NoiseAir
ACOUSTICS & AIR QUALITY

Tel: 0116 272 5908
Email: info@noiseair.co.uk
Web: www.noiseair.co.uk

HEBBLE HOMES LTD

AIR QUALITY ASSESSMENT

FORGE LANE, DEWSBURY

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Units 8-11, Bridgewater House, North Road, Ellesmere Port, CH65 1AF
The Counting House, High Street, Lutterworth, Leicestershire, LE17 4AY

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Document Reference	Date	Prepared by	Checked by	Authorised by
P7974-R2-V1	06/12/2024	Rachael Stiles MSc, BSc, MIAQM, MIEnvSc	Malcolm W Pounder BSc (Hons) PGDip CEnv MIEnvSc MIAQM AFOH	Malcolm W Pounder BSc (Hons) PGDip CEnv MIEnvSc MIAQM AFOH

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1 INTRODUCTION

1.1 Introduction to Report

1.1.1 By instruction from Hebble Homes Ltd, NoiseAir Limited was commissioned to undertake an Air Quality Assessment (AQA) in support of a Proposed Development at Forge Lane, Dewsbury, herein referred to as 'the Site'.

1.1.2 It is understood that a planning application is to be submitted proposing to build 2no. industrial/warehouse units totalling 10,100m^2 at the Site. The end use of the units is speculative at this stage.

1.1.3 Pre-application advice from Kirklees Council (KC) has highlighted the following:

> *"Noise, odour and air quality – An impact assessment for noise, odour and air quality are required for validation purposes. An assessment would need to be submitted for each which is broad enough to the average impact for B1, B2 and B8 and that could work in this location subject to the use of mitigation measures if deemed required. Environmental Health officers have advised that a noise consultant should have access to library data of typical levels for each particular type of use. The reports would not need to go into specifics of mitigation measures as this can be dealt with at reserved matters stage or once the end user is finalised."*

1.1.4 The aim of this report is to address the air quality element of the above. Limitations of this report are outlined in **Appendix A**.

1.2 Site Location and Context

1.2.1 The Site is located off Forge Lane, Dewsbury, at approximate National Grid Reference (NGR): 423754, 419720. **Figure 1** details the location of the Site.

1.2.2 The Site is located directly adjacent to Forge Lane, which may result in elevated pollutant concentrations at and around this location. Subsequently, the Proposed Development may lead to adverse impacts at nearby sensitive receptors, as a result of fugitive dust emissions during construction and road vehicle exhaust emissions during operation. As such, an AQA is required to determine potential impacts associated with the Proposed Development in accordance with the requirements of The National Planning Policy Framework (NPPF). The AQA will therefore consider ambient pollutant concentrations namely nitrogen dioxide (NO_2) and particulate matter (PM_{10}, and $PM_{2.5}$) around the Site.

1.2.3 The main potential sources of air pollution have been identified as emissions from vehicles using the local road network in the vicinity of the Site. There are no significant combustion sources identified within the immediate vicinity of the Site that will influence the local air quality.

1.2.4 The Proposed Development is located within the administrative area of Kirklees Council (KC). The land at the Site is currently unused and contains overgrown vegetation. To the north, the Calder & Hebble Navigation Canal borders the Site, with residential dwellings, a nursery and light industrial buildings beyond. The east of the Site is bordered by residential dwellings along Kilner View and Providence Court. To the south, the Site is bordered by residential dwellings along Kimberly Street, Fiddler Street and Lees Hall Road, whilst the west is bound by Forge Lane, with light industrial building and comm beyond.

1.2.5 The report presents the findings of an assessment of the potential air quality impacts of the Proposed Development during the construction and operational phases. For both phases, the significance of potential impacts have been identified, and recommended mitigation measures are described.

2 LEGISLATION AND POLICY

2.1 Air Quality Legislation and Policy

2.1.1 A summary of the relevant air quality legislation and policy is provided below.

UK Air Quality Strategy

2.1.2 The government's policy on air quality within the UK is set out in the Air Quality Strategy for England (AQS), with the latest framework for Local Authority delivery within England published in 2023[1].

2.1.3 The AQS provides a framework for reducing air pollution in England with the aim of meeting the requirements of European Union Legislation, and 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. The AQS sets Air Quality Objectives (AQOs) for seven key pollutants to protect health, vegetation, and ecosystems. These are benzene (C_6H_6), 1,3 butadiene (C_4H_6), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10}) and sulphur dioxide (SO_2).

2.1.4 The air quality standards are levels recommended by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organization (WHO) with regards to current scientific knowledge and the effects of each pollutant on health and the environment.

2.1.5 The AQOs are medium-term policy-based targets set by the Government, which take into account economic efficiency, practicability, technical feasibility and timescale. Some objectives are equal to EPAQS recommended standards or WHO guideline limits, whereas other involve a margin of tolerance, i.e. a limited number of permitted exceedances of standards over a given period.

2.1.6 $PM_{2.5}$ is not currently part of the Local Air Quality Management framework and therefore does not have any associated AQOs. The AQS, however, recognises this, and has set 2 new legally binding $PM_{2.5}$ targets, each with an interim target:

- 10 µg/m^3 annual mean concentration $PM_{2.5}$ nationwide by 2040, with an interim target of 12 µg/m^3 by January 2028; and

[1] Department for Environment, Food and Rural Affairs (Defra, 2023) Policy paper Air quality strategy: framework for local authority delivery.

- 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.

2.1.7 **Table 1** presents the AQOs/interim target for pollutants considered within this assessment.

Table 1: National Air Quality Objectives and Interim Target for the Protection of Human Health

Pollutant	Applies to	Air Quality Objective/Interim Target	Measured As
NO_2	UK	40µg/m^3	Annual mean
	UK	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
PM_{10}	UK (except Scotland)	40µg/m^3	Annual mean
	UK (except Scotland)	50µg/m^3 not to be exceeded more than 35 times a year	24-hour mean
$PM_{2.5}$	UK (except Scotland)	Interim target of 12µg/m by 2028 Target of 22% reduction in population exposure by 2028 compared to 2018	Annual mean

2.1.8 For the pollutants considered in this assessment, there are both long-term (annual mean) and short-term standards. In the case of NO_2, the short-term standard is for a 1-hour averaging period, whereas for PM_{10} it is a 24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants, for example temporary exposure on the pavement adjacent to a busy road compared with the exposure of residential properties adjacent to a road.

