



**M SCOTT PROPERTIES LTD  
PROPOSED RESIDENTIAL DEVELOPMENT  
LAND EAST OF HIGH ROAD, HIGH CROSS**

**AIR QUALITY ASSESSMENT**

**DECEMBER 2023**



**the journey is the reward**

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**DECEMBER 2023**

<b>Project Code:</b>	<b>SPHighCross(A).9</b>
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**M Scott Properties Ltd**  
**Proposed Residential Development**  
**Land East of High Road, High Cross**  
**Air Quality Assessment**

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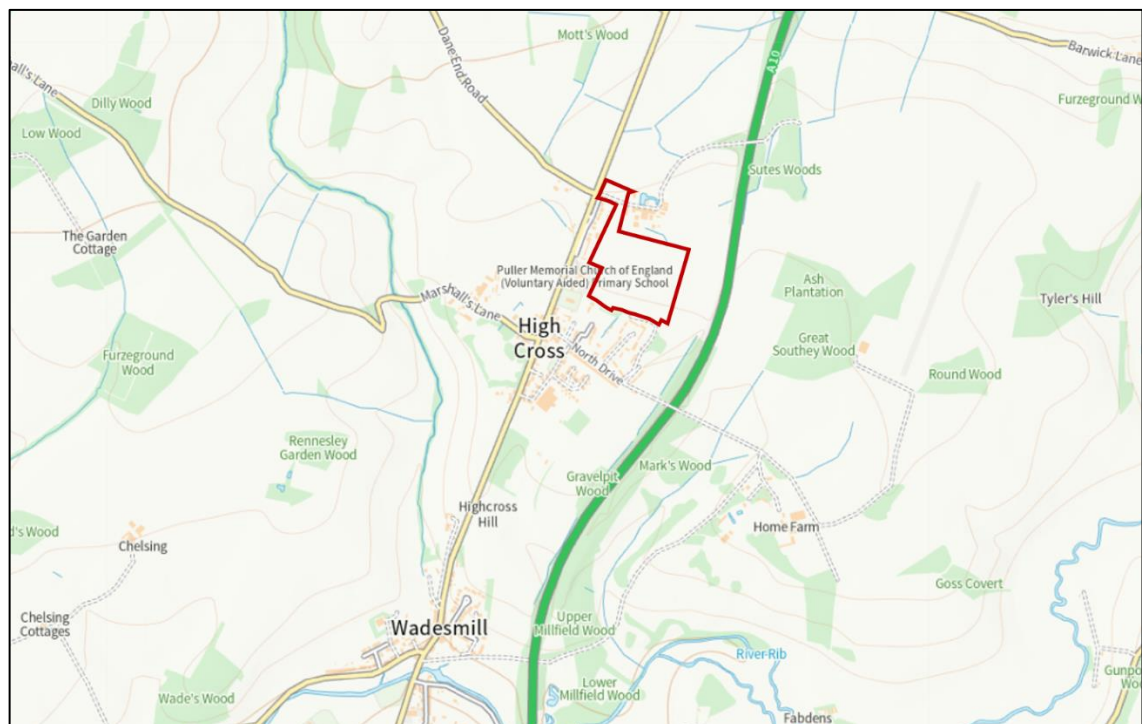
## **Appendices**

**Appendix A:** Construction Dust Assessment

**Appendix B:** Illustrative Concept Master Plan

# 1 Introduction

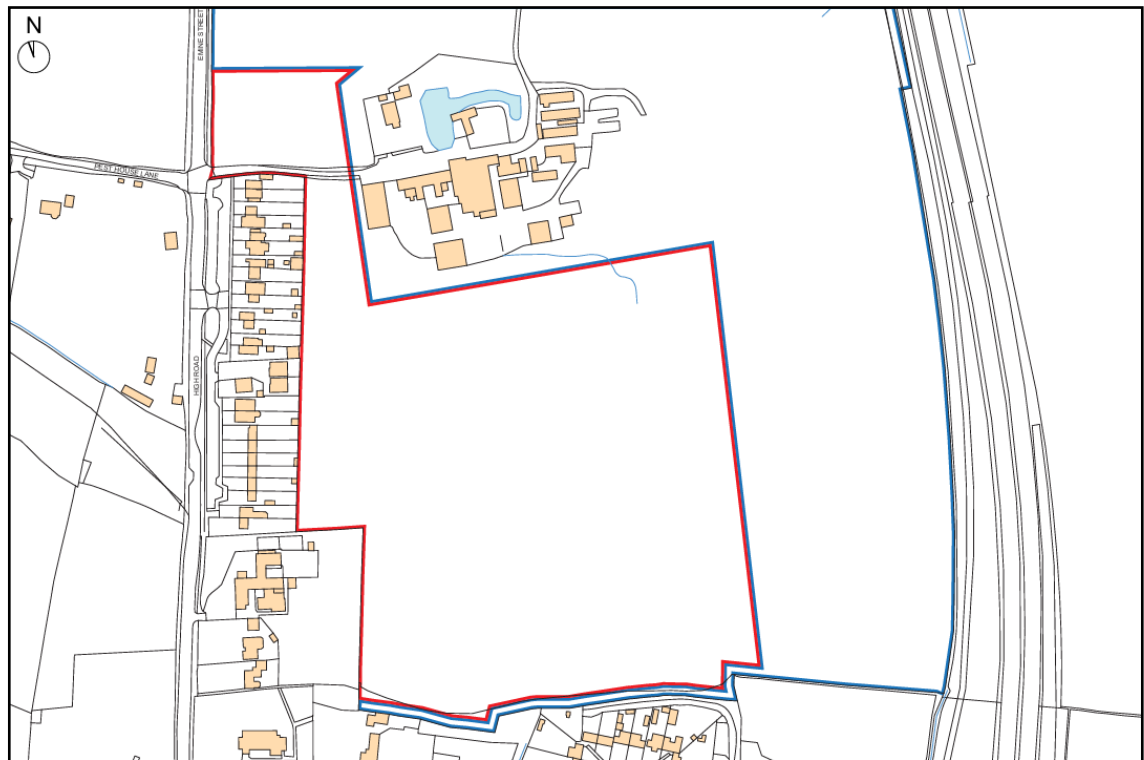
- 1.1 Mayer Brown Limited has been instructed by M Scott Properties Ltd to undertake an Air Quality Assessment (AQA) in support of the outline planning application for the provision of up to 95 residential units at Land East of High Road, High Cross, Hertfordshire.
- 1.2 The proposed development site is within the jurisdiction of East Hertfordshire District Council (EHDC) to the northeast of the centre of High Cross.
- 1.3 The location of the proposed development site in relation to the Local Highway Network is illustrated in **Figure 1.1** below.



**Figure 1.1: Site Location in Relation to the Local Highway Network**

- 1.4 The development site is currently undeveloped farmland and is surrounded by a variety of residential properties, small businesses, and further farmland.
- 1.5 To the North, the site is bound by several residential and commercial buildings and land surrounding and/or associated with Sutes Farmhouse, followed by farmland.
- 1.6 To the East, the site borders farmland followed by the A10.
- 1.7 To the South, the site is bordered by several residential properties and their gardens.
- 1.8 To the West, the site meets Ermine Street at the site access, and further south of the access the site adjoins the back gardens of residential properties and the Puller Memorial C of E Primary School.

1.9 The existing site layout and red line boundary are illustrated in **Figure 1.2** below.



**Figure 1.2: Existing Site Layout and Red Line Boundary**

- 1.10 The proposals comprise an outline planning application, with all matters reserved save for means of access, for a C3 residential development (up to 95 dwellings) and associated landscaping, open space, pedestrian and cycle linkages, internal roads, drainage, and sewerage (including SUDS) and associated infrastructure, together with land for cemetery, education and allotment uses.
- 1.11 The Illustrative Concept Master Plan is shown in **Figure 1.3** overleaf and included in more detail under **Appendix B**.



**Figure 1.3: Illustrative Concept Master Plan**

- 1.12 This AQA has been undertaken in order to establish whether the site's location is considered suitable for the proposed residential use and to quantify any likely pollution impacts upon the surrounding area or local sensitive receptors as a result of the construction and/or operation of the proposed development.
- 1.13 In the event that potential impacts are identified, specific mitigation measures will be recommended in order to minimise significant pollution effects and help safeguard the health and well-being of existing and proposed sensitive receptors within the local area.
- 1.14 The AQA is divided up into the following sections and Appendix:
- **Section 2 - Legislation and Policy Context;**

- **Section 3** - Assessment Methodology and Significance Criteria;
- **Section 4** - Baseline Site Conditions;
- **Section 5** - Evaluation of Potential Effects;
- **Section 6** - Mitigation Measures;
- **Section 7** - Residual Effects and Conclusions; and,
- **Appendix A** - Construction Dust Assessment.



## 2 Legislation and Policy Context

### National Planning Policy

#### [The Air Quality Strategy<sup>1</sup>](#)

- 2.1 The Air Quality Strategy (AQS) fulfils the statutory requirement of the Environment Act 1995 as amended by the Environment Act 2021 to publish an Air Quality Strategy setting out air quality standards, objectives, and measures for improving ambient air quality every 5 years.
- 2.2 The revised strategy (2023) supersedes Volume 1 of the 2007 air quality strategy in England only. In Northern Ireland and Scotland, the strategy (Volume 1) remains in force.
- 2.3 The AQS sets out a framework to enable local authorities to deliver for their communities and contribute to the long-term air quality goals, including ambitious new targets for fine particulate matter (PM<sub>2.5</sub>).
- 2.4 The AQS sets standards and objectives for pollutants to protect human health, vegetation and ecosystems. The pollutant objectives are the dates by which each standard is to be achieved, taking into account economic considerations, practical and technical feasibility.
- 2.5 Under the Environment Act 2021, 2 new legally binding long-term targets have been set each with an interim target, in order to reduce concentrations of fine particulate matter, PM<sub>2.5</sub>. The two new targets are:
- 10 µg/m<sup>3</sup> annual mean concentration PM<sub>2.5</sub> nationwide by 2040, with an interim target of 12 µg/m<sup>3</sup> by January 2028.
  - 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline.
- 2.6 The new targets should help drive reductions in the worst PM<sub>2.5</sub> hotspots across the country, whilst ensuring nationwide action to improve air quality.
- 2.7 The main air quality pollutants of concern with regards to new developments such as the one proposed at this Application Site are the traffic related pollutants of Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter of size 10 and 2.5 microns (PM<sub>10</sub> and PM<sub>2.5</sub>).
- 2.8 The relevant air quality objectives, as they currently apply in the United Kingdom are presented in **Table 2.1** below.

