Air Quality Assessment

Beaches Yard, Horton Road,
West Drayton

August 2022

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Harvest Land Management

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1. Introduction

Background

1.1 Phlorum Limited has been commissioned by Harvest Land Management to undertake an Air Quality Assessment to support a planning application for the redevelopment of Beaches Yard, Horton Road, West Drayton. The National Grid Reference for the centre of the site is 507135, 180390. A site location plan is included in Figure 1.

1.2 The site is located south-east of the town of Yiewsley, on the western outskirts of London and comprises several static homes, large areas of hardstanding, small areas of vegetation, scrub and boundary trees. The proposal comprises the redevelopment of the site to provide a warehouse with a Gross Internal Area (GIA) of 4,503m^2.

1.3 Land use in the vicinity of the site comprises a mixture of commercial and industrial uses, with greenspaces including Uxbridge Football Club, Stockley Country Park, and Stockley Park Golf Club also nearby. The closest residential uses to the site are residences located off Whitethorn Avenue, approximately 0.1km to the south-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 Horton Road to the south.

1.5 The Local Planning Authority, the London Borough of Hillingdon (LBH) declared a borough-wide Air Quality Management Area (AQMA) in 2003 due to exceedances of the long-term UK Air Quality Standard (AQS) for nitrogen dioxide (NO_2). The development site is located within this AQMA.

1.6 The Greater London Authority (GLA) has designated 10 Air Quality Focus Areas (AQFAs) within the Hillingdon; these are locations which have been identified by the GLA as having both high concentrations of NO_2 and significant human exposure. The development site is not located within an AQFA, with the nearest being the West Drayton / Yiewsley AQFA, located approximately 0.8km west of the site.

Scope of Assessment

1.7 The focus of this assessment will be to assess potential for traffic generated by the proposed development to impact on local air quality. The assessment will also assess the suitability of the site, in air quality terms, for the proposed commercial use. This report will also assess the potential for dust nuisance and soiling impacts to occur due to the construction of the proposed development and offers recommendations for suitable mitigation to reduce the possibility of such impacts occurring.

2. Policy Context

The UK Air Quality Strategy

2.1 The UK Air Quality Strategy (UKAQS)[1] sets 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 (µg.m^{-3})	Air quality objective
Nitrogen dioxide (NO_2)	1 hour	200	200 µg.m^{-3} not to be exceeded more than 18 times a year
	Annual	40	40 µg.m^{-3}
Particulate Matter (PM_{10})	24-hour	50	50 µg.m^{-3} not to be exceeded more than 35 times a year
	Annual	40	40 µg.m^{-3}
Particulate Matter ($PM_{2.5}$)	Annual	20	20 µg.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 2000[2], 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 2020[3].

London Local Air Quality Management

2.6 The London Local Air Quality Management (LLAQM) framework[4] 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 (2018), they incorporate London-specific elements of the national 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's AQAP[5] outlines actions and strategies to reduce pollution concentrations across the Borough, such as through discouraging vehicle idling, reducing emissions from combined heat and power plants (CHP) and through supporting the adoption of zero emission transport.

2.10 The Greater London Authority (GLA) has designated 10 AQFAs in Hillingdon. An AQFA is a location that has been identified by the GLA as having both high levels of NO_2 and significant human exposure. The development site is not located within any of these AQFAs, with the closest being the West Drayton / Yiewsley AQFA, which encompasses an area surrounding the High Street, from Trout Road in the north to Brandville Road in the south. The location of this AQFA is shown in Figure 1.

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. www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-london-Boroughs
5 London Borough of Hillingdon. (2019). *Air Quality Action Plan 2019-2024*. Available at: www.hillingdon-air.info/pdf/Hillingdon_AQAP_2019_2024_finalversion.pdf

2.11 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 enforced on 8th of April 2019. The ULEZ was extended to the boundary of the North and South Circular roads on 25th October 2021. The development site is not located within the current boundary of the ULEZ, but is located within the existing LEZ.

National Planning Policy Framework

2.12 The National Planning Policy Framework (NPPF)[6], 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 […]".

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

2.14 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

6 Ministry of Housing, Communities and Local Government. (2021). National Planning Policy Framework.

Management Areas and Clean Air Zones is consistent with the local air quality action plan."

2.15 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

2.16 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)[7], which was updated in July 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.

2.17 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 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;*

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

- *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."*

2.18 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.

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

London Specific Planning Policy

2.20 The Mayor's Environment Strategy was published in 2018 and sets out the measures the Greater London Authority (GLA) are taking to improve air quality. The Environment Strategy is supported by the London Plan 2021[8] which was published in March 2021. Policy SI1 'Improving air quality' of the London Plan states that:

"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:

8 Greater London Authority. (2021). *The London Plan: The Spatial Development Strategy for Greater London.* [Adopted March 2021].

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 air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure […]

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.

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."

Non-Road Mobile Machinery

2.21 It must be ensured that all Non-Road Mobile Machinery (NRMM) operating on site comply with London's current and future policy for NRMM. The current London Policy for NRMM[9] states the following:

"From 1st September 2020 NRMM on all sites within Greater London is required to meet emission Stage IIB as a minimum; and NRMM on all sites within either the Central Activities Zone (CAZ) or Opportunity Areas (OAs) are required to meet emissions Stage IV as a minimum".

2.22 The development site is not located within London's Central Activity Zone (CAZ), nor is it located within an Opportunity Area (OA), and is therefore bound by the emission requirements of the NRMM policy for Greater London.

9 Greater London Authority. (2022). *Non-Road Mobile Machinery Practical Guide*. Available at: https://www.london.gov.uk/sites/default/files/nrmm_practical_guide_april_2022_web.pdf

2.23 Therefore, any NRMM operating on site should meet Stage IIB 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.

Local Planning Policy

2.24 Alongside the London Plan, the Hillingdon Development Plan forms the statutory basis for planning decisions in the Borough. The Development Plan consists of a number of documents, including the *Local Plan: Part 1 – Strategic Policies*[10] and the *Local Plan: Part 2 – Development Management Policies*[11].

2.25 Of particular relevance to air quality is *Policy EM8: Land, Water, Air and Noise*, from the *Local Plan: Part 1*, which states the following with regard to air quality:

"All development should not cause deterioration in the local air quality levels and should ensure the protection of both existing and new sensitive receptors.

