

**PROPOSED RESIDENTIAL DEVELOPMENT,
LAND OFF DUMERS LANE, RADCLIFFE,
BURY
M26 2BD**

AIR QUALITY ASSESSMENT

For: Westchurch Homes Ltd

November 2024

R3407-R01-v2

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Radcliffe, Bury M26 2BD
Air Quality Assessment

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1 Introduction

1.1 General

1.1.1. Westchurch Homes Ltd ('Westchurch') is to submit a planning application to Bury Metropolitan Borough Council ('Bury MBC') for the residential development of an area of land off Dumers Lane in Radcliffe, Bury (the 'Site'). Proposals are for the development of around 100 affordable dwellings and associated infrastructure (the 'Proposed Development').

1.1.1 A pre-application response has been received from Bury MBC¹. The responses states the following with respect to dust and air quality:

'Air Quality

The site is not located within an Air Quality Management Area. However, due to the scale of the development, it is considered likely that the development may create an increase of more than 500 AADT (annual average daily traffic). Therefore, in line with the EPUK Guidance, an air quality assessment will be required to support any application.

Bury Council has been identified by DEFRA as an area requiring to significantly improve air quality.

JP-S5 - Clean Air - this policy requires developments to be located and designed to reduce reliance on forms of transport that generate air pollution. Regard will need to be had to air quality guidance and a construction management plan will be required.'

1.1.2 Westchurch has accordingly instructed Smith Grant LLP (SGP) to undertake the required Air Quality Assessment (AQA) for submission with the planning application.

1.1.3 The following report describes the AQA undertaken by Smith Grant LLP (SGP).

1.2 Scope and Objectives of the Report

1.2.1 The following report been prepared with reference to the Planning Practice Guidance provided in relation to air quality² under the National Planning Policy Framework (NPPF)³ and follows the framework described in IAQM guidance in relation to planning and air quality⁴ and construction dust⁵.

1.2.2 The report describes the methods used to assess the impacts, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect impacts of the development

¹ Bury Metropolitan Borough Council, Pre-application advice letter from the Planning Officer, ref: 02971E, dated 1 July 2024

² Ministry of Housing, Communities and Local Government, Planning Practice Guidance: Air Quality, issued March 2014, last updated 1st November 2019

³ Ministry of Housing, Communities and Local Government, National Planning Policy Framework, issued, March 2012, last updated 20 December 2023

⁴ Institute of Air Quality Management (IAQM), Land-Use Planning & Development Control: Planning for Air Quality, v1.2, 2017

⁵ Institute of Air Quality Management (IAQM), Guidance on the Assessment of Dust from Demolition and Construction, v1.1, 2016

arising from aerial emissions, and the mitigation measures required to prevent, reduce or offset the impacts.

- 1.2.3 SGP is an environmental consultancy specialising in air quality assessments, particularly in association with vehicle exhaust emissions. The report author, Katrina Hawkins, Partner, is a Member of the Institute of Air Quality Management (IAQM).

2 Planning Policy, Legislative and Technical Context

2.1 Technical Context

2.1.1 The airborne pollutants of principal relevance in connection with the Proposed Development and which are considered in the following assessment are particulate matter (arising from site construction and vehicle exhaust emissions) and nitrogen oxides (arising from vehicle exhaust emissions).

2.1.2 Airborne particulate matter (PM) is made up of condensed phase (solid or liquid) particles suspended in the atmosphere and comes from both man-made and natural sources. Particulate matter ranges in sizes from a few nano-meters to around 100µm and can give rise to both soiling effects through dust deposition ('disamenity dust') and human health effects through suspended particulates. Dust accumulation may also affect sensitive habitats through impacts on vegetation and aquatic ecosystems.

2.1.3 Dust soiling will arise from the deposition of particulate matter in all size fractions but will mostly be associated with particulate matter of diameter greater than 30 µm. Particles below 10µm (referred to as PM₁₀) correspond to the inhalable fraction of particulate matter and have been related to various adverse health effects. PM₁₀ includes both fine (those particles of diameter below 2.5 µm; referred to as PM_{2.5}) and coarse (diameter between 2.5-10µm; PM_{2.5-10}) fractions of airborne particulate matter which normally arise from different sources.

2.1.4 Vehicular transport associated with the operation of the Proposed Development will also result in emissions of oxides of nitrogen (NO_x; comprises nitrogen dioxide (NO₂) and nitric oxide (NO)) and PM. NO itself is not considered harmful to human health. However, on release to the atmosphere it usually rapidly oxidises to NO₂, which is associated with adverse effects on human health causing inflammation of the lungs at high concentrations. Long term exposure to NO₂ can affect lung function and respiratory symptoms.

2.1.5 Road transport is also a source of primary PM₁₀ both as direct emissions through vehicle exhausts and as indirect emissions through tyre and brake wear, re-suspension of particulate matter on the road and road wear (mechanical abrasion and corrosion). Road transport may also be responsible for secondary PM formed via gas-to-particle conversion.

2.2 Legislative Context

Air Quality Strategy

2.2.1 In January 2019 Defra published the **Clean Air Strategy**⁶ which outlined a comprehensive suite of actions required across all parts of Government to improve air quality and maximise public health

⁶ UK Government, Clean Air Strategy, published 14 January 2019, <https://www.gov.uk/government/publications/clean-air-strategy-2019>

benefits. This included national regulations to reduce emissions from domestic burning, industry and farming, alongside stronger powers, and an improved framework for local government to tackle more localised issues, as well as a commitment to set a legally binding target for PM_{2.5} which has since been established.

2.2.2 Under the Environment Act 1995, as amended by the Environment Act 2021, the UK Government and the devolved executives are required to produce a national air quality strategy ('AQS') every 5 years. The AQS is to provide an over-arching strategic framework for air quality management in the UK setting out a framework to enable local authorities to contribute to long-term air quality goals and setting out standards, objectives and measures for improving ambient air quality..

