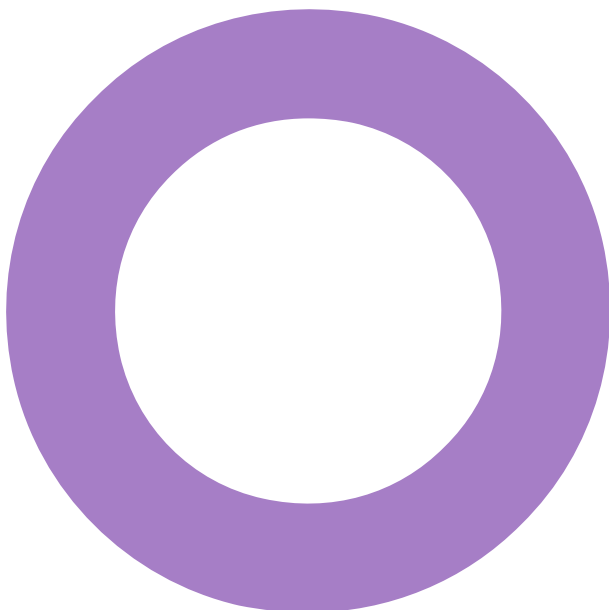


Murphy Ollerton.
Ollerton.
John Murphy and Sons
Limited.

AIR QUALITY
AIR QUALITY ASSESSMENT

REVISION 01 – 19 DECEMBER 2023



Audit sheet.

| Rev. | Date | Description of change / purpose of issue | Prepared | Reviewed | Authorised |
|------|------------|--|----------|----------|------------|
| 00 | 07/12/2023 | First Draft | BC | RH | AD |
| 01 | 19/12/2023 | First Issue | SB | RH | RH |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

This document has been prepared for John Murphy and Sons Limited only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 34/22275
Document reference: 3422275-HLE-RP-AQ-Murphy Ollerton_Rev01.docx

Contents.

| | |
|--|----|
| Audit sheet. | 2 |
| Contents. | 3 |
| Executive Summary. | 5 |
| 1. Introduction. | 6 |
| 1.1 Proposed Development. | 6 |
| 1.2 Application Site Description and Location. | 6 |
| 1.3 Scope of Assessment. | 7 |
| 2. Legislation, Policy and Guidance Documents. | 8 |
| 2.1 Air Quality Strategy and Local Air Quality Management. | 8 |
| 2.2 EU Limit Values. | 9 |
| 2.3 Statutory Nuisance Legislation. | 9 |
| 2.4 Clean Air Strategy. | 9 |
| 2.5 Building Regulations. | 9 |
| 2.6 Planning Policy. | 9 |
| 2.7 Local Policy. | 11 |
| 2.8 Assessment Guidance and Standards. | 12 |
| 3. Methodology of Assessment. | 13 |
| 3.1 Consultation. | 13 |
| 3.2 Existing Air Quality in the Study Area. | 13 |
| 3.3 Construction Phase Impacts. | 13 |
| 3.4 Operational Phase Impacts. | 14 |
| 3.5 Assessment of Significance. | 14 |
| 4. Baseline Environment. | 16 |
| 4.1 Local Air Quality Management Review and Assessment. | 16 |
| 4.2 Local Air Quality Monitoring. | 16 |
| 4.3 Industrial Pollution. | 17 |
| 4.4 Defra Predicted Background Concentrations. | 18 |
| 4.5 Summary of Background Data. | 19 |
| 5. Construction Phase Assessment. | 21 |
| 5.1 Construction Phase Dust Assessment. | 21 |
| 5.2 Construction Phase – Vehicular Pollutants. | 24 |
| 5.3 Construction Phase – Non-road Mobile Machinery. | 25 |

| | |
|--|-----------|
| 6. Operational Phase Assessment. | 26 |
| 6.1 Road Traffic Emissions Screening Assessment. | 26 |
| 6.2 Site Suitability Assessment. | 26 |
| <hr/> | |
| 7. Mitigation. | 28 |
| 7.1 Construction Phase. | 28 |
| 7.2 Operational Phase. | 31 |
| <hr/> | |
| 8. Summary and Conclusions. | 32 |
| <hr/> | |
| 9. Glossary of Terms. | 33 |
| <hr/> | |
| References. | 34 |
| <hr/> | |
| Appendix 1 - EHO Consultation. | 35 |
| <hr/> | |
| Appendix 2 - Professional Experience. | 38 |

Executive Summary.

Hoare Lea have been commissioned by John Murphy and Sons Limited to undertake an Air Quality Assessment to support the planning application for the proposed mixed-use industrial led development adjacent to Newark Road, Ollerton NG22 9QG (the 'Application Site').

The proposals comprise the demolition of numerous existing buildings followed by the relocation of several existing buildings in combination with newly constructed workshops and offices (the "Proposed Development").

The baseline assessment has shown that the Application Site is not located within an Air Quality Management Area (AQMA). There have been no exceedances of the annual mean Air Quality Objective (AQO) by pollutant nitrogen dioxide (NO₂) in 2022, the most recent year of available monitoring data from the single duplicate passive diffusion tube monitoring locations within 5 km of the Application Site. Furthermore, from a review of Department for Environmental, Food and Rural Affairs (Defra) predicted background concentrations at the Application Site, there is expected to be no exceedance of the annual mean AQOs for pollutants NO₂ and particulate matter (PM₁₀ or PM_{2.5}) in 2025, the earliest anticipated opening year for the Proposed Development.

The impacts of demolition and construction work on dust soiling and ambient fine particulate matter concentrations have been assessed and appropriate mitigation measures have been recommended. Provided these mitigation measures are implemented and included within a dust management plan, for example through a planning condition, the residual impacts from the construction phase are considered to be not significant.

The traffic generated by the Proposed Development was supplied by Transport Planning Practice Ltd and has been screened against the criteria set-out in the Environmental Protection United Kingdom (EPUK) and Institute of Air Quality Management (IAQM) planning guidance to determine the need for a detailed assessment. This screening assessment has shown that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required.

The energy strategy for the Proposed Development has been confirmed by Hoare Lea, the appointed Mechanical Electrical and Public Health Engineering (MEP) consultant, to utilise Air Source Heat Pumps (ASHPs) and electric hot water generation for heating/cooling purposes within the office, warehouse and ancillary areas of the Proposed Development. No life safety generators are to be included as part of the energy strategy for the Proposed Development. As no on-site combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from any proposed energy plant have been screened out of this assessment.

The proposed ventilation strategy, also confirmed by Hoare Lea, will utilise Mechanical Ventilation with Heat Recovery (MVHR) units connected to the building façade for the office areas of the Proposed Development. The workshop areas will utilise supply and extract ventilation.

A qualitative Site Suitability Assessment has shown that pollutant concentrations of NO₂ are expected to be in compliance with the 1-hour mean NO₂ AQOs and the annual mean NO₂ AQO. Therefore, the Application Site is considered suitable for the proposed mixed use without mitigation.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation, air quality should not be considered as a constraint to the planning consent and the Proposed Development conforms to the principles of the National Planning Policy Framework (NPPF), the Newark and Sherwood District Council Amended Core Strategy and Newark and Sherwood District Council Allocations and Development Management Development Plan Document (DPD).

1. Introduction.

Hoare Lea have been commissioned by John Murphy and Sons Limited to undertake an Air Quality Assessment to support the planning application for the proposed mixed use development adjacent to Newark Road, Ollerton NG22 9QG (the 'Application Site').

1.1 Proposed Development.

The proposals comprise the demolition of numerous existing buildings followed by the relocation of several existing buildings in combination with newly constructed workshops and offices (the "Proposed Development").

Key new facilities included within the proposals include:

- Plant and vehicle workshop;
- Specialist welding services workshop;
- Office and training academy incorporating 200 associated car parking spaces; and
- Pylon training facility.

The energy strategy for the Proposed Development has been confirmed by Hoare Lea, the appointed Mechanical Electrical and Public Health Engineering (MEP) consultant, to utilise Air Source Heat Pumps (ASHPs) and electric hot water generation for heating/cooling purposes within the office, warehouse and ancillary areas of the Proposed Development. No life safety generators are to be included as part of the energy strategy for the Proposed Development. As no on-site combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from any proposed energy plant have been screened out of this assessment.