Air Quality Regulations (2016)

2.1.9 Many of the objectives in the AQS have been made statutory in England with the Air Quality (England) Regulations 2000[2] and the Air Quality (England) (Amendment) Regulations 2002[3] for the purpose of Local Air Quality Management (LAQM).

2.1.10 These Regulations require that likely exceedances of the AQS objectives are assessed in relation to:

> *[…] the quality of air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present […]'*

2.1.11 The Air Quality Standards (Amendment) Regulations 2016[4] amends the Air Quality Standards Regulations 2010 that transpose the European Union Ambient Air Quality

[2] The Air Quality (England) Regulations 2000 – Statutory Instrument 2000 No.928.
[3] The Air Quality (England) (Amendment) Regulations 2002 – Statutory Instrument 2002 No.3043.
[4] The Air Quality Standards (Amendment) Regulations 2016 - Statutory Instrument 2016 No. 1184.

Directive (2008/50/EC) into law in England. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as PM_{10}, $PM_{2.5}$ and NO_2. The limit values for NO_2 and PM_{10} are the same concentration levels as the relevant AQS objectives and the limit value for $PM_{2.5}$ is a concentration of 12µg/m^3 to be achieved by 2028.

Environmental Protection Act 1990 – Control of Dust and Particles Associated with Construction

2.1.12 Section 79 of the Environmental Protection Act 1990[5] gives the following definitions of statutory nuisance relevant to dust and particles:

> *'Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance'; and*
>
> *'Any accumulation or deposit which is prejudicial to health or a nuisance'.*

2.1.13 Following this, Section 80 states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

2.1.14 There are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist. Nuisance is a subjective concept, and its perception is highly dependent upon the existing conditions and the change which has occurred.

Environment Act 1995

2.1.15 Under Part IV of the Environment Act 1995[6], local authorities must review and document local air quality within their area by way of staged appraisals and respond accordingly, with the aim of meeting the air quality objectives defined in the Regulations. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each AQMA the local authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality and show how it intends to work towards achieving air quality standards in the future.

[5] Environmental Protection Act. London 1990. HMSO.
[6] Environment Act 1995. London HMSO.

Clean Air Strategy (2019)

2.1.16 In 2019, the UK government released its Clean Air Strategy 2019[7], part of its 25 Year Environment Plan[8]. The Strategy sets out the comprehensive action that is considered to be required from across all parts of government and society.

2.1.17 The primary focus of air quality management has primarily related to NO_2, and its principal source in the UK, road traffic. The 2019 Strategy aims to broaden the focus to other areas, including actions on clean growth, and emissions from domestic wood burning stoves, industry and agriculture.

2.2 Planning Policy

2.2.1 A summary of the national and local planning policy relevant to the Proposed Development and air quality is provided below.

National Planning Policy Framework (2023)

2.2.2 The Government's overall planning policies for England are described in the National Planning Policy Framework[9]. The core underpinning principle of the Framework is the presumption in favour of sustainable development, defined as:

> *'[…] meeting the needs of the present without compromising the ability of future generations to meet their own needs.'*

2.2.3 One of the three overarching objectives of the NPPF is that planning should 'contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'

2.2.4 In relation to air quality, the following paragraphs in the document are relevant:

- Paragraph 55, which states '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.';

[7] Department for Environment, Food and Rural Affairs (2019) Clean Air Strategy 2019.
[8] Department for Environment Food and Rural Affairs (Defra) (2018) A Green Future: Our 25 Year Plan to Improve the Environment.
[9] Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework.

- Paragraph 105, which states 'The planning system should actively manage patters 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.';
- Paragraph 174, which 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.';
- Paragraph 185, which states '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, which states 'Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.'; and
- Paragraph 188, which states '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'.

2.2.5 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of the assessment.

2.3 Local Planning Policy

Kirklees Local Plan (adopted 2019)

2.3.1 The Kirklees Local Plan[10] is a strategic document setting out the vision, objectives and spatial planning strategy for Kirklees Council's administrative area from 2013 to 2031.

2.3.2 An overview of this document identified the following policy of relevance to air quality and this report:

*"**Policy LP51***

Protection and improvement of local air quality

1. *Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air pollution which would have an unacceptable impact on the natural and built environment or to people.*

2. *Proposals that have the potential to increase local air pollution either individually or cumulatively must be accompanied by evidence to show that the impact of the development has been assessed in accordance with the relevant guidance. Development which has the potential to cause levels of local air pollution to increase must incorporate sustainable mitigation measures that reduce the level of this impact. If sustainable measures cannot be introduced the development will not be permitted.*

3. *Where the development introduces new receptors into Air Quality Management Areas or Areas of Concern or near other areas of relatively poor air quality, for example near roads or junctions, the development must incorporate sustainable mitigation measures that protect the new receptors from unacceptable levels of air pollution. Where sustainable mitigation measures cannot be introduced which prevent receptors from being exposed to unsafe levels of air pollution, development will not be permitted."*

[10] Kirklees Council (Adopted 2019) Kirklees Local Plan 2013 – 2031 Kirklees Local Plan Strategy and Policies [Online] Available at https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf [Accessed 06/11/2024].

Air Quality Action Plan

2.3.3 The KC Air Quality Action Plan (AQAP) [11] was produced as part of the council's duty to Local Air Quality Management (LAQM). It outlined the action would take to improve air quality in across Kirklees between April 2019 and March 2024.

2.3.4 The KC AQAP is currently being revised, however, details of this have not yet been published.

2.4 National Planning Guidance

2.4.1 A summary of the publications referred to in undertaking this assessment is provided below.

Local Air Quality Management Review and Assessment Technical Guidance (2022)

2.4.2 The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use by local authorities in their review and assessment work. This guidance, referred to in this document as LAQM.TG22[12], has been used where appropriate in the assessment presented herein.

Land-Use Planning & Development Control: Planning for Air Quality (2017)

2.4.3 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance[13] that offers comprehensive advice on when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts.

