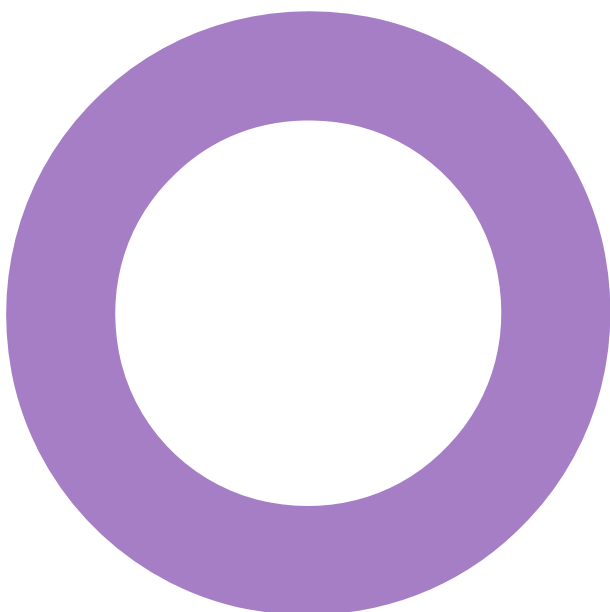


Site 2 - Image Business Park. Knowsley. Seybourne Estates Limited.

AIR QUALITY
AIR QUALITY ASSESSMENT

REVISION 01 – 21 JULY 2021



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	25/06/2021	First draft	BC/CS	KW	CR
01	21/07/2021	First Issue	BC	CS	KW

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Project number: 10/13049

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Executive Summary.

Hoare Lea have been commissioned by Hale Architecture on behalf of Seybourne Estates Limited to undertake an air quality assessment to support the planning application for the proposed commercial development at Image Business Park in Knowsley (the 'Application Site').

The proposals comprise the construction of a speculative industrial unit for flexible Class E(g)(iii), Class B2 or Class B8 Use. The Proposed Development will include ancillary offices, associated car parking, service yard area and soft landscaping.

The baseline assessment shows the Application Site is not located within an Air Quality Management Area. Pollutant concentrations at passive diffusion tube monitoring locations and automatic monitoring sites within the Knowsley Metropolitan Borough Council area of administration have been compliant with relevant air quality objectives in 2019, which is the most recent year of monitoring data available.

The impacts of demolition and construction work on dust soiling and ambient fine particulate matter concentrations have been assessed. This identified an overall medium risk from dust soiling impacts and an overall low risk for human health impacts from construction activities. The risk of dust causing a loss of local amenity and increased exposure to fine particulate matter concentrations has been used to identify appropriate mitigation measures. Provided these are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant.

The traffic generated by the Proposed Development as supplied by Vectos the project transport consultants and has been screened against the criteria set-out in the Environmental Protection United Kingdom and Institute of Air Quality Management planning guidance to determine the need for a detailed assessment. This showed that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required.

It is understood that the Proposed Development does not include fit out of the units and therefore the energy systems are currently unknown. An assessment of the potential impacts on local air quality therefore cannot be undertaken at this time.

The site suitability assessment indicates no likely exceedance of the short-term NO₂ air quality objectives at the Proposed Development. Therefore, the Application Site is considered suitable for commercial use without the need for additional mitigation.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation and air quality should not be considered as a constraint to the planning consent. Furthermore, it is considered that the development proposals comply with the National Policy Planning Framework and the Knowsley Metropolitan Borough Council Local Plan Core Strategy for air quality.

1. Introduction.

Hoare Lea have been commissioned by Hale Architecture on behalf of Seybourne Estates Limited to undertake an Air Quality Assessment to support the planning application for the proposed commercial development at Image Business Park in Knowsley (hereafter referred to as the 'Application Site').

1.1 Proposed Development

The proposals comprise the construction of a speculative industrial unit of 5,574 m² (Gross Internal Area) for flexible E(g)(iii), B2 and B8 uses. The Proposed Development will include ancillary offices, 86 car parking spaces, a service yard area and soft landscaping.

It is understood that the Proposed Development does not include fit out of the units and therefore the energy systems are currently unknown. An assessment of the potential impacts on local air quality therefore cannot be undertaken at this time and is not included within this assessment.

1.2 Application Site Description and Location.

The Application Site is located within the Knowsley Metropolitan Borough Council (KMBC) administrative area at the approximate National Grid Reference (NGR): X 343500, Y 398500

The Application Site currently comprises an existing concrete foundation adjacent to a portion of greenfield land. The Application Site resides inside an industrial estate. There is a paved road within the Application Site that allows traffic to join Acornfield Road.

A visual representation of the location of the Application Site boundary is shown in Figure 1.