2.2.3 In April 2023 the UK Government published the **2023 Air Quality Strategy** ('2023 AQS') which superseded an earlier 2007 AQS (in respect of England only). The 2023 AQS includes previously established standards that have been set for specific pollutants deemed to pose a risk for human health or other receptors, a number of which were derived from the EU limit and target values, although requirements for compliance varied. The strategy also includes new standards for PM_{2.5} established under the Environment Act 2021 and the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

Air Quality Standards for Human Health

2.2.4 Ambient air quality standards in the UK have been established through the combination of transposition of European legislation and additional UK legislation and requirements. Following the departure of the UK from the EU the air pollution limits established under EU requirements remain in place having been enshrined in UK law, the principal legislation being the Air Quality Regulations 2010 (as amended).

2.2.5 In addition, Part IV of the Environment Act 1995 imposes a duty on local authorities in the UK to review existing and projected air quality in their area. Any location likely to exceed the UK Air Quality Objectives (AQOs) must be declared an Air Quality Management Area (AQMA) and an Action Plan prepared and implemented, with the aim of achieving the objectives. This process is referred to as Local Air Quality Management (LAQM). The LAQM process is supported by national statutory policy⁷ and technical guidance⁸ provided by Defra.

2.2.6 The pollutants that must be assessed under the LAQM Framework include NO₂ and PM₁₀, but not PM_{2.5} which is recognised as a regional pollutant for which many sources are outside local authority control. Local authorities are however expected to reduce PM_{2.5} emissions from the sources that are within their control.

⁷ Defra, Local Air Quality Management, Policy Guidance (PG22), April 2022

⁸ Defra, Local Air Quality Management, Technical Guidance (TG22), April 2022

2.2.7 The applicable air quality standards relevant to the Site and Proposed Development with regards to protection of human health are summarised in Table 2.1 below. These are referred to in this report as Air Quality Assessment Levels (AQALs).

Table 2.1: Relevant Air Quality Assessment Levels (AQALs)

Pollutant	AQAL	Averaging period
To be currently achieved		
NO₂	40 µg/m ³	annual mean
	200 µg/m ³	hourly mean, not to be exceeded more than 18 times per annum
PM₁₀	40 µg/m ³	annual mean
	50 µg/m ³	24-hour mean, not to be exceeded more than 35 times per annum
PM_{2.5}	20 µg/m ³	annual mean
	% reduction relative to average exposure indicator (AEI), dependant on initial concentration; to at least 10 µg/m ³	annual mean
Future standards		
PM_{2.5}	12 µg/m ³ (interim target; <i>to be achieved by 2028</i>)	annual mean
	reduction in population exposure of 22% compared to 2018 <i>by 2028</i>	annual mean
	10 µg/m ³ (legal target; to be achieved by 2040)	annual mean
	reduction in population exposure of 35% compared to 2018 <i>by 2040</i>	annual mean

1: Pollutant limits for PM_{2.5} do not apply locally under the LAQM Framework

2.2.8 It is noted that guidance on how the new PM_{2.5} targets are to be integrated into the planning system is awaited⁹.

2.2.9 For the purposes of the AQALs ambient air refers to the outdoor air and excludes workplaces where members of the public do not have regular access. Advice is given in Defra guidance as to where the UK AQOs should apply, as summarised in Table 2.2 below:

⁹ Department for Levelling Up, Housing and Communities, Planning Newsletter, Message from Chief Planner, 3rd March 2023

Table 2.2: Summary of where the AQOs should apply

Averaging period	Objective should apply at
annual mean	all locations where members of the public might be regularly exposed; including facades of residential properties, schools, hospitals, care homes etc
24-hour mean and 8-hr mean	all locations where the annual mean objectives apply together with hotels and gardens of residential properties
1-hr mean	all locations where the annual mean, 24-hour and 8-hour means apply; also kerbside sites, parts of car parks, bus stations and railway stations which are not fully enclosed and any outdoor locations where members of the public might reasonably be expected to spend 1 hour or longer.
15-min mean	all locations where members of the public may be reasonably exposed for a period of 15 minutes

Note: the AQOs do not apply at building facades or other places of work where members of the public do not have regular access

Air Quality Standards for Ecological Sites

2.2.10 Additional statutory and non-statutory ambient air quality standards (termed Critical Levels) are also provided by the UK Air Quality Strategy and Environment Agency (EA) / Institute of Air Quality Management (IAQM) guidance for the protection of vegetation and ecosystems to be applied at nature conservation sites. Applicable standards for this assessment are detailed in Table 2.3 below:

Table 2.3: Additional Non-Statutory Critical Levels for Protection of Vegetation and Ecosystems

Pollutant	Concentration ($\mu\text{g}/\text{m}^3$)	Measured as
nitrogen oxides (as NO_2)	30	annual mean
	75 / 200 ¹	daily mean

1: The Critical Level is generally considered to be $75 \mu\text{g}/\text{m}^3$, but this only applies where there are high concentrations of SO_2 and this is not generally the situation in the UK

2.2.11 In addition, Critical Loads are provided for nitrogen nutrient and acidity deposition. These are dependent on the specific habitat and location and are provided in detail on the Air Pollution Information Service (APIS) website¹⁰. Any relevant Critical Loads to a specific nature conservation sites or habitat feature are provided in the relevant sections of this assessment if applicable.

Dust Standards and Control

2.2.12 Deposition dust as such is not regulated as a pollutant under the above requirements. There are no UK statutory standards or recommended levels that define the point when deposited dust causes annoyance or disamenity ('disamenity dust') although standard 'custom and practice' thresholds are referred to.

2.2.13 Public concerns relating to dust accumulation and soiling may be related to a range of factors including the nature of a site and locality and baseline levels. Controls of soiling and annoyance

¹⁰ Air Pollution Information Service, www.apis.ac.uk

impacts are typically achieved through conditions within planning permissions and / or Environmental Permits requiring the implementation of a dust management plan to prevent amenity impacts.