Guidance on the Assessment of Dust from Demolition and Construction (2024)

2.4.4 This document[14] published by the IAQM was produced to provide guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM_{10} impacts on public exposure and impact

[11] Kirklees Council (2019) Kirklees Council District Action Plan [Online] Available https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/air-quality-action-plan.pdf [Accessed 06/11/2024].
[12] Department for Environment, Food and Rural Affairs (Defra) (2022) Part IV The Environment Act 1995 as amended by the Environment Act 2021 Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG22.
[13] Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017) Land Use Planning & Development Control: Planning for Air Quality.
[14] Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction Version 2.2 (January 2024).

upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified.

National Planning Practice Guidance – Air Quality (2019)

2.4.5 This guidance[15] provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality, it explains how much detail air quality assessments need to include for proposed developments, and how impacts on air quality can be mitigated. It also provides information on how air quality is taken into account by local authorities in both the wider planning context of Local Plans and neighbourhood planning, and in individual cases where air quality is a consideration in a planning decision.

2.5 Local Planning Guidance

West Yorkshire Low Emissions Strategy Air Quality and Emissions Technical Planning Guidance

2.5.1 The West Yorkshire Low Emissions Strategy (WYLES) Air Quality and Emissions Technical Planning Guidance Planning Document[16] was produced to help planning authorities deliver national air quality objectives through cost effective service planning brought about by the joint working and individual policy set out in each authority's Local Plan policies.

2.5.2 In accordance with this guidance document, the Proposed Development is classed as a 'medium' sized development, and proportionate mitigation measures have been provided within this report.

[15] Department of Communities and Local Government (DCLG) (Updated November 2019) National Planning Practice Guidance.
[16] West Yorkshire Low Emissions Strategy (WYLES) Group. Air Quality and Emissions Technical Planning Guidance [Online] Available at https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/WYLES-air-quality-and-emissions-planning-technical-guide.pdf [Accessed 25/11/2024].

3 SCOPE AND METHODOLOGY

3.1 Scope

3.1.1 The scope of the assessment has been determined in the following way:

- A review of the plans of the Proposed Development;
- Desktop study to confirm the locations of nearby existing receptors that may be sensitive to changes in local air quality; and
- Review of KC's latest available Air Quality Annual Status Report[17] (ASR) and air quality data surrounding the Site including data from Defra[18].

3.1.2 The scope of the assessment includes consideration of the potential impact on local air quality resulting from:

- Dust and particle matter generated by on-site activities during the construction phase;
- Increases in pollutant concentrations as a result of exhaust emissions arising from construction traffic and plant; and
- Increases in pollutant concentrations as a result of exhaust emissions arising from traffic generated by the Proposed Development once operational.

3.2 Construction Phase Assessment

3.2.1 Dust comprises particles typically in the size range of 1-75 micrometres (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. The larger dust particles fall out of the atmosphere quickly after initial release and therefore tend to be deposited in close proximity to the source of emission. Dust therefore is unlikely to cause long term or wide-spread changes to air quality; however, it's deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints of nuisance through amenity loss or perceived damage caused, which is usually temporary.

3.2.2 The smaller particles of dust are known as particulate matter, with less than 10 μm in aerodynamic diameter (PM_{10}) representing only a small proportion of total dust released; this includes a finer fraction, known as $PM_{2.5}$ (with an aerodynamic diameter less than 2.5μm). As these particles are at the smaller end of the size range of dust particles, they remain suspended in the atmosphere for a longer period of time than the larger dust particles, they

[17] Kirklees Council (2024) 2024 Air Quality Annual Status Report (ASR) [Online] Available at https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/kirklees-annual-status-report-2024.pdf [Accessed 20/11/2024].
[18] Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management (LAQM) Support Pages.

can therefore be transported by wind over a wider area. PM_{10} and $PM_{2.5}$ are small enough to be drawn into the lungs during breathing, which in sensitive members of the public could have a potential impact on health. However, it is worth noting that, according to the IAQM guidance, the majority of fugitive particulate emissions arising from construction sites are expected to relate to the coarser fractions (i.e. $PM_{2.5-10}$) with just 10-15% expected to comprise $PM_{2.5}$. The IAQM guidance therefore focusses on PM_{10} for the purposes of assessment.

3.2.3 An assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust and PM_{10} during the construction phase has been undertaken using: the relevant assessment methodology published by the IAQM; the available information for this phase of the Proposed Development provided by the Client and the professional judgement of the NoiseAir team.

3.2.4 The IAQM methodology assesses the risk of potential dust and PM_{10} impacts from the following four sources: demolition, earthworks, construction and trackout. It takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to an increase in PM_{10} levels to assign a level of risk. Risks are described in terms of there being a low, medium or high risk of dust impacts. Once the level of risk has been identified, and the significance of residual effects determined. A summary of the IAQM assessment methodology is provided in **Appendix C**.

3.2.5 In addition to the impacts on local air quality due to on-site construction activities, exhaust emissions from construction vehicles and plant may have an impact on local air quality adjacent to the routes used by these vehicles to access the application Site and in the vicinity of the application Site itself. As information on the number of vehicles and plant associated with the construction phase was not available at the time of writing, a qualitative assessment of their impact on local air quality has been undertaken using professional judgement and considering the following:

- The number and type of construction traffic and plant likely to be generated by this phase of the development;
- The number and proximity of sensitive receptors to the application Site and along the likely routes to be used by construction vehicles; and
- The likely duration of the construction phase and the nature of the construction activities undertaken.

3.3 Operational Phase Assessment

3.3.1 The Proposed Development has the potential to expose future users to any existing air quality issues.

3.3.2 The EPUK & IAQM guidance sets out two stages for determining when an assessment of potential impacts on the local area is likely to be necessary. The Stage 1 criteria for an air quality assessment is presented below:

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha; or
- More than 1,000 m^2 of floor space for all other uses or a site area greater than 1ha.

B. Coupled with any of the following:

- The development has more than 10 parking spaces; or,
- The development will have a centralised energy facility or other centralised combustion process.

