg.m⁻³ not to be exceeded more than 18 times per year). Within the immediate vicinity of the proposed development, background concentrations of NO₂ are predicted to be consistently below the relevant AQS; based on data from similar diffusion tubes located within urban background settings and LAEI modelled concentrations
- 6.7 The closest diffusion tube to the application site that recorded data in 2019 is LBHK's Monitor 134, located adjacent to the 'Very Busy' A503 Seven Sisters Road. Located approximately 365m from the application site, this monitor recorded an annual mean concentration of 45.0 µg.m⁻³ for NO₂ in 2019; 12.5% above the relevant AQS. However, given this monitor's roadside location to a major arterial road link, concentrations would be expected to be much higher than those recorded within the vicinity of the application site, which is situated on a quiet residential street considerably distanced from any major sources of air pollution.
- 6.8 LBH's Monitor HR35, located adjacent to Chestnuts Primary School, should be considered most representative of baseline concentrations at the application site. Situated approximately 70m from B152 St Ann's Road, this monitor recorded an annual mean concentration of 30.5 µg.m⁻³ for NO₂ in 2019; 23.7% below the relevant AQS. Similarly located within an *urban background* setting, concentrations at the application site would be expected to be broadly similar, as is supported by the LAEI data in Table 4.2.
- 6.9 LBI's closest automatic monitor to the application site, IS6, could also be considered largely representative of those at the application site, with regards to concentrations of PM₁₀. Located within an *urban background* setting adjacent to the Islington Ecology Centre, approximately 2.2km from the application site, a concentration of 19.0 µg.m⁻³ was recorded in 2019; 52.5% below the respective AQS.
- 6.10 In contrast, the LAEI modelled an annual mean concentration of 17.2 µg.m⁻³ for PM₁₀ at the southern boundary of the application site. Given the relatively small discrepancy in PM₁₀ concentrations for IS6 and the modelled concentration at Omega Works, and that both are located within *urban background* settings, the concentrations recorded at the former could be considered an upper bound for those at the application site.
- 6.11 Given the relative similarity between the modelled LAEI concentrations for both NO₂ and PM₁₀ at the site of the proposed development and those recorded at local monitoring stations, the LAEI concentration for PM_{2.5} should be considered largely representative of baseline concentrations within the vicinity of the application site.
- 6.12 As such, it is considered that pollutant concentrations would be below the relevant AQSs across the site. Therefore, the site is anticipated to be suitable, in air quality terms, for the proposed extension, and no further assessment of site suitability is required.

Impact on Local Air Quality

- 6.13 The latest EPUK & IAQM planning guidance¹⁹ provides indicative thresholds for changes in traffic flows which would require a detailed air quality assessment. These are a change in 24-hour average annual daily traffic (AADT) flows of >100 LDVs and/or >25 HDVs; when situated within the boundaries of an AQMA.
- 6.14 The project's transport consultants, Markides Associates, estimate that the proposed development will generate a net change in AADT of 30 vehicles, when considering the site's extant use; confirming that the proposed traffic generation would remain well below the indicative EPUK & IAQM threshold. Therefore, the proposed development can be reasonably assumed to have an insignificant impact on local air quality.

7. Air Quality Neutral Assessment

- 7.1 The Air Quality Neutral Assessment compares the expected emissions from both traffic generation and building emissions with benchmarked emissions for particular land use classes derived from the Air Quality Neutral Planning Support Update²².
- 7.2 The proposed development falls under Land-Use Classes C3 (Residential) and B2 (Commercial/ Light Industrial), for which Building Emission Benchmarks (BEBs) and Transport Emission Benchmarks (TEBs) exist. However, TRAVL benchmarks were utilised when assessing transport emissions associated with the proposed Class B2 (commercial) units.

Transport Emissions

- 7.3 The proposed development is expected to generate a total of 120 AADT; excluding consideration of its extant use and net changes in traffic flows.
- 7.4 Table 7.1 below details the inputs and calculations to establish the proposed development's air quality neutrality, with regard to transport emissions.

Table 7.1: Air Quality Neutral Transport Emissions

Transport Emissions Benchmark (TEB)		
Number of dwellings	136 (Including Warehouse Living)	-
Trip Rate	386	Trips/ Dwelling/ Annum
Trip Length	11.4	Average km
Emissions Factor (EF NO _x)	0.353	-
Emissions Factor (EF PM ₁₀)	0.0606	-
TEB (NO _x)	221.3	kgNO_x.annum⁻¹
TEB (PM ₁₀)	36.3	kgPM₁₀.annum⁻¹
Proposed Residential Transport Emissions		
Residential AADT	109	AADT
Total Trips per Annum	39,785	Trips/Annum
Total NO _x Emissions	160.1	kgNO_x.annum⁻¹
Total PM ₁₀ Emissions	27.5	kgPM₁₀.annum⁻¹

- 7.5 As is shown in Table 7.1, emissions generated from the proposed residential units have been calculated as 160.1 kgNO_x.annum⁻¹ and 27.5 kgPM₁₀.annum⁻¹. These are well below their respective.