2.3 Other Relevant Legislation

2.3.1 The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 implemented EU regulations 2016/1628 and impose increasingly stringent emission limits to the engines of NRMM and power plant with the aim of progressively reducing the emissions and phasing out polluting equipment from 2019.

2.3.2 In addition, vehicle emission limits for new cars, vans and HGVs in Europe have been progressively tightened since the early 1990s. The most recent standards for cars and vans are the Euro 6 standards, which set limits on emissions of carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter from vehicle engines. Passed under Regulation 459/2012, the Euro 6 standards apply to all new cars and vans sold after September 2015. As the older vehicle fleet is gradually replaced with new cars and vans, a progressive reduction in emissions is achieved.

2.3.3 Separate emission limits exist for heavy goods vehicles (HGVs) in Europe. Like the Euro 1-6 standards for cars and vans, the Euro I-VI standards for HGVs set limits on carbon monoxide, hydrocarbons, nitrogen oxides, and particulate emissions. The most recent Euro VI standards, which introduced limits on ammonia emissions for the first time, were passed under Regulation 582/2011 and are applicable to all HGVs sold after September 2015.

2.3.4 The European Union has approved the Euro 7 standards, which establish emission limits for all new cars, vans, and HGVs under a single piece of legislation. For the first time, the Euro 7 standards will include limits on particulate matter produced by brake and tyre wear. However, due to postponement, the new Euro 7 standards will not begin to take effect in the EU until June 2030. It is also likely that these standards will be implemented in the UK, although this has not been formally confirmed by the UK government.

2.4 National Planning Policy

2.4.1 The **National Planning Policy Framework 2023 (NPPF)**³ sets out the Government's planning policies for England and how these are expected to be applied. The NPPF provides some guidance to local authorities on taking air pollution into account in planning policies and decisions. Paragraph 180 of the Framework states: *'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.'*

2.4.2 The NPPF further states in paragraph 191 that: *‘Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.’*

2.4.3 More specific guidance regarding air quality is provided in Paragraph 192, 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.’*

2.4.4 Further guidance is provided in the **Planning Practice Guidance on Air Quality (PPG-AQ)**² which provides guiding principles on how planning can take account of the impact of new development on air quality. The guidance states that air quality: *‘assessments need to be proportionate to the nature and scale of the development proposed and the potential impacts (taking into account existing air quality conditions) and because of this are likely to be locationally specific.’*

2.4.5 No further specific guidance is currently provided in the NPPF or PPG-AQ. In assessing the risks posed by dust and vehicle exhaust emissions to, or by, new development, reference is therefore made to non-statutory guidance issued by IAQM and Defra as detailed in sub-section 2.5 below.

2.5 Local Planning Policy

2.5.1 The NELC Local Plan 2013-2032¹¹ was adopted in 2018 and sets out the spatial vision and strategic objectives for the area, along with a strategy and policies to enable its delivery.

2.5.2 **Policy 31: Renewable and low carbon infrastructure** explicitly mentions air quality within the policy wording, as set out below:

“Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects: [...]

B. local amenity, including noise, air quality, traffic, vibration, dust, and visual impact;”

2.5.3 **Policy 5: Development boundaries** mentions air quality in the context of neighbouring land uses:

¹¹ North East Lincolnshire Council, Local Plan 2013-2032, adopted 22nd March 2018

“Development boundaries are identified on the Policies Map. All development proposals located within or outside of the defined boundaries will be considered with regard to suitability and sustainability, having regard to: [...]

D. impact upon neighbouring land uses by reason of noise, air quality, disturbance or visual intrusion;”

2.6 National Best Practice and Guidance

2.6.1 The **IAQM Planning for Air Quality**³ document provides specific non-statutory guidance on air quality and the planning system for new development. The guidance clarifies when an air quality assessment is required, what it should contain and how impacts should be described and assessed. The guidance sets out a recommended approach to assess the significance of the air quality impacts and provides suggestions to reducing emissions and impacts.

2.6.2 The **IAQM Guidance on the Assessment of Dust from Demolition and Construction**⁴ document provides specific non-statutory guidance in relation to dust and emissions from construction and demolition.

2.6.3 The **IAQM Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites**¹² provides specific non-statutory guidance in relation to the assessment of air quality impacts of development on designated nature conservation sites.

¹² Institute of Air Quality Management (IAQM), A guide to the assessment of air quality impacts on designated nature conservation sites, version 1.1, May 2020

3 Assessment Methodology

3.1 Scope

3.1.1 The key issues requiring consideration with regards to the Proposed Development and air quality are considered to be:

- construction phase: potential for construction activities to result in adverse impacts due to particulate matter (disamenity dust and PM₁₀); and
- operational phase: potential impacts of traffic generated by the development on local air quality and any nearby sensitive receptors;
- operational phase: potential impacts of any aerial emissions, including dust and odour, from the existing industrial activities on the adjoining Bealey Industrial Estate on new receptors to be introduced as part of the development.

3.1.2 In undertaking this AQA, the following activities have been undertaken:

- review of baseline air quality, including existing potential pollution sources, Bury MBC reports and monitoring data and Defra background data;
- review of background site sensitivity data and nature conservation sites;
- review of development proposals;
- review of current and post-development traffic data;
- visit to view the site surroundings and local road network;
- qualitative construction dust assessment;
- screening assessment of operational traffic movements and routing on local road network;
- provision of recommendations for mitigation; and
- assessment of residual impacts on human and ecological receptors and significance of effects.