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<sup>1</sup> Department for Environment, Food & Rural Affairs (DEFRA), (2023), 'Air Quality Strategy: framework for local authority delivery. Available on: [Air quality strategy: framework for local authority delivery - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/118117/air-quality-strategy-framework-for-local-authority-delivery.pdf)

Pollutant	Air Quality Objectives		Date to be achieved by (and maintained thereafter)
	Concentration	Measured As	
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup>	1-hour mean not to be exceeded more than 18 times per year	31/12/2005
	40 µg/m <sup>3</sup>	Annual mean	31/12/2005
Particles (PM <sub>10</sub> )	50 µg/m <sup>3</sup>	24-hour mean not to be exceeded more than 35 times per year	31/12/2004
	40 µg/m <sup>3</sup>	Annual mean	31/12/2004
Particles (PM <sub>2.5</sub> ) (UK – Except Scotland)	20 µg/m <sup>3</sup>	Annual mean	2020
Particles (PM <sub>2.5</sub> ) (UK – Urban Areas)	Target of 15% reduction in concentrations at urban background		Between 2010 and 2020
Particles (PM <sub>2.5</sub> ) (England)	12 µg/m <sup>3</sup>	Interim annual mean target to be achieved by 2028	2028*
	Target of 22% reduction in average population exposure		
	10 µg/m <sup>3</sup>	Legally binding nationwide annual mean target to be achieved by 2040	2040**
	Target of 35% reduction in average population exposure		

\*Note: Interim PM<sub>2.5</sub> targets are to be achieved by 2028

\*\*Note: Legally binding PM<sub>2.5</sub> targets are to be achieved by 2040

**Table 2.1: Air Quality Objectives in the UK**

[Air Quality Standards Regulations, 2010<sup>2</sup>](#)

2.9 The air quality limit values set out in EU Directive (2008/50/EC, 2008) are transposed in English law by the Air Quality Standards Regulations (2010). This imposes duties on the Secretary of State relating to achieving the limit values.

2.10 With regards to dust, it is recognised that major construction works may give rise to dust emissions within the PM<sub>10</sub> and PM<sub>2.5</sub> size fraction and it is noted within section 79 of the Environmental Protection Act 1990 that a statutory nuisance is defined as:

*“...b - smoke emitted from premises so as to be prejudicial to health or a nuisance;  
c - fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;  
d - any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance...”*

<sup>2</sup> UK Parliament, (2010). 'The Air Quality Standards Regulations 2010', SI 2010/1001. HMSO, London.

[National Planning Policy Framework \(NPPF\) 2023<sup>3</sup>](#)

2.11 The NPPF was updated in September 2023 and supersedes all the previous versions including the recently revised 2021 version. The purpose of the document is to set out the Government’s policies in relation to planning for England and how these should be applied.

2.12 The 2023 NPPF has an overall environmental objective which aims “to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”.

2.13 In relation to the planning conditions and obligations, paragraphs, 55 and 56 within Section 4 ‘Decision-making’, states the following:

*“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.*

*Planning conditions should be kept to a minimum and only imposed where they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects. Agreeing conditions early is beneficial to all parties involved in the process and can speed up decision making. Conditions that are required to be discharged before development commences should be avoided, unless there is a clear justification.”.*

2.14 Section 9 of the NPPF refers to promoting sustainable transport. In relation to air quality, paragraph 104 states that:

*“Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:...*

*...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...”.*

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<sup>3</sup> Ministry of Housing, Communities and Local Government, (2023), ‘National Planning Policy Framework’, London.

2.15 Additionally, paragraph 105 states:

*“The planning system should actively manage patterns of growth in support of these objectives. 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...”.*

2.16 Section 15 ‘Conserving and enhancing the natural environment’ addresses air quality within a number of paragraphs, this is detailed below.

2.17 Paragraph 174 states;

*“Planning policies and decisions should contribute to and enhance the natural and local environment by:...*

*...e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;...”.*

2.18 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...”.*

2.19 Paragraph 186 adds;

*“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 ... 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...”.*

[Planning Practice Guidance – Air Quality<sup>4</sup>](#)

2.20 The Planning Practice Guidance (PPG) is used to support the National Planning Policy Framework and is published online. The guidance on air quality was originally published in 2014 and updated in November 2019. The PPG provides various principles on how planning can take account of the impact of new development on air quality.

2.21 The guidance refers to the specific issues that may need to be considered when assessing air quality impacts. It states:

*“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...*
- *Introduce new point sources of air pollution...*
- *Expose people to harmful concentrations of air pollutants...*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity...”*

2.22 Guidance on how detailed an air quality assessment need to be is provided and states:

*“Assessments need to be proportionate 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...”*

2.23 Reference to how air quality can be mitigated states that:

*“Mitigation option will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with the applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented...”*

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<sup>4</sup>Ministry of Housing, Communities and Local Government, (2019), 'Planning Practice Guidance-Air Quality', Ministry of Housing, Communities and Local Government, London. Available on: <https://www.gov.uk/guidance/air-quality--3#history>.

## Regional Planning Policy

### [Hertfordshire Local Transport Plan 2018<sup>5</sup>](#)

- 2.24 The Hertfordshire Local Transport Plan was adopted in May 2018 and sets out how transport can help deliver a positive future vision for Hertfordshire by having an input into wider policies such as economic growth, meeting housing needs, improving public health and reducing environmental damage whilst also providing for safe and efficient travel.
- 2.25 The plan also considers how future planning decisions and emerging technology might affect the way that transport needs to be considered in the long term.
- 2.26 Air Quality has a specific policy 'Policy 20 Air Quality', which states:

*"The county council will seek to reduce the impact of poor Air Quality on human health, by:*

*a) Investigating the use of Clean Air Zones.*

*b) Working with district/borough councils to monitor and assess air pollution levels, and working in partnership with them to deliver any declared AQMA joint action plans.*

*c) Implementing, monitoring and reviewing the county council's Air Quality Strategic Plan."*

## Local Planning Policy

### [East Herts District Plan 2018<sup>6</sup>](#)

- 2.27 The District Plan was adopted in October 2018 and sets out the planning framework for sustainable development for the District between 2011-2033. The District Plan aims to provide new homes, new jobs, new facilities and infrastructure across the District. It also contains Development Management policies that will be used to determine planning applications.
- 2.28 Air Quality has been considered in Policy TRA1 Sustainable Transport, which states:
- "...III. In order to minimise the impact of travel on local air quality in accordance with Policy EQ4 (Air Quality), where major developments involve the introduction of new bus routes or significant changes to existing routes, service providers should work with Hertfordshire County Council's Transport, Access and Safety Unit to secure optimal solutions."*

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<sup>5</sup> Hertfordshire County Council (HCC), (2018), 'Hertfordshire Local Transport Plan 2018', HCC

<sup>6</sup> East Hertfordshire District Council (EHDC), (2018), 'East Herts District Plan 2018', EHDC

2.29 Additionally, Air Quality has a specific policy 'Policy EQ4 Air Quality', which states:

*"I. The effect of development upon air quality is a material consideration. All applications should take account of the Council's Air Quality Planning Guidance Document, which details when an air quality assessment is required.*

*II. All development should take account of the Council's latest Air Quality Action Plan, local Air Quality Strategies, Local Transport Plans, as well as national air quality guidance.*

*III. All developments should include measures to minimise air quality impact at the design stage and should incorporate best practice in the design, construction and operation of all developments.*

*IV. Where development (on its own or cumulatively) will have a negative impact on local air quality during either construction or operation, mitigation measures will be sought that will remove overriding impacts, such as an air quality neutral or negative development. Evidence of mitigation measures will be required upfront.*

*V. Where on-site mitigation is not sufficient, appropriate off-site mitigation measures may be required. Where adequate mitigation cannot be provided, development will not normally be permitted.*

*VI. Developments must not:*

- lead to a breach or worsening of a breach of UK or EU limit values;*
- lead to a breach or worsening of a breach of an Air Quality objective or cause the declaration of an Air Quality Management Area or;*
- prejudice the implementation of any Air Quality Action Plan or local air quality strategy."*

[Sustainability Supplementary Planning Document \(SPD\)](#)<sup>7</sup>

2.30 The Sustainability Supplementary Planning Document (SPD) was adopted in March 2021 and has been prepared to provide guidance on the implementation of the adopted District Plan (2018) policies related to climate change and sustainable design and construction, in order to improve the environmental sustainability of new development.