3.3.3 Should these criteria not be met, then the EPUK and IAQM guidance considers air quality impacts associated with a scheme to be negligible and no further assessment is required. Should the criteria be met or exceeded, proceed to Stage 2. Stage 2 of the EPUK & IAQM guidance document states the following criteria to help establish when an air quality assessment is likely to be considered necessary:

- Proposals that will cause a change in Light Duty Vehicle (LDV) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 elsewhere.
- Proposals that will cause a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 elsewhere.
- Proposals that would realign roads within an AQMA by more than 5m;
- Proposals that will introduce new junctions or remove existing junctions near relevant receptors.
- Proposals that will introduce or change a bus station or change flows of buses by more than 25 AADT within an AQMA or more than 100 AADT elsewhere.
- Proposals which will include an underground car park with extraction system which will be within 20m of a relevant receptor and have more than 100 movements per day.
- Proposals which include either a centralised plant using biofuel, a combustion plant with single or thermal input >300KWh or a standby emergency generator associated with a centralised energy centre; and,
- Proposals which include combustion processes of any size.

3.3.4 Should these criteria not be met, then the EPUK and IAQM guidance documents consider air quality impacts associated with a scheme to be not significant and no further assessment being required.

3.3.5 Should screening of the traffic data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the predicted change in pollutant concentrations as a result of the Proposed Development.

3.3.6 The significance of predicted impacts can then be determined in accordance with the methodology outlined in the EPUK and IAQM guidance.

3.4 Future Exposure

3.4.1 Given the use of the Site, its distance from major pollutant sources and professional judgement, the requirement to undertake an exposure assessment has been scoped out, accordance with the EPUK and IAQM guidance.

3.5 Selection of Background Concentrations

3.5.1 Background pollutant data for the operational phase assessment have been taken from the national maps provided on the Defra[19] website, where background concentrations of those pollutants included within the AQS have been mapped at a grid resolution of 1x1 km for the whole of the UK. Estimated background concentrations all available for all years between 2021 and 2040. The maps assume that background concentrations will improve (i.e., reduce) overtime, in line with the predicted reduction in vehicle emissions, and emissions from other sources.

[19] Department for Environment, Food and Rural Affairs (Defra) (2024) Background Concentrations 2021-2040 [Online] Available at https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021 [Accessed on 22/11/2024].

4 BASELINE

4.1 Introduction

4.1.1 Existing air quality conditions in the vicinity of the Site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

4.2.1 As required by the Environment Act (1995), KC undertakes reviews and assessment of air quality within their area of jurisdiction. Currently, KC has declared 10 AQMAs across its area of jurisdiction. The closest AQMA to the Site, AQMA No.2, is located approximately 850m northwest of the Site boundary. AQMA No.2 incorporates part of Huddersfield Road (A644) in Scouthill, and was declared in 2009 for exceedances of the PM_{10} 24-hour mean.

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by KC throughout their area of jurisdiction. According to the most recently available ASR (published in 2024), KC undertook monitoring at 3 automatic monitoring stations (one being part of the Automatic Urban and Rural Network (AURN) and 2 being council owned), and NO_2 monitoring at 120 non-automatic monitoring sites during 2023.

4.3.2 The closest KC monitoring locations to the Site are along Huddersfield Road, in AQMA No.2. Annual mean NO_2 concentrations, for 2021-2023 (i.e. the most recent years with available data, as presented in the KC ASR), are presented in **Table 2** and shown on **Figure 2**.

Table 2: KC Annual Mean NO_2 Results

Monitoring Site ID	Site Type	Distance to Kerb of Nearest Road (m)	Approx. Distance to the Site (km)	Monitored NO_2 Concentration (µg/m³)		
				2021	2022	2023
K30	Roadside DT	2.1	0.8	-	-	38.2
K70	Roadside DT	3.2	0.9	32.9	31.4	29.9
K19	Roadside DT	2.7	1	35.7	35.4	33.0

DT= Diffusion Tube

4.3.3 As shown in **Table 2,** measured annual mean NO_2 concentrations at the closest roadside monitoring locations to the Site have remained below the AQO of 40 µg/m³ since at least 2021. Although recorded concentrations have been close to exceeding the NO_2 AQO, it is

important to note that elevated concentrations would be expected at these locations, as these are roadside locations, along a busy road and in an AQMA.

4.4 Background Pollutant Concentrations

4.4.1 Predictions of background pollutant concentrations on a 1 km-by-1 km basis have been produced by DEFRA for the entire UK to assist local authorities in their review and assessment of air quality. The proposed site is located in grid square 423500, 419500. Data for this location was downloaded from the DEFRA website for 2024 (i.e. the current year) and is summarised in **Table 3**.

Table 3: Predicted Background Pollutant Concentrations

OS Grid Reference (X, Y; m)	Predicted Background Pollutant Concentration (µg/m^3) for 2024		
	NO_2	PM_{10}	$PM_{2.5}$
423500, 419500	11.08	10.86	7.26

4.4.2 As shown in **Table 3**, predicted background NO_2, PM_{10} and $PM_{2.5}$ concentrations are well below the relevant AQOs/interim target across the assessment extents for 2024.

5 ASSESSMENT

5.1 Introduction

5.1.1 There is the potential for air quality impacts as a result of the construction and operation of the Proposed Development. These are assessed in the following sections.

5.2 Construction Phase Assessment

5.2.1 Construction activities have the potential to generate and/ or re-suspend dust and PM_{10} sources include:

- Site clearance and preparation including demolition activities;
- Preparation of temporary access/ egress to the Site and haulage routes;
- Earthworks;
- Materials handling, storage, stockpiling, spillage and disposal;
- Movement of vehicles and construction traffic within the Site (including excavators and dumper trucks);
- Use of crushing and screening equipment/ plant;
- Exhaust emissions from plant, especially when used at the extremes of their capacity and during mechanical breakdown;
- Construction of buildings, roads and areas of hard standing alongside fabrication processes;
- Internal and external finishing and refurbishment;
- Trackout, whereby earth is carried from the Site on vehicle tyres, deposited on roads and may later become suspended in the air as a result of vehicle movements; and
- Site landscaping after completion.