3.2 Sources of Information

3.2.1 In undertaking the assessment reference was made to the following background information:

Table 3.1: Background Information Sources

Date and reference	Author and source	Purpose and information content
Background and topographical information		
Promap	Ordnance Survey	general mapping information including topographic, ground features, rights of way, communications etc
satellite imagery, imagery date May 2023 and earlier	aerial photography	site setting
www.magic.gov.uk	multi-agency	web-based interactive map containing information on nature conservation areas

Date and reference	Author and source	Purpose and information content
Air quality information		
2023 Air Quality Annual Status Report, June 2024 (<i>and earlier reports</i>)	Greater Manchester Combined Authority (GMCA)	update of local authority air quality monitoring and assessment; includes data up until end 2023
www.aqma.defra.gov.uk	Defra	details and maps of AQMAs throughout UK
www.laqm.defra.gov.uk	Defra	Local Authority air quality management support; background pollutant mapping

Note: all information websites were accessed in November 2024

3.2.2 Reference has also been made to the information provided by the appointed project transport consultants, Tetra Tech¹³, ¹⁴ and noise consultants, Hepworth Acoustics¹⁵.

3.2.3 The site visit was undertaken by a suitably qualified Air Quality Consultant on 4th November 2024.

3.3 Assessment Methodology

3.3.1 The assessment of potential pollutant impacts considers the potential magnitude of a release (the source potential), the effectiveness of the pathway (i.e. dispersion of a pollutant towards a receptor), and the sensitivity of the receptor. The AQA therefore considers the location of the Proposed Development in relation to sensitive receptors to assess the probability of significant adverse air quality impacts occurring during normal operations. Consideration is made of the orientation and distance of receptors to the Site and affected local road network and the prevailing weather conditions.

3.3.2 Receptors considered in this AQA comprise:

- human receptors - locations where a person or property may experience adverse impacts of airborne dust or exposure to ambient pollutants or odours (i.e. residential, leisure, amenity and sensitive commercial use), and;
- ecological receptors - where this refers to any sensitive habitat that may be affected by dust soiling or increased ambient pollution (e.g. locations with an international, national or local designation and sensitive habitat features).

3.3.3 The sensitivity of the receptors to potential impacts from aerial emissions, whether changes in pollutant concentrations or dust soiling, has been determined as detailed in the relevant guidance as described in Section 2 of this AQA.

¹³ Tetra Tech, e-mail from Tetra Tech to Smith Grant LLP of 31.10.24

¹⁴ Tetra Tech, Proposed Residential Development: Dumers Lane, Radcliffe, Bury, 784-B054854, Transport Assessment, Revision 2, November 2024

¹⁵ Hepworth Acoustics, Proposed Residential Development on land Northwest of Dumers Lane, Radcliffe, Draft Noise Impact Assessment, on behalf of Westchurch Homes Ltd, report ref: P24-337-R01v3, dated October 2024

3.3.4 Further details on the selection of receptors and the methodology of the assessments as detailed in the relevant guidance is described in Appendix B.

3.4 Assessment of Significance

3.4.1 The resulting effects of aerial emissions are the consequences of the potential impacts, i.e. changes in pollutant concentrations and / or deposition, at receptors. IAQM guidelines do not provide a traditional matrix assessment of significant effects with regards to air quality. The frameworks outlined in the guidance above and described in Appendix B provide methodologies for describing air quality impacts and resulting effects at individual receptors. These frameworks are therefore used as a starting point to assess the significance of predicted effects.

3.4.2 Where negligible impacts are predicted, the overall effects will be not significant. In general, where *slight* impacts at receptors are predicted the resulting effects would be considered to be not significant. *Moderate* and *substantial* impacts could result in significant effects. However, the judgement of the overall significance of the air quality effects of the proposals is informed by the predicted impacts and effects at individual receptors and takes into account a number of factors, such as, but not limited to:

- the existing and predicted future air quality in the absence of the proposed development;
- the extent of current and future population exposure to the predicted impacts and the severity of those impacts;
- whether the predicted impacts potentially result in failure to achieve compliance, or enhance compliance, with UK AQOs and national and / or local air quality action plans;
- whether the predicted impacts potentially result in the need for declaration of a new or extended AQMA, or removal of an existing AQMA;
- whether the predicted impacts potentially result in permanent or temporary damage, or improvements, to nature conservation sites of local, national or international importance and the geographical extent of those impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

4 Site Details and Proposed Development

4.1 Site Details and Existing Development

4.1.1 The Site is located off Dumers Lane in Radcliffe, Bury, to the east of Bealey Industrial Estate at OS grid reference 379800, 408100. The Site comprises a combination of open rough ground and existing parts of the industrial estate, totalling about 1.9 ha.

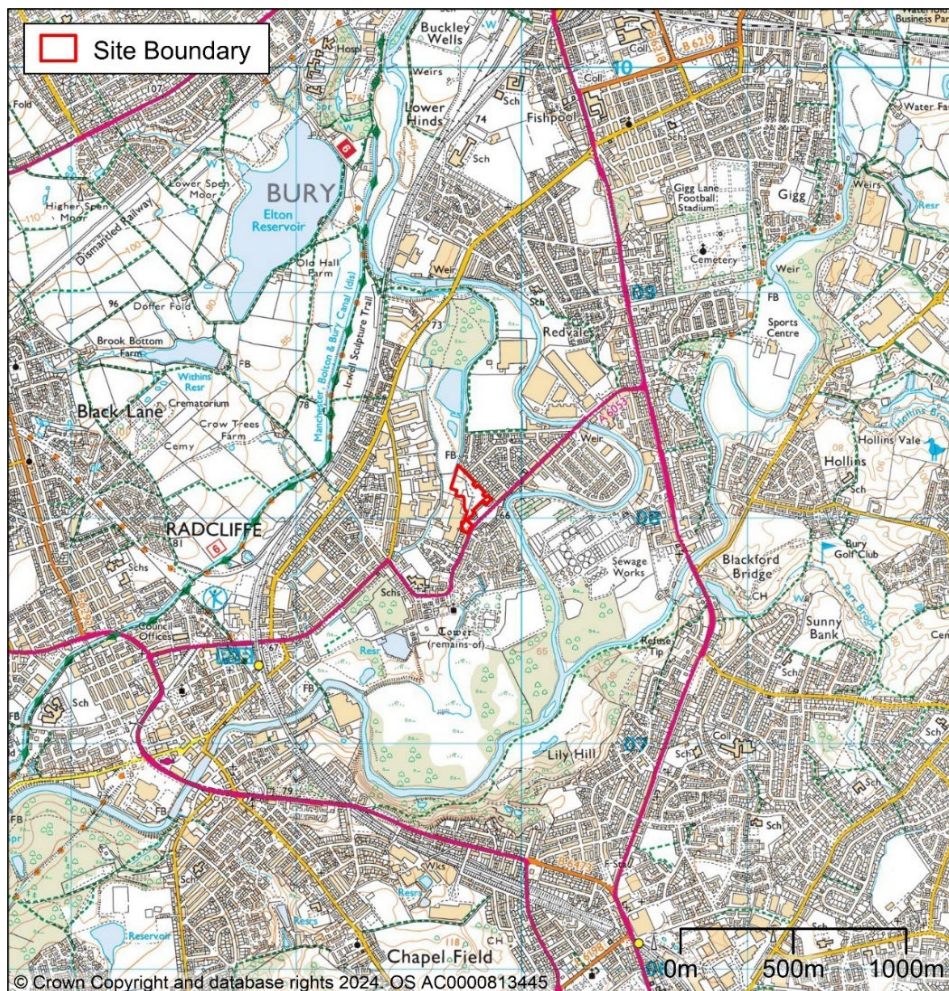
4.1.2 The location is shown in Figures 4.1 and 4.2 below and in plans provided in Appendix A.