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<sup>7</sup> East Hertfordshire District Council (EHDC), (2021), 'Sustainability SPD', EHDC



2.31 Air Quality has been considered in the policy context of section 6 Pollution – Air Quality, which states:

*“The impact of development on air quality is a material consideration and must be regarded at all stages in the planning process. The planning system plays an active role in managing local air quality when considering the impact of new development and finding sustainable solutions.”*

2.32 Under section 6.1.2.2 Minimum Standards paragraphs 6.19 states the following (which is also highlighted in paragraphs 6.39-6.46 and 13.8 which highlights the minimum standards for boilers and CHP/biomass/biofuel boilers):

*“It is expected that planning applications will comply with these recommended minimum standards to ensure development is in line with national and local policy.*

- *All gas-fired boilers must have low NO<sub>x</sub> emissions and meet a minimum standard of 40mgNO<sub>x</sub>/kWh.*
- *All gas-fired CHP plants are to meet a minimum emission standard of:*
  - *Spark ignition engine: less than 250 mgNO<sub>x</sub>/Nm<sup>3</sup>*
  - *Compression ignition engine: less than 400 mgNO<sub>x</sub>/Nm<sup>3</sup>*
  - *Gas turbine: less than 50 mgNO<sub>x</sub>/Nm<sup>3</sup>*
- *New development must be designed to minimise public exposure to pollution sources, for example, by locating habitable rooms away from busy roads.*
- *Sensitive development (such as schools, hospitals and play grounds) must be sited at least 100m away from busy roads.*
- *New development must not lead to the creation of a new street canyon, or a building configuration that inhibits effective pollution dispersion.”*

2.33 This guidance also outlines the advised methodology for various types of Air Quality Assessments and provides an Air Quality Checklist which needs to be submitted with applications for all new development.

[Air Quality Planning Guidance<sup>8</sup>](#)

2.34 The Air Quality Planning Guidance was prepared to support EHDC’s Air Quality Development Management Policy within the District Plan. The guidance aims to facilitate sustainable development by helping to achieve the best possible public health protection outcomes, in relation to air quality.

2.35 Air Quality has a specific policy ‘Policy EQ4 Air Quality’, which states:

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<sup>8</sup> East Hertfordshire District Council (EHDC), (2018), ‘Air Quality Planning Guidance’, EHDC



*\*I. Development and land uses should minimise potential impacts on local air quality both during construction and operation including the operation of heating, cooling and extraction units. Applications should be supported by Air Pollution Assessment in line with the Council's Air Quality Planning Guidance Document.*

*II. Development within designated Air Quality Management Areas (AQMAs), or development which may have an impact on these areas, must have regard to the Council's latest strategy and action plan for the reduction of pollutants in the defined catchment, maintaining acceptable levels of air quality. Evidence of mitigation measures will be required.*

*III. New developments should make provision for electric vehicle charging points in safe and accessible locations in accordance with Policy DES3 Design of Development.*

*IV. In order to minimise the impact of travel on local air quality, where major developments involve the introduction of new bus routes or significant changes to existing routes, service providers will be required, in agreement with Hertfordshire County Council's Transport, Access and Safety Unit, to ensure that the vehicles serving these locations will either be of 'hybrid' type or meet the latest 'Euro' emissions regulations."*

[Air Quality Action Plan<sup>9</sup>](#)

2.36 The Air Quality Action Plan 2017/18 – 2019/20 covers 2017/18 and beyond. The plan sets out how the council will work with partner organisations and residents to contribute towards improving air quality across the district.

2.37 The following actions consider planning/development:

- SP6 states: *"Take air quality matters into consideration on all planning applications, particularly when these are within or closely adjoining an AQMA";*
- SP9 states: *"Ensure that developers have taken sufficient steps to minimise any increase in air pollution (includes an assessment of air quality implications where applicable)".*

2.38 This air quality assessment has taken into consideration all the above policies and guidelines.

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<sup>9</sup> East Hertfordshire District Council (EHDC), (2017), 'Air Quality Action Plan 2017/18 – 2019/20', EHDC

### 3 Assessment Methodology and Significance Criteria

3.1 This section outlines the assessment methodology and the criteria that have been used to assess the magnitude and significance of risk associated with the proposed development.

3.2 **Table 3.1** below summarises the key information sources used in this assessment.

Source	Details
Department for Environment, Food and Rural Affairs (Defra)	<p><b>COVID-19 Supplementary Guidance – Local Air Quality Reporting in 2021</b><sup>10</sup></p> <p>Prepared in order to inform local authorities in England of the key changes and points of reference with respect to LAQM duties, as described in Part IV of the Environment Act 1995, for the 2021 reporting year.</p>
	<p><b>Local Air Quality Management (LAQM) – Technical Guidance (TG22)</b><sup>11</sup></p> <p>The LAQM (TG22) supersedes all previous versions, the most recent being the April 2021 release of LAQM (TG16). It is designed to support local authorities in carrying out their duties under the Environment Act 1995 as amended by the Environment Act 2021, the Environment (Northern Ireland) Order 2002, and subsequent regulations.</p>
	<p><b>The Local Air Quality Management (LAQM)Tools.</b><sup>12</sup></p> <p>Contain information pertaining to monitoring networks across the UK and provides tools, which aid in the data processing and the estimation of pollutant concentrations with reference to the specific year of study.</p>
	<p><b>LAQM Background Maps (2018 Reference Year)</b><sup>13</sup></p> <p>These provide mapped estimates of background concentrations for specific pollutants (NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>) using a 1x1 km grid. The maps also provide information on how pollutant concentrations change over time or across a wide area, while allowing for the assessment of new pollutant sources that are introduced into an area and the impact they may have upon local air quality.</p>
Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM)	<p><b>Land-Use Planning &amp; Development Control: Planning for Air Quality (2017)</b><sup>14</sup></p> <p>This document provides advice and guidance to ensure that air quality is adequately considered in the land-use planning and development control processes. This is particularly applicable to assessing the effect of changes in exposure of members of the public resulting from residential and mixed-use developments, especially those within urban areas where air quality is poorer.</p>

<sup>10</sup> Greater London Authority (GLA). (2021). 'Local Air Quality Management Reporting in 2021 COVID-19 Supplementary Guidance'. GLA, London

<sup>11</sup> Department of Environment, Food and Rural Affairs (DEFRA). (2022). 'Local Air Quality Management Technical Guidance (TG22)'. DEFRA, London

<sup>12</sup> <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/list-of-available-tools/>

<sup>13</sup> Department of Environment, Food and Rural Affairs (DEFRA). (2018), 'Background Mapping data for local authorities – 2018', DEFRA, London. <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

<sup>14</sup> Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017) Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London

	<p><b>Guidance on the assessment of Dust from Demolition and Construction (2014 v.1.1)<sup>15</sup></b></p> <p>The document provides guidance on how to undertake a construction impact assessment (including demolition and earthworks). The emphasis in the document is on providing the means for classifying the risk of dust impacts from a construction site, which then allows appropriate mitigation measures to be identified.</p>
The National Atmospheric Emissions Inventory (NAEI)	<p><b>The UK NAEI<sup>16</sup></b> estimates annual pollutant emissions from 1970 to the most current publication year for the majority of pollutants. The NAEI is compiled on an annual cycle, each year the latest set of data are added to the inventory and the full time series is updated to take account of improved data and any advances in the methodology used to estimate the emissions.</p>
London Councils	<p><b>Air Quality and Planning Guidance<sup>17</sup></b></p> <p>This guidance is aimed at local authorities, developers and their consultants, and provides technical advice on how to deal with planning applications that could have an impact on air quality.</p>
Local Authorities	<p><b>East Hertfordshire District Council ASR<sup>18</sup></b></p> <p>This Annual Status Report (ASR) highlights the status of the air quality within the District, discussing AQMAs, the monitoring strategy and concentrations of pollutants in the air.</p>

**Table 3.1: Key Information Sources**

### Scope of Air Quality Assessment

- 3.3 This Air Quality Assessment considers the suitability of the site for the proposed residential use and assesses whether any significant air quality impacts are anticipated as a result of the construction and/or the operation of the proposed development.
- 3.4 A staged assessment approach has been adopted. This ensures that the approach taken for the assessment of risk is proportional to the risk of an unacceptable impact being caused. Where a simple review of the likely impacts associated with the proposed development clearly demonstrates that the risk of a health/annoyance impact is negligible, this will be sufficient to conclude that no further or detailed assessment is necessary.
- 3.5 In cases where the risk involved cannot be regarded as negligible, a more detailed and quantitative assessment will be undertaken.
- 3.6 The specific methodology and impact criteria used in this assessment is detailed below.

<sup>15</sup> IAQM, (2014). 'Guidance on the assessment of dust from demolition and construction', IAQM, London.

<sup>16</sup> National Atmospheric Emissions Inventory (NAEI). Available from: <https://naei.beis.gov.uk/>

<sup>17</sup> London Councils. (2007), Air Quality and Planning Guidance, The London Air Pollution Planning and the Local Environment (APPLE) working group, London

<sup>18</sup> East Hertfordshire District Council, (2022). 'East Hertfordshire District Council 2022 Air Quality Annual Status Report'. (EHDC)

### Construction Dust Impacts

- 3.7 The Institute of Air Quality Management (IAQM) published the 'Guidance on the assessment of dust from demolition and construction' in February 2014 which provides guidance on how to assess and mitigate the impacts of dust emissions from demolition and construction sites. This document was updated in June 2016 (Version 1.1) and supersedes the 2012 IAQM guidance on the assessment of the impacts of construction on air quality and the determination of their significance.
- 3.8 The potential impacts associated with construction activities will be assessed in accordance with the IAQM Guidance. IAQM Guidance provides a five-step assessment procedure to assess the potential impacts of construction dust pre-mitigation, provide mitigation measures specific to the risk and assess the post-mitigation impacts.
- 3.9 It recommends that the assessment procedure follows the following framework:
- Screen the requirement for a more detailed assessment;
  - Assess the risk of dust impacts of the four phases of construction (demolition/site clearance, earthworks, construction and trackout), taking into account:
    - the scale and nature of the works, which determines the potential Dust Emission Magnitude; and
    - the sensitivity of the area.
  - Determine the site-specific mitigation for the potential activities;
  - Examine the residual effects and determine whether or not these are significant; and
  - Prepare the Construction Dust Assessment.
- 3.10 In the process of screening the need for a detailed assessment, the following criteria is used:
- "An assessment will normally be required where there is:*
- a 'human receptor' within:
    - 350m of the boundary of the site; or
    - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
  - an 'ecological receptor' within:
    - 50m of the boundary of the site; or
    - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s)."
- 3.11 When defining the sensitivity of an area/receptor, the factors within **Table 3.2** below are used.