5.2.2 Most of the releases are likely to occur during the 'working week'. However, for some potential release sources (e.g., exposed soil produced from significant earthworks activities) in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

Assessment of Potential Dust Emission Magnitude

5.2.3 The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM_{10} sources:

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

5.2.4 The findings of the assessment are presented below.

Demolition

5.2.5 No buildings or structures are currently situated on the Site; therefore, no demolition works will be undertaken as part of the construction phase. Demolition has therefore been scoped out of the construction activities and no further consideration has been provided in this assessment.

Earthworks

5.2.6 The entire Site area is 18,000m^2 - 110,000m^2. In addition, it is assumed that 5-10 heavy earth moving vehicles will be active at any one time, and that 3m-6m bunds will be formed on the Site. As such, the potential dust emission magnitude from earthworks activities is considered to be **medium**.

Construction

5.2.7 The total building volume to be constructed is assumed to be between 12,000m^3 - 75,000m^3 and there is the potential for dust from construction materials (such as concrete) to be released during the construction works. As such, the potential dust emission magnitude from construction activities is considered to be **medium**.

Trackout

5.2.8 Information on the number of HDVs associated with this phase of the Proposed Development is currently unavailable and professional judgement has been used. It is assumed that given the size of the development, there will likely be 20-50 HDV outward movements in any one day. However, due to the size of the Site, it is possible that the HDVs will travel on an unpaved road >100 m. As such, the potential dust emission magnitude from trackout activities is considered to be **large**, as a worst-case approach.

5.2.9 **Table 4** provides a summary of the potential dust emission magnitude determined for each construction activity considered.

Table 4: Potential Dust Emission Magnitude	
Activity	**Dust Emission Magnitude**
Demolition	-
Earthworks	Medium
Construction	Medium
Trackout	Large

Assessment of Sensitivity of the Study Area

5.2.10 The prevailing wind direction is predominantly from the southwest. Therefore, receptors located to the northeast of the Site are more likely to be affected by dust and particulate matter emitted and re- suspended during the construction phase.

5.2.11 Under lower wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source. Receptors northeast of the Site are expected to be affected the most as a result of the prevailing wind direction.

5.2.12 There are no ecological receptors within 50m of the development boundary or access route, or within 50 m of the Site entrance as identified using Multi Agency Geographic Information for the Countryside (MAGIC) website[20].

5.2.13 Following the IAQM assessment methodology, the sensitivity of the area to changes in dust and PM_{10} has been derived for each of the activities considered in the construction phase. The results are shown in **Table 5**.

Table 5: Sensitivity of the Study Area to Dust Soiling Effects				
Potential Impact	**Sensitivity of the Surrounding Area**			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	-	High	High	High
Human Health	-	Low	Low	Low

Risk of Impacts

5.2.14 The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. **Table 6** below provides a summary of the risk of just impacts for the Proposed Development. The risk category identified for each construction activity has been used to determine the level of mitigation required.

[20] Department for Environment, Food and Rural Affairs (Defra) (2022) Multi-Agency Geographic Information for the Countryside (MAGIC) [Online] Available at https://magic.defra.gov.uk/ [Accessed on 15/11/2024].

Table 6: Summary Dust Risk Table Defining Site Specific Mitigation				
Potential Impact	**Sensitivity of the Surrounding Area**			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	-	Medium	Medium	High
Human Health	-	Low	Low	Low

Construction Vehicles and Plant

5.2.15 The greatest impact on air quality is emissions from vehicles and plant associated with the construction phase, and these impacts will be in the areas immediately adjacent to the Site access road. Construction traffic will access the Site via the local road network.

5.2.16 Final details of the exact plant and equipment likely to be used on-site will be determined by the appointed contractor. The number of plant and their location within the Site are likely to be variable over the construction.

5.2.17 Based on the current local air quality in the area, the proximity of sensitive receptors to the roads likely to be used by construction vehicles, and the likely numbers of construction vehicles and plant that will be used, the impacts are considered to being **negligible** in accordance with the assessment significance criteria.

5.3 Operational Phase Assessment

Potential Development Impacts

5.3.1 Any vehicle movements associated with the Proposed Development will generate exhaust emissions on the local and regional road networks.

5.3.2 The Proposed Development comprises 2no. industrial/warehouse units, totalling 10,100m^2. Due to the size of the development, it is assumed that more than 10 parking spaces will be provided.

5.3.3 As the criteria in Stage 1 of the EPUK and IAQM criteria has been met, it is deemed appropriate to consider the Stage 2 criteria.

5.3.4 Consultation has been undertaken withthe appointed Transport Consultant working on the project. They confirmed that the trip generation associated with the Proposed Development is 283 additional vehicle movements, 46 of which are HGVs.

5.3.5 Based on this, none of the Stage 2 criteria are met. Air quality impacts are therefore considered to be **negligible** and no further assessment is deemed necessary, in accordance with the EPUK and IAQM guidance.

Potential Future Exposure

5.3.6 As previously discussed, the use of the Site, its distance from major pollutant sources and professional judgement, have resulted in the requirement to undertake an exposure assessment being scoped out, in accordance with the EPUK and IAQM guidance.

6 MITIGATION AND RESIDUAL EFFECTS

6.1 Construction Phase

6.1.1 Based on the construction phase assessment results, mitigation will be required for this phase. As the Site poses a maximum of **High** risk for dust impacts, the IAQM's highly recommended mitigation measures for a **High** risk site are presented below:

Communications:

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this 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, 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 250 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 checks of surfaces such as street furniture, cars and window sills within 100 m of 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.
- 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 a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from 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 actives for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating/Vehicle Machinery and Sustainable Travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.
- 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 appropriate).
- 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 /particle matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on 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 or burning of waste materials.

Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this Is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site hauls 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 exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

6.1.2 Detailed mitigation measures to control construction traffic should be discussed with the Local Authority to establish the most suitable access and haul routes for the site traffic. The most effective mitigation will be achieved by ensuring that construction traffic does not pass along sensitive roads (i.e., congested roads, residential roads or unsuitable junctions for large vehicles) where possible. Construction vehicles should be kept clean through the use of wheel washers and sheeted when on public highways. Timing of large- scale vehicle movements to avoid peak hours on the local road network would also be of benefit.

Residual Effects

6.1.3 The residual effects of dust and PM_{10} generated by construction activities following the application of the mitigation measures described above and good Site practice is considered to be **not significant**.