4.2 Proposed Development

4.2.1 Proposals are for the construction of around 87 affordable housing units and associated infrastructure. The proposed layout plan is included in Appendix A¹⁶.

4.2.2 Vehicular access / egress is to be via a single point off Dumers Lane to the south of the Site.

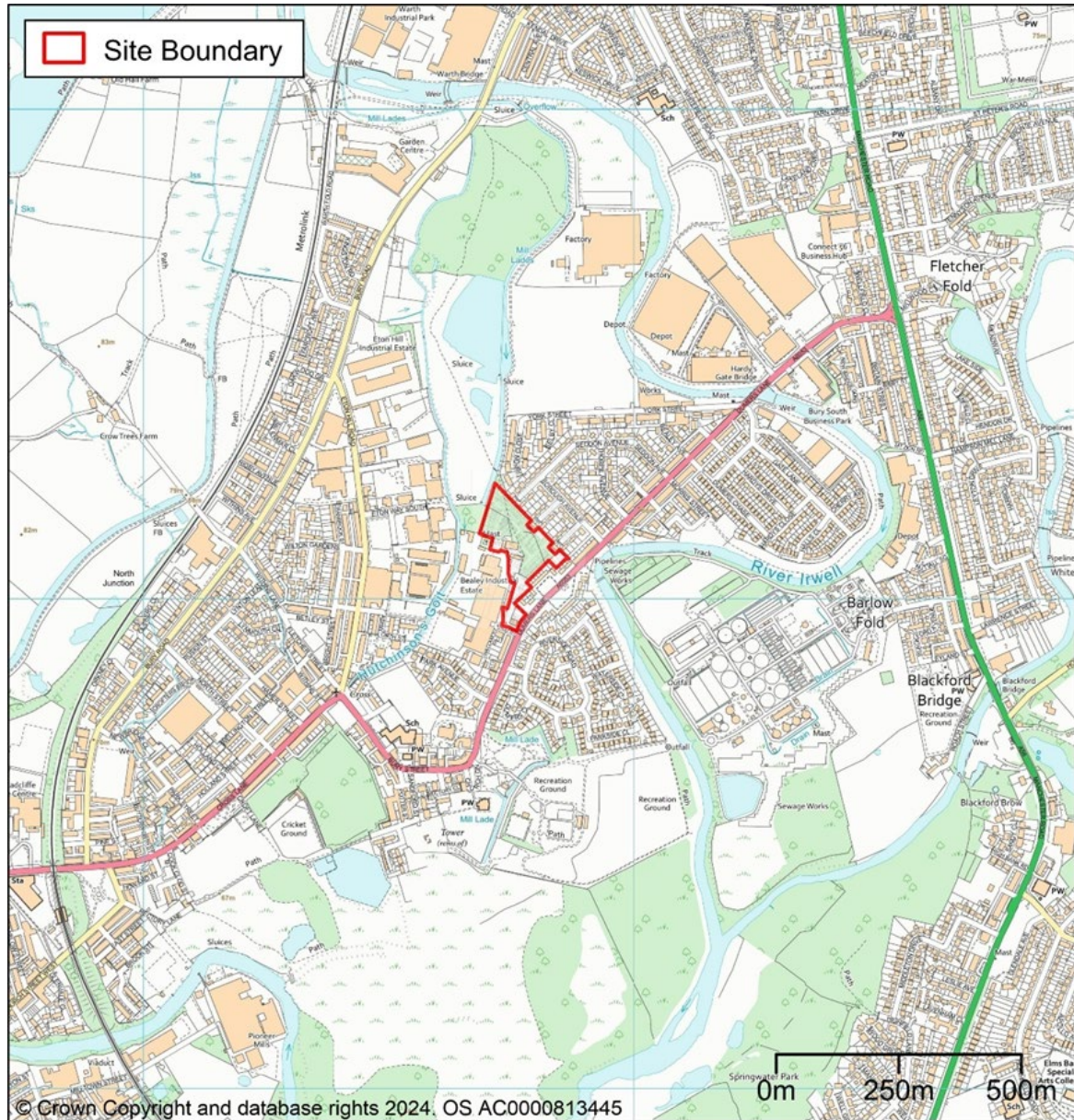
Figure 4.1: Site Location (1:25,000 scale mapping)



(note: see planning application documentation and Appendix A for actual application boundary)

¹⁶ Westchurch Homes Ltd, Bealey Ind Est, Proposed Site Layout, Job No 1025, Drawing SL01, Rev C, dated Aug 2024

Figure 4.2: Site Location (1:10,000 scale mapping)



(note: see planning application documentation and Appendix A for actual application boundary)

Figure 4.3: Aerial Imagery



5 Site Setting and Baseline Conditions

5.1 General Site Setting

5.1.1 The site surroundings are of mixed-use. Bealey Industrial Estate adjoins the Site to the west. The industrial estate is home to a variety of businesses and contains various warehouses, small industrial units, shipping containers, and vehicle parking. The western area of the Site includes some currently active areas of the estate, including a bus company and car wash.