Area Sensitivity	Human Receptors	Ecological Receptors
High	People would be present continuously, 10-100 dwellings within 20m of the site, exposed over a time period relevant to the air quality objective for PM <sub>10</sub> , very sensitive receptors (e.g. residential properties, hospitals, schools, care homes).	International or national designation, locations where there is a community of a particularly dust sensitive species (e.g. Special Area of Conservation SAC).
Medium	People would not be expected to be present here continuously for extended periods, locations where people exposed are workers and exposure is over a time period relevant to the air quality objective for PM <sub>10</sub> , 1-10 dwellings within 20m of the site, medium sensitive receptors (e.g. parks, place of work- office and shop workers).	Locations where there is particularly important plant species, national designation where the features may be affected by dust deposition (e.g. Sites of Special Scientific Interest SSSI).
Low	People would be expected to be present only for limited periods, human exposure is transient, 1 dwelling within 20m of site. Annual mean concentrations well below the national objectives (<28µg/m <sup>3</sup> ). Low sensitivity receptors (e.g. public footpaths, playing fields, shopping streets).	Locations with a local designation where the features may be affected by dust deposition (e.g. Local Nature Reserve).

**Table 3.2: IAQM Factors for Defining the Sensitivity of an Area**

3.12 A revised version of this guidance is currently being prepared by IAQM. However, this had not yet been adopted/published at the time of writing.

*Building Emissions*

3.13 At this stage, the proposed energy strategy has not yet been confirmed. Any details regarding the final plant choice and its installation are subject to detail design, post planning.

3.14 Therefore, any emissions or operational plant effects associated with the proposed energy strategy should be reviewed and assessed, if required, at the appropriate stage, when all required detailed plant technical information is confirmed.

*Transport Emissions*

3.15 The EPUK & IAQM Guidance – ‘Planning For Air Quality’ has been used to assess potential traffic impacts associated with the development.

3.16 **Table 3.3** below provides the criteria used for screening the need for an Air Quality Assessment.

The Development will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: <ul style="list-style-type: none"> <li>- more than 100 AADT within or adjacent to an AQMA</li> <li>- more than 500 AADT elsewhere.</li> </ul>
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: <ul style="list-style-type: none"> <li>- more than 25 AADT within or adjacent to an AQMA</li> <li>- more than 100 AADT elsewhere.</li> </ul>
Realign roads, i.e. changing the proximity of receptors to traffic lanes	Where the change is 5m or more and the road is within an AQMA
Introduce a new junction or remove an existing junction near to relevant receptors	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
Introduce or change a bus station	Where bus flows will change by: <ul style="list-style-type: none"> <li>- more than 25 AADT within or adjacent to an AQMA</li> <li>- more than 100 AADT elsewhere</li> </ul>
Have an underground car park with extraction system	The ventilation extract for the car park will be within 20m of a relevant receptor.  Coupled with the car park having more than 100 movements per day (total in and out)

**Table 3.3: Indicative Criteria for Requiring an Air Quality Assessment**

3.17 If any of the above criteria are met, then the significance of air pollution impacts must be assessed. This may either be a Simple or a Detailed Assessment. In accordance with the EPUK & IAQM Guidance, a Simple Assessment is one relying on already published information and without quantification of impacts, in contrast to a Detailed Assessment that must be completed with the aid of a dispersion model.

Impact Criteria

3.18 In the event that the initial screening indicates that there is a potential risk of impact, guidance is provided also by EPUK & IAQM on how to determine the magnitude and the significance of any changes in air pollutant concentrations and/or exposure as a result of a proposed development.

3.19 This process takes the following into account:

- the magnitude of the change (% change of annual mean concentration);
- the concentration relative to the Air Quality Strategy (AQS) objective (above or below the objective); and
- the direction of change (adverse or beneficial).

3.20 The magnitude of an impact should be described by using the criteria set out in **Table 3.4** below. The criteria are based upon the change in pollutant concentration resulting from the proposed development as a percentage of the Air Quality Action Level (AQAL) which in this case is NO<sub>2</sub> and PM<sub>10</sub> annual mean objective levels of 40 µg/m<sup>3</sup>.

Change Magnitude	NO <sub>2</sub> /PM <sub>10</sub> Annual Mean	No Days PM <sub>10</sub> >40 µg/m <sup>3</sup>
Large	Increase/decrease >10% (>4 µg/m <sup>3</sup> )	Increase/decrease >4 days
Medium	Increase/decrease 6-10% (2.4-4 µg/m <sup>3</sup> )	Increase/decrease 2-4 days
Small	Increase/decrease 2-5% (0.8-2 µg/m <sup>3</sup> )	Increase/decrease 1-2 days
Imperceptible	Increase/decrease <1% (<0.4 µg/m <sup>3</sup> )	Increase/decrease <1 day

**Table 3.4: Impact Magnitude for Changes in NO<sub>2</sub> and PM<sub>10</sub> Concentrations**

3.21 The significance of the impact will be dependent upon the magnitude of change in relation to the relevant AQAL. This is set out in **Table 3.5** below.

Long term average Concentration at receptor in assessment year.	% Change in concentration relative to Air Quality Action Level (AQAL)*			
	1	2-5	6-10	>10
75% of less of AQAL (<30 µg/m <sup>3</sup> )	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL (30-38 µg/m <sup>3</sup> )	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL (38-41 µg/m <sup>3</sup> )	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL (41 – 44 µg/m <sup>3</sup> )	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL (>44 µg/m <sup>3</sup> )	Moderate	Substantial	Substantial	Substantial

\*Air Quality Action Level – in this case the objective levels.

**Table 3.5: Impact Descriptors for Individual Receptors**

3.22 Therefore, once the magnitude and the significance of the change has been established, the impact at each relevant receptor can be described. The impact magnitude at each receptor location can be described using the changes stated above as being of Imperceptible, Small, Medium or Large magnitude, or Negligible, Slight Moderate or Substantial significance and also as being either Temporary or Permanent.



3.23 The overall significance should be described separately for both the impact of emissions related to the proposed development on existing receptors, and for the impacts of emissions from existing source(s) on new exposure being introduced from the proposed development. This is discussed below.

Exposure Criteria

3.24 The London Councils Air Quality and Planning Guidance takes into account the now superseded Planning Policy Statement 23: Planning and Pollution Control and is aimed at developers, their consultants and local authorities in order to ensure consistency in the approach to dealing with Air Quality and planning in London.

3.25 Whilst this guidance has been developed for London it is consistently adopted across the UK with a view of reducing exposure to air pollution.

3.26 When determining both the significance of exposure to air pollution and the levels of mitigation required, consideration should be given to the Air Pollution Exposure Criteria (APEC). The APEC criteria is set out in **Table 3.6** below.

	Applicable Range Nitrogen Dioxide Annual Mean	Applicable Range PM <sub>10</sub>	Recommendation
APEC – A	> 5% below national objective	<b>Annual Mean:</b> > 5% below national objective <b>24 hr:</b> > 1-day less than national objective	No air quality grounds for refusal; however, mitigation of any emissions should be considered.
APEC – B	Between 5% below or above national objective	<b>Annual Mean:</b> Between 5% above or below national objective <b>24 hr:</b> Between 1-day above or below national objective.	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g., Maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered, and internal pollutant emissions minimised.
APEC – C	> 5% above national objective	<b>Annual Mean:</b> > 5% above national objective <b>24 hr:</b> > 1-day more than national objective.	Refusal on air quality grounds should be anticipated, unless the Local Authority has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated. Worker exposure in commercial/industrial land uses should be considered further. Mitigation measures must be presented with air quality assessment, detailing anticipated outcomes of mitigation measures.

**Table 3.6: Air Pollution Exposure Criteria (APEC)**

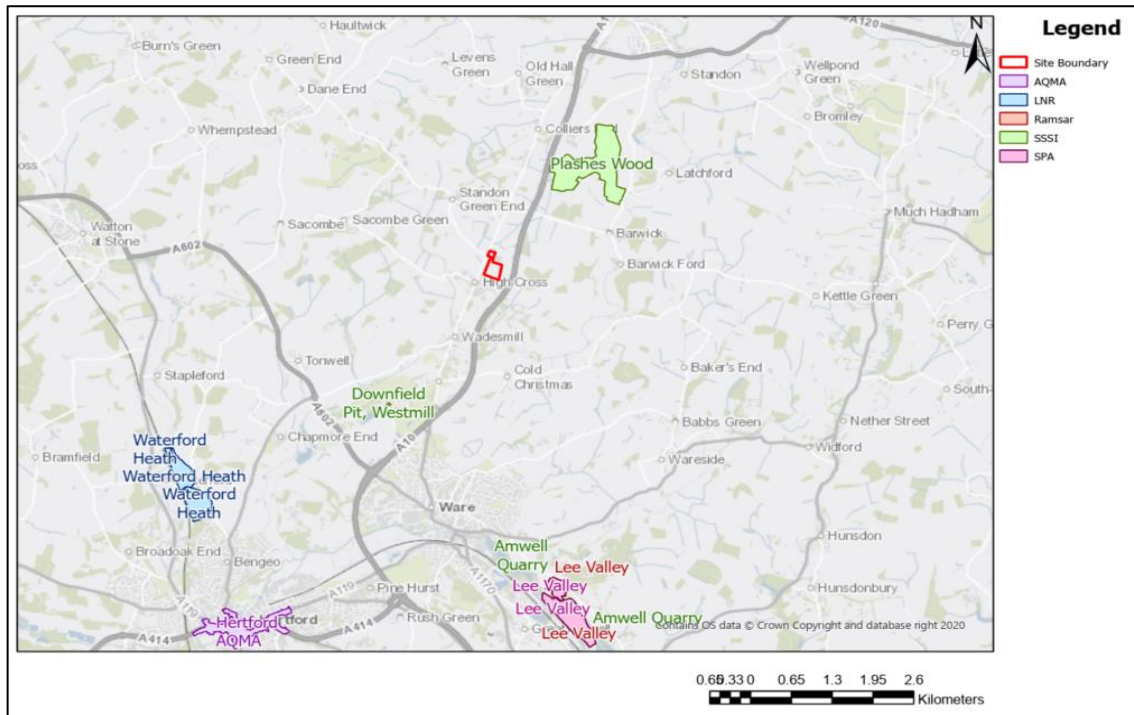


- 3.27 It should be noted that air quality is not well suited to the rigid application of a generic significance matrix to determine the overall significance of a development and individual receptor sensitivity should also be taken into account. Therefore, professional judgement should be employed throughout, and the assessment should take into account any site-specific considerations.
- 3.28 Both the impact and exposure criteria will be applied to the findings of this assessment, where required.