The proposed ventilation strategy, also confirmed by Hoare Lea, will utilise Mechanical Ventilation with Heat Recovery (MVHR) units connected to the building façade for the office areas of the Proposed Development. The workshop areas will utilise supply and extract ventilation to suit specialist plant.

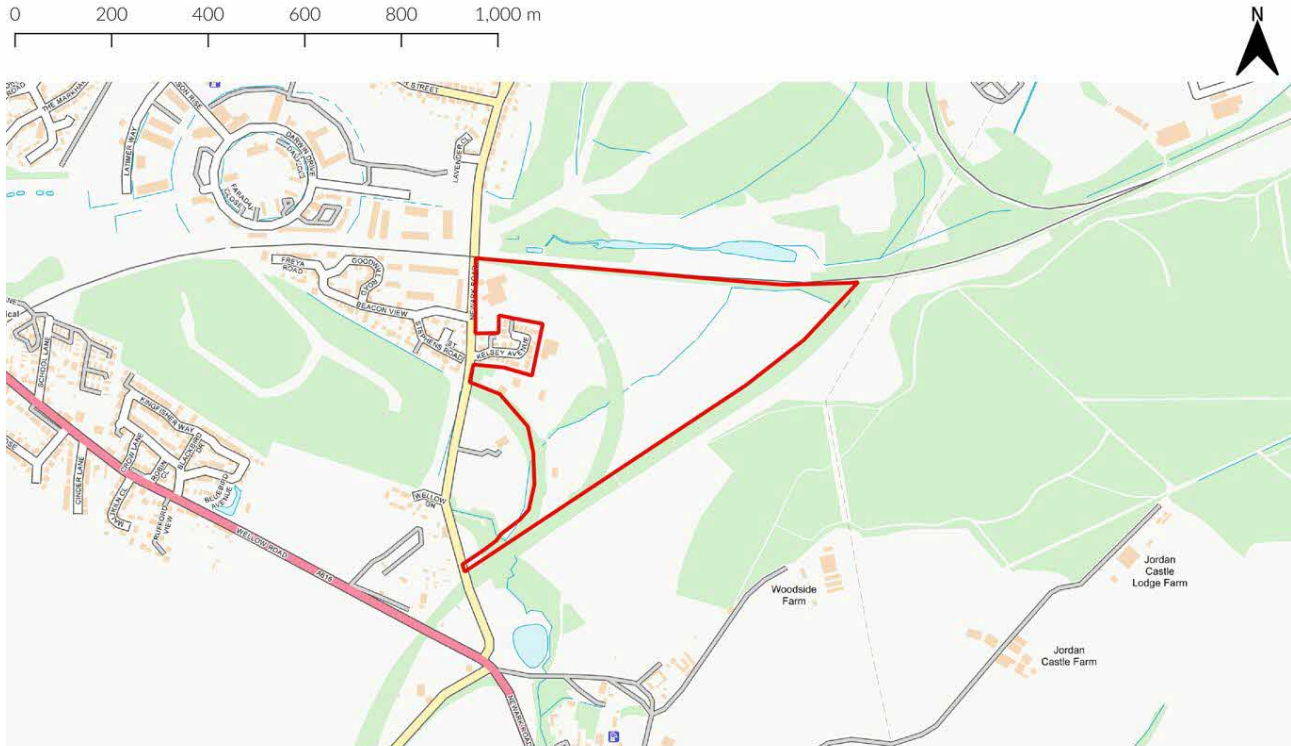
1.2 Application Site Description and Location.

The Application Site is located within Newark and Sherwood District Council (NSDC) administrative area at the approximate National Grid Reference (NGR): X 467010 Y 367070.

The Application Site is located south of the town of New Ollerton and adjacent to Newark Road on its western border. Predominantly woodland surrounds the Application Site in all directions. West of the Application Site is a combination of residential dwellings and industrial facilities. Sherwood Forest Crematorium is located on the southwest boundary of the Application Site. There are non-electrified railway lines on the northern boundary of the Application Site.

The Application Site is currently occupied by a combination of undeveloped greenfield land in the east of the Application Site. The west of the Application Site is occupied by multiple warehouse units and office buildings, alongside existing car parking spaces.

Figure 1 illustrates the location of the Application Site.



Legend

Approximate Application Site Boundary

Figure 1: Location of the Application Site. Contains OS Data © Crown Copyright and Database Rights 2023.

1.3 Scope of Assessment .

An email detailing the proposed methodology for the Air Quality Assessment was provided to NSDC on the 17th November 2023. A response was received on the 20th November 2023. A copy of the correspondence with NSDC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Review of National and Local Policy;
- Determination of baseline scenario, using NSDC monitoring data and Department for Environmental, Food and Rural Affairs (Defra) predicted background concentrations;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase;
- An assessment of the suitability of the Application Site for its proposed mixed use; 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 AQOs have been, or will be, achieved at relevant locations, by the applicable date. If the AQOs are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an action plan within 12 months. An action plan must identify appropriate measures and policies that can be introduced in order to work towards achieving the AQO(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 AQOs for use by local authorities are prescribed within the Air Quality (England) Regulations 2000³, and the Air Quality (England) (Amendment) Regulations 2002⁴.

The AQOs for Nitrogen Dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) are set out in Table 1. The AQOs for NO₂, PM₁₀ and PM_{2.5} were to have been achieved by 2005, 2004 and 2020 respectively and continue to apply in all future years thereafter.

The Environment Act 2021⁵ acts as the UK's new framework of environmental protection and came into force on 1st April 2022. With regard to air quality, the Environment Act establishes a legally binding duty on government to bring forward at least two new air quality targets in secondary legislation. This was implemented through the Environmental Improvement Plan⁶ which outlines new PM_{2.5} targets for future years. These are a long term target of 10 µg/m³ by 2040 and an interim target of 12 µg/m³ by 31st January 2028. These targets are expected to focus on reducing concentrations of, and exposure to, PM_{2.5}.

Additionally, a new Air Quality Strategy has been published in April 2023 which sets out a framework which should be followed by local authorities in support of Defra's long term air quality goals including new PM_{2.5} targets⁷.

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 Particles (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 Particles (PM _{2.5}) * | Annual Mean | 20 µg/m ³ |
| Notes: Measured gravimetrically *The time period in LAQM.TG(22) states "Work towards reducing emissions/concentrations of fine particulate matter (PM _{2.5})" | | |

The AQOs apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the AQO. Examples of where the annual mean AQOs should apply are provided in the Local Air Quality Management Technical Guidance (LAQM.TG(22))⁸, and include: building façades of residential properties, schools, hospitals. The annual mean AQOs are not relevant for the building façades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

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

The 1-hour mean AQO 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 mean AQO 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 2010⁹ and The Air Quality Standards (Amendment) Regulations 2016¹⁰.

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 Statutory Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended)¹¹ 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 (i.e. greater than PM₁₀) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK 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)¹², 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 Building Regulations.

The Building Regulations help to ensure that new buildings, conversions, renovations and extensions (domestic or commercial) will be safe, healthy and high performing. Detailed regulations cover specific topics including structural integrity, fire protection, accessibility, energy performance, acoustic performance, protection against falls, electrical and gas safety. Part F of the Building Regulations (2021)¹³ provides guidance for indoor air quality and the pollutant concentrations that must not be exceeded in both buildings for dwellings and non-dwellings.

2.6 Planning Policy.

2.6.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)¹⁴ 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 55: *“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 174: *“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 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.”*

Paragraph 186: *“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 188: *“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)¹⁵.

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.”*

2.7 Local Policy.

2.7.1 Newark and Sherwood District Council Local Development Framework

The NSDC Local Development Framework (LDF) sets out the vision, objectives and policies to assist with delivering development within the NSDC area of administration. Within the LDF are two documents necessary for reference within planning applications: The NSDC Amended Core Strategy¹⁶ and the NSDC Allocations and Development Management Development Plan Document (DPD)¹⁷.