All major development within the Air Quality Management Area (AQMA) should demonstrate air quality neutrality (no worsening of impacts) where appropriate; actively contribute to the promotion of sustainable transport measures such as vehicle charging points and the increased provision for vehicles with cleaner transport fuels; deliver increased planting through soft landscaping and living walls and roofs; and provide a management plan for ensuring air quality impacts can be kept to a minimum.

The Council seeks to reduce the levels of pollutants referred to in the Government's National Air Quality Strategy and will have regard to the Mayor's Air Quality Strategy. London Boroughs should also take account of the findings of the Air Quality Review and Assessments and Actions plans, in particular where Air Quality Management Areas have been designated.

The Council has a network of Air Quality Monitoring stations but recognises that this can be widened to improve understanding of air quality impacts. The Council may therefore require new major development in an AQMA to fund additional air quality monitoring stations to assist in managing air quality improvements."

2.26 Also relevant is Policy DMEI 14: *Air Quality*, from the *Local Plan: Part 2*, which states:

"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:

10 London Borough of Hillingdon. (2012). *Local Plan: Part 1 Strategic Policies* (Adopted November 2012).
11 London Borough of Hillingdon. (2020). *Local Plan Part 2 Development Management Policies* (Adopted January 2020).

i. be at least "air quality neutral";

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

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

2.27 Policy DMT 1: Managing Transport Impacts, of the Local Plan: Part 2 is also of relevance to air quality, and states the following:

"A) Development proposals will be required to meet the transport needs of the development and address its transport impacts in a sustainable manner. In order for developments to be acceptable they are required to:

i. be accessible by public transport, walking and cycling either from the catchment area that it is likely to draw its employees, customers or visitors from and/or the services and facilities necessary to support the development; […]

v. have no significant adverse transport or associated air quality and noise impacts on the local and wider environment, particularly on the strategic road network."

2.28 Policy DMT 2: Highways Impacts states the following with regard to air quality impacts:

"Development proposals must ensure that: […]

ii. they do not contribute to the deterioration of air quality, noise or local amenity or safety of all road users and residents".

2.29 Lastly, of some relevance is Policy DMEI 1: Living Walls and Roofs, from The Local Plan: Part 2, which states:

"All development proposals are required to comply with the following:

i. All major development should incorporate living roofs and/or walls into the development. Suitable justification should be provided where living walls and roofs cannot be provided; and

ii. 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."

3. Assessment Methodology

Guidance

3.1 Defra's Local Air Quality Management Technical Guidance (LAQM.TG(16))[12] and London Local Air Quality Management Technical Guidance (LLAQM.TG(19))[13] were followed in carrying out the assessment.

3.2 Guidance from the Greater London Authority's *The Control of Dust and Emissions During Construction and Demolition*[14] was used in assessing construction phase impacts of the proposed development, in conjunction with the Institute of Air Quality Management's (IAQM) *Guidance on the Assessment of Dust from Demolition and Construction*[15]. The GLA guidance is considered to be best practice guidance for the UK, and details a number of mitigation measures that should be adopted to minimise adverse impacts from dusts and fine particles.

3.3 The latest EPUK & IAQM guidance on *Planning for Air Quality*[16] was also referred to throughout the assessment.

3.4 Finally, the *Air Quality Neutral Planning Support Update*[17], which supports the GLA Sustainable Design and Construction SPG[18], has been followed for the Air Quality Neutral Assessment. The recently drafted Air Quality Neutral Guidance[19], which supports the London Plan (2021)[8] has also been followed, despite not yet being formally adopted.

Baseline Conditions

3.5 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.

12 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.
13 Mayor of London. (2019). Part IV of The Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, London Local Air Quality Management Technical Guidance (LLAQM.TG(19)).
14 Greater London Authority. (2014). *The Control of Dust and Emissions During Construction and Demolition*.
15 IAQM. (2014). *Guidance on the assessment of dust from demolition and construction*.
16 EPUK & IAQM. (2017). *Land-Use Planning & Development Control: Planning for Air Quality*.
17 Greater London Authority and Air Quality Consultants. (2014). *Air Quality Neutral Planning Support Update: GLA 80371.*
18 Greater London Authority. (2014). *Sustainable Design and Construction Supplementary Planning Guidance.*
19 Greater London Authority. (2021). *London Plan Guidance: Air Quality Neutral* (Consultation Draft November 2021).

3.6 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website[20]. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km^2 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.

3.7 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.

3.8 The London Atmospheric Emissions Inventory[21] (LAEI) provided modelled ground level concentrations of key pollutants at 20m grid resolution across Greater London. Concentration estimates for NO_2, PM_{10} and $PM_{2.5}$ are included for the year 2019. These data within the vicinity of the site have also been reviewed.

3.9 Local pollutant monitoring networks are considered an appropriate source of data for the purposes of establishing baseline air quality in the vicinity of the development site. The most recent available local pollutant monitoring data from LBH's *Air Quality Annual Status Report for 2020*[22] have been reviewed and referenced to establish baseline air quality.

Construction Phase Assessment

3.10 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.

3.11 Both the GLA[14] and IAQM[15] guidance to assess the impacts of construction on human and ecological receptors have been followed in undertaking this air quality assessment.

3.12 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.

20 Defra: UK-AIR. www.uk-air.defra.gov.uk
21 London Atmospheric Emissions Inventory. (2021.) https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019
22 London Borough of Hillingdon. (2021). *Air Quality Annual Status Report 2020.*

3.13 The Multi Agency Geographic Information for the Countryside (MAGIC) website[23], which incorporates Natural England's interactive maps, has been reviewed to identify whether statutory ecological receptors are situated within 50m of the site boundary, or within 50m of any routes to be used by construction vehicles on the public highway, up to 500m from the site entrance.

Construction Significance

3.14 Both the GLA & IAQM guidance suggest that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.

3.15 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 GLA and IAQM provide 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 GLA and 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 PM_{10}, 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.

23 Natural England and MAGIC Partnership Organisations. Multi Agency Geographic Information for the Countryside. https://magic.defra.gov.uk/magicmap.aspx [Accessed July 2022].

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 GLA's SPG 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 (NO_2/NO_x) and particulate matter (PM_{10} 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 NO_2 and PM_{10} 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.

3.23 The latest EPUK & IAQM planning guidance[16] provides indicative thresholds for changes in traffic flows which would require a detailed, dispersion modelling air quality assessment. When within an AQMA, these are a change in 24-hour annual average daily traffic flows exceeding 100 light-duty vehicles (LDVs) and/or 25 heavy-duty vehicles (HDVs). Changes below these thresholds can be reasonably considered to have an insignificant impact on local air quality.