## 4 Baseline Site Conditions

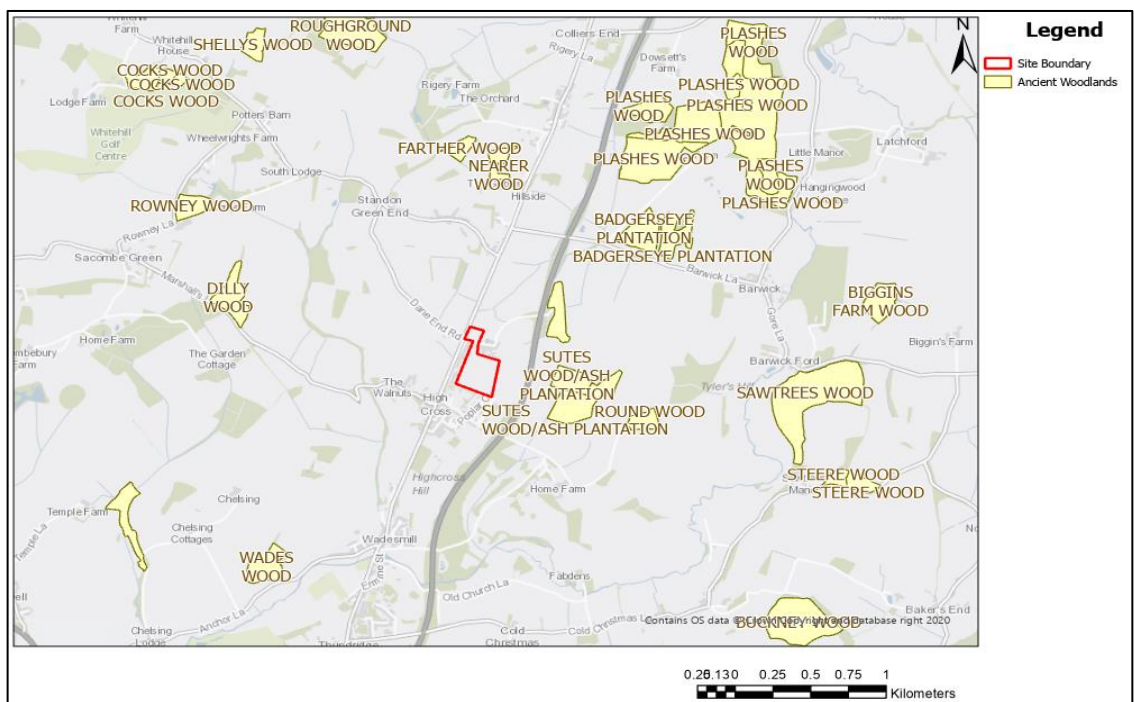
### Local Air Quality Management

- 4.1 The proposed development site falls within the jurisdiction of East Hertfordshire District Council (EHDC).
- 4.2 Under the Air Quality Strategy, there is a duty on all Local Authorities to consider the air quality within their boundaries and prepare an annual update report.
- 4.3 A review of the Air Quality Assessments undertaken by EHDC has indicated that there are 3 Air Quality Management Areas (AQMAs) have been declared within the District; Bishops Stortford AQMA, Hertford AQMA and Sawbridgeworth AQMA.
- 4.4 The proposed development site is not located in or near any of the declared AQMAs.
- 4.5 The closest AQMA to the proposed development site (Hertford AQMA) was declared in 2010 (and amended in 2012 and then again in 2019) as a result of exceedances of annual mean objective for Nitrogen Dioxide (NO<sub>2</sub>). The AQMA covers a number of properties in central Hertford.
- 4.6 There are four Sites of Special Scientific Interest (SSSIs) within 5.3km of the site boundary, the closest being Plashes Wood which lies 1.4km North-East from the site. Additionally, there are also two Special Protection Areas (SPAs)/RAMSAR both called Lee Valley, both of which also designated as a SSSI's called Amwell Quarry, located approximately 5.3km South-East from the site boundary. There are also three small Local Nature Reserves (LNRs) 5.6km South-West from the site boundary, all called Waterford Heath.
- 4.7 The site location in relation to the closest AQMA, SSSIs, SPAs/RAMSARs, and LNRs is illustrated in **Figure 4.1** overleaf.



**Figure 4.1: Site Location in Relation to the Closest AQMA, SSSIs, SPAs/RAMSARs, and LNRs**

4.8 Additionally, there are also a number of Ancient Woodlands within the vicinity of the site. The closest two Ancient Woodlands are both called Suites Wood/Ash Plantation within 0.5km to the West of the site boundary. The site location in relation to the closest Ancient Woodlands is illustrated in **Figure 4.2** below.



**Figure 4.2: Site Location in Relation to the Closest Ancient Woodlands**

- 4.9 There are no high sensitivity ecological sites within 50m of the site boundary.
- 4.10 The closest Ancient Woodlands sites are within 50m from possible routes used by construction vehicles on the public highway (up to 500m from the site entrance). These are considered low sensitivity receptors and as such, impacts upon local ecological receptors will be assessed as low within the Construction Dust Assessment (CDA) presented in **Appendix A**.

#### Background

- 4.11 The Defra mapping tool (reference year 2018) has been used to establish the pollutant background concentrations. The site falls within two 1x1km grid squares (X:536500, Y:219500 and X:536500, Y:218500) and adjacent to two other 1x1km grid squares (X:537500, Y:219500 and X:537500, Y:218500) therefore an average of all four squares have been calculated and used.
- 4.12 The NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> annual mean background concentrations for 2019 are provided in **Table 4.1** below.

Pollutant	2019 (µg/m <sup>3</sup> )
NO <sub>x</sub>	13.21
NO <sub>2</sub>	10.06
PM <sub>10</sub>	15.18
PM <sub>2.5</sub>	9.56

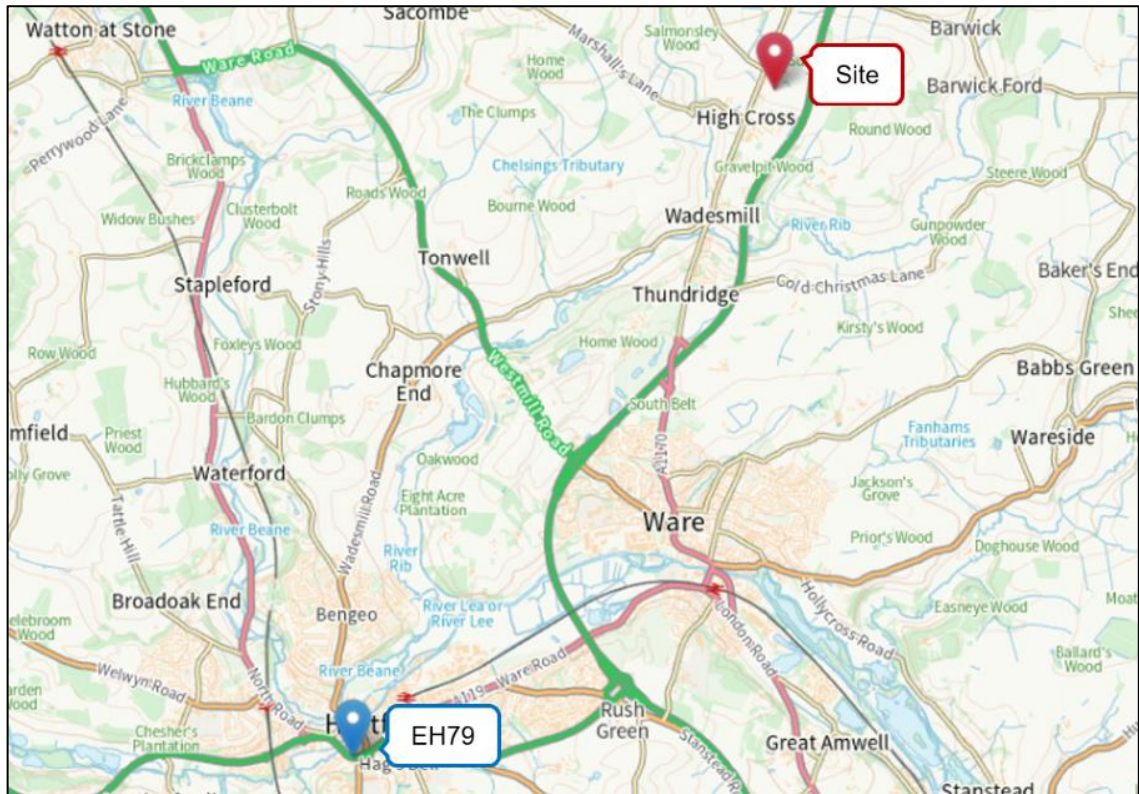
**Table 4.1: Defra Annual Mean Background Concentrations for 2019**

#### Local Monitoring

- 4.13 In 2022, EHDC published their latest Air Quality Annual Status Report which provides annual mean monitoring data.
- 4.14 Monitored results from 2020 and 2021 are likely to have been impacted by the COVID-19 pandemic and are likely to be less representative of the 'true' baseline concentrations. Therefore, in line with the Covid-19 Supplementary Guidance produced by DEFRA in 2021, the use of 2019 data, as a reference year, is encouraged.