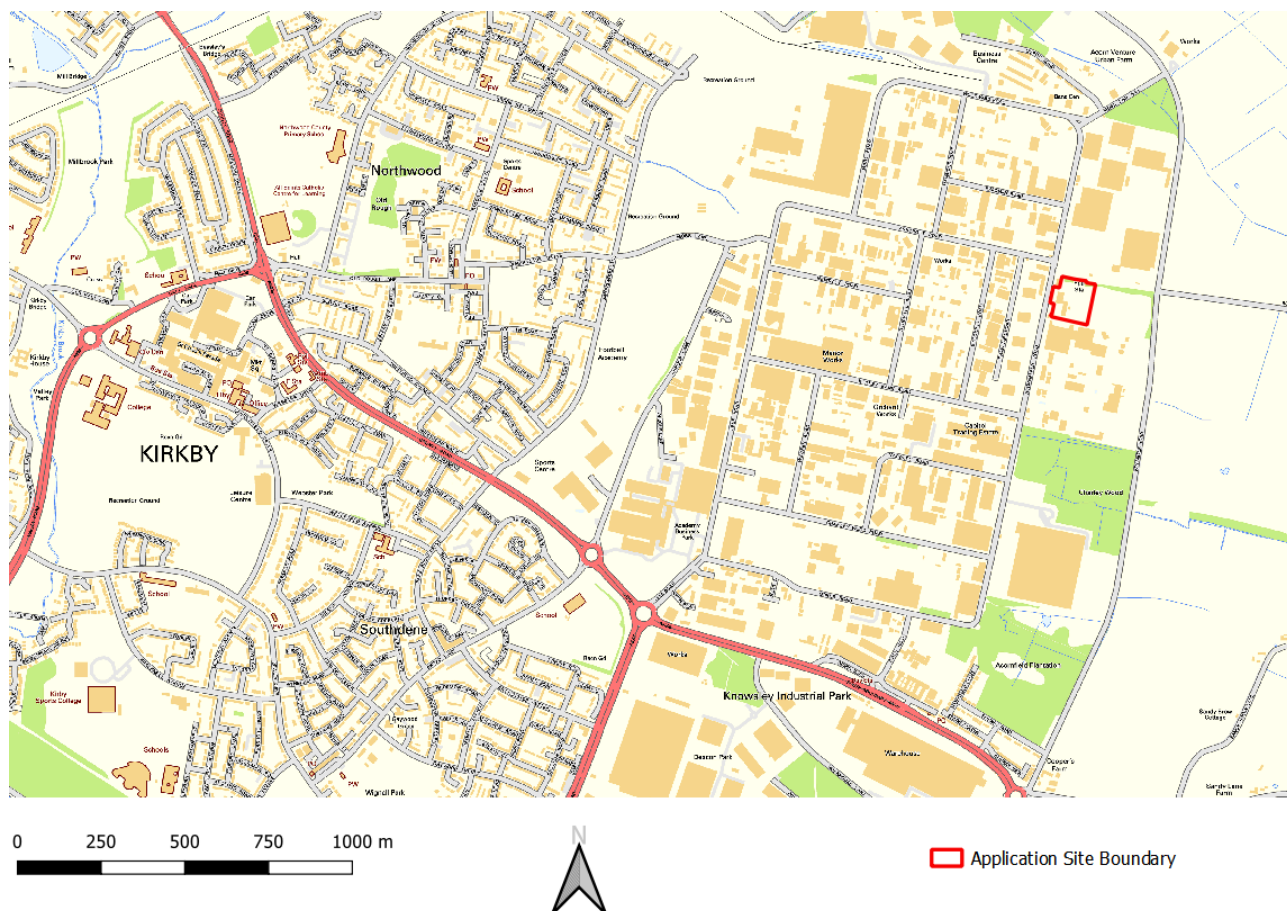


Figure 1: Application Site Boundary. Contains OS Data © Crown Copyright and Database rights 2021.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to KMBC on the 16th June 2021. At the time of writing a response has not been received. A copy of the correspondence with KMBC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Determination of baseline scenario, using KMBC monitoring data and Defra background data;
- Assessment of potential air quality impacts during the construction phase;
- An assessment of the site suitability for the proposed end-use
- A screening assessment of potential air quality impacts as a result of road traffic emissions associated with the Proposed Development during the operational phase; and
- Identification of required mitigation measures.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)¹ requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy² provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these air quality objectives (AQOs).

Local authorities are required to identify whether the objectives have been, or will be, achieved at relevant locations. If the objectives are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an Air Quality Action Plan (AQAP) within 12 months. The action plan must identify appropriate measures and policies that can be introduced to help achieve the objective(s).

The AQOs set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations 2000³, and the Air Quality (England) (Amendment) Regulations 2002⁴.

The objectives for nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}) are given in Table 1. The target dates for meeting the NO₂ and PM₁₀ objectives were 2005 and 2004, respectively. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of PM_{2.5}.

Table 1: Air Quality Objectives for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO ₂)	1-hour Mean	200 µg/m ³ Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
Fine Particulate Matter (PM ₁₀) [†]	24-hour Mean	50 µg/m ³ Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
Fine Particulate Matter (PM _{2.5}) ^{†*}	Annual Mean	25 µg/m ³
Notes: [†] Measured gravimetrically.		

The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in LAQM.TG16⁵ and include building facades of residential properties, schools, hospitals. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, nor kerbsides nor gardens.

The 24-hour objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels.

The 1-hour objective for NO₂ also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values.

The European Union has also set limit values for NO₂, PM₁₀ and PM_{2.5}; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010⁶ and The Air Quality Standards (Amendment) Regulations 2016⁷.

The limit values for NO₂, PM₁₀ and PM_{2.5} are the same as the English objectives (given in Table 1), but applied from 2010 for NO₂, 2005 for PM₁₀ and 2015 for PM_{2.5}. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 General Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10 µm in diameter (i.e. greater than PM₁₀) typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.4 Clean Air Strategy.

The Clean Air Strategy (CAS)⁸, published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.5 Planning Policy.

2.5.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2019⁹ sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

Paragraph 54: "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

Paragraph 102: "...c) opportunities to promote walking, cycling and public transport use are identified and pursued; d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account - including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains... ."

Paragraph 103: "Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health."

Paragraph 170: "Planning policies and decisions should contribute to and enhance the natural and local environment by: preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality."

Paragraph 180: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

Paragraph 181: “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.”

Paragraph 183: “The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

The NPPF is supported by Planning Practice Guidance (PPG)¹⁰.

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): “Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified.”

Paragraph 002 (Reference ID: 32-002-20191101): Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable”.

Paragraph 005 (Reference ID: 32-005-20191101): “Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): “Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned”.

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): “Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact.”

2.6 Local Policy.

2.6.1 KMBC Local Plan Core strategy

The KMBC Local Plan Core Strategy ¹¹ was adopted in 2016 and sets out the long-term vision, objectives and policies for the area up until 2028.

A review of KMBC Local Plan Core Strategy indicated the following policies are relevant to this assessment:

“Policy CS2 – Development Principles Principle 4

Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

j) Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated.