3.24 Full justification behind the screening assessment of air quality related impacts on existing receptors in the local area has been provided in Section 6 of this report.

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 London Plan, there has been considerable debate as to how the concept should be assessed and implemented. The Air Quality Neutral Planning Support Update[17] 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 PM_{10} 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 Update, published by the Greater London Authority, and the Sustainable Design and Construction SPG[18], 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. The development is also assessed against the newly drafted Air Quality Neutral London Plan guidance[19] provided by the GLA.

Consultation

3.32 LBH's Air Quality officer was contacted on 16th August 2022 to discuss and agree the proposed scope of assessment. A response was received from LBH's Air Quality Officer on 23rd August 2022 in which the importance of considering the West Drayton / Yiewsley AQFA was highlighted, and the proposed scope of assessment was agreed to in full.

4. Baseline Conditions

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-AIR[20] predicted background concentrations for NO_2, PM_{10} 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: 507500, 180500).

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

Pollutant	Predicted background concentration (µg.m^{-3})						Averaging Period	AQS concentration (µg.m^{-3})
	2019	2020	2021	2022	2023	2024		
NO_2	22.2	21.2	20.5	19.8	19.3	18.6	annual mean	40
PM_{10}	16.1	15.8	15.6	15.4	15.2	15.0	annual mean	40
$PM_{2.5}$	11.0	10.7	10.6	10.4	10.3	10.1	annual mean	20

4.3 The data in Table 4.1 show that annual mean background concentrations of NO_2, PM_{10} 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 in 2022, annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations were predicted to be below their respective AQSs by 50.6%, 61.5% and 47.9% respectively. As such, annual mean background pollutant concentrations are likely to be well below their respective AQSs at, and within the vicinity of, the development 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 local, UK national and international efforts to reduce emissions across all sectors.

London Atmospheric Emissions Inventory

4.6 The LAEI modelled pollution concentrations[21] for NO_2, PM_{10} and $PM_{2.5}$ for 2019 are presented in Table 4.2. These data were taken from the central grid square locations within the site boundary (i.e., National Grid Reference: 507120, 180360; and 507140, 180360).

Table 4.2: LAEI (2019) Modelled Concentrations

LAEI Grid Square		Pollutant	Modelled Concentration ($\mu g.m^{-3}$)	Averaging Period	Air quality standard concentration ($\mu g.m^{-3}$)
X	Y		2019		
507120	180360	NO_2	25.6	annual mean	40
		PM_{10}	16.9	annual mean	40
		PM2.5	10.2	annual mean	20
507140	108360	NO_2	25.6	annual mean	40
		PM_{10}	16.9	annual mean	40
		$PM_{2.5}$	10.2	annual mean	20

4.7 The data in Table 4.2 show that modelled annual mean concentrations of NO_2, PM_{10}, and $PM_{2.5}$ were expected to be below their long-term AQSs by at least 36.0%, 57.6% and 49.1%, in 2019, respectively. Therefore, concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted to be well below their relevant AQSs at the development site in 2019.

4.8 Furthermore, it is important to note that since 2019, air quality across London has improved significantly, partly in response to the expansion of the ULEZ, and the actions of various London Plan policies.

Local Sources of Monitoring Data

4.9 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 ASR[22] released by LBH included local pollutant monitoring data from 2020.

4.10 However, due to the uncertainty surrounding impacts associated with COVID-19 on emissions and subsequent levels of pollution across the UK, this baseline review has focused on 2019, which is considered to be the most recent 'normal' year for which baseline conditions can be established.

Automatic Monitoring

4.11 LBH undertook automatic (continuous) monitoring of NO_2 at 12 locations within the district in 2020. The most recent available NO_2 monitoring data from local automatic monitoring stations are included in Table 4.3, below.

Table 4.3: NO_2 Monitoring Data from LBH Automatic Monitoring Stations

Monitor	Type	Distance from the Site (km)	Annual mean NO_2 concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
HIL	R	1.7	**53.0**	**46.0**	**45.0**	28.0
HRL	A	2.8	32.0	30.0	31.0	20.0

Monitor	Type	Distance from the Site (km)	Annual mean NO_2 concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
SIPS	UB	3.1	34.0	30.0	30.0	19.0
HIL1	R	3.1	**46.0**	36.0	34.0	16.0
HIL5	R	3.5	**47.0**	**43.0**	**41.0**	31.0
T55	A	3.8	32.0	30.0	31.0	19.0
LHRBR	R	3.6	-	-	-	**44.5**
LHR2	A	3.9	**48.0**	**43.0**	**42.0**	25.0
HI3	R	4.1	35.0	35.0	33.0	22.0
HI1	R	5.8	27.0	25.0	28.0	18.0
T54	A	6.1	26.0	28.0	26.0	17.0

Note: "UB" = Urban background; "A" = Airport; "R" = Roadside.

4.12 The data in Table 4.3 show that annual mean NO_2 concentrations recorded at most LBH automatic monitoring stations generally decreased throughout the 2017 to 2020 monitoring period, with marked declines observed in 2020; likely due to the influence of COVID-19 associated impacts on vehicular traffic flows and industry.

4.13 Exceedances of the $40\mu g.m^{-3}$ AQS were recorded at 5 of the 11 automatic monitoring stations reported in Table 4.3, between 2017 and 2020. Of these, exceedances of the AQS were recorded at two locations in 2019.

4.14 The closest automatic monitoring station to the site is HIL (London Hillingdon), which is located approximately 2.5m from the kerb of Sipson Road, approximately 30m north of the M4. In 2019, this automatic monitoring station recorded an annual mean NO_2 concentration of $45.0\mu g.m^{-3}$, exceeding the $40\mu g.m^{-3}$ AQS by 12.5%. However, given the proximity of this monitor to the busy M4, recorded pollutant concentrations are not considered to be representative of conditions in the vicinity of the development site.

4.15 The closest automatic monitoring station to the site set in an urban background location is SIPS (Sipson), which is located in a residential area off Ashby Way, north of Heathrow Airport. In 2019, this monitoring station recorded an annual mean NO_2 concentration of $30.0\mu g.m^{-3}$, which is below the $40\mu g.m^{-3}$ AQS by 25.0%. However, given the 3.1km distance between this automatic monitoring station and the site, monitored pollutant concentrations are not considered to be representative of background pollutant concentrations in the vicinity of the site.