#### Automatic Monitoring

- 4.15 EHDC currently operates one automatic (continuous) monitoring station within the District. The site location in relation to the only automatic monitoring location (EH27), is illustrated in **Figure 4.3** overleaf.



**Figure 4.3: Site Location in Relation to the Automatic Monitoring Location**

4.16 The NO<sub>2</sub> and PM<sub>2.5</sub> annual mean concentrations for the automatic monitoring location are provided within **Table 4.2** below. Please note that EHDC does not currently monitor PM<sub>10</sub>.

ID	Site Name	Co-ordinates (X,Y)	Site Type	Pollutant	Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )				
					2017	2018	2019	2020	2021
EH27	Gascogyne Way	532464, 212338	Roadside	NO <sub>2</sub>	34.7	32.2	33.0	20.0	26.0
				PM <sub>2.5</sub>	14.0	10.2	8.1	10.6	12.0

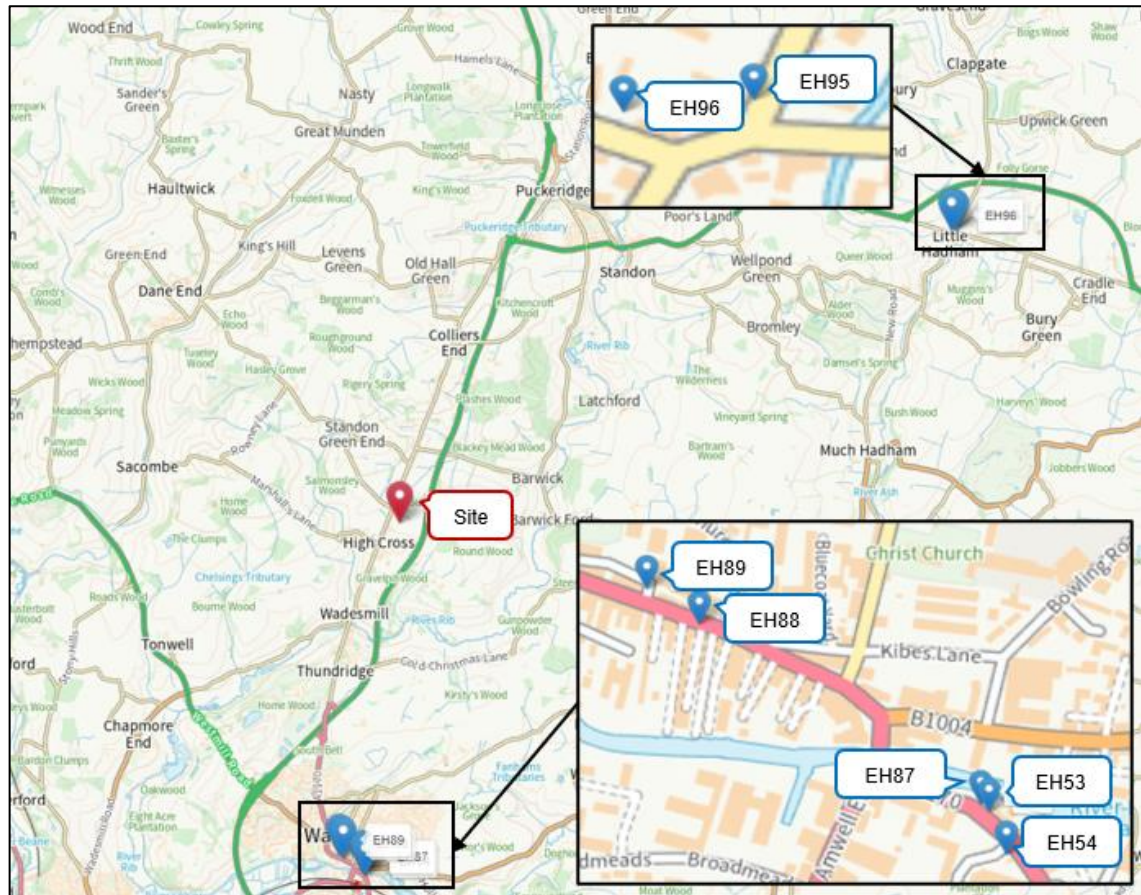
**Table 4.2: NO<sub>2</sub> and PM<sub>2.5</sub> Annual Mean Concentrations for the Automatic Monitoring Location**

4.17 **Table 4.2** demonstrates that the concentrations for the automatic monitoring location are below the annual mean objectives for NO<sub>2</sub> (<40µg/m<sup>3</sup>) and PM<sub>2.5</sub> (<20µg/m<sup>3</sup>) between 2017-2021.

*Non-Automatic Monitoring*

4.18 EHDC also undertook non-automatic monitoring of NO<sub>2</sub> at various locations during 2019. The closest non-automatic monitoring locations in relation to the site are illustrated in **Figure 4.4** below.





**Figure 4.4: Site Location in Relation to the Closest Non-Automatic Monitoring Locations**

- 4.19 Please note that location EH53 was decommissioned after 2017 and therefore has no annual mean concentrations for 2019. Additionally, locations EH87, EH88, EH89, EH95 and EH96 were all commissioned after 2017 and therefore have no annual mean concentrations before 2018.
- 4.20 The latest NO<sub>2</sub> annual mean concentrations for the closest non-automatic monitoring locations are provided within **Table 4.3** below.

ID	Coordinates (X,Y)	Site Type	Annual Mean Concentration (µg/m <sup>3</sup> )				
			2017	2018	2019	2020	2021
EH53	536068, 214120	Roadside	36.4	-	-	-	-
EH54	536085, 214077	Roadside	31.3	23.7	27.0	20.3	19.5
EH87	536060, 214128	Roadside	-	39.6	35.4	30.1	31.1
EH88	535793, 214312	Roadside	-	39.8	37.9	24.9	25.8
EH89	535743, 214348	Roadside	-	31.8	29.5	21.3	21.7
EH95	543996, 222731	Roadside	-	25.6	22.8	17.2	18.7
EH96	543944, 222725	Roadside	-	25.0	25.0	19.8	16.9

**Table 4.3: Annual Mean NO<sub>2</sub> Concentrations for the Closest Non-Automatic Monitoring Locations**

4.21 **Table 4.3** above demonstrates that there were no exceedances of the national annual mean objective for NO<sub>2</sub> between 2017-2021.

4.22 Therefore the automatic and all the closest non-automatic monitoring locations were >5% below the national annual mean objectives in 2019. Consequently, in accordance with the exposure criteria set out in **Table 3.6**, the proposed development site is likely to fall within APEC – A for site suitability, which states the following:

*“No air quality grounds for refusal; however, mitigation of any emissions should be considered.”*

4.23 Suitable mitigation measures have been considered, where required, within **Section 6** of this AQA.

## 5 Evaluation of Potential Effects

### Construction

#### Construction Dust

- 5.1 During the construction phases, there is the potential for emissions of dust to cause annoyance, nuisance and health effects to sensitive receptors, both human and ecological located close to the site.
- 5.2 Since demolition will not be required, the construction activities associated with the proposed development can be separated into three stages:
- Earthworks;
  - Construction; and
  - Trackout.
- 5.3 There are a number of human receptors within 350m of the site boundary and some low sensitivity ecological receptors within 50m of routes potentially used by construction vehicles. Therefore, a construction dust assessment has been undertaken in order to evaluate and minimise potential dust effects during the aforementioned three stages.
- 5.4 The construction dust assessment is included in **Appendix A**.

#### Construction Traffic and Plant

- 5.5 Throughout the construction period, there will be a number of construction vehicles, stationary plant and vehicles used by the construction workforce. These may potentially present an additional source of air pollutants in the vicinity of the proposed development site.
- 5.6 Any likely pollutant impacts should be addressed through Best Available Techniques (BAT) mitigation measures. Likely BAT are provided in **Section 6**.

### Completed Development

#### Development Traffic

- 5.7 The Transport Consultants at Cannon Consulting Engineers have provided us with the baseline annual average daily traffic (AADT) for the local road network and also the daily traffic anticipated as a result the operation of the proposed development.
- 5.8 This is summarised in **Table 5.1** and the locations of the roads surveyed is shown in **Figure 5.1** below.



Link Number	Baseline Year 2023		Baseline Year 2028		Proposed Development		Baseline Year 2028 + Proposed Development	
	AADT Total	HGV (%)	AADT Total	HGV (%)	AADT Total	HGV (%)	AADT Total	HGV (%)
1	3,539	7.0%	3,681	7.0%	93	0%	3,774	6.8%
2	3,981	6.4%	4,140	6.4%	352	0%	4,492	5.9%

**Table 5.1: Baseline and Proposed AADT Data**



**Figure 5.1: Traffic Survey Locations**

- 5.9 **Table 5.1** demonstrates that the proposed development daily trip generation associated with the operation of the proposed scheme is likely to be less than 500.
- 5.10 As such, this level of traffic impact does not meet the EPUK & IAQM criteria in **Table 3.3** for requiring further or detailed assessment.
- 5.11 Therefore, it has not been considered necessary to further quantify traffic related impacts as a result of the operation of the proposed development.

*Building Emissions*

- 5.12 As previously stated, at this stage the proposed energy strategy has not yet been confirmed.
- 5.13 Any operational plant effects associated with the proposed energy strategy should be reviewed and assessed, if required, at the appropriate stage, when all the required detailed plant technical information is confirmed.
- 5.14 Compliance with relevant regulations and standards, at this stage, should be secured through planning conditions, where necessary.

## 6 Mitigation Measures

### Construction

#### Construction Dust

- 6.1 A construction dust assessment has been completed for the proposed development in accordance with IAQM guidance and is presented in **Appendix A**. Within the assessment, site specific mitigation measures have been identified which ensure compliance with relevant standards.
- 6.2 The role of air quality monitoring within the package of mitigation measures that is proposed has also been considered since monitoring proposals are frequently incorporated into planning conditions.
- 6.3 The mitigation measures outlined in **Appendix A** should make up part of a Construction Environmental Management Plan (CEMP) that should be implemented to minimise the potential adverse construction dust impacts throughout all the relevant construction stages.
- 6.4 It is important that attention is paid to any construction activity that takes place in close proximity to the site boundary, potentially at the closest location to sensitive receptors.