5.1.2 Eton Hill Industrial Estate lies to the west of the Site but is at least 100m from the closest part of the Site boundary.

5.1.3 Residential properties on Seddon Avenue and Borough Avenue are located to the east / northeast of the Site and residential properties on Dumers Lane are located to south of the Site.

5.1.4 Undeveloped wooded and greenfield land is located to the northwest of the Site.

5.2 Nature Conservation Sites

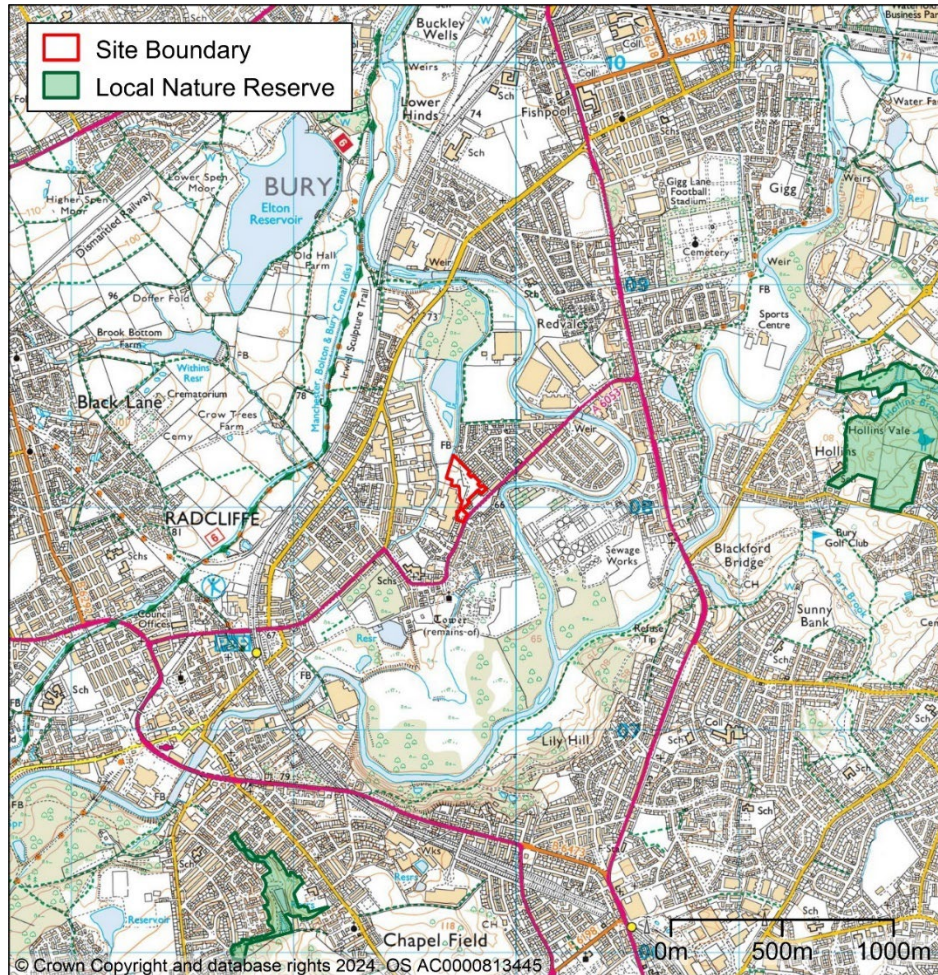
5.2.1 No statutory designated nature conservation sites have been identified within 2km of the site.

5.2.2 Two non-statutory designated nature conservation sites have been identified within 2km of the Site, as summarised below and shown in Figure 5.1.

Table 5.1: Designated Nature Conservation Sites within 2km of the Site¹

Name	Designation	Distance and Orientation from Site
Statutory Designated Sites		
<i>none</i>		
Non-Statutory Designated Sites		
Hollins Vale	Local Nature Reserve	1.53km E
Chapelfield	Local Nature Reserve	1.71km SW