4.16 The most recent available PM_{10} monitoring data from LBH automatic monitoring stations are included in Table 4.4, below.

Table 4.4: PM_{10} Monitoring Data from LBH Automatic Monitoring Stations

Monitor	Type	Distance from the Site (km)	Annual mean PM_{10} concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
HRL	A	2.8	15.0	15.0	15.0	14.0
HIL4	UB	3.1	14.0	16.0	14.0	15.0
HIL1	R	3.1	23.0	18.0	15.0	16.0
HIL5	R	3.5	27.0	30.0	28.0	25.0
T55	A	3.8	13.0	14.0	13.0	12.0
LHRBR	R	3.6	-	-	-	14.0
LHR2	A	3.9	15.0	14.0	13.0	11.0
HI3	R	4.1	19.0	24.0	24.0	23.0
HI1	R	5.8	17.0	17.0	17.0	18.0
T54	A	6.1	14.0	15.0	15.0	13.0

Note: "UB" = Urban background; "A" = Airport; "R" = Roadside.

4.17 The data in Table 4.4 show that annual mean PM_{10} concentrations were consistently well below $40\mu g.m^{-3}$ AQS at all LBH automatic monitoring stations throughout the 2017 to 2020 monitoring period.

4.18 The closest automatic monitoring station for PM_{10} to the site is HRL (Harlington), located south of Sipson Lane, within the area north of Heathrow Airport. In 2019, this monitoring station recorded an annual mean PM_{10} concentration of $15.0\mu g.m^{-3}$, which is below the $40\mu g.m^{-3}$ AQS by 62.5%. Given the 2.8km separation distance between this monitor and the development site, monitored pollutant concentrations are not considered to be representative of likely conditions in the vicinity of the site.

4.19 The highest annual mean PM_{10} concentration recorded for all LBH automatic monitoring stations in 2019 was $28.0\mu g.m^{-3}$, at HIL5 (Hayes), located on the junction of North Hyde Road and Hyde Gardens. This concentration is below the $40\mu g.m^{-3}$ AQS for PM_{10} by 30.0%. However, given the proximity of this monitor to North Hyde Road and Hyde Gardens, monitored concentrations are not considered to be representative of conditions at the development site.

4.20 LBH also undertake automatic monitoring of $PM_{2.5}$ at six locations within the borough. The most recent available data for these monitoring stations are included in Table 4.5, below.

Table 4.5: $PM_{2.5}$ Monitoring Data from LBH Automatic Monitoring Stations

Monitor	Type	Distance from the Site (km)	Annual mean $PM_{2.5}$ concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
HRL	A	2.8	9.0	9.0	10.0	8.0
HIL4	UB	3.1	7.0	6.0	5.0	7.0
T55	A	3.8	8.0	7.0	8.0	7.0
LHRBR	R	3.6	-	-	-	10.0
LHR2	A	3.9	9.0	8.0	9.0	7.0
T54	A	6.1	9.0	10.0	10.0	7.0

Note: "UB" = Urban background; "A" = Airport; "R" = Roadside.

4.21 The data in Table 4.5 show that annual mean $PM_{2.5}$ concentrations were consistently well below $20\mu g.m^{-3}$ AQS at all LBH automatic monitoring stations throughout the 2017 to 2020 monitoring period.

4.22 The closest automatic monitoring station for $PM_{2.5}$ to the site, HRL (Harlington), recorded an annual mean PM_{10} concentration of $10.0\mu g.m^{-3}$ in 2019, which is below the $20\mu g.m^{-3}$ AQS by 50.0%.

4.23 The highest annual mean PM_{10} concentration recorded for all LBH automatic monitoring stations in 2019 was $10.0\mu g.m^{-3}$, reported for both HRL (Harlington) and T54 (Heathrow Oaks), located in a residential area, adjacent to Oaks Road, south of Heathrow Airport. Given the distances between these monitors and the development site, monitored $PM_{2.5}$ concentrations are not likely to reflect baseline conditions in the vicinity of the site.

Non-Automatic Monitoring

4.24 LBH operate an extensive, non-automatic NO_2 diffusion tube monitoring network comprising 44 sites deployed in strategic locations across the borough. The most recent available monitoring data for diffusion tubes located within 2.5km of the site are included in Table 4.6, below.

Table 4.6: NO_2 Monitoring data from LBH Diffusion Tubes

Monitor	Type	Distance from the Site (km)	Annual mean NO_2 concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
HIL21	UB	0.7	34.7	34.9	32.3	23.4
HILL20	UB	1.0	37.9	36.6	36.6	31.6
HILL19	UB	1.0	37.0	35.0	34.6	27.1
HILL13	R	1.4	26.9	29.5	27.9	19.9
HILL05	R	1.5	36.1	33.4	34.1	27.4

Monitor	Type	Distance from the Site (km)	Annual mean NO_2 concentration ($\mu g.m^{-3}$)			
			2017	2018	2019	2020
HILL01	R	1.7	**45.3**	**42.0**	38.6	25.6
HILL04	R	2.1	28.2	28.5	27.8	22.6
HILL29	UB	2.2	-	-	32.6	23.7
HILL28	R	2.3	35.7	31.7	31.7	23.0

Note: "R" = Roadside; "UB" = Urban background. **Bold** denotes exceedance of the annual mean AQS.

4.25 The data in Table 4.6 show that annual mean NO_2 concentrations recorded at most diffusion tubes within 2.5km of the site generally decreased throughout the 2017 to 2020 monitoring period, with substantial declines observed in 2020, likely due to COVID-19 associated impacts on traffic.

4.26 There were few exceedances of the $40\mu g.m^{-3}$ AQS for diffusion tubes within 2.5km of the site, with exceedances being recorded at diffusion tube HILL01 in 2017 and 2018 only. No exceedances of the AQS have been recorded at diffusion tubes within 2.5km of the site since 2018.

4.27 The highest recorded NO_2 concentration for diffusion tubes within 2.5km of the site in 2019 was $38.6\mu g.m^{-3}$, at diffusion tube HILL01 (AURN site at Keats Way), which is below the $40\mu g.m^{-3}$ AQS by 3.5%. This diffusion tube is located in close proximity to the HIL automatic monitoring station, north of the M4. Again, given the proximity of this monitor to the nearby M4, monitored pollutant concentrations are not considered to be representative of likely baseline conditions in the vicinity of the development site.