“Policy CS7 - Location, Design and Management of New Development

New development will be required to be:

e) Inclusive of measures that will mitigate carbon emissions and improve air quality where appropriate;

“Policy CS23 - Renewable and Low Carbon Infrastructure

The Council will support proposals that will produce and distribute decentralised, low carbon and renewable energy, provided that they do not cause significant harm (in terms of their number, scale, siting or cumulative impacts) to:

a) Natural resources, biodiversity, geodiversity, water and air quality and, landscape character;

2.7 Local Air Quality Management in Knowsley.

There are currently no AQMA's in the KMBC administrative area. Therefore no AQAP has been produced to ensure air quality compliance with AQOs

To maintain the current pollutant concentrations, KMBC are implementing preliminary measures to maintain the concentrations below the AQOs.

These measures include further construction of cycle-way/walk-way schemes in the borough.

2.8 Assessment Guidance.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.8.1 Defra Local Air Quality Management Technical Guidance

Defra Local Air Quality Management Technical Guidance (LAQM.TG(16))⁵ was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.8.2 EPUK-IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance¹² to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.8.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM¹³. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

3. Assessment Methodology.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the KMBC for review. An email detailing the proposed methodology for the Air Quality Assessment was provided to KMBC on the 16th June 2021. At the time of writing a response has not been received.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site. This desk-top study was undertaken using the following sources:

- Air quality data for KMBC, including a review of the KMBC air quality reports and local monitoring data;
- The UK Pollutant Release and Transfer Register¹⁴;
- Background pollution maps taken from Defra's Local Air Quality Management (LAQM) website¹⁵;
- Pollution Inventory from the Environment Agency¹⁶
- The UK Ambient Air Quality Interactive Map¹⁷;
- Ordnance Survey data and aerial photography from Google Maps.

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the IAQM methodology. There are no demolition activities proposed on site therefore activities on the proposed construction site have been divided into three types to reflect their different potential impacts. These are:

- Earthworks;
- Construction; and
- Trackout

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM₁₀.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the guidance¹³ available online.

3.3.2 Construction Traffic

3.3.2.1 Construction Traffic Emissions Screening

A screening assessment has been undertaken with reference to the following EPUK and IAQM guidance indicative criteria:

- a change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) (outside an AQMA); and
- a change of Heavy Duty Vehicle (HDV) flows of more than 100 AADT (outside an AQMA)

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following the guidance in Defra's LAQM.TG(16).

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Impacts

The screening assessment has been undertaken with reference to the following documents:

- Defra's LAQM.TG(16); and
- EPUK and IAQM guidance indicative criteria, i.e.:
 - a change of LDV flows of more than 500 AADT (outside an AQMA);
 - a change of HDV flows of more than 100 AADT (outside an AQMA);

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that "the criteria provided are precautionary and should be treated as indicative", and "it may be appropriate to amend them on the basis of professional judgement".

Where impacts can be screened out there is no need to progress to a more detailed assessment.

3.4.2 Site Suitability Assessment

A qualitative 'site suitability' assessment has been undertaken to consider the exposure of future occupants, introduced by the Proposed Development, to current air quality. As the Proposed Development is for commercial use only, the annual mean AQO does not apply however the 1-hour mean AQO for NO₂ does apply.

The site suitability will be assessed qualitatively using KBMC monitoring data from passive diffusion tube and automatic monitoring locations within the vicinity of the Application Site, together with data from background pollution maps from Defra's LAQM website ¹⁵.

3.5 Assessment of Significance.

3.5.1 Construction Phase Impacts

The IAQM guidance¹³ on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 2.

3.5.2 Operational Phase Impacts

The EPUK and IAQM guidance¹² has been used to assess the potential for significant impacts as a result of vehicle emissions from traffic associated with the Proposed Development. The focus of the guidance is to assess traffic emission impacts and advises on how to describe the air quality impacts and their significance.

3.5.3 Site Suitability

To determine the significance of predicted air quality impacts based upon a site suitability assessment, the EPUK/IAQM guidance states:

“Where the air quality is such that an AQO at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Site Setting.

The Application Site is located within KMBC area of administration at approximate NGR: X 343500, Y 398500. The Application Site is located within an existing industrial estate. To the north, south and west of the Application Site are existing commercial/industrial uses. To the east lies Perimeter Road with greenfield beyond.

The Application Site currently comprises an existing concrete foundation adjacent to a portion of greenfield land. The Application Site resides inside an industrial estate. There is a paved road within the Application Site that allows traffic to join Acornfield Road.

4.2 Local Air Quality Management Review and Assessment.

There are currently no AQMAs declared by KMBC. A review of the KMBC 2020 ASR¹⁸ indicates that pollutant concentrations remained below the relevant AQOs during 2019 and no AQMA's are expected to be declared.

4.3 Local Air Quality Monitoring.

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of Defra. Monitoring data for AURN sites is available from the UK Air Information Resource website (UK-AIR). There are currently no AURN stations within the KMBC administrative area.

KMBC do however operate three automatic monitoring stations, with the closest site being Kirkby a roadside automatic monitoring station located approximately 2.3 km west from the Application Site. The previous Kirkby site was an "urban background" type and was decommissioned in 2017. This was replaced by the new Kirkby station in 2019. The Kirkby station monitored NO₂ and PM₁₀ in 2019.

Monitoring data in 2019 for the automatic site Kirkby is detailed in Table 2 and a visual representation of the location of this automatic monitoring site from the Application Site is shown in Figure 2.