2.7.1.1 Newark and Sherwood District Council Amended Core Strategy

NSDC Amended Core Strategy¹⁶ was first adopted in 2011 before being amended and readopted in 2019. It is intended to be in use up until the year 2033. The NSDC Amended Core Strategy¹⁶ presents multiple policies, one of which is relevant to air quality:

Core Policy 12: Biodiversity and Green Infrastructure

“The District Council will seek to conserve and enhance the biodiversity and geological diversity of the District by working with partners to implement the aims and proposals of the Nottinghamshire Local Biodiversity Action Plan, the Green Infrastructure Strategy and the Nature Conservation Strategy. The District Council will therefore:

[..]

Work with partners to develop a strategic approach to managing Air Quality in the Sherwood Area, including through the development of a Supplementary Planning Document.

[..]”

2.7.1.2 Newark and Sherwood District Council Allocations and Development Management Development Plan Document

The NSDC Allocations and Development Management DPD¹⁷ was adopted in 2013 and is intended to be in use until at least the year 2026. The NSDC Allocations and Development Management DPD¹⁷ again presents multiple policies, one of which is relevant to air quality:

Policy DM10: Pollution and Hazardous Materials

“Development proposals involving hazardous materials or the potential for pollution should take account of and address their potential impacts in terms of health, the natural environment and general amenity on:

[..]

4. Air quality; and

[..]

Development proposals near hazardous substance installations, as defined on the Policies Map, or near development with the potential for significant pollution should take account of and address the potential risk arising from them. Any risk should be balanced against the economic and wider social need for the development. Development that would be put at an unacceptable risk from its proximity to such installations will be resisted.

[..]”

2.7.2 Local Air Quality Management in Ollerton

No AQMAs have been declared within the NSDC area of administration and accordingly an AQAP has not been established. Instead, the NSDC utilise ‘The Air Quality Strategy for Nottingham and Nottinghamshire 2020 – 2030’¹⁸ to prevent and reduce activities that may cause air pollution within the NSDC area of administration. The two aims of the Air Quality Strategy for Nottingham and Nottinghamshire 2020 - 2030¹⁸ are shown below:

- “1. To reduce average concentrations of nitrogen dioxide and fine particulate matter in Nottinghamshire (which will ultimately lead to a reduction in Air Quality Management Areas in Nottinghamshire).*
- 2. To reduce the estimated proportion of disease and deaths attributable to air pollution (encompassing fine particulate matter, nitrogen dioxide and other air pollutants).”*

The Air Quality Strategy for Nottingham and Nottinghamshire 2020 - 2030¹⁸ aspires to deliver these aims under the following strategic objectives:

1. Place Making and Development for Good Air Quality.
2. Enable the Shift to Zero and Low Emissions Transport to Reduce Emissions.
3. Reduce, Minimise and Prevent Emissions from Industrial, Commercial, Agricultural and Domestic Sources and Activity.
4. Engagement and Communication for Behaviour Change.

It has been confirmed from the NSDC Amended Core Strategy¹⁶ and NSDC Annual Status Report (ASR) 2023²⁴ that an Air Quality Supplementary Planning Document (SPD) is currently under review by the NSDC for future application and has yet to be adopted as policy or guidance. No further information on the submission of the Air Quality SPD is available at this time.

2.8 Assessment Guidance and Standards.

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

2.8.1 Defra Local Air Quality Management Technical Guidance

Defra's LAQM.TG(22)⁸ 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 and IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance (EPUK and IAQM planning guidance)¹⁹ 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 IAQM (IAQM construction guidance)²⁰. 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. Methodology of Assessment.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the NSDC on 17th November 2023 for review. A response was received on the 20th November 2023 approving the proposed methodology. A copy of the correspondence is given in Appendix 1.

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 NSDC, including a review of the NSDC air quality reports and local monitoring data²⁴;
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website²¹;
- Pollution Inventory from the Environment Agency (EA)²²;
- The UK Ambient Air Quality Interactive Map²³; and
- Ordnance Survey (OS) 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 methodology outlined in the IAQM construction guidance²⁰. Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

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

- Potential loss of amenity due to dust soiling;
- The risk of health effects due to a significant increase in exposure to PM₁₀; and
- The risk of ecological impacts 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 construction guidance²⁰. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 250 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance; and
- An 'ecological receptor' is located within 50 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application 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 guidance available online²⁰.

3.3.2 Construction Emissions Assessment

3.3.2.1 Construction Traffic Emissions Screening

The screening assessment has been undertaken with reference to the following EPUK and IAQM planning guidance¹⁹ indicative criteria:

- a change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) (outside an AQMA); and/or
- 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 IAQM construction guidance²⁰.

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Emissions Assessment

The screening assessment has been undertaken following the EPUK and IAQM planning guidance¹⁹ indicative criteria:

- a change of LDV flows of more than 500 AADT (outside an AQMA); and/or
- 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 of the Proposed Development to existing air quality. In line with LAQM.TG(22)⁸, as the Proposed Development is for industrial B2 and B8 use, the 1-hour mean NO₂ AQO applies. Additionally, though not required for planning, the Building Regulations Part F¹³ states that the annual mean NO₂ AQO also applies at non-dwelling sites and as such, annual mean NO₂ concentrations will also be considered.

The assessment of Site Suitability will be assessed qualitatively using monitoring data from the NSDC ASR 2023²⁴ and Defra predicted background concentrations²¹.

3.5 Assessment of Significance.

3.5.1 Construction Dust

The IAQM construction guidance²⁰ states that the primary aim of the construction phase 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 Impacts

The EPUK and IAQM planning guidance¹⁹ 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 Assessment

To determine the significance of predicted air quality impacts based upon a Site Suitability Assessment, the EPUK and IAQM planning guidance¹⁹ 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.”

4. Baseline Environment.

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

4.1 Local Air Quality Management Review and Assessment.

As required by the Environment Act (1995)¹, NSDC have undertaken review and assessment of air quality within their area of administration. According to the most recent NSDC ASR 2023²⁴ there have been no exceedances of any AQO for pollutants NO₂, PM₁₀ and PM_{2.5} during all representative years of monitoring. Accordingly, the NSDC have never been required to declare an AQMA for any pollutant within their area of administration. Monitoring of PM₁₀ and PM_{2.5} has been stopped by the NSDC since 2020. Based on continued reduction in overall pollutant concentrations of NO₂ from consecutive years of representative monitoring within the NSDC area of administration, no upcoming AQMAs are expected to be declared. Therefore, the Application Site is not located within an AQMA.

It should be noted that the pollutant concentrations recorded in 2020 and 2021 from the most recent NSDC ASR 2023²⁴ are lower than previous years as a direct result of reduced traffic levels during the COVID-19 pandemic. As such the pollutant concentrations recorded in 2020 and 2021 are not considered to be representative of 'normal' air quality conditions. However, the NSDC have confirmed the 2022 monitoring data is acceptable for use as the latest year of available representative monitoring data.