6.1.4 The residual effects of emissions to air from construction vehicles and plant on local air quality is considered to be **not significant**.

6.2 Operational Phase

6.2.1 The impact of the operational phase of the Proposed Development has been found to be **not significant**, in accordance with the EPUK and IAQM guidance. However, the WYLES Air

Quality and Emissions Technical Planning Guidance Planning Document considers the Proposed Development to be 'Medium' in size, and therefore 'Type 2' mitigation measures are required, which includes the following:

- 10% of parking spaces to be suitable for electric vehicle charging. This may be phased with 5% initial provision and the remainder at an agreed trigger level.
- Travel Plan, including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies.
- Improved pedestrian links to public transport stops.
- Provision of new bus stops Infrastructure including shelters, raised kerbing, information displays.
- Provision of subsidised or free ticketing (Corporate and residential Metrocards, Student Metrocards).
- Site layout to include improved pedestrian pathways to encourage walking.
- Improved convenient and segregated cycle paths to link to local cycle network.
- All commercial vehicles should comply with current or the most recent European Emission Standards from scheme opening, to be progressively maintained for the lifetime of the development.
- Fleet operations should provide a strategy for reducing emissions, including the uptake of low emission fuels and technologies such as ultra-low emission service vehicles.

6.2.2 In accordance with advice from KC, "the reports would not need to go into specifics of mitigation measures as this can be dealt with at reserved matters stage or once the end use is finalised."

6.2.3 Therefore, mitigation measures will be devised by the Client, either at reserved matters stage or once the end use of the units has been determined.

7 SUMMARY AND CONCLUSIONS

7.1.1 NoiseAir Limited was commissioned to undertake an AQA in support of a proposed residential development at Forge Lane, Dewsbury.

7.1.2 A qualitative assessment of the potential impacts on local air quality from construction activities has been carried out for this phase of the Proposed Development using the IAQM methodology. This identified that there is a maximum of **high risk** of dust soiling impacts and a **low risk** of increases in particulate matter concentrations due to unmitigated construction activities for human health. However, through good site practice and the implementation of highly recommended mitigation measures, the effect of dust and particulate matter releases would be significantly reduced. The residual effects of dust and particulate matter generated by construction activities on air quality are therefore considered to be **not significant**.

7.1.3 In accordance with the IAQM and EPUK guidance, the Proposed Development is expected to result in a **negligible** air quality impact at nearby existing receptors. The WYLES Air Quality and Emissions Technical Planning Guidance Planning Document considers the Proposed Development to be 'medium' in size, and therefore 'Type 2' mitigation measures have been suggested. The residual effect of the Proposed Development is considered to be **not significant**.

7.1.4 Mitigation measures will be devised by the Client, either at reserved matters stage or once the end use of the units has been determined.

7.1.5 It is considered that the Proposed Development complies with national and local policy for air quality and as such, the Site is suitable for the proposed use from an air quality perspective.