- 7.6 With a total commercial floorspace of 1,041m², the Class B2 units are expected to generate an additional 12 AADT; equating to roughly 4.2 trips/m²/annum.
- 7.7 The TRAVL benchmark for Class B2 in outer London is 18.3 trips/m²/annum, which is far greater than that of the proposed development's trip rate. As such, it is anticipated that the proposed development will achieve air quality neutrality with respect to transport emissions.

Building Emissions

- 7.8 The proposed development does not include any new sources of on-site combustion, with the proposed residential and commercial units being heated through Air Source Heat Pumps (ASHP).
- 7.9 Therefore, it is anticipated that the proposed development will achieve Air Quality Neutrality with respect to building emissions.

Mitigation

- 7.10 The proposed development commits to the following mitigation at this stage:
-  The provision of 'active' Electric Vehicle Charging Points (EVCP) at a minimum of 20% of all parking spaces associated with the development, with all remaining spaces possessing 'passive' provision;
 -  A welcome pack available to all new occupants to encourage the use of sustainable transport modes;
 -  Car club provision or financial support given to a local car club; and
 -  Cycle storage.
- 7.11 Given the list of measures above, it is considered that the proposed development includes a sufficient amount of mitigation to effectively offset potential emissions from the scheme once operational.

8. Discussion

Construction Phase Impacts

- 8.1 The construction phase of the proposed development could potentially give rise to emissions which could cause dust soiling effects on adjacent uses. Following IAQM guidance, the construction phase of the proposed development can be considered *Medium Risk* for nuisance dust soiling effects, *Low Risk* regarding PM₁₀ health effects and *Negligible Risk* for impacts on ecological sites.
- 8.2 Following the implementation of the mitigation measures provided in Appendix A and listed in Section 5.25, emissions from the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*, thus complying with the requirements of the NPPF.

Operational Phase Impacts

- 8.3 The need for a detailed pollutant dispersion modelling assessment of the proposed development's sensitivity to local air quality has been screened out using GLA and Defra guidance along with AEA guidance and local pollutant monitoring data. This was primarily due to baseline conditions and concentrations being anticipated to be well below the respective AQS within the immediate vicinity of the application site. Therefore, the site is considered to be suitable for the introduction of new, sensitive receptors, and no further assessment of site suitability is considered necessary.
- 8.4 The proposed development is not expected to generate volumes of traffic in exceedance of the indicative thresholds outlined by the EPUK & IAQM guidance. Therefore, the need to undertake a detailed dispersion modelling assessment of the proposed development's impact on local air quality at existing sensitive receptor locations has been screened out with reference to the EPUK & IAQM guidance. Therefore, it can be reasonably assumed that the operation of the proposed development would have an insignificant impact on local air quality.

Air Quality Neutral Assessment

- 8.5 The proposed development is expected to generate a total AADT of 120 trips; excluding the site's extant use and net change in AADT. This level of trip generation is comfortably below the calculated TEB and TRAVL benchmark, as set out within the GLA guidance.
- 8.6 The proposed development's energy strategy comprises the use of ASHPs, with no use of emitting sources proposed. As such, the proposed development is not expected to generate building emissions of NO_x or PM₁₀.

- 8.7 Taking the above into account, it is considered that the proposed scheme comfortably achieves air quality neutrality, with respect to building and transport emissions.
- 8.8 Furthermore, EVCP in line with local guidance and welcome packs will also be provided to new residents, encouraging the use of public transport and reductions in reliance on private cars.