#### Dust Monitoring:

- 6.5 The dust monitoring requirements are usually split in three categories as follows:
- **Negligible/Low risk** category sites - should not normally be necessary to undertake any quantitative air quality monitoring, although in some circumstances it may be applicable to undertake occasional surveys in the vicinity of the site boundary at least once on each working day.
  - **Medium risk** category sites - should normally be adequate to undertake surveys of dust flux over the site boundary, and/or dust deposition/soiling rates around the site at nearby receptors, although this may have resource implications, and an approach based on continuous particulate matter monitoring may be preferred.
  - **High risk** category sites - normally be necessary to supplement the monitoring for medium risk sites with monitoring of ambient PM concentrations. It is recommended that priority be assigned to the measurement of PM<sub>10</sub>, as emissions of dust from construction sites are predominantly in the coarser fractions.
- 6.6 The proposed development site has been classified as having a **high** risk of dust soiling during earthworks and a **medium** risk of dust soiling during the other two stages.

6.7 Therefore, dust monitoring, as specified above, should be undertaken during the relevant stages of construction to ensure that:

- The construction activities do not give rise to any exceedances of the air quality objectives for PM<sub>10</sub> or PM<sub>2.5</sub>.
- The agreed mitigation measures to control dust emissions are being applied and are effective.
- Any high levels of dust are attributed to specific activities on site to ensure that appropriate corrective measures take place.

6.8 The implementation of the specific mitigation measures given above within the CEMP will ensure that any potential adverse impacts from construction dust during all construction stages are avoided. It is noted by the IAQM that, through the use of effective mitigation, the effects of dust from construction activity will normally not be considered significant.

#### Construction Traffic and Plant

6.9 As previously stated, there is potential for air pollutant impacts to arise from construction plant and vehicles associated with the scheme. The following BAT should still be implemented during the construction phase.

- All vehicles should switch off engines when stationary, no idling vehicles;
- Minimise the movement of construction traffic around the site;
- Maximising efficiency (this may include alternative modes of transport, maximising vehicle utilisation by ensuring full loading and efficient routing);
- Vehicles should be well maintained and kept in a high standard of working order;
- Avoid the use of diesel or petrol powered generators by using mains electricity or battery powered equipment where possible; and
- Locate plant away from boundaries close to residential areas.

#### **Operational**

##### Traffic Emissions

6.10 The AQA has demonstrated that the predicted traffic associated with the proposed development is unlikely to result in a detrimental pollution impact upon the local highway network and the current pollution levels.

6.11 Therefore, it is not anticipated that mitigation measures will be required.

### Building Emissions

- 6.12 As previously stated, at this stage the proposed energy strategy has not yet been confirmed. Any operational plant effects should be reviewed and assessed, if required, at the appropriate stage, when all the required detailed plant technical information is available.
- 6.13 However, it is recommended that, any boilers being used on site should be highly efficient low NO<sub>x</sub> boilers, ideally with emissions <40mgNO<sub>x</sub>/kWh and any CHP plant should ideally meet the following minimum emissions standards (as outlined in the Districts Sustainability Supplementary Planning Document (SPD)):
- Spark ignition engine: less than 250mgNO<sub>x</sub>/Nm<sup>3</sup>;
  - Compression ignition engine: less than 400mgNO<sub>x</sub>/Nm<sup>3</sup>;
  - Gas turbine: less than 50mgNO<sub>x</sub>/Nm<sup>3</sup>.
- 6.14 This will ensure that any additional NO<sub>x</sub> contributions associated with proposed heating strategy are kept as low as possible.
- 6.15 Compliance with relevant regulations and standards should be secured through planning conditions, where necessary.

### Site Suitability

- 6.16 The monitored annual mean concentrations for the automatic and closest non-automatic monitoring locations have demonstrated that the proposed development site is likely to fall within APEC-A for site suitability.
- 6.17 In accordance with the exposure criteria in **Table 3.6**, APEC-A means that there should be no air quality grounds for refusal and the local air quality should be suitable to safeguard the health and amenity of new residents without mitigation.

## 7 Residual Effects and Conclusions

- 7.1 The proposed development site falls within the jurisdiction of East Hertfordshire District Council (EHDC).
- 7.2 A review of the Air Quality Assessments undertaken by EHDC has indicated that are 3 Air Quality Management Areas (AQMAs) have been declared within the District. However, the site is not located in any of the declared AQMAs.
- 7.3 The latest monitored annual mean concentrations for the automatic and closest non-automatic monitoring locations are all well below the annual mean objective for NO<sub>2</sub> and PM<sub>2.5</sub> between 2017-2021. In accordance with the exposure criteria in **Table 3.6**, the site is likely to fall within APEC-A for site suitability which states the following:
- “No air quality grounds for refusal; however, mitigation of any emissions should be considered.”*
- 7.4 A construction dust assessment has been undertaken for the three stages of construction activities associated with the proposed development in accordance with IAQM guidance on the assessment of dust from construction activities (**Appendix A**).
- 7.5 Mitigation measures have been proposed for construction traffic and stationary plant associated with the proposed development.
- 7.6 Following the successful implementation of the specific mitigation measures, the residual effects of construction dust and emissions from construction plant/vehicles upon the local area and sensitive receptors although adverse, will be temporary and considered to be ‘not significant’.
- 7.7 The predicted traffic associated with the proposed development is unlikely to result in a detrimental pollution impact upon the local highway network and the current pollution levels.
- 7.8 As previously stated, at this stage the proposed energy strategy has not yet been confirmed. Any operational plant effects should be reviewed and assessed, if required, at the appropriate stage, when all the required detailed plant technical information is available.

7.9 However, it is recommended that, any boilers being used on site should be highly efficient low NO<sub>x</sub> boilers, ideally with emissions <40mgNO<sub>x</sub>/kWh and any CHP plant should ideally meet the following minimum emissions standards (as outlined in the Districts Sustainability Supplementary Planning Document (SPD)):

- Spark ignition engine: less than 250mgNO<sub>x</sub>/Nm<sup>3</sup>;
- Compression ignition engine: less than 400mgNO<sub>x</sub>/Nm<sup>3</sup>;
- Gas turbine: less than 50mgNO<sub>x</sub>/Nm<sup>3</sup>.

7.10 Compliance to relevant regulations and standards should be secured through planning conditions, where necessary.

### **Conclusion**

7.11 The proposed development does not raise any significant adverse impacts on the health and/or quality of life for any existing or proposed receptors, as a result of any anticipated changes to air quality.

7.12 It is therefore concluded that the proposed development complies fully with air quality related national and local planning policy and any mitigation can, if considered necessary, be enforced by means of appropriate planning conditions, consistent with paragraph 54 and 55 of the National Planning Policy Framework.

## **Appendix A: Construction Dust Assessment**

## CONSTRUCTION DUST ASSESSMENT

A.1 The construction dust assessment has been completed in accordance with 2014 IAQM guidance and follows the procedures as outlined in **Section 3** of this report.

### Screen the Need for a Detailed Assessment

A.2 The following screening criterion has been applied to the assessment: An assessment will normally be required where there is:

- a 'human receptor' within:
  - 350m of the boundary of the site; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- an 'ecological receptor' within:
  - 50m of the boundary of the site; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

A.3 There are a number of human receptors within 350m of the site boundary and some low sensitivity ecological receptors within 50m of routes potentially used by construction vehicles. Therefore, a dust assessment is required due to the proposed development location meeting some of the above criteria.

### Assess the Risk of Dust Impacts

A.4 Since demolition will not be required, the construction activities associated with the proposed development have been separated into three stages:

- Earthworks;
- Construction; and
- Trackout.

A.5 The assessment of the risk of dust impacts has been completed in two stages:

- Determine the potential dust emission magnitude; and
- Determine the sensitivity of the area to dust impacts.



A.6 The potential dust emission magnitude for all three of the construction stages have been determined to be either Small, Medium or Large according to the criteria presented in **Table A.1** below.

Construction Activity	Dust Emission Magnitude Scale		
	Small	Medium	Large
<b>Earthworks</b>	Total site area <2,500m <sup>2</sup> , soil type with large grain size, <5 heavy earth moving vehicles active at one time, bunds <4m high, total material moved <20,000t, works during wetter months.	Total site area 2,500-10,000m <sup>2</sup> , moderately dusty soil type, 5-10 heavy earth moving vehicles active at one time, bunds 4-8m high, total material moved 20,000-100,000t.	Total site area >10,000m <sup>2</sup> , potentially dusty soil type, >10 heavy earth moving vehicles active at one time, bunds >8m high, total material moved >100,000t.
<b>Construction</b>	Total building volume <25,000m <sup>3</sup> , construction material with low potential for dust release.	Total building volume 25,000-100,000m <sup>3</sup> , potentially dusty construction material, on site concrete batching.	Total building volume >100,000m <sup>3</sup> , on site concrete batching, sandblasting.
<b>Trackout</b>	<10 HDV* outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50m.	10-50 HDV outward movements in any one day, moderately dusty surface material, unpaved road length 50-100m.	>50 HDV outward movements in any one day, potentially dusty surface material, unpaved road length >100m.
* HDV – Heavy Duty Vehicle (>3.5t), Note – In each case, not all the criteria need to be met, and that other criteria may be used if justified.			

**Table A.1: Dust Emission Magnitude Criteria**

A.7 The completed assessment of Dust Emission Magnitude is shown in **Table A.2** below.

Construction Activity	Dust Emission Magnitude	Justification
<b>Earthworks</b>	Large	Estimated total site area >10,000m <sup>2</sup>
<b>Construction</b>	Medium	Estimated total building volume between 25,000m <sup>3</sup> – 100,000m <sup>3</sup> (based on site area).
<b>Trackout</b>	Medium	Estimated to be between 10-50 HDV outward movements in any one day.