FIGURES

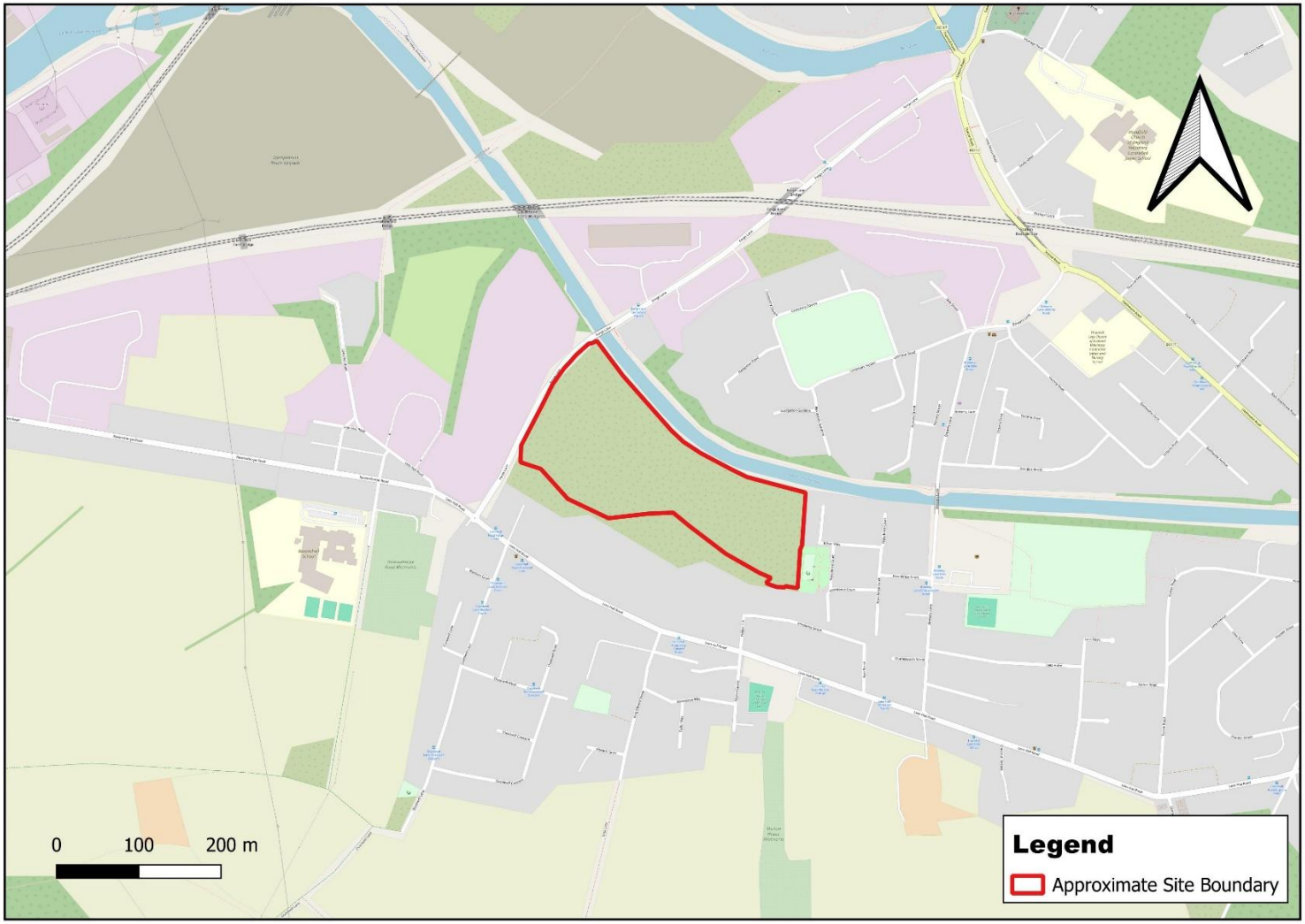

Figure 1: Site Location

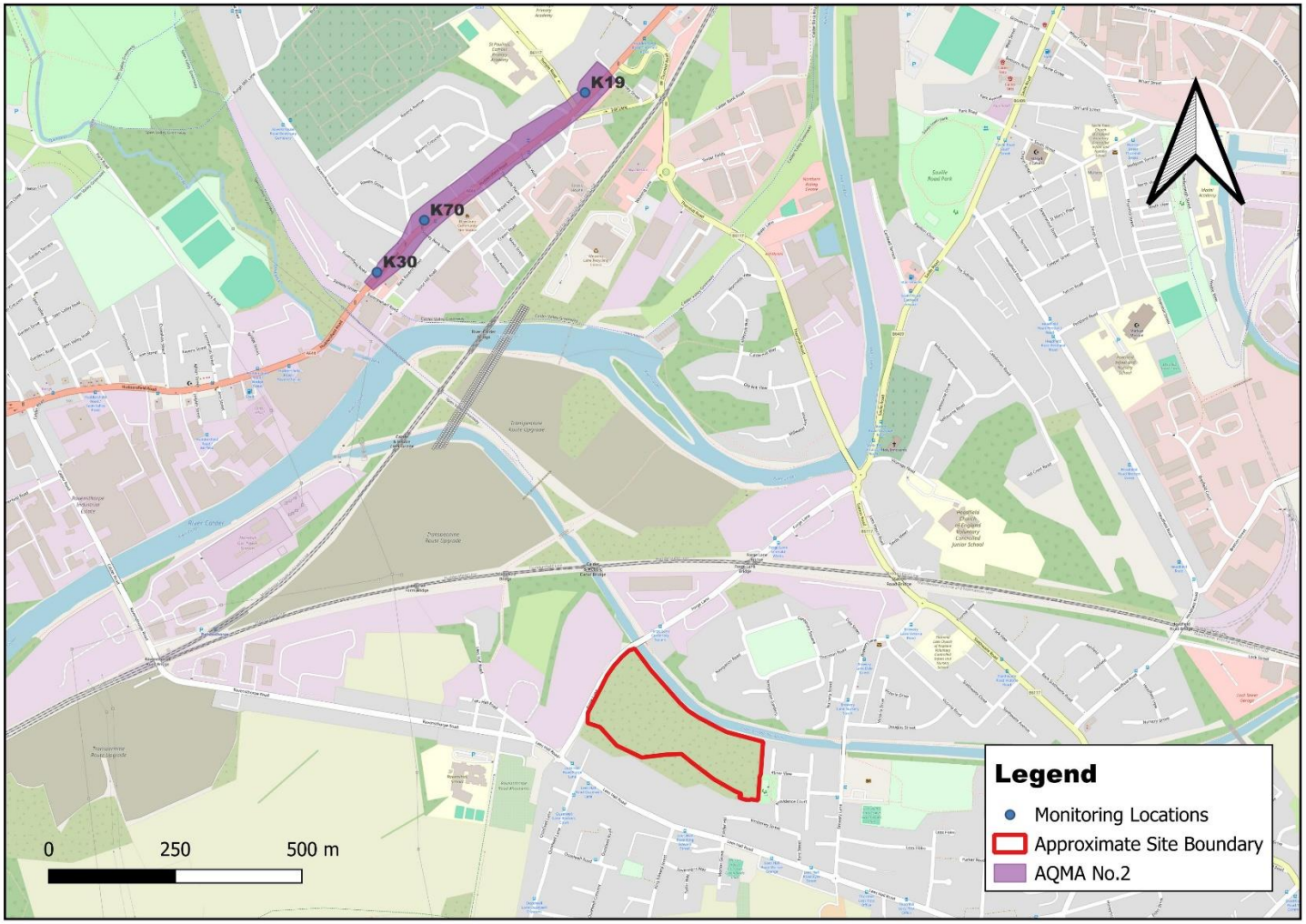

Figure 2: Monitoring Locations around the Site

APPENDIX A - REPORT LIMITATIONS

This Report is presented to Hebble Homes Ltd and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this report.

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APPENDIX B – GLOSSARY

AADT Annual Average Daily Traffic	A daily total traffic flow (24hrs), expressed as mean daily floor across all 365 days of the year.
Adjustment	Application of a correction factor to modelled results to account for uncertainties in the model.
Accuracy	A measure of how well a set of data fits the true value.
Air quality objective	Policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with the permitted number of exceedances within a specific time scale (see also air quality standard).
Ambient air	Outdoor air in the troposphere, excluding workplace air.
Annual mean	the average (mean) of the concentrations measured for each pollutant for one year.
AQMA	Air Quality Management Area.
AQO	Air Quality Objective.
AURN	Automatic Urban and Rural (air quality) Network, managed by contractors on behalf of Defra.
Conservative	Trending to over predict the impact rather than under predict.
Data Capture	The percentage of all the possible measurements forgiven periods that were validly measured.
Defra	Department for Environment, Food and Rural Affairs.
DfT	Department for Transport.
EFT	Emission Factor Toolkit.
Emission rate	The quantity of a pollutant released from a source over a given period of time.
EPUK	Environmental Protection (UK).
Exceedance	A period of time where the concentration of a pollutant is greater than the appropriate air quality standard.
HDV/HGV	Heavy Duty Vehicle/Heavy Goods Vehicle.
IAQM	Institute of Air Quality Management.
LAQM	Local Air Quality Management.
Model adjustment	Following model verification, the process by which modelled results are amended. This corrects for systematic error.
NO_2	Nitrogen dioxide.
NO_X	Nitrogen oxides.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
Road link	A length of road which is considered to have the same flow of traffic along it. Usually, a link is the road from one junction to the next.
µg/m^3 micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m^3 means that one cubic metre of air contains one microgram (millionth of a gram) of a pollutant.