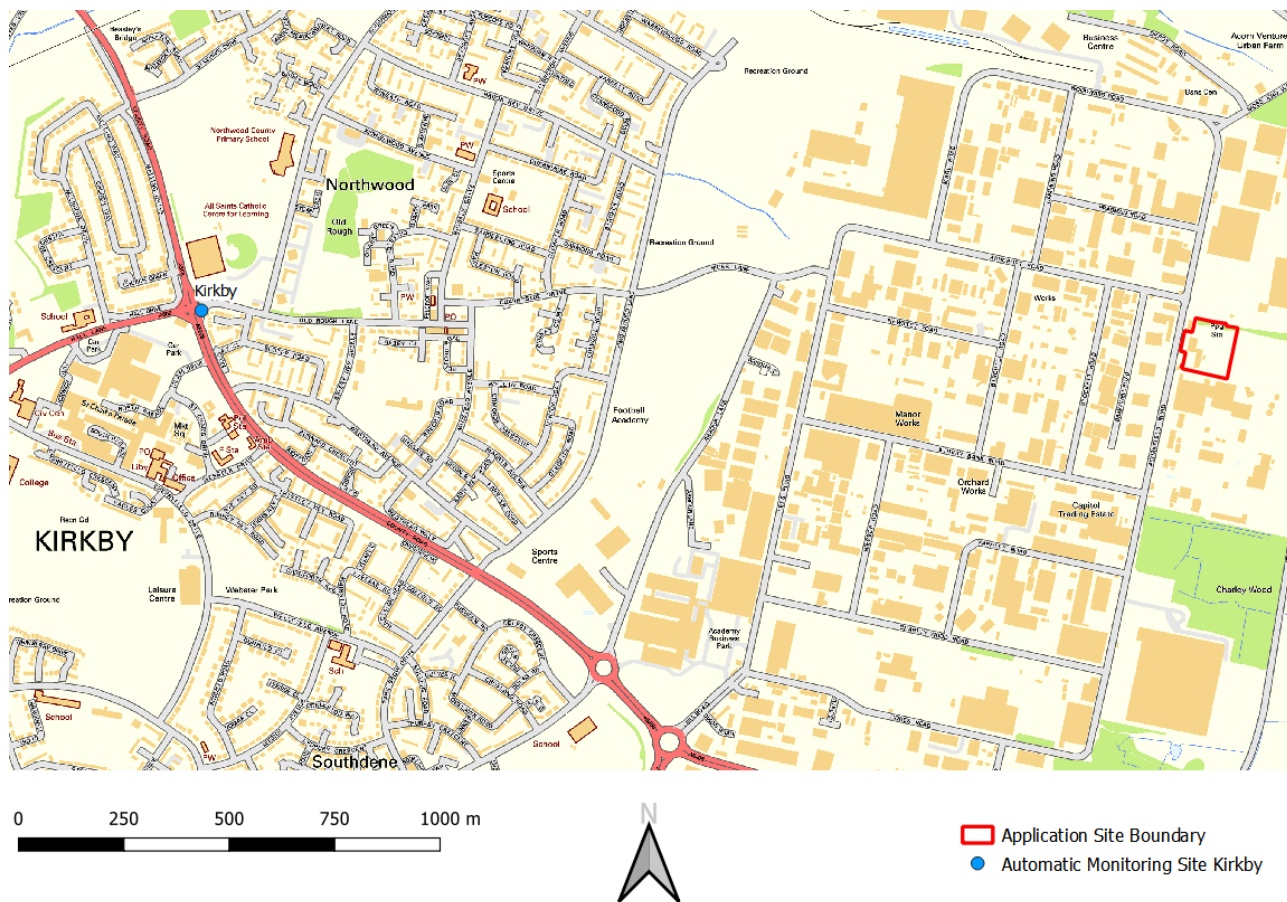


Figure 2: Automatic Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2021.

Table 2: Automatic Monitoring Location

Monitoring site and distance (km) from site boundary (approx.)	Objective	2019
NO₂		
Kirkby, Old Rough Lane 2.3km	Annual mean ($\mu\text{g}/\text{m}^3$)	24.8
	Number of hours with concentrations $>200 \mu\text{g}/\text{m}^3$	0
PM₁₀		
Kirkby, Old Rough Lane 2.3km	Annual mean ($\mu\text{g}/\text{m}^3$)	37.6
	Number of days with concentrations $> 50 \mu\text{g}/\text{m}^3$	9

The closest automatic monitoring station Kirkby has not exceeded the AQO for NO₂ and PM₁₀ in 2019. The Kirkby station recorded an NO₂ annual mean concentration of 24.8 $\mu\text{g}/\text{m}^3$ which is 62% of the AQO. The Kirkby station also recorded a PM₁₀ annual mean concentration of 37.6 $\mu\text{g}/\text{m}^3$ which is 94% of the AQO.

In addition to the automatic monitoring stations, KBMC operate 32 passive diffusion tubes to monitor NO₂ concentrations. A review of the most recent monitoring data available indicated that there are eight passive

diffusion tube monitoring locations within 2.5km of the Application Site. These passive diffusion tube sites were commissioned in 2019 as an extension of the KMBC passive diffusion tube programme. Recent monitoring results are shown in Table 3 and the passive diffusion tube locations are illustrated in Figure 3.