4.28 The closest diffusion tube to the development site is HIL21 (5-7 Mulberry Cresent), which is located in a residential area at Mulberry Cresent, West Drayton. In 2019, this diffusion tube recorded an annual mean NO_2 concentration of $32.3\mu g.m^{-3}$, which is below the $40\mu g.m^{-3}$ AQS by 19.3%. As this urban background diffusion tube is located within 0.7km of the site, recorded concentrations could be considered to be representative of likely background pollutant concentrations in the vicinity of the development site.

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 There are no existing structures at the site to be demolished, and as such, there will be no requirement for demolition ahead of the construction of the proposed warehouse development. Therefore, the demolition phase will not be considered further within this report.

Earthworks

5.4 The total area of the site is approximately 1.2 acres, which equates to 4,856m^2, which falls within the IAQM and GLA's *Medium* potential dust emission magnitude category.

5.5 It is not known exactly how many heavy earth moving vehicles will be operating on site during construction. However, it is anticipated that less than 20,000 tonnes of earth will be moved, which falls within the GLA's *Small* dust emission magnitude category.

5.6 The earthworks phase will involve the formation of bunds less than 4m in height above ground level, falling within the GLA's *Small* dust emission magnitude category.

5.7 Therefore, the overall dust emission magnitude for the earthworks phase is considered to be *Small* with reference to the IAQM and GLA guidance.

Construction

5.8 During construction, activities that have the potential to cause emissions of dust may include concrete batching sandblasting and piling. Localised use of cement powder and general handling of construction materials 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 may be required during construction.

5.9 Construction materials and methods to be used include foundations with steel structure and panels.

5.10 The total volume of buildings to be constructed at the site is anticipated to be between 25,000m^3 and 100,000m^3, which falls within the GLA and IAQM's *Medium* dust emission magnitude category.

5.11 Therefore, considering the above and with reference to the GLA and IAQM guidance, the overall dust emission magnitude for the construction phase is considered to be *Medium*.

Trackout

5.12 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. The site will be accessed via the private side road, west of the site, off Horton Road, and there will be no use of unpaved road surfaces by vehicles accessing the site during construction.

5.13 It is anticipated that between 10 and 50 HDVs would access the site per day, during construction, falling within the GLA's *Medium* dust emission magnitude category.

5.14 Given that no unpaved road surfaces will be used during construction, the overall dust emission magnitude for the trackout is considered to be *Small* with reference to the GLA and IAQM guidance.

Emission Magnitude Summary

5.15 A summary of the dust emission magnitude as a result of the activities of Earthworks, Construction and Trackout as specified in both the GLA and 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	-
Earthworks	Small
Construction	Medium
Trackout	Small

Sensitivity of the Area

5.16 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.

5.17 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.

5.18 Medium sensitivity receptors include locations where individuals would expect to enjoy a reasonable level of amenity, but not the same level as would be expected in their homes, examples include workspaces and parks.

5.19 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.

5.20 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.

5.21 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)	Medium Sensitivity Receptors	High Sensitivity Receptors	Receptor Details
<20	3	-	Adjacent commercial units
<50	6	-	Adjacent commercial units
<100	10	5	Residential dwellings on Horton Road; nearby commercial units
<350	>50	60	Residential dwellings off Horton Road and Whitethorn Avenue; Mercedes-Benz Heathrow (After Sales)

5.22 Figure 3 shows that the predominant wind direction at the closest relevant meteorological station at Heathrow Airport (2019) is from the south-west and west. As demonstrated in Table 5.2 and shown in Figure 2, there are no high sensitivity receptors within 20m of the site, however, there are three medium sensitivity receptors within 20m of the site. Therefore, the sensitivity of the area to dust soiling impacts can be defined as *Medium*.

5.23 Both UK-AIR and LAEI predicted annual mean concentrations of PM_{10} are below 24µg.m^{-3} at the site. This indicates that PM_{10} concentrations for both annual mean and daily mean concentrations are likely to be below the respective AQSs at the site and adjacent uses. Therefore, the sensitivity of the area to human health impacts is defined as *Low*.

5.24 Review of the MAGIC website[23], which incorporates Natural England's interactive maps, has identified statutory ecological receptors within 50m of the site, or 50m of roads to be used by construction traffic, up to 500m from the site entrance. The closest statutory ecological site is the Yeading Meadows Local Nature Reserve (LNR), located approximately 3.4km north-east of the site. Therefore, based on distance alone, the construction phase of the proposed development can be considered to have a *Negligible* impact on local designated ecological sites.

Risk of Impacts

5.25 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} Health Effects
Demolition	-	-	-
Earthworks	Low Risk	Negligible	Negligible
Construction	Medium Risk	Negligible	Low Risk
Trackout	Negligible	Negligible	Negligible

5.26 Overall, the proposed development is considered to present a *Medium Risk* for nuisance dust soiling effects, a *Low Risk* for PM_{10} health effects, and to be *Negligible* for ecological impacts, in the absence of mitigation.

Site Specific Mitigation

5.27 The GLA guidance[14] 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.

5.28 In addition, the IAQM lists recommended mitigation measures for *Low, Medium* and *High* dust impact risk sites. The highly recommended mitigation measures for *Medium Risk* sites are included in Appendix A of this report.

5.29 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

5.30 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

Impacts on Local Air Quality

6.1 The latest EPUK & IAQM planning guidance[16] provides indicative thresholds for changes in traffic flows which would require a detailed air quality assessment when within, or outside of, an AQMA. These are a change in 24-hour AADT flows of more than 100 LDVs and/or 25 HDVs within an AQMA, and a change in AADT flows exceeding 500 LDVs and/or 100 HDVs elsewhere. Changes below these thresholds can be reasonably considered to have an insignificant impact on local air quality.

6.2 The site is located within the borough-wide Hillingdon AQMA, and as such, changes in 24-hour AADT flows below 100 LDVs and/or 25 HDVs can be considered to have an insignificant impact on local air quality, with reference to the EPUK & IAQM guidance.

6.3 The site's existing use includes open storage (including vehicle storage and mobile homes) along with five permanent chalets (static homes) and vehicle storage associated with Addison Lee; who operate from a site adjacent to the development site.