APPENDIX C – IAQM CONSTRUCTION DUST ASSESSMENT METHODOLOGY

IAQM Construction Dust Assessment Methodology

Step 1 – Screening the Need for a Detailed Assessment

An assessment will normally be required where there is:

- ‘human receptors’ within 250 m of the boundary of the site; all within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s); and/ or
- ‘ecological receptors’ within 50 m of the boundary of the site; or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s)

For specific (high risk) schemes the planning authority may require dust assessment despite the proposed site falling outside the distances above.

Where the need for more detail assessment is screened out, it can be concluded that the level of risk is ’negligible’, and any effects will not be significant.

Step 2a – Define the Potential Dust Emission Magnitude

The dust emission magnitude is based on the scale of the anticipated works and should be classified as Small, Medium, or Large. The following are examples of how the potential dust emission magnitude for different activities can be defined.

Note that, in each case, not all criteria need to be met; other criteria may be used if justified within the assessment. Where relevant, multiple screening assessments may be completed for different development phases (or even sub-phases where demolition may be brief or there is a very short period of intense activity, for example).

Table C1: Construction Dust - Magnitude of Emission		
Magnitude	**Activity**	**Criteria**
Large	Demolition	- Total volume of building to be demolished greater than 75,000 m^3. - Potentially dusty material (e.g., concrete). - On-site crushing and screening. - Demolition activities more than 12 m above ground level.
	Earthworks	- Total site area greater than 110,000 m^2. - Potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size).

Table C1: Construction Dust - Magnitude of Emission		
Magnitude	**Activity**	**Criteria**
		- More than 10 heavy earth moving vehicles active at any one time. - Formation of bunds greater than 6 m in height.
	Construction	- Total building volume greater than 75,000 m^3. - On site concrete batching. - Sandblasting.
	Trackout	- More than 50 Heavy Duty Vehicle (HDV) trips per day. - Potentially dusty surface material (e.g., high clay content). - Unpaved road length greater than 100 m.
Medium	Demolition	- Total volume of building to be demolished between 12,000 m^3 and 75,000 m^3. - Potentially dusty construction material. - Demolition activities 6 m to 12 m above ground level.
	Earthworks	- Total site area between 18,000 m^2 and 110,000 m^2. - Moderately dusty soil type (e.g., silt). - Between 5 and 10 heavy earth moving vehicles active at any one time. - Formation of bunds between 3 m and 6 m in height.
	Construction	- Total building volume 12,000 m^3 to 75,000 m^3. - Potentially dusty construction material (e.g., concrete). - On site concrete batching.
	Trackout	- 20 to 50 HDV trips per day. - Moderately dusty surface material (e.g., high clay content). - Unpaved road length 50 m to 100 m.
Small	Demolition	- Total volume of building to be demolished less than 12,000 m^3. - Construction material with low potential for dust release (e.g., metal cladding or timber). - Demolition activities less than 6 m above ground.

Table C1: Construction Dust - Magnitude of Emission		
Magnitude	**Activity**	**Criteria**
	Earthworks	- Total site area less than 18,000 m^2. - Soil type with large grain size (e.g., sand). - Less than 5 heavy earth moving vehicles active at any one time. - Formation of bunds less than 3 m in height.
	Construction	- Total building volume less than 12,000 m^3. - Construction material with low potential for dust release (e.g., metal cladding or timber).
	Trackout	- Less than 20 HDV trips per day. - Surface material with low potential for dust release. - Unpaved road length less than 50 m.

Step 2b – Define the Sensitivity of the Area

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to soiling, human health and ecological impacts respectively. The IAQM guidance provides guidance to allow sensitivity of individual receptors 2 to soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

Table C2: Sensitivity of the Area to Dust Soiling Effects					
Receptor Sensitivity	**Number of Receptors**	**Distance from the Source (m)**			
		<20	**<50**	**<100**	**<250**
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 C3: Sensitivity of the Area to Human Health Impacts						
Receptor Sensitivity	**Annual Mean PM_{10} Concentrations ($\mu g/m^3$)**	**Number of Receptors**	**Distance from the Source (m)**			
			<20	**<50**	**<100**	**<250**
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low

Table C3: Sensitivity of the Area to Human Health Impacts						
Receptor Sensitivity	**Annual Mean PM_{10} Concentrations ($\mu g/m^3$)**	**Number of Receptors**	**Distance from the Source (m)**			
			<20	**<50**	**<100**	**<250**
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table C4: Sensitivity of the Area to Ecological Impacts		
Receptor Sensitivity	**Distance from the Source (m)**	
	<20	**<50**
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2c – Define the Risk of Impacts

The dust emissions magnitude determined in Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

Table C5: Risk of Dust Impacts			
Sensitivity of Surrounding	**Dust Emission Magnitude**		
	Large	**Medium**	**Small**
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks and Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk

Table C5: Risk of Dust Impacts			
Sensitivity of Surrounding	**Dust Emission Magnitude**		
	Large	**Medium**	**Small**
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Step 3 – Site Specific Mitigation

Having determined the risk categories for each of the four activities it is possible to determine the site- specific measures to be adopted. These measures will be related to whether the site is considered to be a law, medium or high risk Site. The IAQM guidance details the mitigation measures required for low, medium and high risk sites as determined in Step 2C.

Step 4 – Determine Significant Effects

Once the risk of dust impacts has been determined in Step 2C under the appropriate dust mitigation measures identified in Step 3, the final steps is to determine whether there are significant effects arising from the construction phase. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and the residual effects will normally be negligible.

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NOISEAIR LIMITED, THE COUNTING HOUSE, HIGH STREET,
LUTTERWORTH. LE17 4AY

TEL. 0116 272 5908

EMAIL. INFO@NOISEAIR.CO.UK

WWW.NOISEAIR.CO.UK

NoiseAir
ACOUSTICS & AIR QUALITY