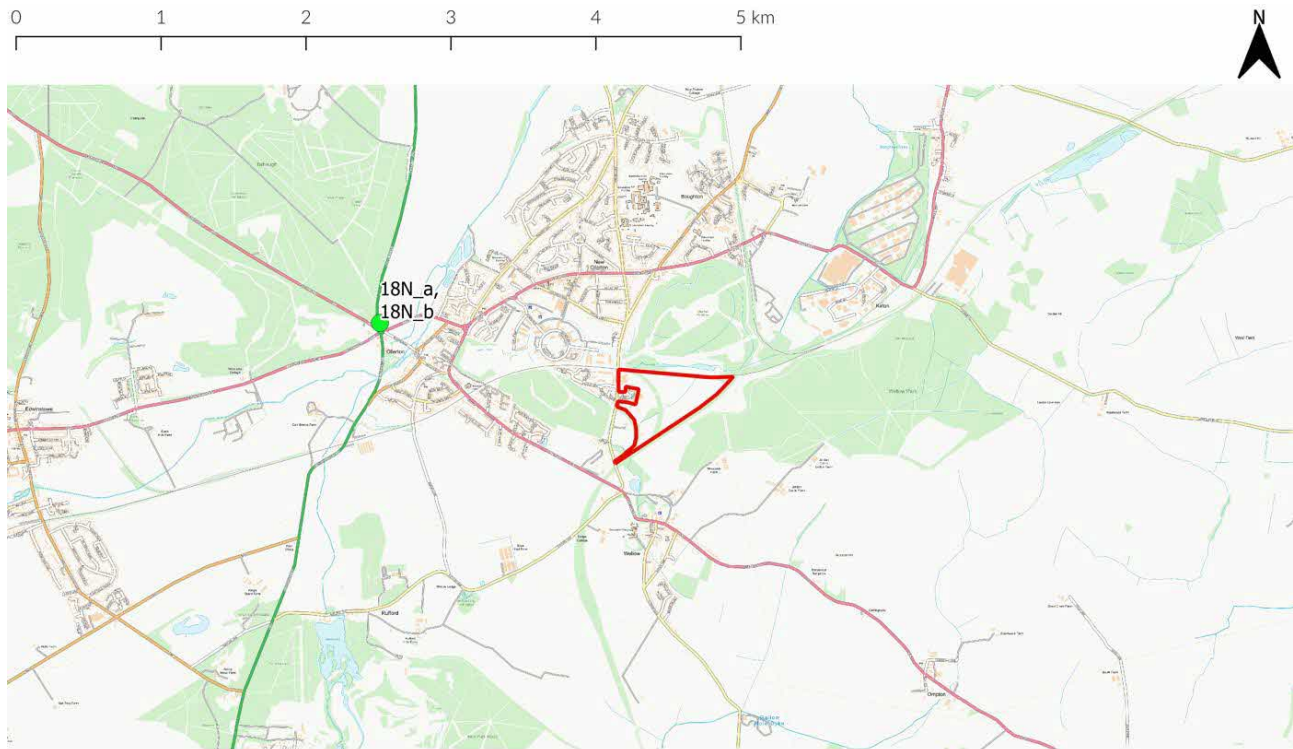
4.2 Local Air Quality Monitoring.

No automatic monitoring of NO₂, PM₁₀ or PM_{2.5} is currently undertaken within the NSDC area of administration.

From a review of the NSDC ASR 2023²⁴, the NSDC operate 13 passive diffusion tube monitoring locations recording annual mean pollutant concentrations of NO₂. A review of the monitoring data available within the NSDC ASR 2023²⁴ has indicated that there is a single duplicate passive diffusion tube monitoring location, Site ID: 18N_a, 18N_b, located within 5 km of the Application Site. Table 2 details the monitoring results for this passive diffusion tube monitoring location from 2017 to 2022 and the location of the duplicate passive diffusion tube monitoring location with respect to the Application Site is illustrated in Figure 2.

Table 2: Passive Diffusion Tube Monitoring Location (Site ID: 18N_a, 18N_b)

| Site ID | Site Type | Site Name | Distance (km) from Application Site (approx.) | Annual Mean NO ₂ Concentration (µg/m ³) | | | | | |
|--------------|-----------|--------------|---|--|------|------|------|------|------|
| | | | | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| 18N_a, 18N_b | Kerbside | Big Fish 18N | 1.7 | 34.6 | 33.9 | 32.1 | 22.8 | 24.6 | 25.1 |



Legend

- Approximate Application Site Boundary
- Duplicate Passive Diffusion Tube Monitoring Location (Site ID: 18N_a, 18N_b)

Figure 2: Duplicate Passive Diffusion Tube Monitoring Location (Site ID: 18N_a, 18N_b) with respect to the Application Site. Contains OS Data © Crown Copyright and Database Rights 2023.

As shown in Table 2 above there were no recorded exceedances of the NO₂ annual mean AQO in 2022, the most recent year of available monitoring data at the duplicate passive diffusion tube monitoring location (Site ID: 18N_a, 18N_b) within 5 km of the Application Site. The recorded annual mean concentration of NO₂ in 2022 at the duplicate passive diffusion tube monitoring location was recorded as 25.1 µg/m³ which is 62.8% of the NO₂ annual mean AQO. In addition, no exceedances of the NO₂ annual mean AQO have been recorded from 2017 to 2022 at this duplicate passive diffusion tube monitoring location.

Furthermore, as outlined in Defra LAQM.TG(22)⁸, a recorded NO₂ annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the NO₂ 1-hour mean AQO. There has been no recorded exceedance of this 60 µg/m³ threshold from 2017 to 2022 at the passive diffusion tube monitoring location. As such, an exceedance of the NO₂ 1-hour mean AQO is unlikely at the Application Site.

4.3 Industrial Pollution.

A desk-based review of potential industrial sources using the EA Pollution Inventory²² identified two industrial sources of air pollution within 2 km of the Application Site that are likely to affect the Application Site with regard to air quality. These are detailed below in Table 3 and the locations of each industrial/waste management source of air pollution with respect to the Application Site are given in Figure 3.

Table 3: Industrial Sources of Air Pollution within 2 km of the Application Site.

| Source Name | Source Type | Air Pollutant Release |
|-------------------------------|-------------|-----------------------|
| Moy Park Limited | Industrial | Ammonia |
| Jordan Road Surfacing Limited | Industrial | Particulate Matter |

As each of these industrial sources of air pollution contain an environmental permit from the EA it is likely they will not incur any significant impact to air quality at the Site.



Figure 3: Sources of Industrial Air Pollution within 2 km of the Application Site. Contains OS Data © Crown Copyright and Database Rights 2023.

It has been noted that the Sherwood Forest Crematorium could be a potential source of air pollution and is located within 50 m of the Proposed Development. It is expected that emissions from this source will be regulated however this requires confirmation to ascertain any local air quality impacts.

There is a risk of pollutant emissions from non-electrified railway lines on the northern boundary of the Application Site and consequently impacts to local air quality in the vicinity of the Proposed Development may occur as a result. A review of LAQM.TG(22)⁸ has indicated that this railway line is not identified as operating with heavy traffic of diesel passenger trains. This ensures that emissions from the non-electrified railway lines will not significantly impact air quality in the vicinity of the Application Site.

It has been confirmed by the client that the Small Waste Oil Burner (SWOB) is no longer in use and has been removed from the Application Site.

4.4 Defra Predicted Background Concentrations.

The Defra predicted background concentrations²¹ have been obtained from the national maps published by Defra²¹. The Defra predicted background concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into the following four grid squares: X 466500 Y 367500, X 467500 Y 367500, X 466500 Y 366500 and X 467500 Y 366500. The Defra predicted background concentrations²¹ for the grid squares for NO₂, PM₁₀ and PM_{2.5} are provided in Table 4 for 2022, the most recent year with available monitoring data, for 2023, the current year and for 2025, the earliest anticipated opening year for the Proposed Development.

Table 4: Defra Predicted Background Concentrations for the Application Site

| Year | Defra Predicted Background Concentration ($\mu\text{g}/\text{m}^3$) | | |
|-------------------|---|------------------|-------------------|
| | NO ₂ | PM ₁₀ | PM _{2.5} |
| X 466500 Y 367500 | | | |
| 2022 | 9.3 | 14.0 | 8.1 |
| 2023 | 9.1 | 13.9 | 8.0 |
| 2025 | 8.5 | 13.6 | 7.8 |
| X 467500 Y 367500 | | | |
| 2022 | 7.6 | 13.5 | 8.0 |
| 2023 | 7.5 | 13.4 | 7.8 |
| 2025 | 7.0 | 13.1 | 7.6 |
| X 466500 Y 366500 | | | |
| 2022 | 7.5 | 14.2 | 8.0 |
| 2023 | 7.3 | 14.1 | 7.9 |
| 2025 | 6.8 | 13.9 | 7.7 |
| X 467500 Y 366500 | | | |
| 2022 | 7.3 | 14.3 | 8.0 |
| 2023 | 7.2 | 14.1 | 7.9 |
| 2025 | 6.7 | 13.9 | 7.7 |

As shown in Table 4, Defra predicted background concentrations²¹ are predicted to be below the relevant annual mean AQOs for the pollutants NO₂, PM₁₀ and PM_{2.5} in 2022, 2023 and 2025 for all four 1 km by 1 km grid squares the Proposed Development is located within.