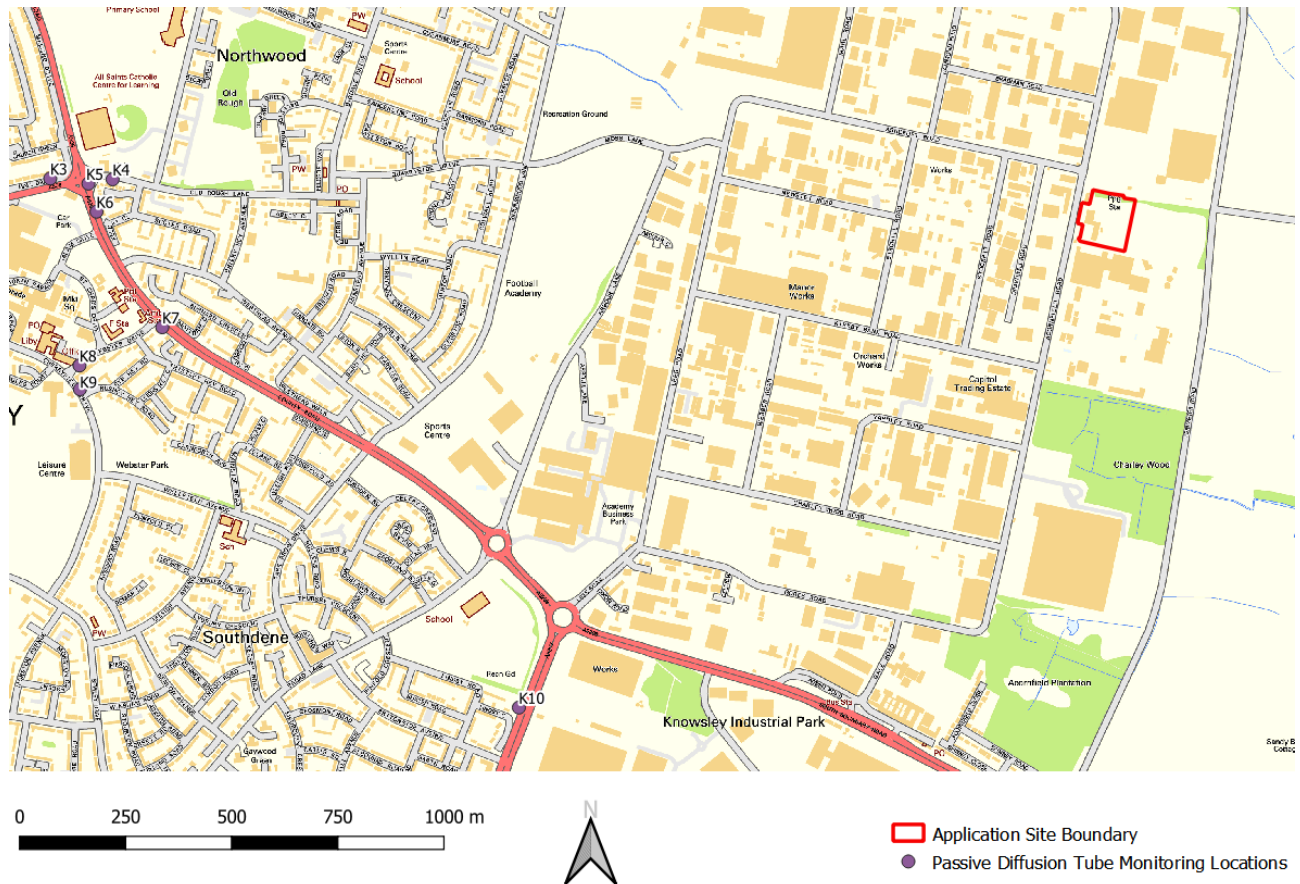


Figure 3: Passive Diffusion Tube Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2021.

Table 3: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Site Name	Distance (km) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³) 2019
K10	Roadside	Outside 19 Moorgate Road	1.7	29.4
K7	Roadside	Corner of County Road and Webster	2.2	29.6
K5	Roadside	Junction of Old Rough Lane and County Road	2.3	32.1
K6	Roadside	On County Road near 18 Kelday Close	2.3	35.3

Site ID	Site Type	Site Name	Distance (km) from site (approx.)	Annual Mean NO ₂ Concentration (µg/m ³) 2019
K4	Roadside	LC021 to rear of 12 Brakenhurst Grove	2.3	27.1
K8	Roadside	LC002 Outside Webster Drive	2.4	32.4
K9	Roadside	LC017 on Cherryfield Drive	2.4	29.4
K3	Roadside	LC005 outside 12 Hall Drive	2.4	25.3

As shown in Table 3, there were no exceedances of the AQO at any of the passive diffusion tube monitoring sites in 2019. The closest passive diffusion tube monitoring site K10 recorded an annual mean concentration of 29.4 µg/m³ which is 73% of the AQO.

4.4 Industrial Pollution.

A desk-based review of potential industrial sources using the Environment Agency's Pollution Inventory¹⁴ identified a number of industrial and waste management sources of air pollution that have the potential to affect the Application Site with regard to air quality. However, these sources have Environmental Permits from the Environmental Agency (EA) which ensures that emissions from these facilities are controlled and the impact on air quality is therefore not significant. Details of the facilities with 2.5 km are given in Table 4.

Table 4: Industrial/Waste Sources of Air Pollution

Facility	EA Permit ID	Activity at Facility	Approximate Distance from Application Site (km)
Future Industrial Services Limited	VP3936UG	Disposal or recovery of hazardous waste	0.2
Baker Hughes	BU4589IZ	Organic chemicals release; oxygen containing compounds e.g. alcohols	0.4
FACI UK Chemical Limited	RP3935WL	Organic chemicals release; organometallic compounds e.g. lead alkyls	0.7
Avanti Environmental Group Limited	XP3038HX	Disposal or recovery of hazardous waste	0.8
Dairy Crest Limited	VP3234NX	Treatment and processing (other than packaging) of animal or vegetable raw materials (other than milk only)	2.1

4.5 Defra Predicted Concentrations.

The background concentrations have been obtained from the national maps published by Defra¹⁵. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application

Site falls into grid square X 343500 Y 398500 and the predicted concentrations for this grid square for NO₂, PM₁₀ and PM_{2.5} are provided in Table 5 for 2019, the most recent year with available monitoring data and for 2022, the earliest possible opening year for the Proposed Development.

Table 5: Predicted Background Concentrations

Year	Predicted Background Concentration (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
2019	16.3	11.9	8.1
2022	14.7	11.4	7.7

As shown in Table 5, background concentrations are below the relevant AQOs for all pollutants.

4.6 Summary of Baseline Assessment.

The baseline air quality review shows that the Application Site is not located within or near to an AQMA.

Recent monitoring data from the closest automatic monitoring site indicated no exceedances of the AQOs for NO₂ and PM₁₀ in 2019, which is the most recent year with monitoring data available.

Recent monitoring data from passive diffusion tube monitoring locations within 2.5km indicated no exceedances of the NO₂ AQO in 2019, which is the most recent year with monitoring data available.

Multiple industrial sources of air pollution near the Application Site were determined to have no significant impact on air quality at the Application Site.

Predicted Defra background concentrations for all pollutants were below the relevant AQOs.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 350 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the construction Site entrance.