6.4 Accounting for traffic generated by the site's existing land uses, the project's transport consultants, Stuart Michael Associates, anticipate that the proposed development would generate a net change in 24-hour AADT flows of 59 LDVs and 9 HDVs. Of these, routing of scheme-generated traffic from the site is expected to be distributed as follows:

- 54 LDVs and 8 HDVs are expected to route east on Horton Road, with the remaining 5 LDVs and 1 HDV expected to route west on Horton Road and travel through the West Drayton / Yiewsley AQFA;
- 40 LDVs and 2 HDVs are expected to route south on the A408 Stockley Road; and
- 15 LDVs and 2 HDVs are expected to route north on the A408 Stockley Road.

6.5 Therefore, the proposed development is not expected to increase 24-hour AADT flows on any single road link within the Hillingdon AQMA by more than 100 LDVs or 25 HDVs, and as such, it can be reasonably assumed that the operation of the proposed development would have an insignificant impact on local air quality.

Site Suitability

6.6 The LLAQM.TG(19) guidance[13] notes that the annual mean AQSs should not generally apply at the building façades of offices and places of work, and instead the short-term AQSs should apply at these locations. As the proposed development comprises a warehouse use, which is not considered to be particularly sensitive to air quality, the development site is considered to be suitable, in air quality terms, for the site's proposed warehouse use, providing the short-term AQSs are met.

6.7 Given that the façade of the warehouse unit is to be distanced over 6m from the kerb of Horton Road, and that background concentrations of NO_2, PM_{10} and $PM_{2.5}$ in the vicinity of the site are expected to be well below their respective AQSs, it is anticipated that the short-term AQSs for NO_2 and PM_{10} would be met at the façade of the proposed warehouse use. Therefore, the site is anticipated to be suitable, in air quality terms, for its proposed end-use, and no further assessment of site suitability is considered necessary.

7. Air Quality Neutral Assessment

Adopted Air Quality Neutral Guidance (2014)

7.1 The Air Quality Neutral Assessment (AQNA) compares the expected emissions from both traffic generation and building emissions with benchmarked emissions for particular land use classes derived from the A*ir Quality Neutral Planning Support Update*[17].

7.2 The proposed development falls primarily under land use class B2 (General industrial). A transport emissions benchmark (TEB) is not available for the B2 (General industrial) use, so this use relies on the TRAVL benchmarks provided in the guidance.

Transport Emissions

7.3 Despite the proposed development causing a small net increase in AADT flows when accounting for the site's existing use, the *Air Quality Neutral Planning Support Update* specifically explains that previous land-uses cannot be accounted for within Air Quality Neutral calculations. Consequently, the proposed warehouse development with a GIA of 4,503m^2 is expected to generate 164 LDV trips (AADT).

7.4 As a TEB is not available for use class B2 (General industrial), the TRAVL benchmark of 18.3 trips/m^2/annum has been utilised, as prescribed in the 2014 GLA guidance. With a total AADT of 164, the calculated trip rate for the proposed development was 13.3 trips/m^2/annum, which is below the TRAVL benchmark by 5.0 trips/m^2/annum.

7.5 Therefore, the proposed development is expected to achieve air quality neutrality with regards to transport emissions from the proposed B2 (General industrial) use.

Building Emissions

7.6 With regards to building emissions, the proposed development's energy strategy will be all electrical, comprising the use Air Source Heat Pumps (ASHP) and photovoltaic arrays, with no use of emitting technologies proposed.

7.7 Therefore, the proposed development is not expected to produce any building emissions of NO_x or PM_{10}, and is therefore expected to achieve air quality neutrality with regard to building emissions.

Air Quality Neutral Consultation Draft Guidance (2021)

Transport Emissions

7.8 Using the drafted *Air Quality Neutral* London Plan guidance (Consultation draft November 2021)[19], industrial developments in Outer London are allocated a TEB (trip rate) of 16.3 trips/m^2/annum. As mentioned in Section 7.4, based on an AADT of 164 vehicles, a trip rate of 13.3 trips/m^2/annum is calculated for the proposed development, which is below the TEB prescribed by the draft guidance by 3.0 trips/m^2/annum. Therefore, the proposed development is comfortably below the TEB and as such, is also expected to achieve air quality neutrality with reference to the 2021 draft guidance.

Building Emissions

7.9 As detailed in Section 7.6, the proposed development's energy strategy comprises ASHPs and photovoltaic arrays with no use of emitting sources proposed, and as such will achieve air quality neutrality with respect to building emissions.

8. Discussion

Construction Phase Impacts

8.1 The construction phase of the development could give rise to emissions which could cause dust soiling effects on adjacent uses. Following the IAQM guidance, the construction phase of the development can be considered to be *Medium Risk* for nuisance dust impacts, *Low Risk* for PM_{10} health effects, and to be *Negligible* for ecology, in the absence of mitigation.

8.2 Following the implementation of the mitigation measures provided in Appendix A and listed in Section 5.27, emissions from the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be reduced to *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 Defra and AEA guidance, along with review of local pollutant monitoring data. This was primarily due to the site's end use not being particularly sensitive to air quality, and the proposed warehouse being set back from Horton Road. Furthermore, background concentrations of NO_2, PM_{10} and $PM_{2.5}$ being anticipated to be well below the AQSs. Therefore, the site is considered to be suitable, in air quality terms, for the proposed warehouse use, 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 screening thresholds prescribed by the EPUK & IAQM planning guidance. Therefore, the need to undertake a detailed dispersion modelling assessment of the proposed development's impact on local air quality 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 will generate a total of 164 car and LDV trips (AADT), which is comfortably below the TRAVL and TEB benchmarks set out within both the 2014 and 2021 air quality neutral guidance.

8.6 The proposed development's energy strategy comprises the use of ASHPs and photovoltaic arrays, with no use of emitting sources proposed, and as such, the proposed development is not expected to generate building emissions of NO_x or PM_{10}.

8.7 Therefore, the proposed development is expected to achieve air quality neutrality with regard to both transport and building emissions.

9. Conclusions

9.1 Harvest Land Management commissioned Phlorum Limited to undertake an Air Quality Assessment in support of a planning application for the proposed redevelopment of Beaches Yard, Horton Road, West Drayton. The proposal comprises the construction of a new warehouse with a Gross Internal Area of approximately 4,503m^2.