9. Conclusions

- 9.1 Phlorum Ltd have been commissioned by Topfling Limited to undertake an Air Quality Assessment in support of an outline planning application for a proposed residential and commercial redevelopment of land at the existing Omega Works industrial site, Hermitage Road, within the London Borough of Haringey. The planning proposal involves the construction of 76 residential units and commercial floorspace, as well as live-work units and the provision of warehouse living.
- 9.2 Local pollutant monitoring data suggests that air quality within the borough is generally good within urban background locations, although it can sometimes be poor at roadside measurement sites situated in close proximity to major roads comprising the local strategic network. However, data from the UK Air Information Resource and the London Atmospheric Emissions Inventory indicate that pollution concentrations across the site are likely to be well below the relevant UK Air Quality Standard concentrations.
- 9.3 The construction phase of the development could give rise to emissions which could cause dust soiling effects on adjacent uses. However, by adopting the appropriate mitigation measures to reduce emissions and their potential impact, there should be no significant residual effects, thus complying with the requirements of the National Planning Policy Framework.
- 9.4 The operation of the proposed development is not expected to introduce new, sensitive receptors into an area of good air quality standards, nor is it anticipated to significantly impact on local air quality.
- 9.5 The proposed development has been demonstrated to be Air Quality Neutral, in line with the requirements of the London Plan.
- 9.6 Therefore, the proposed development is expected to comply with all relevant local and national air quality policy. Air quality should not, therefore, pose any significant obstacles to the planning process.

Figures and Appendices

Figure 1: Site Location Plan

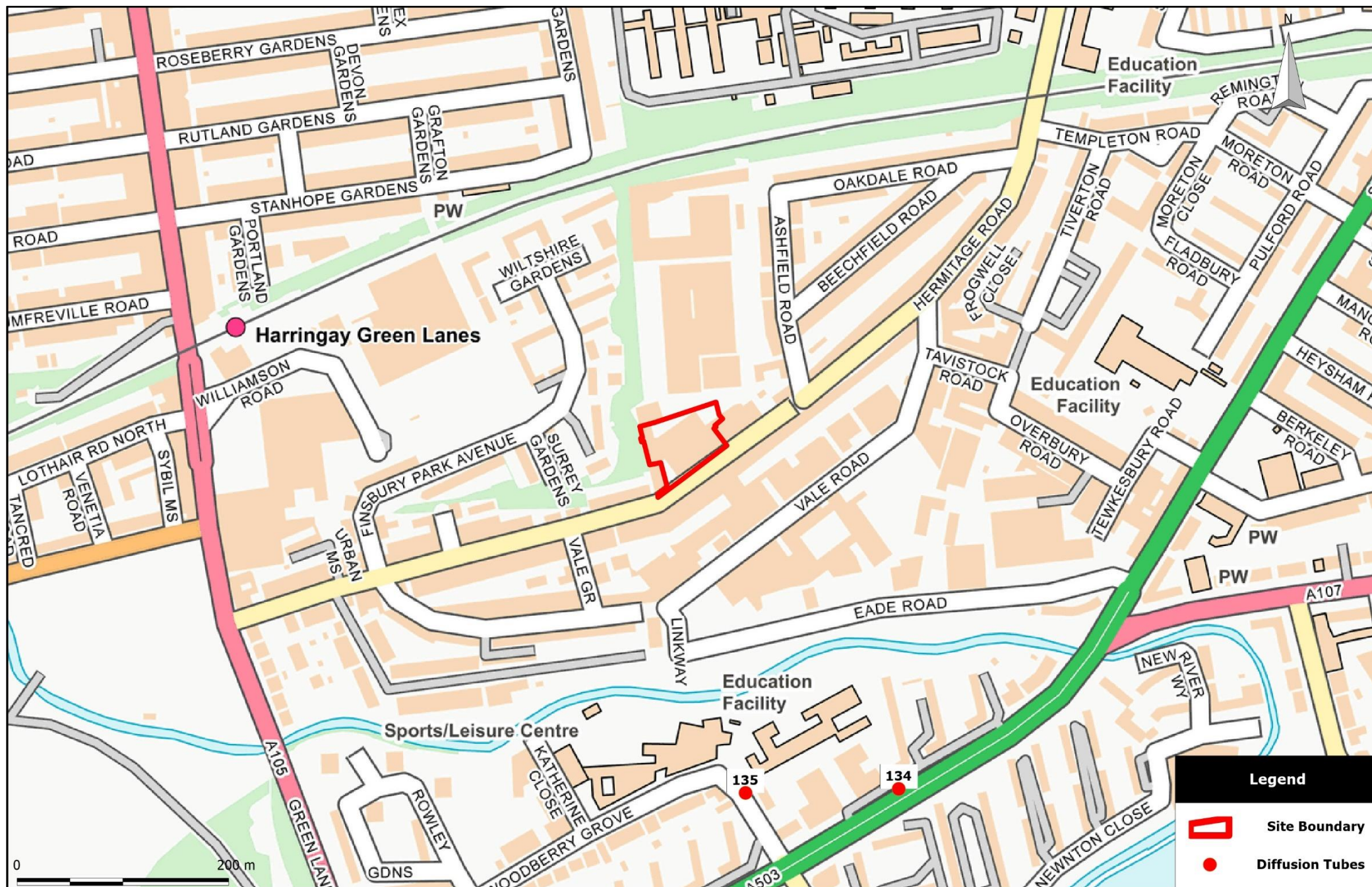


Figure 1: Site Location Plan

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Figure 2: Construction Phase