Therefore, an assessment of construction dust on ecological receptors can be screened out from this assessment but an assessment of construction dust at human receptors is required.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from earthworks, construction and trackout have been assessed, as identified in Table 6.

Table 6: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Earthworks	Large	It has been confirmed by Hale Architecture that the total site area is 13,880 m ² . The soil type at the Application Site is sandy and loamy ¹⁹ which is a low dust producing soil type.
Construction	Medium	It has been confirmed by Hale Architecture that the approximate volume of the proposed building is 71,640m ³ . Furthermore it has been confirmed by Hale Architecture that the proposed building material includes potentially dusty material such as concrete however construction materials also include steel frames, cladding, roof, aluminium frames and doors to the office element and building entrance which are not considered to be dusty material.
Trackout	Medium	Initial information on the number of outward HDV trips to be generated during the construction phase per day was not available at the time of writing this report. However desk based review of the Application Site using Google Maps shows an existing internal paved road which is likely to be used by construction vehicles. The unpaved road length is therefore likely to be between 50 and 100m and there is low potential for dust release from the soil type.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM₁₀, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The sensitivity of the area and the factors considered are detailed in Table 7.

Table 7: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
Dust Soiling	For construction activities there are more than 100 car parking spaces within 50m of the Application Site and serve as car parking for the surrounding businesses and commercial premises. As such the parking spaces are likely to be used for long periods and as a result, these car parking spaces are classified as high sensitivity. There are no residential receptors within 350m of the Application Site however there are 1-10 commercial and industrial properties within 100m have been considered and are classified as medium sensitivity receptors. For trackout, there more than 100 car parking spaces, which are considered to be high sensitivity receptors, within 50m of the route used by construction vehicles (Acornfield Road). There are no residential receptors within 50m up to 500m from the Application Site entrance however there are 10-100 existing commercial and industrial properties which are classified as medium sensitivity receptors.	High	High
Human Health	As shown in Table 5 the predicted background PM₁₀ concentration is 11.9 µg/m³ in 2019 the most recent year with available monitoring data For construction activities, there are no residential receptors within 350m of the Application Site however there are between 1-10 commercial properties within 100m of the Application Site which are considered medium sensitivity For trackout there are no residential receptors within 50m of the route used by construction vehicles up to 500m from the Application Site entrance. However there are 10-100 existing commercial and industrial properties, which are considered to be medium sensitivity, within 50m of the route used by construction vehicles.	Low	Low

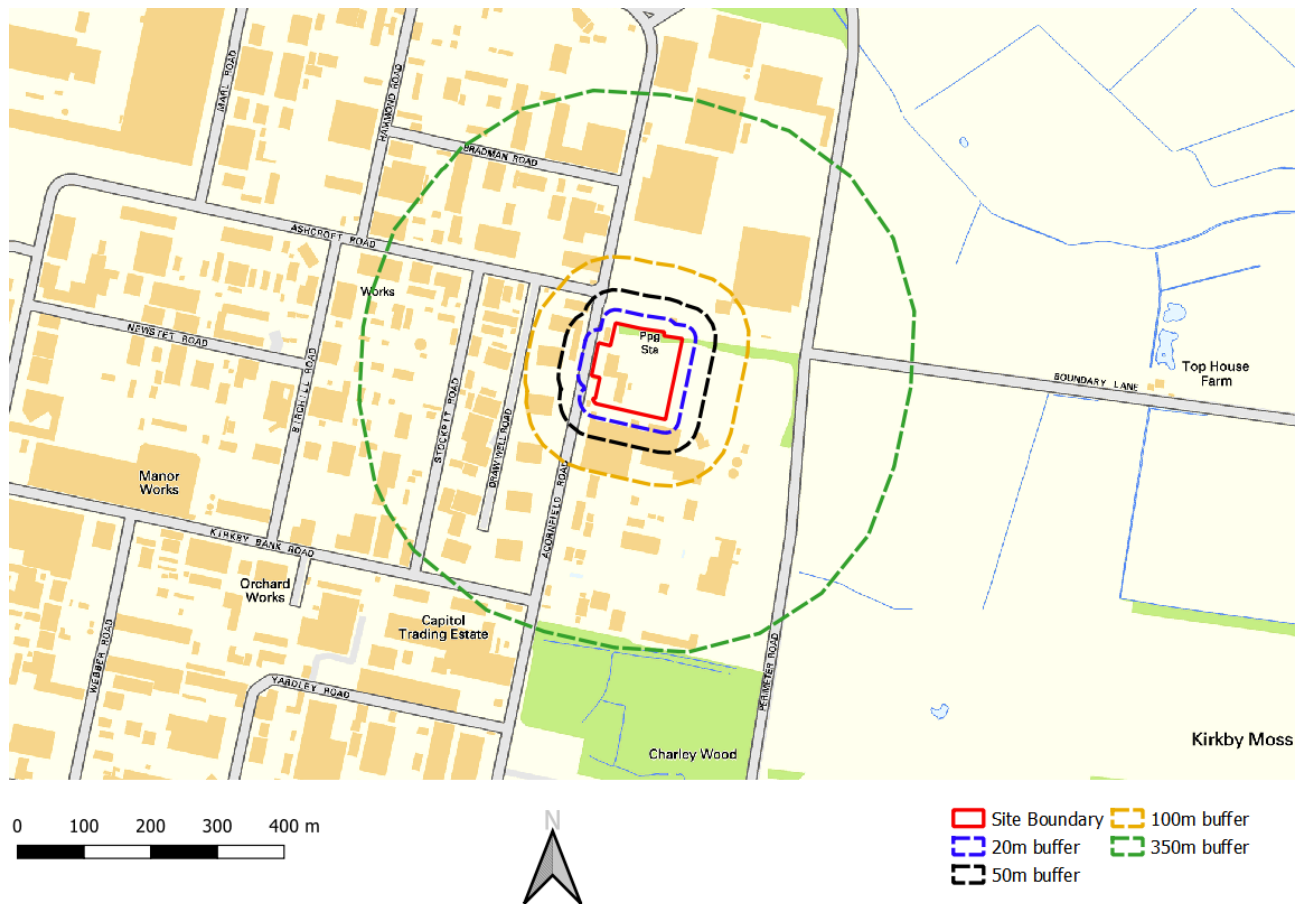


Figure 4: Construction Dust Band Criteria from Application Site Boundary. Contains OS Data © Crown Copyright and Database rights 2021.