Figure 5.1: Nearby Nature Conservation Sites



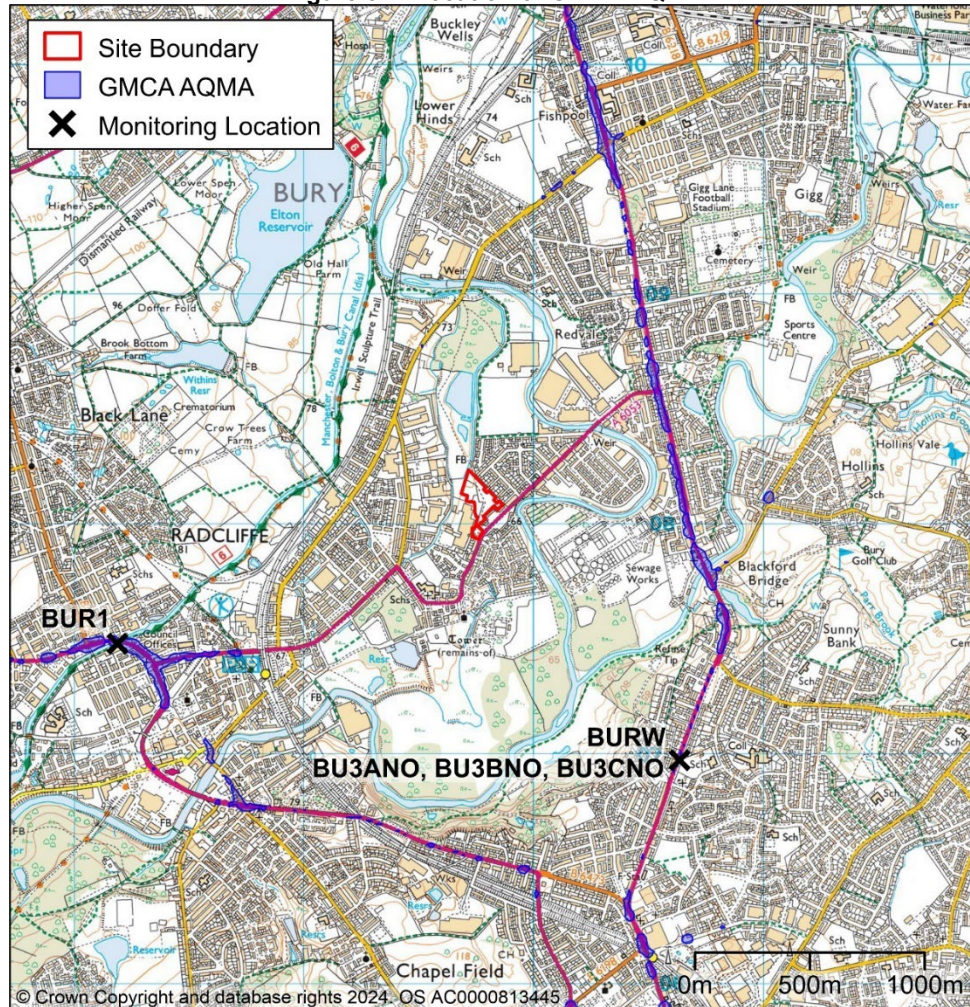
5.3 Topography

5.3.1 The Site lies at about 65-70m Above Ordnance Datum (AOD) with the overall ground level falling gently west to east towards the River Irwell. The Site is locally undulating due to historical site activities and resulting made ground. It is understood an existing earth bund in the northwest corner of the Site which is to be retained as part of the development.

5.4 Local Air Quality Review

5.5 Bury MBC forms part of the Greater Manchester Combined Authority (GMCA) which declared an AQMA encompassing numerous locations across the Greater Manchester highway network in 2016. The AQMA was declared for NO₂ and covers areas where concentrations were modelled to be above 35 µg/m³ as an annual mean. Parts of this AQMA extend along the A56 to the east and the A6053 / A665 to the west of the Site as shown in Figure 5.2.

Figure 5.2: Location of GMCA AQMA



5.5.1 Separately Greater Manchester is currently developing a Clean Air Plan (GM CAP) to tackle exceedances of NO₂ at the roadside in compliance with a government direction¹⁷.

5.6 Local Air Quality Monitoring

5.6.1 Bury MBC undertakes ambient air quality monitoring for nitrogen dioxide (NO₂) and particulate matter (PM₁₀) within its' administrative area utilising both automatic (continuous) and non-automatic (passive diffusion tubes) monitoring facilities.

5.6.2 The monitoring is undertaken both in relation to the LAQM regime and for the purposes the GM CAP. The LAQM regime monitoring takes place in areas where there is public exposure to pollution, such as homes, schools and hospitals, whereas the CAP monitoring is collected largely at busy roadside locations.

5.6.3 Information on monitoring locations within 2km of the Site is provided in the table below and shown above in Figure 5.2. These locations are all associated with the collation of LAQM monitoring data.

¹⁷https://assets.publishing.service.gov.uk/media/620b9b578fa8f549097b865f/Environment_Act_1995_Greater_Manchester_Air_Quality_Direction_2022.pdf

Table 5.2: Monitoring locations within 2km of the Site

Monitor ID	Location Name	Grid Reference	Type	Distance & Orientation from Site
Continuous Analysers				
BURW	Bury Whitefield	380636, 406973	Roadside	1.30km SE
BUR1	Bury Radcliffe	378190, 407480	Roadside	1.61km SW
Diffusion Tubes				
BU3ANO*	Bury Whitefield	380636, 406973	Roadside	1.30km SE
BU3BNO*				
BU3CNO*				

Data as presented in the 2023 GMCA Air Quality Annual Status Report

*Located in triplicate with the Bury Whitefield Continuous Analyser

Nitrogen Dioxide

5.6.4 The monitored annual mean NO₂ concentrations for the years 2018 to 2023 at the monitoring sites are provided below in Table 4.

Table 5.3: Annual mean NO₂ concentrations at monitoring sites located within 2km of the Site

Tube ID	Annual Mean NO ₂ Concentration (µg/m ³)					
	2018	2019	2020 ¹	2021 ¹	2022	2023
Continuous Analysers						
BURW	25	27	19	20	21	20
BUR1	25	26	20	21.7	20	19
Diffusion Tubes						
BU3*	26.4	26.1	25.2	19.1	20.9	19.2

Data as presented in the 2023 GMCA Air Quality Annual Status Report and in earlier reports.

¹Concentrations recorded in 2020 and 2021 expected to be affected by the implications of the COVID-19 pandemic on local traffic movements.

*average of results across triplicate located tubes

5.6.5 As shown in the table, there were no exceedances of the UK long-term air quality objective (AQO) of 40 µg/m³ for annual mean NO₂ concentration recorded at the any of the monitoring locations. All reported annual mean concentrations at these locations are 'well below' the AQO (i.e. less than 70%).

5.6.6 The automatic monitors also record hourly mean NO₂ concentrations. The automatic NO₂ monitoring results are summarised in Table 7 below for the years 2018 to 2023.

Table 5.4: Hourly mean NO₂ monitoring results at locations within 2km of the Site

Tube ID	Number of NO ₂ 1-hour means > 200 µg/m ³ (Not to be exceeded more than 18x per year)					
	2018	2019	2020 ¹	2021 ¹	2022	2023
BURW	0	2	0	0	0	0
BUR1	0	0	0	0	0	0

Data as presented in the 2023 GMCA Air Quality Annual Status Report and in earlier reports.