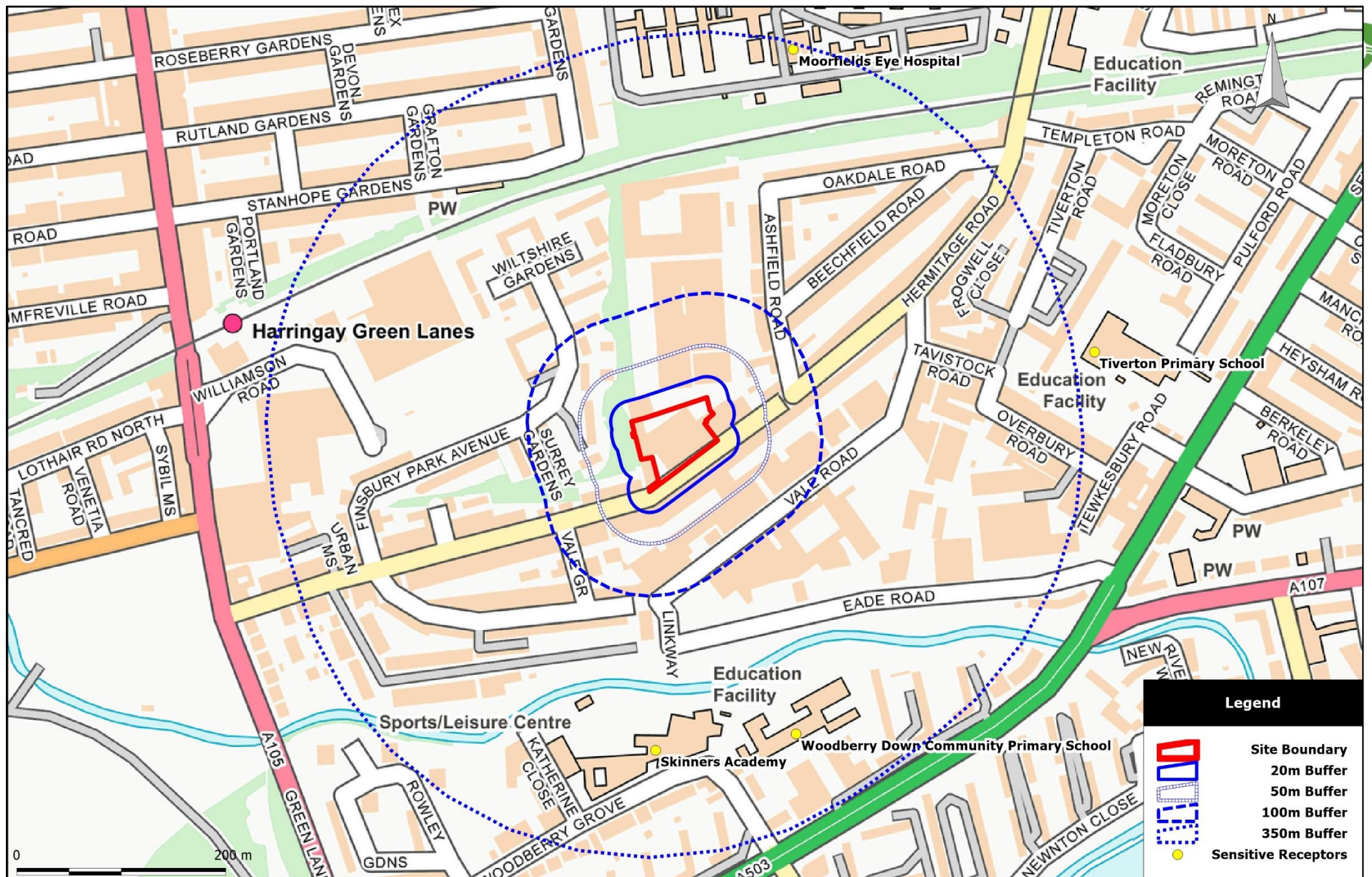


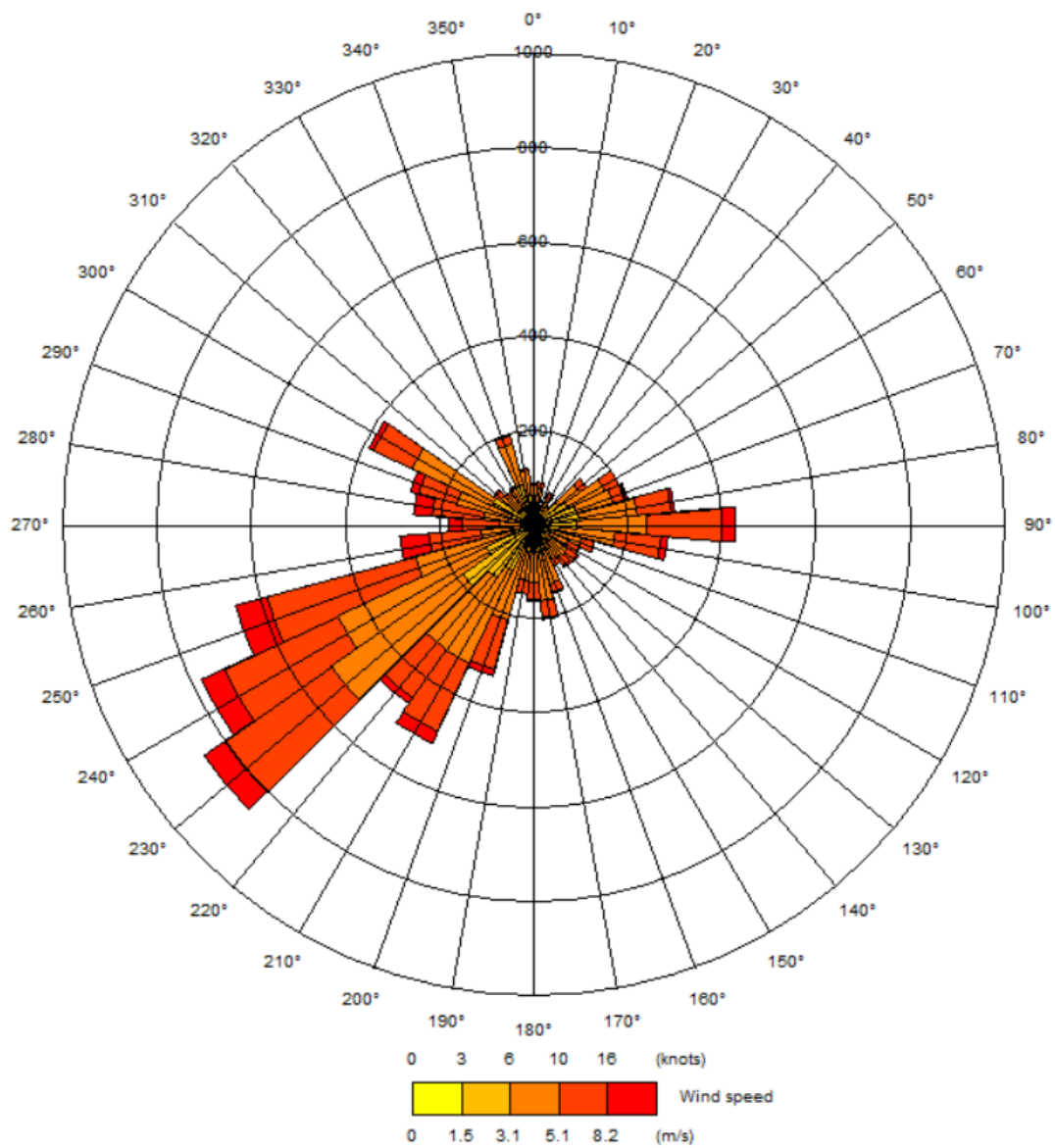
Figure 2: Consturction Phase

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Figure 3: Wind Rose for London City Airport (2019)



Appendix A: IAQM Highly Recommended Mitigation Measures for Medium Risk Sites

Appendix A: IAQM Highly Recommended Mitigation Measures for sites with a Medium Risk of Dust Impacts

Please refer to the IAQM's *Guidance on the assessment of dust from demolition and construction (2014)*²⁰ and *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (2018)*³¹ for further, "desirable", mitigation measures.

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 Appendix. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.

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 exception 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

- Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of 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.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by the IAQM³² on *monitoring during demolition, earthworks and construction*.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from

31 IAQM. (2018). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites*.
https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

receptors, as far as 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 active 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 Vehicle/Machinery and Sustainable Travel

- 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.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

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 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.

Demolition

- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

Construction

- Ensure sand and other aggregates 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.

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.
- 🌱 Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- 🌱 Record all inspections of haul routes and any subsequent action in a site log book.
- 🌱 Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowzers and regularly cleaned.
- 🌱 Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior leaving the site where reasonably practicable).
- 🌱 Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- 🌱 Access gates to be located at least 10m from receptors where possible.



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