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 8 details the risk of dust impacts for earthworks, construction and trackout activities.

Table 8: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity On-Site Activity	Sensitivity Trackout	Earthworks	Construction	Trackout
Magnitude			Large	Medium	Medium
Dust Soiling Impacts	High	High	High Risk	Medium Risk	Low Risk
Human Health Impacts	Low	Low	Low Risk	Low Risk	Low Risk

5.2 Construction Phase – Vehicular Pollutants.

The Application Site is not located within or adjacent to an AQMA and therefore the higher screening criterion (i.e. 500 LDV and 100 HDV) would apply.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant

increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Proposed Development “can be considered to have insignificant effects” on air quality.

5.3 Construction Phase – Non-Road Mobile Machinery.

Exhaust emissions of NO_x and fine particulate matter (PM₁₀ and PM_{2.5}) from Non-Road Mobile Machinery (NRMM), associated with construction sites, may have a significant effect on local air quality. Typically, NRMM is and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

LAQM.TG(16) guidance states that, with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are “unlikely to make a significant impact on local air quality. In the vast majority of cases they will not need to be quantitatively assessed”.

6. Operational Phase Assessment.

The potential for air quality impacts during the operational phase of the Proposed Development are assessed in this section.

6.1 Road Traffic Emissions Screening Assessment.

Initial road traffic data associated with the Proposed Development has been provided by Vectos, the appointed Transport Consultants for the project. As the proposals are for flexible E(g)(iii)/B2 and Class B8 Use Classes, which have different associated trip generations, trips have been provided for Class E(g)(iii)/B2 and Class B8 Use separately.

Table 9 details the predicted LDV and HDV AADT trip generation for the Proposed Development.

Table 9: Predicted Trip Generation

Land Use Class	AADT Total	AADT LDV	AADT HDV
E(g)(iii)/B2	290	215	75
B8	258	189	89

As shown in Table 9, the predicted LDV AADT trip generation is below the EPUK and IAQM criteria of 500 AADT outside of an AQMA for both Class E(g)(iii)/B2 and Class B8 Uses. Furthermore, the predicted HDV AADT trip generation is also below the EPUK and IAQM criteria of 100 AADT outside an AQMA for both Land Use Classes. As such, further assessment is not required.

In accordance with the EPUK and IAQM guidance, the impacts on air quality from operational phase traffic generation are therefore considered to be not significant.

6.2 Site Suitability.

This section presents a review of KMBC monitoring data in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for the proposed end-use and identifies any requirements for additional mitigation measures at the Proposed Development.

As presented in Section 2, the 1-hour mean AQO applies to the Proposed Development due to its commercial end use. As such, this Section considers the potential for NO₂ concentrations at locations of relevant exposure to exceed the 1-hour mean NO₂ AQO of 200 µg/m³.

6.2.1 NO₂ Concentrations

A review of the annual mean NO₂ concentrations monitored within 2.5 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 3.

The closest passive diffusion tube monitoring location to the Application Site is K10, located approximately 1.7km southwest and is classified as “roadside” by KMBC. As shown in Table 3, annual mean NO₂ concentrations at K10 in 2019 were 29.4 µg/m³ which is below the AQO of 40 µg/m³. An annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the hourly mean NO₂ AQO. Therefore based on the available monitoring data for K10 in 2019 it is unlikely that the 1-hour mean AQO would be exceeded.

Despite the distance, K10 is located in close proximity to an existing industrial estate similar to that surrounding the Application Site. However K10 is located adjacent to the A5207, which is considered to be a major road with high traffic volumes. The Application Site is located adjacent to a minor road which serves the existing Image Business Park and traffic volumes on this road would be expected to be much lower than those along the A5207. As such, it is expected that NO₂ concentrations at the Application Site would be much lower than those recorded at K10.

Furthermore, as shown in Table 5, Defra annual mean NO₂ background concentrations for the 1km by 1km grid square of which the Application Site is located within were predicted to be 16.3 µg/m³ in 2019 which is also below the AQO.

Therefore, NO₂ concentrations in the locale of the Proposed Development are considered to be below the 1-hour mean AQO and the Application Site is considered suitable for commercial use.

6.2.2 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, such as that undertaken as part of this assessment, the EPUK & IAQM guidance states:

“Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Proposed Development will not introduce any new receptor into an area of exceedance of the 1-hour mean NO₂ AQO based upon a review of NO₂ monitoring data and predicted background concentrations within the development locale

As no exceedances of the considered AQOs are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be ‘not significant’.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in the guidance¹³.

It is recommended that the local authority approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 10 below details the measures that should be incorporated in the DMP. For general mitigation measures, which excludes those specifically targeted towards earthworks, construction and trackout (which are given towards the end of the table), high risk measures have been applied for on-site activities and low risk measures have been applied for trackout as these represent the highest risk category determined in Table 8. This approach is consistent with the IAQM guidance.

Table 10: Mitigation Measures

Issue	Mitigation Measure
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.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control emissions, approved by the Local Authority. 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 exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Issue	Mitigation Measure
	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.
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is 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 cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicles/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.
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.

Issue	Mitigation Measure
	Only remove the cover in small areas during work and not all at once.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

Potential dust effects during the construction phase are considered to be both temporary and short-term in nature. The impacts are determined to be 'temporary' as they will only potentially occur throughout the construction phase and 'short term' because these will only arise at particular times when certain activities and meteorological conditions combine to create the predicted level. Notwithstanding this, with the application of the above dust control and mitigation measures, it is considered that residual effect at all receptors will be 'not significant' in accordance with the IAQM guidance.