**Table A.2: Dust Emission Magnitude Assessment**

A.8 Due to the scale of the proposed development the magnitude of dust emissions has been assessed as **large** for earthworks and **medium** for construction and trackout.

A.9 The sensitivity of the area has been assessed in relation to a number of factors such as; the specific sensitivities of receptors in the area, the proximity and number of those receptors and in the case of PM<sub>10</sub>, the local background concentration and by following the significance criteria in **Tables A.3, A.4** and **A.5** below.

Receptor Sensitivity	Number of Receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

**Table A.3: Sensitivity of the Area to Dust Soiling Effects of People and Property**

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentration	Number of Receptors	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m <sup>3</sup>	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m <sup>3</sup>	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m <sup>3</sup>	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m <sup>3</sup>	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m <sup>3</sup>	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

**Table A.4: Sensitivity of the Area to Human Health Impacts**

Receptor Sensitivity	Distance from the source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

**Table A.5: Sensitivity of the Area to Ecological Impacts**

A.10 In addition to **Tables A.3, A.4** and **A.5** any site-specific factors have been taken into account when defining the sensitivity of the area:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors; and
- the duration of the potential impact, as a receptor may become more sensitive over time.

A.11 The sensitivity of the area assessment has been completed based on the following:

- Approximately >100 'high' sensitive receptors within 20m of the site boundary due to the proximity of the nearby Puller Memorial C of E Primary School and residential properties;
- Low PM<sub>10</sub> background; and,
- No 'high' sensitive receptors in relation to ecology within 50m of the site, however there is one Ancient Woodland (Suites Wood/Ash Plantation) which is 50m from possible routes used by construction vehicles on the public highway, up to 500m from the site entrance.

A.12 The completed assessment of Sensitivity of the Area is shown in **Table A.6** below.

Receptor Sensitivity	Sensitivity of the Surrounding Area		
	Earthworks	Construction	Trackout
<b>Dust Soiling</b>	High	High	High
<b>Human Health</b>	Medium	Medium	Medium
<b>Ecological</b>	Low	Low	Low

**Table A.6: Sensitivity of the Surrounding Area Assessment**

A.13 The completed pre-mitigation impact risk assessment incorporating the sensitivity of the area and the dust emissions magnitude for the three construction activities is shown in **Table A.7** below.

Potential Impact	Risk		
	Earthworks	Construction	Trackout
<b>Dust Soiling</b>	High	Medium	Medium
<b>Human Health</b>	Medium	Medium	Low
<b>Ecological</b>	Low	Low	Low

**Table A.7: Summary of Dust Risk (pre-mitigation)**

- A.14 The risk of dust soiling during earthworks has been considered **high** and the risk of dust soiling during construction and trackout has been considered **medium** due to the risk of several human receptors (Puller Memorial C of E Primary School and residential properties) located in close proximity to the proposed site. The human health risk was considered **medium/low** due to the low PM<sub>10</sub> background concentrations in the local area for 2019 (15.18µg/m<sup>3</sup>) and the proximity of sensitive receptors. There are no high sensitivity ecological sites within 50m of the proposed site, therefore ecological sensitivity has been assessed as **low**.
- A.15 Additionally, the dust emissions magnitude, pre-mitigation, based on the scale of the development, is considered to be **large** for earthworks and **medium** for construction and trackout.

Site-specific Mitigation

- A.16 From the identification of the risk of impacts with no mitigation applied in **Table A.7** it is possible to determine the specific mitigation measures that can be applied in relation to the level of risk associated with the construction activity. The mitigation measures described below are suggested as measures that should be included in a site-specific Construction Environmental Management Plan (CEMP). Due to the site being considered **High** Risk for earthworks and **Medium** Risk for the remaining stages, the following mitigation measures are either D=Desirable, H=Highly Recommended or N=Not Required in **Tables A.8, A.9, A.10** and **A.11** below.

*Earthworks:*

Mitigation Measures	Low Risk	Medium Risk	High Risk
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable	N	D	H
Only remove the cover in small areas during work and not all at once	N	D	H

**Table A.8: Site Specific Mitigation Measures for Earthwork Activities**

*Construction:*

Mitigation Measures	Low Risk	Medium Risk	High Risk
Avoid scabbling (roughening of concrete surfaces) if possible	D	D	H
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.	D	H	H
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.	N	D	H
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D

**Table A.9: Site Specific Mitigation Measures for Construction Activities**

*Trackout:*

Mitigation Measures	Low Risk	Medium Risk	High Risk
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.	D	H	H
Avoid dry sweeping of large areas.	D	H	H
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
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.	N	H	H
Access gates to be located at least 10 m from receptors where possible.	N	H	H

**Table A.10: Site Specific Mitigation Measures for Trackout Activities**

*General Mitigation Measures:*

Mitigation Measures	Low Risk	Medium Risk	High Risk
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.	H	H	H
Display the head or regional office contact information	H	H	H
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM <sub>10</sub> continuous monitoring and/or visual inspections.	D	H	H
<b>Site Management</b>			
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.	H	H	H
Make the complaints log available to the local authority when asked.	H	H	H
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.	H	H	H
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.	N	N	H
<b>Monitoring</b>			
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.	D	D	H
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	H	H	H

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.	H	H	H
Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	N	H	H
<b>Preparing and Maintaining the Site</b>			
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period	D	H	H
Avoid site runoff of water or mud.	H	H	H
Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H
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.	D	H	H
Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
<b>Operating Vehicle/Machinery and Sustainable Travel</b>			
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	H	H	H
Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
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 appropriate)	D	D	H
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	H	H

Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)	N	D	H
<b>Operations</b>			
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.	H	H	H
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H
Use enclosed chutes and conveyors and covered skips.	H	H	H
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
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.	D	H	H
<b>Waste Management</b>			
Avoid bonfires and burning of waste materials.	H	H	H

**Table A.11: Site Specific Mitigation Measures for General Activities**

- A.17 It is important that attention is paid to any construction activity that takes place in close proximity to the site boundary, potentially at the closest location to sensitive receptors.

*Determine Significant Effects*

- A.18 Prior to the implementation of any mitigation measures the highest significance of adverse effects was **high** risk for dust soiling earthworks and **medium** risk for dust soiling during construction and trackout, **medium/low** risk for human health and **low** risk for ecology, with dust emissions magnitude considered to be **large** for earthworks and **medium** for construction and trackout.
- A.19 The mitigation measures listed above are chosen based on their suitability to the site and to reduce the risk of adverse effects from the three stages of construction.
- A.20 Through the implementation of site-specific mitigation measures (secured by planning condition), which are designed to mitigate potential dust impact, will ensure that potential significant adverse dust effects will not occur, and the residual effect will normally be 'not significant'.



Dust Monitoring:

- A.21 The dust monitoring requirements are usually split in three categories as follows:
- **Negligible/Low risk** category sites - should not normally be necessary to undertake any quantitative air quality monitoring, although in some circumstances it may be applicable to undertake occasional surveys in the vicinity of the site boundary at least once on each working day.
  - **Medium risk** category sites - should normally be adequate to undertake surveys of dust flux over the site boundary, and/or dust deposition/soiling rates around the site at nearby receptors, although this may have resource implications, and an approach based on continuous particulate matter monitoring may be preferred.
  - **High risk** category sites - normally be necessary to supplement the monitoring for medium risk sites with monitoring of ambient PM concentrations. It is recommended that priority be assigned to the measurement of PM<sub>10</sub>, as emissions of dust from construction sites are predominantly in the coarser fractions.
- A.22 The proposed development site has been classified as having a **high risk** of dust soiling during earthworks and a **medium** risk of dust soiling during the other two stages.
- A.23 Therefore, dust monitoring, as specified above, should be undertaken during the relevant stages of construction to ensure that:
- The construction activities do not give rise to any exceedances of the air quality objectives for PM<sub>10</sub> or PM<sub>2.5</sub>.
  - The agreed mitigation measures to control dust emissions are being applied and are effective.
  - Any high levels of dust are attributed to specific activities on site to ensure that appropriate corrective measures take place.
- A.24 The implementation of the specific mitigation measures given above within the CEMP will ensure that any potential adverse impacts from construction dust during all construction stages are avoided. It is noted by the IAQM that, through the use of effective mitigation, the effects of dust from construction activity will normally not be considered significant.
- A.25 Compliance should be secured through planning conditions, where necessary.

### Conclusions of Construction Dust Assessment

- A.26 The completion of the construction dust assessment has shown that the residual effect of the proposed development in the context of construction dust emissions will be 'not significant' after mitigation. This conclusion has been made based on the **large** dust emissions magnitude for earthworks and **medium** dust emissions magnitude for construction and trackout related to the scale of development and the assumption that the suggested mitigation measures will be implemented (secured by planning condition) and is relevant for all sensitive receptors within 350m of the site.
- A.27 It should be noted that even with a rigorous CEMP in place, it is not possible to guarantee that all mitigation measures will be effective at all times. If there is an interruption in the water supply used for dust suppression or adverse weather conditions are experienced that exacerbate dust emissions, the receptors may experience occasional, short term dust annoyance.
- A.28 However, the likely scale of this would not normally be considered sufficient to change the conclusion of this assessment. It is therefore important to consider all mitigation measures and provide a frequent review and assessment procedure at each stage, to ensure that mitigation measures continue to provide the maximum attenuation level possible.

## **Appendix B: Illustrative Concept Master Plan**





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Rev	Description	Date	Au	Ch
P1	Re-issue with Amended Drawing Name	20.11.23	AA/-	-/-

Project Land East of High Road, High Cross  
 Drawing Illustrative Concept Master Plan - 01

Client	SCOTT PROPERTIES	Date	20.11.23
Job no.	SCOT230616	Rev.	P1
Dwg no.	ICMP-01	Scale	1:1000@A0
Author	AA/-	Checked	-/-
Status	PRELIMINARY	Office	Romsey
Client ref.	-		

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