9.2 Local air quality monitoring results and UK Air Information Resource background concentrations indicate that whilst air quality within the local area sometimes be poor, background pollutant concentrations in the vicinity of 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 significantly impact on local air quality, nor is it anticipated to introduce new sensitive receptors into an area of existing poor air quality. Furthermore, the proposed development is anticipated to be air quality neutral in relation to both building and transport emissions.

9.5 As such, 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

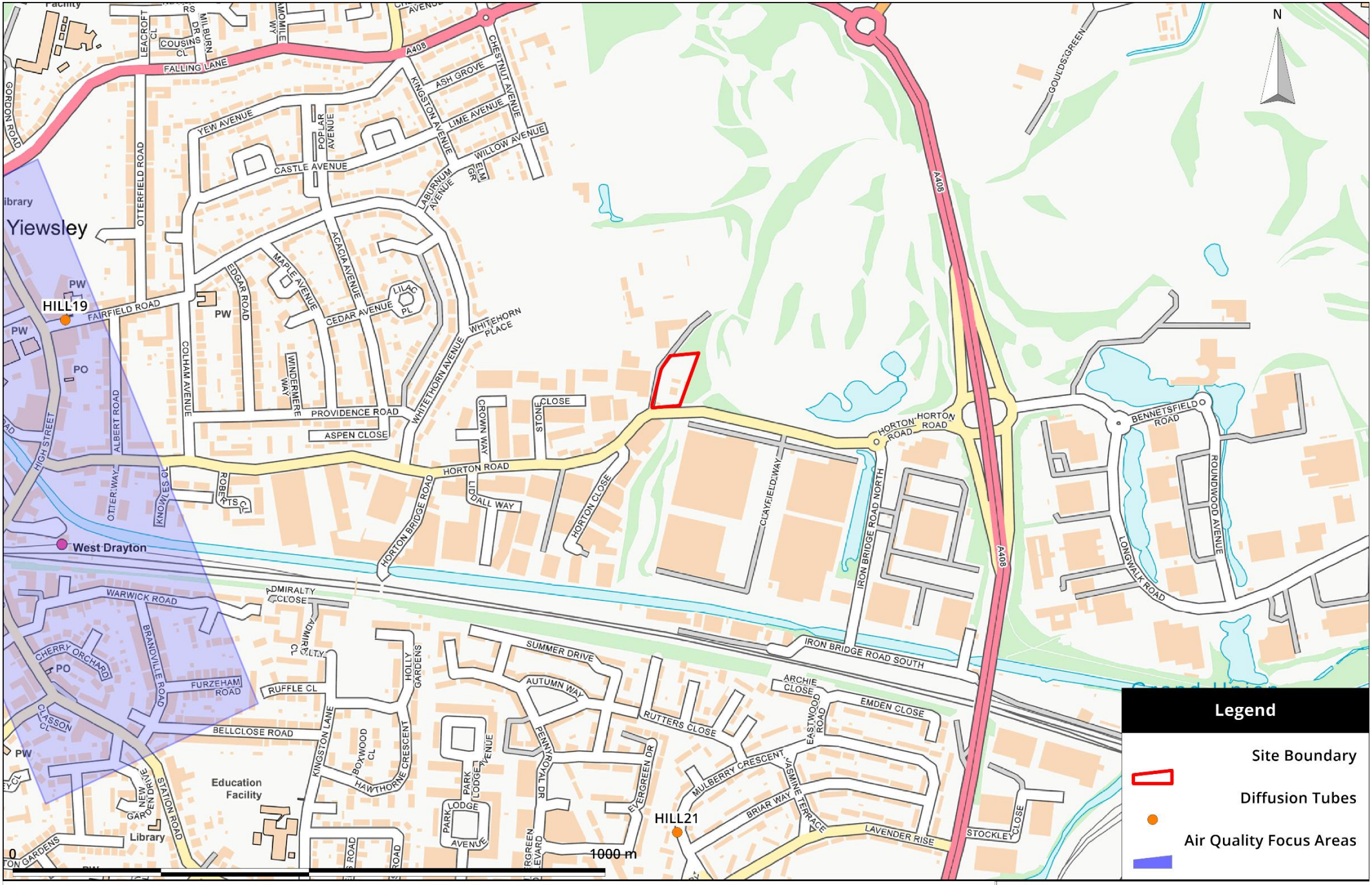

Figure 1: Site Location Plan

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Figure 2: Construction Phase