4.5 Summary of Background Data.

The baseline assessment has shown that the Application Site is not located within an AQMA.

No automatic monitoring of NO₂ PM₁₀ or PM_{2.5} is undertaken within the NSD C area of administration.

A review of monitoring data from the single duplicate passive diffusion tube monitoring location within 5 km of the Application Site indicates no likely exceedances of the AQOs for NO₂ will occur based on 2022 data, the most recent year of available monitoring data.

There are two industrial sources of air pollution within 2 km of the Application Site that could impact local air quality in the vicinity of the Application Site based on a review of the EA Pollution Inventory²² however as both industrial sources contain environmental permits no significant impacts to air quality are expected. Emissions from Sherwood Forest Crematorium are expected to be regulated however this requires confirmation to ascertain any local air quality impacts. Emissions from the non-electrified railway lines will not significantly impact air quality in the vicinity of the Application Site based on guidance within LAQM.TG(22)⁹. The SWOB is no longer in use and has been removed from the Application Site.

Defra predicted background concentrations²¹ are predicted to be below the annual mean AQOs for all considered pollutants at the Application Site in 2022, 2023 or 2025, the earliest anticipated opening year for the Proposed Development for all four considered 1 km by 1 km grid squares.

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.

It has been confirmed by John Murphy and Sons Limited that the Proposed Development will be constructed over four separate construction phases within the Application Site boundary. As a worst case, the risk of dust impacts has been evaluated using the entire Application Site boundary rather than the boundaries from each of the four separate construction phases.

5.1.1 Assessment Screening

There are 'human receptors' within 250 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 250 m from the Application Site entrance.

The closest ecological receptor to the Application Site is Wellow Park, classified as Ancient Woodland, located 50 m to the south east of the Application Site boundary. It has also been confirmed by John Murphy and Sons Limited that there is also a Site of Nature Conservation Interest (SNCI) within the Application Site boundary.

Therefore, an assessment of construction dust at human receptors and ecological receptors is required from this assessment.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from demolition, earthworks, construction and trackout have been assessed, as identified in Table 5.

Table 5: Predicted Magnitude of Dust Emissions

| Activity | Magnitude | Justification |
|------------|-----------|---|
| Demolition | Medium | The Application Site currently contains multiple existing buildings intended for demolition or relocation, prior to the construction/operation of the Proposed Development. Estimates for the building areas for demolition or relocation within the Application Site have been evaluated from the most recent masterplans* provided by GTH Architects, the appointed architect. Based on QGIS analysis and assumptions on the distinct heights for the various buildings using Google Earth it is likely that the demolition volume will be between 12,000m ³ and 75,000 m ³ . The original construction material of the existing buildings appears to be a mixture of brick and concrete which are both potentially dusty construction material in addition to metal cladding which is not dusty construction material. Demolition activities will occur greater than 12 m above ground level for several of the existing buildings intended for demolition or relocation. Therefore, in line with IAQM guidance ²⁰ , the magnitude of dust emissions from demolition is anticipated to be medium. |
| Earthworks | Large | The Application Site currently comprises a combination of existing buildings in addition to a large area of greenfield land. The Proposed Development will require extensive landscaping as part of the proposals following the demolition/relocation of several existing buildings in addition to new construction on the greenfield land region requiring earthworks. The total Application Site area has been confirmed by John Murphy and Sons Limited to be 240,000 m ² which is greater than 110,000 m ² . The soil type at the Application Site has been classed as both "sandy" and "loamy some clayey" which are both potentially dusty soil types using the application Soilscape ²⁵ . |

| Activity | Magnitude | Justification |
|--------------|-----------|--|
| | | Therefore, in line with IAQM guidance ²⁰ , the magnitude of dust emissions from earthworks is anticipated to be large. |
| Construction | Large | The proposals include both the relocation of multiple existing buildings and the construction of new buildings. The exact construction volumes for the Proposed Development are not currently available but based on the proposals the total volume is estimated to be greater than 75,000 m ³ . It is expected that concrete will be used as a construction material which has a high potential for dust generation. Therefore, in line with IAQM guidance ²⁰ , the magnitude of dust emissions from construction is anticipated to be large. |
| Trackout | Large | Outward movements of HDVs associated with the Proposed Development has not been confirmed at time of writing however the proposals are likely to result in more than 50 outward HDV movements in any one day. There are no unpaved road lengths within the existing building areas of the Application Site boundary however the greenfield areas have unpaved road lengths greater than 100 m. The soil type at the Application Site has been previously classed as “sandy” and “loamy some clayey” using the application Soilscape ²⁵ which are both potentially dusty soil types. Therefore, in line with IAQM guidance ²⁰ , the magnitude of dust emissions from construction is anticipated to be large. |

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 IAQM distance bands for sensitivity are illustrated relative to the Application Site in Figure 4.

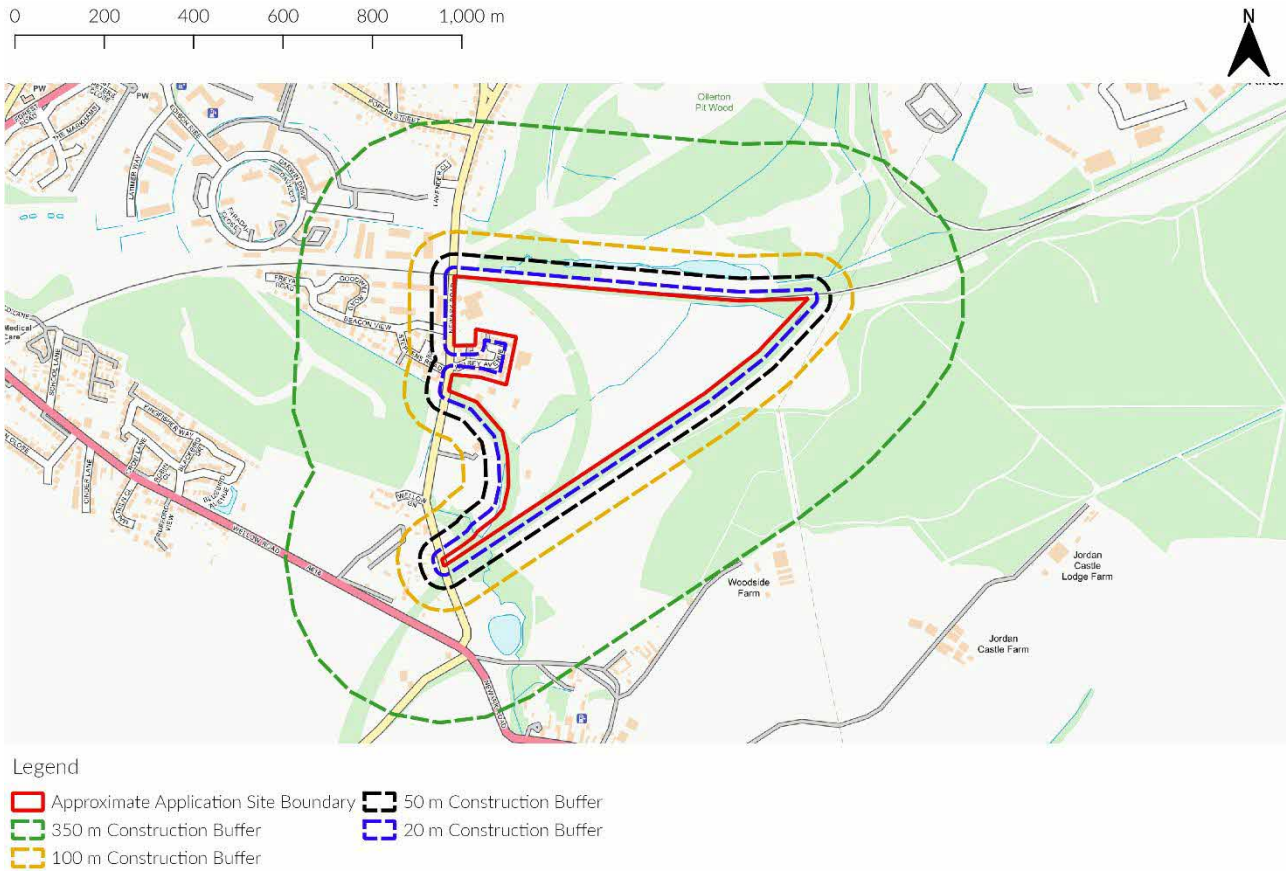


Figure 4: IAQM Demolition and Construction Dust Distance Band Criteria from the Application Site boundary. Contains Ordnance Survey Data © Crown Copyright 2023.