7.1.1 Construction Phase Road Traffic Emissions

The need for further assessment of the potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out as they are considered to have an insignificant effect on air quality and mitigation measures are not required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM Control of Dust and Emissions guidance, all NRMM would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

Potential air quality impacts associated with operational phase development trips have been screened out from further assessment as 'the impacts [on air quality from operational phase movements] can be considered to have insignificant effects' in accordance with the EPUK and IAQM Guidance. Therefore, mitigation measures such as a sustainable travel plan are not considered to be required.

7.2.2 Baseline Site Suitability Review

A review of KMBC monitoring data in consideration of the Application Site, and mapped concentrations by Defra in the locale of the Application Site, indicates no likely exceedance of the annual and 1-hour mean NO₂ AQO.

As no exceedances of any considered air quality objective are predicted, this follows the 1st hierarchy principle of the IAQM guidance to 'prevent and avoid' exposure²⁰. Therefore, no embedded mitigation into the Proposed Development design (in the form of filtration to mechanical ventilation, for example) is required.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed commercial development at the Image Business Park, Knowsley.

The findings of the assessment are as follows:

- A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature;
- The traffic data provided by the Transport Consultants for the Proposed Development indicates that the predicted trip generation associated with the Proposed Development does not exceed the EPUK and IAQM criteria for developments outside of an AQMA. As such, a detailed assessment is not required, and air quality impacts are considered to be not significant.
- A site suitability review has been undertaken to assess the suitability of the Application Site for the proposed commercial use. No exceedances of the 1-hour mean NO₂ AQO have been predicted and therefore no mitigation is required.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework and the KMBC Local Plan Core Strategy.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
AQO	Air Quality Objective
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
KMBC	Knowsley Metropolitan Borough Council
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles ($\leq$ 3.5 tonnes gross vehicle weight)
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be $\text{NO}_2 + \text{NO}$)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
Trackout	The process involving the transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site

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Appendix 1 - EHO Consultation.

Bhajan Chatha

From: Charlotte Smith
Sent: 16 June 2021 10:57
To: environmental.health@knowsley.gov.uk
Cc: Bhajan Chatha
Subject: Air Quality Methodology - IBP Knowsley

Dear Sir/Madam

Hoare Lea have been instructed to undertake an air quality assessment for a proposed development comprising flexible Class E(g)(iii)/B2 and B8 Use with the provision of 88 car parking spaces at land within the existing Image Business Park adjacent to Acornfield Road, Knowsley.

Please see a location plan below.



We propose to undertake the air quality assessment using the following methodology:

- A baseline assessment will be undertaken using data from Knowsley Metropolitan Borough Council's 2020 Annual Status Report (ASR).
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- It has been confirmed by the project Transport Consultants that the predicted LDV and HDV trip generation is below the EPUK and IAQM criteria of 500 AADT LDV and 100 AADT HDV. As such, a screening assessment of road traffic impacts will be undertaken in line with the EPUK and IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.
- The proposed energy strategy is currently unknown as the application does not include for fit out of the proposed units. As such, an assessment of energy emissions cannot be undertaken at this time.
- A qualitative site suitability assessment will be carried out using local air quality monitoring locations and DEFRA background maps in the vicinity of the Application Site. There are no automatic or passive diffusion tube monitoring locations within the vicinity of the Application Site. As such, for this assessment, the diffusion tube K10 located at Moorgate Road N as this location is considered to be most representative of the Application Site. The Site Suitability assessment will also consider Defra predicted background concentrations for the Application Site.

- The assessment will consider impacts during the construction phase of the development, using the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' 2014.
- The assessment will be undertaken in line with the EPUK/IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.

I would be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments or other relevant information you may have.

Please do not hesitate to contact me if you would like to discuss anything further.

Kind Regards,

Charlotte

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Senior Air Quality Consultant

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HOARE LEA 



Appendix 2 - Professional Experience.

Chris Rush (Hoare Lea), BSc (Hons), MSc, PG Dip Acoustics, CEnv, MIOA, MIEMA, MIEEnvSc, MIAQM

Chris is an Associate Director at Hoare Lea. He is a Chartered Environmentalist, a Member of the Institute of Acoustics, a Full Member of the Institute of Environmental Management and Assessment, a Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management.

He has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Chris's expertise covers planning, noise and air quality, specifically in relation to residential developments, industrial fixed installations such as waste management centres and transportation environmental impact on developments including air traffic.

Kathryn Woolley (Hoare Lea), BSc (Hons), AMIEEnvSc, MIAQM

Kathryn is a Principal Air Quality Consultant with Hoare Lea. She's is an associate Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management.

She has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Kathryn's expertise covers planning, and air quality, specifically in relation to residential developments, industrial fixed installations such as district heating networks. Kathryn has completed over 30 EIA in the past 6 years throughout the UK and abroad including; St Johns Masterplan in Manchester (residential led), Leicester City Football club training facility north of Leister (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Charlotte Smith (Hoare Lea), BSc (Hons), AMIEEnvSc, MIAQM

Charlotte is a Senior Air Quality Consultant at Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management. She has worked on a range of projects across a number of industries including residential, educational, commercial and industrial for site feasibility studies, planning applications and Environmental Impact Assessments. She also has experience in qualitative odour studies and has been successfully tested for odour acuity. She also has experience in air quality monitoring at sites ranging from residential and educational facilities to large road network schemes. Charlotte's interests lie in the effects that pollution has on human health and wellbeing.

Bhajan Chatha (Hoare Lea), MEng (Hons), AMIEEnvSc, AMIAQM

Bhajan is a Graduate Air Quality Consultant with Hoare Lea. He is a MEng Chemical Engineering Graduate from the University of Aberdeen. During his MEng, Bhajan developed his understanding of air pollution, environmental impacts and sustainability throughout multiple modules. He also studied air pollution monitoring and dispersion modelling during his degree. Within air quality, Bhajan's interests lie in air pollution effects such as climate change and health impacts.



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