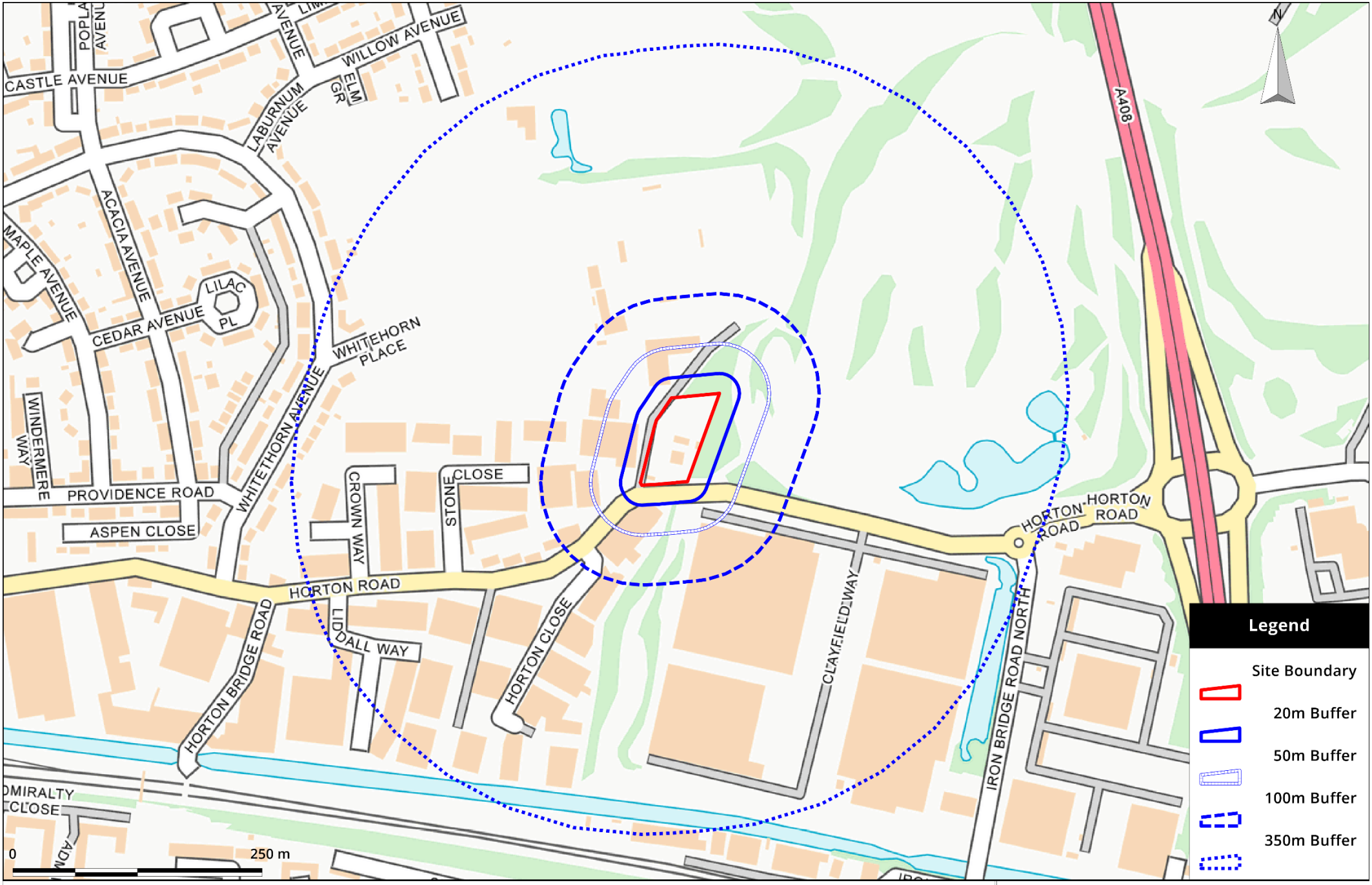

Figure 2: Construction Phase

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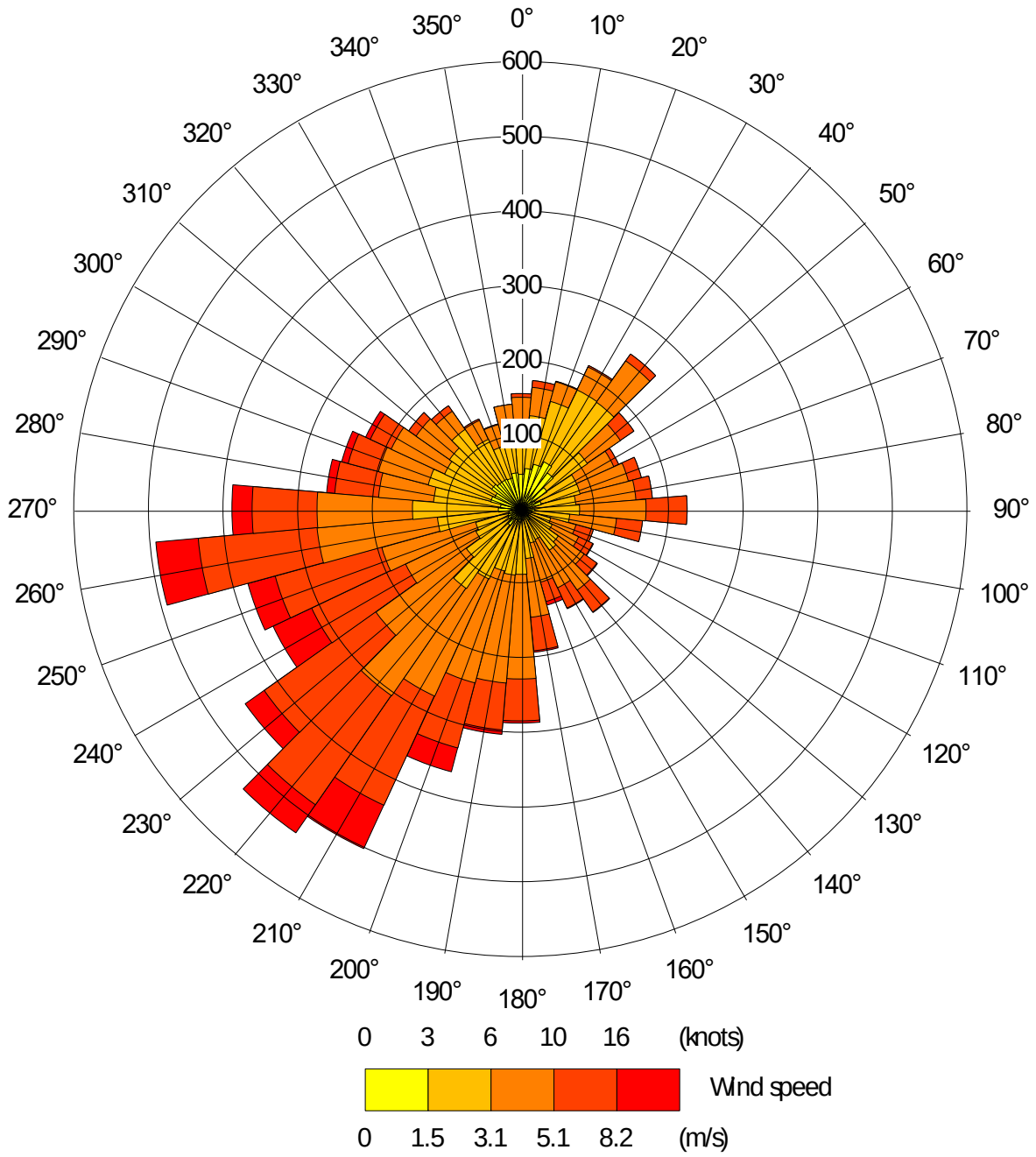
Figure 3: Wind Rose for Heathrow Airport (2019)


0°
10°
20°
30°
40°
50°
60°
70°
80°
90°
100°
110°
120°
130°
140°
150°
160°
170°
180°
190°
200°
210°
220°
230°
240°
250°
260°
270°
280°
290°
300°
310°
320°
330°
340°
350°
600
500
400
300
200
100
0 3 6 10 16 (knots)
Wind speed
0 1.5 3.1 5.1 8.2 (m/s)

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 construction dust guidance[15] and *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (2018)*[24] 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 PM_{10} 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 PM_{10} 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 IAQM[25] on *monitoring during demolition, earthworks and construction*.

24 Institute of Air Quality Management. (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

Preparing and Maintaining the Site

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