The sensitivity of the area and the factors considered are detailed in Figure 4.

Table 6: Sensitivity of the Area

| Sensitivity Type | Factors | Sensitivity of Area | |
|------------------|---|---------------------|----------|
| | | On-Site Activity | Trackout |
| Dust Soiling | There are between 10-100 high sensitivity receptors (residential dwellings) within 20 m of the Application Site boundary. Therefore, the sensitivity of the surrounding the Application Site has been classified as high sensitivity with regards to dust soiling for on-site activity. For trackout, there are between 10-100 high sensitivity (residential dwellings) and between 10-100 medium sensitivity receptors (industrial properties), along Newark Road within 20 m of the routes likely to be used by construction traffic up to 500 m from the Application Site. Therefore, the sensitivity of the area surrounding the Application Site has been classified as high with respect to dust soiling for trackout. | High | High |
| Human Health | The Defra predicted background PM ₁₀ concentration for the 1 km by 1 km grid square in which the Application Site is located is below the annual mean PM ₁₀ concentration of 24 µg/m ³ in the years 2019, 2023 and 2025 (the earliest anticipated opening year for the Proposed Development) as provided in Table 4. There are between 10-100 high sensitivity receptors (residential dwellings) within | Low | Low |

| Sensitivity Type | Factors | Sensitivity of Area | |
|--------------------|---|---------------------|----------|
| | | On-Site Activity | Trackout |
| | <p>20 m of the Application Site boundary. Therefore, the sensitivity of the surrounding the Application Site has been classified as low sensitivity with regards to human health impacts for on-site activity.</p> <p>For trackout there are between 10-100 high sensitivity receptors (residential dwellings) and between 10-100 medium sensitivity receptors (industrial properties) along Newark Road within 20 m of routes likely to be used by construction traffic up to 500 m from the Application Site where people could be exposed to PM₁₀ for eight hours or more in one day. Therefore, the sensitivity of the area surrounding the Application Site has been classified as low with respect to human health for trackout.</p> | | |
| Ecological Impacts | <p>The SNCI and Ancient Woodland are both classed as low sensitivity receptors in line with IAQM construction guidance²⁰ and are both located within the Application Site boundary and within 50 m of the Application Site boundary respectively. Therefore, the sensitivity of the area surround the Application Site has been classed as low with respect to ecological impacts for on-site activity.</p> <p>For trackout there is a single low sensitivity receptor within 20 m of the routes used by construction traffic up to 500 m from the Application Site. Therefore, the sensitivity of the area surrounding the Application Site has been classified as low with respect to ecological impacts for trackout.</p> | Low | Low |

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 7 details the risk of dust impacts for demolition, earthworks, construction and trackout activities.

Table 7: Summary of Potential Unmitigated Dust Risks

| Potential Impact | Sensitivity | Demolition | Earthworks | Construction | Trackout |
|----------------------|-------------|-------------|------------|--------------|-----------|
| Magnitude | | Medium | Large | Large | Large |
| Dust Soiling Impacts | High | Medium Risk | High Risk | High Risk | High Risk |
| Human Health Impacts | Low | Low Risk | Low Risk | Low Risk | Low Risk |
| Ecological Impacts | Low | Low Risk | 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 criteria (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 criteria outlined in the EPUK and IAQM planning guidance¹⁹. 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 criteria presented within EPUK and IAQM planning guidance¹⁹, 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.

Pollutants emitted by NRMM that may have the most significant potential effects on local air quality are particulate matter (PM₁₀ and PM_{2.5}), and NO_x/NO₂. Typically, NRMM is associated with construction sites and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

Furthermore, the IAQM construction guidance²⁰ states that “*Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and 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 operation 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 Transport Planning Practice Ltd, the appointed Transport Consultants for the project. The initial flows indicate that there will be a total 24-hour AADT of 358 LDV and 54 HDVs on the local road network as a result of the Proposed Development.

This is below the indicative criteria in the EPUK and IAQM planning guidance¹⁹ of a change of more than 500 LDV AADT or 100 HDV AADT outside of an AQMA and therefore no further assessment is required.

In accordance with the EPUK and IAQM planning guidance¹⁹, the impacts on air quality from operational phase traffic generation are considered to be not significant.

6.2 Site Suitability Assessment.

This section presents a review of NSDC monitoring data and mapped concentrations by Defra in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for the proposed mixed use and to identify any requirements for potential mitigation to be embedded into the Proposed Developments design.

As presented in Section 2, and in line with LAQM.TG(22)⁸, the 1-hour mean NO₂ AQO applies to the Proposed Development due to its proposed mixed use. In addition, in line with Part F of the Building Regulations (2021)¹³, the annual mean NO₂ AQO also applies. As such, this section considers the 1-hour mean and annual mean pollutant concentrations of NO₂ at the Application Site.

6.2.1 1-Hour Mean and Annual Mean NO₂ Concentrations

A review of the 1-hour mean and annual mean NO₂ concentrations monitored within 5 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 2.

As shown in Table 2 there has been no exceedance of the NO₂ annual mean AQO at the only duplicate passive diffusion tube monitoring location (Site ID: 18N_a, 18N_b) within 5 km of the Application Site from 2017 to 2022.

An annual mean concentration of 60 µg/m³ or above is often used to indicate a possible exceedance of the 1-hour mean NO₂ AQO. There has been no recorded exceedance of the 60 µg/m³ threshold between 2017 to 2022 from a monitored annual mean NO₂ concentration at duplicate passive diffusion tube monitoring location (Site ID: 18N_a, 18N_b). In addition, Defra predicted background concentrations²¹ as shown in Table 4 are below the 60 µg/m³ threshold in 2022, 2023 and 2025, the anticipated opening year for the Proposed Development. As such, an exceedance of the NO₂ 1-hour mean AQO is unlikely at the Application Site.

As shown in Table 4 the Defra predicted background concentrations²¹ for NO₂ at the four 1 km by 1 km grid squares in which the Application Site is located are below the respective annual mean AQOs in 2022, 2023 and 2025 the anticipated opening year for the Proposed Development. In 2025, the Defra predicted background concentration²¹ for NO₂ was predicted to be 8.5 µg/m³ which is 21.3% of the NO₂ annual mean AQO.

Therefore, NO₂ concentrations in the locale of the Proposed Development are considered to be below both the annual mean (in line with Part F of the Building Regulations (2021)¹³) and 1-hour mean AQO and accordingly the Application Site is considered suitable for the proposed mixed use without the need for additional mitigation measures.

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 and IAQM planning guidance¹⁹ 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 annual mean or 1-hour mean NO₂ AQO based upon a review of NO₂ monitoring data and Defra predicted background concentrations²¹ with respect to the Application Site.

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 construction guidance²⁰ are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in Table 7 of this report.

It is recommended that NSDC approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 8 below details the measures that should be incorporated in the DMP. For general mitigation measures, which excludes those specifically targeted towards demolition, earthworks, construction and trackout (which are given towards the end of the table), high risk measures have been applied as these represent the highest risk category determined in Table 7. This approach is consistent with the IAQM construction guidance²⁰.

Table 8: 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 other 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. |
| Demolition | Soft strip inside building before demolition. |
| | Ensure effective water suppression is used during demolition activities. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is |

| Issue | Mitigation Measure |
|---|---|
| | needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. |
| | Avoid explosive blasting, using appropriate manual or mechanical alternatives. |
| | Bag and remove any biological debris or damp down such material before demolition. |
| 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. |
| | 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. |
| | For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust. |
| Trackout | Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in continuous use. |
| | Avoid dry sweeping of large areas. |
| | Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. |
| | Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. |
| | Record all inspections of haul routes and any subsequent action in a site log book. |
| | Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. |
| | Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). |
| | Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. |
| Access gates to be located at least 10 m from receptors where possible. | |

Potential dust effects during the construction phase are considered to be 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 of magnitude.

However, with the application of the above dust control and mitigation measures, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM construction guidance²⁰.

7.1.1 Construction Phase Road Traffic Emissions

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not considered to be required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM construction guidance²⁰, 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 planning guidance¹⁹. Therefore, mitigation measures are not considered to be required.

7.2.2 Site Suitability Assessment

A review of NSDC monitoring data in consideration of the Application Site, and Defra predicted background concentrations²¹ in the locale of the Application Site, indicates no likely exceedance of the annual or 1-hour mean NO₂ AQOs.

As no exceedances of any considered AQOs are predicted, this follows the 1st hierarchy principle of the EPUK and IAQM planning guidance¹⁹ to '*prevent and avoid*' exposure'. Therefore, no embedded mitigation into the Proposed Development design is required and natural ventilation is possible from an air quality perspective.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed mixed-use development adjacent to Newark Road, Ollerton NG22 9QG (the 'Application Site').

The findings of the assessment are as follows:

- The baseline assessment has shown that the Application Site is not located within an AQMA. Local monitoring within the NSDC area of administration has indicated that there has been no exceedance of the annual mean AQO from NO₂ in 2022, the most recent year of available monitoring data from the only duplicate passive diffusion tube monitoring location within 5 km of the Application Site. Furthermore, from a review of Defra predicted background concentrations at the Application Site, there is expected to be no exceedance of the annual mean AQOs for pollutants NO₂, PM₁₀ or PM_{2.5} in 2025, the earliest anticipated opening year for the Proposed Development.
- 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 results of the operational phase traffic screening assessment indicate that there will be a 24-hour AADT increase of 358 LDV and 54 HDVs on the local road network as a result of the Proposed Development. This is below the indicative criteria in the EPUK and IAQM planning guidance¹⁹ of a change of more than 500 LDV AADT or 100 HDV AADT (outside of an AQMA) and therefore no further assessment is required. The impact of the operational road traffic is therefore considered to be not significant;
- The Proposed Development energy strategy has been confirmed to rely on the use of ASHPs and electric heating with no on-site combustion sources proposed for the primary energy supply. Therefore, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from a proposed energy plant have been screened out of this assessment; and
- A qualitative Site Suitability Assessment has been undertaken to assess the suitability of the Application Site for the proposed mixed use. In line with Defra LAQM.TG(22)⁸ and Part F of the Building Regulations (2021)¹³, no exceedance of the annual mean or 1-hour mean NO₂ AQOs are anticipated at the Application Site based on local monitoring data and Defra predicted background concentrations²¹. Therefore, no further mitigation measures will be 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 the NPPF¹⁴, the NSDC Amended Core Strategy¹⁶ and NSDC Allocations and Development Management DPD¹⁷.

9. Glossary of Terms.

| | |
|--------------------------|---|
| AADT | Annual Average Daily Traffic |
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQO | Air Quality Objective |
| ASHP | Air Source Heat Pump |
| ASR | Annual Status Report |
| AURN | Automatic Urban and Rural Network |
| CAS | Clean Air Strategy |
| DMP | Dust Management Plan |
| Defra | Department for Environment, Food and Rural Affairs |
| DPD | Development Plan Document |
| EA | Environment Agency |
| EPA | Environment Protection Act |
| EPUK | Environmental Protection UK |
| HDV | Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight) |
| IAQM | Institute of Air Quality Management |
| LAQM.TG | Local Air Quality Management Technical Guidance |
| LDF | Local Development Framework |
| LDV | Light Duty Vehicles (\leq 3.5 tonnes gross vehicle weight) |
| MEP | Mechanical, Electrical and Public Health |
| MVHR | Mechanical Ventilation with Heat Recovery |
| $\mu\text{g}/\text{m}^3$ | Micrograms per cubic metre |
| NGR | National Grid Reference |
| NO ₂ | Nitrogen dioxide |
| NO _x | Nitrogen oxides (taken to be NO ₂ + NO) |
| NPPF | National Planning Policy Framework |
| NRMM | Non-Road Mobile Machinery |
| NSDC | Newark and Sherwood District Council |
| 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 |
| OS | Ordinance Survey |
| PM ₁₀ | Particulate matter with an aerodynamic diameter less than 10 micrometres |
| PM _{2.5} | Particulate matter with an aerodynamic diameter less than 2.5 micrometres |
| PPG | Planning Practice Guidance |
| SNCI | Site of Nature Conservation Interest |
| SPD | Supplementary Planning Document |
| Standards | A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal |
| SWOB | Small Waste Oil Burner |
| Trackout | 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 |

References.

- ¹ The Stationery Office (1995) The Environment Act 1995 (Part IV), London
- ² Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – [online] (Last accessed: 10/11/2023), Available at: www.gov.uk/government/publications/the-air-quality-strategy-for-england-scotland-wales-and-northern-ireland-volume-1
- ³ The Stationery Office (2000) Statutory Instrument 2000, No 928, The Air Quality (England) Regulations 2000, London
- ⁴ The Stationery Office (2002) Statutory Instrument 2002, No 3043, The Air Quality (England) (Amendment) Regulations 2002, London
- ⁵ The Stationery Office (2021) Statutory Instrument 2021, The Environment Act 2021, London
- ⁶ Department for Environment, Food & Rural Affairs (2023) Environmental Improvement Plan 2023 – [online], (Last accessed: 10/11/2023), Available at: <https://www.gov.uk/government/publications/environmental-improvement-plan>
- ⁷ Defra(2023) Air Quality Strategy: framework for local authority delivery [online] (last accessed: 10/11/2023) – <http://www.gov.uk/government/consultations/revised-national-air-quality-strategy>
- ⁸ Defra (2022) Local Air Quality Management Technical Guidance (TG22) – [online] (Last accessed: 10/11/2023), Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>
- ⁹ The Stationery Office (2010) Statutory Instrument 2010, No 1001, The Air Quality Standards Regulations 2010, London
- ¹⁰ The Stationery Office (2016) Statutory Instrument 2016, No 1184, The Air Quality Standards (Amendment) Regulations 2016, London
- ¹¹ The Stationery Office (1990) Environmental Protection Act 1990 - [online] (Last accessed: 10/11/2023), Available at: legislation.gov.uk/ukpga/1990/43/part/III
- ¹² Defra (2019) The Clean Air Strategy – [online] (Last accessed: 10/11/2023), Available at: www.gov.uk/government/publications/clean-air-strategy-2019
- ¹³ HMSO (2021). The Building Regulations 2021. Approved Document Part F: Ventilation
- ¹⁴ Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework, Department for Communities and Local Governments, London
- ¹⁵ Ministry of Housing, Communities & Local Government (2019) Planning Practice Guidance, London
- ¹⁶ Newark and Sherwood District Council (2019) Amended Core Strategy – [online], (Last accessed: 10/11/2023), Available at: <https://www.newark-sherwooddc.gov.uk/media/nsdc-redesign/documents-and-images/your-council/planning-policy/local-development-framework/amended-core-strategy-dpd/amended-core-strategy-DPD.pdf>
- ¹⁷ Newark and Sherwood District Council (2013) Allocations and Development Management Development Plan Document – [online], (Last accessed: 31/08/2023), Available at: <https://www.newark-sherwooddc.gov.uk/media/nsdc-redesign/documents-and-images/your-council/planning-policy/supplementary-planning-information/allocations-and-development-management-dpd/Allocations-and-Development-Management-Development-Plan-Document.pdf>
- ¹⁸ Nottingham City Council (2020) Air Quality Strategy for Nottingham and Nottinghamshire 2020 – 2030 – [online], (Last accessed: 31/08/2023), Available at: <https://committee.nottinghamcity.gov.uk/documents/s107973/Notts%20AQ%20Strategy%202020%20FINALv1.0.pdf>
- ¹⁹ Environmental Protection UK and Institute of Air Quality Management (2017), Land-Use Planning & Development Control: Planning For Air Quality v1.2 – [online] (Last accessed 10/11/2023), Available at: iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf
- ²⁰ Institute of Air Quality Management (2023) Guidance on the assessment of dust from demolition and construction v2.1 – [online], (Last accessed: 29/08/2023), Available at: [Construction-dust-2023-BG-v6-amendments.pdf](https://www.iaqm.co.uk/construction-dust-2023-BG-v6-amendments.pdf) (iaqm.co.uk)
- ²¹ Defra (2020) Background Pollution Maps – 2018 – [online], (Last accessed: 10/11/2023), Available at: uk-air.defra.gov.uk/data/laqm-background-maps?year=2018
- ²² Environment Agency (2020) Pollution Inventory – [online], (Last accessed: 10/11/2023), Available at: data.gov.uk/dataset/cfd94301-a2f2-48a2-9915-e477ca6d8b7e/pollution-inventory
- ²³ Defra (n.d) UK Ambient Air Quality Interactive Map – [online], (Last accessed: 10/11/2023), Available at: uk-air.defra.gov.uk/data/gis-mapping
- ²⁴ Newark and Sherwood District Council (2023) 2023 Air Quality Annual Status Report (ASR) – [online], (Last accessed: 10/11/2023), Available at: https://www.newark-sherwooddc.gov.uk/media/nsdc-redesign/documents-and-images/your-business/environmental-health/pollution/air-pollution/ASR_NSDC_2023.pdf
- ²⁵ Cranfield Soil and Agrifood Institute Soilscales map – [online], (last accessed: 10/11/2023), Available at: <http://www.landis.org.uk/soilscales/>

Appendix 1 - EHO Consultation.

From: Jim Hemstock
Sent: 20 November 2023 14:14
To: Harrison, Rachael
Cc: Chatha, Bhajan
Subject: RE: 34/22275 - Air Quality Assessment Methodology Approval - Project Robin Hood

OFFICIAL

OFFICIAL

Good Afternoon Rachel,

Thank you for contacting me regarding this, I can confirm that I accept the proposed methodology. Just a couple of things I would mention, the crematorium is very close to the site boundary so you will need to factor this into any assessment (I'm sure you are already aware given it is on the plan below).

Secondly a colleague has informed me that there was until fairly recently a waste oil burner on site. These were removed from the scope of part B permitting in 2016 by DEFRA and I have previously advised the site of this. If one is being used it would require a Schedule 13A permit from us which is costly and would require continuous emissions monitoring. So if there is no longer a SWOB being operated it shouldn't affect your assessment but if they wish to continue using it they would need to apply for a S13A permit and it will need considering in the assessment.

Kind Regards

Jim Hemstock
Environmental Health Technical Officer
Public Protection
Newark and Sherwood District Council



From: Harrison, Rachael
Sent: 17 November 2023 08:14
To: Jim Hemstock
Cc: Chatha, Bhajan
Subject: 34/22275 - Air Quality Assessment Methodology Approval - Project Robin Hood

[CAUTION: This email originated from outside of the organisation. Do not click on links or open attachments unless you recognise the sender and know the content is safe]

Good morning Jim,

Hoare Lea have been instructed to undertake an Air Quality Assessment to support the planning application for the proposed construction and operation of a proposed mixed use development at adjacent to Newark Road, Ollerton NG22 9QG.

I have set out our proposed assessment approach below and would invite any comments or local air quality considerations you may have. The site is located at the below location (red outline):



The Proposed Development comprises the demolition of numerous existing buildings followed by the relocation of several existing buildings in combination with newly constructed workshops and offices.

Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment of air quality will be undertaken using Newark and Sherwood District Council (NSDC) data, taken from the most recently available Annual Status Report/s.
- Monitoring data for 2020 and 2021 will not be included as part of our assessment, owing to the effects of the COVID-19 pandemic. Available monitoring data from 2015-2019 and 2022 will be used to establish the baseline.
- A review of the NSDC Local Development Framework will be carried out specifically the NSDC Amended Core Strategy and NSDC Allocations and Development Management Development Plan Document (DPD).
- Department of Environmental Food and Rural Affairs (DEFRA's) background pollution maps will be used to establish background concentrations in the area.
- An assessment of the construction impacts on air quality and dust using the Institute of Air Quality Management (IAQM) methodology, in compliance with 'The Control of Dust and Emissions During Construction and Demolition'.
- Any construction or operational phase mitigation will be recommended as necessary in line with IAQM guidance.

- The energy strategy for the Proposed Development is currently unconfirmed however it is expected to be all electric, utilising zero emission technologies. As no on-site combustion sources are expected during normal operation and within the primary energy strategy, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment. If combustion sources are confirmed to be included as part of the proposals they will be assessed accordingly in line with the appropriate guidance.
- Initial road traffic data associated with the Proposed Development will be provided by Transport Planning Practice Ltd, the appointed Transport Consultants for the project. It is expected that the annual average daily traffic (AADT) increase associated with the Proposed Development will be below the Environmental Protection United Kingdom (EPUK) and IAQM criteria, indicating that the potential for air quality impacts from road traffic emissions associated with the Proposed Development, is unlikely. This will be confirmed when the finalised data is made available.
- An assessment of Site Suitability will be undertaken qualitatively with a desk-based review of the existing baseline air quality undertaken to inform the exposure of future users of the development. Local air quality monitoring and DEFRA's background pollution maps will be used to understand concentrations at the Application Site.

I would also be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me on the number below.

Please let me know if there are any additional guidance documents that aren't publicly available that you would like us to consider.

In the meantime, if you have any questions, do not hesitate to contact me.

Kind regards,

Rachael Harrison
Senior Air Quality Consultant



This email has been sent by and on behalf of Hoare Lea LLP or a limited company under the control of Hoare Lea LLP, which companies are listed below.

This email (and any attachment) is intended only for the attention of the addressee. It is STRICTLY CONFIDENTIAL and may be legally privileged. If you have received it in error any disclosure distribution or copying of all or any part of the contents is prohibited. While virus checked by Hoare Lea, the recipient remains responsible for the consequences of any virus received.

Hoare Lea LLP is a limited liability partnership and is registered in England and Wales with registered number OC407254 and the limited companies within its control are: Hoare Lea & Partners Ltd (with registered number 1854244); Hoare Lea Middle

Appendix 2 - Professional Experience.

Andy Day (Hoare Lea), BSc (Hons), MSc, AMIEnvSc, MIAQM

Andy is a Principal Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institute of Environmental Sciences and a Full Member of the Institute of Air Quality Management. He is a chemistry graduate with a Master's specialising in the catalysed removal of harmful volatile organic compounds (VOCs) often generated from the combustion of fuel in car engines.

Andy has worked on a range of projects of varying size across a number of different sectors. His experience focusses on work up to and through planning for air quality assessments and environmental impact assessments. Andy also has experience in detailed dispersion modelling of road traffic and energy combustion plant, emission mitigation statements, damage cost calculations, indoor and outdoor air quality monitoring and assessing the air quality impact at ecologically sensitive sites.

Andy has a particular interest in reducing emissions for the benefit of human health and the environment through the life cycle of a building.

Rachael Harrison (Hoare Lea) BSc(Hons) AMIEnvSc, AMIAQM

Rachael is a Senior Air Quality Consultant with Hoare Lea. She is an Associate Member of both the Institution of Environmental Sciences and Institute of Air Quality Management. Rachael has experience in managing Air Quality and Odour Assessments for a wide range of UK and international clients covering sectors including; residential, commercial, energy and industrial operations. With experience in quantitative and qualitative atmospheric assessments, complex dispersion modelling, air pollutant monitoring surveys for rail, road transport and energy projects. Rachael's interest's lie in the health implications attributed to poor air quality.

Bhajan Chatha (Hoare Lea), MEng (Hons), AMIEnvSc, 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 toxicology throughout multiple modules. He also studied air pollutants, air pollution control equipment, air pollution monitoring and dispersion modelling during his degree. Within air quality, Bhajan's interests lie in air pollution control equipment and human health impacts.

Bhajan has worked on projects across multiple sectors including residential, commercial and industrial sectors. He has experience preparing air quality screening reports, environmental impact assessments, and indoor air quality plans.



RACHAEL HARRISON
SENIOR AIR QUALITY CONSULTANT



HOARELEA.COM

Royal Exchange
Manchester
M2 7FL
England