¹Concentrations recorded in 2020 and 2021 expected to be affected by the implications of the COVID-19 pandemic on local traffic movements.

5.6.7 The UK short-term AQO for NO₂ is that the hourly mean NO₂ concentrations should not exceed 200µg/m³ more than 18 times per year. As shown in the table, there were no exceedances of the UK short-term air quality objective for NO₂ at either of these sites.

5.6.8 Annual mean NO₂ concentrations in 2020 and 2021 are expected to have been affected by the impact of the Covid-19 pandemic on traffic movements¹⁸. The long-term implications of the pandemic on behavioural changes and resulting traffic movements are presently unknown. However, indications are that roadside NO₂ and NO_x concentrations remain expected to decrease and it is considered unlikely that the majority of UK roadside locations are likely to experience concentrations above those experienced in 2019 at any point in the foreseeable future¹⁹. The reported concentrations for 2023 above are consistent with these expectations.

Particulate Matter (PM₁₀)

5.6.9 The automatic monitors also record both hourly mean and annual mean PM₁₀ concentrations. The PM₁₀ monitoring results for the years 2018 to 2023 are summarised in Tables 8 and 9 below.

Table 5.5: Annual mean PM₁₀ concentrations at monitoring locations within 2km of the Site

Tube ID	Annual Mean PM ₁₀ Concentration (µg/m ³)					
	2018	2019	2020 ¹	2021 ¹	2022	2023
BURW	16	18	16	15	16	14
BUR1	18	17	18	17	18	16

Data as presented in the 2023 GMCA Air Quality Annual Status Report and in earlier reports.

¹Concentrations recorded in 2020 and 2021 expected to be affected by the implications of the COVID-19 pandemic on local traffic movements.

Table 5.6: Daily mean PM₁₀ monitoring results at locations within 2km of the Site

Tube ID	Number of PM ₁₀ daily means > 50 µg/m ³ (Not to be exceeded more than 35x per year)					
	2018	2019	2020 ¹	2021 ¹	2022	2023
BURW	2	9	0	0	5	1
BUR1	1	10	3	1	7	1

Data as presented in the 2023 GMCA Air Quality Annual Status Report and in earlier reports

¹Concentrations recorded in 2020 and 2021 expected to be affected by the implications of the COVID-19 pandemic on local traffic movements.

5.6.10As shown in Table 6, there were no exceedances of the UK long-term AQO of 40 µg/m³ for annual mean PM₁₀ concentration at either site. All reported annual mean concentrations are 'well below' the AQO at less than 70%.

5.6.11The UK short-term AQO for PM₁₀ is that the hourly mean PM₁₀ concentrations should not exceed 50µg/m³ more than 35 times per year. As shown in the table, there were no exceedances of the UK short-term AQO for PM₁₀ at either site.

¹⁸ COVID-19: Following the outbreak of a global pandemic of the Coronavirus disease 2019 (COVID-19) due to the SAR-CoV-2 virus, the UK Government declared several restrictions on non-essential travel and movement during March 2020. Various restrictions remained in place during 2020 and 2021 with resulting implications on transport movements across the UK.

¹⁹ Air Quality Consultants, Trends in UK NO_x and NO₂ Concentrations – May 2022 Update, 13.05.22

5.7 Predicted Background Air Quality Data

5.7.1 Defra publishes predicted background pollutant concentration maps for 1km x 1km grid squares across the UK. These are updated on a periodic basis due to updates in background data such as vehicle emissions factors. The current maps were issued in 2020 and the predicted data is based on 2018 ambient monitoring and meteorological data. The maps incorporate revised information on the age and distribution of vehicles and emission factors and take account of existing local sources of emissions. Predicted data is provided by Defra for each year from 2018 to 2030²⁰.

5.7.2 Predicted NO₂, NO_x, PM₁₀ and PM_{2.5} data for the grid square in which the Site and nearest sensitive receptors are located for 2024 and a future year, 2029, are detailed in Table 5.7 below.

Table 5.7: Predicted Background Air Quality Data

Grid Square	Location	Predicted Pollutant Concentrations (µg/m³)			
		NO ₂	NO _x	PM ₁₀	PM _{2.5}
2024					
379500 408500	Site	11.84	15.82	10.91	7.37
379500 407500	South of Site / Site entrance	12.62	16.98	11.21	7.67
2029					
379500 408500	Site	10.45	13.83	10.76	7.26
379500 407500	South of Site / Site entrance	11.07	14.73	11.06	7.56
Air Quality Assessment Level ²		40	30 (v)	40	20 (12) ³

1: data downloaded from Defra website on 26th September 2024

2: AQAL – Air Quality Assessment Level; established long-term UK air quality objective (as annual mean)

3: Recently established new interim target for PM_{2.5} for 2028

v – established for the protection of vegetation

5.7.3 The background pollutant concentrations in the locality are all predicted to be below the relevant long-term objectives.

5.7.4 It should be noted that the data are effectively an average concentration across each 1 km square. Pollutant concentrations will therefore be higher at any individual receptor close to any significant source, such as the town centre and associated road network to the southeast.

²⁰The projections in the 2018 LAQM background maps are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these maps do not reflect short or longer-term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.

6 Construction Dust Assessment

6.1 Introduction

6.1.1 Demolition, earthworks and construction works can result in the generation of fugitive dust (particulate matter). This can result in disamenity impacts due to dust deposition and human health impacts due to elevated PM₁₀. Dust deposition can also result in impacts on ecological receptors. The degree of potential dust generation during construction is primarily dependent on the scale of the works and HGV movements.

6.1.2 A construction dust assessment has been provided in accordance with the IAQM guidance⁴ to provide a robust assessment of the potential impacts of the proposed development.

6.2 Assessment

Dust Emission Magnitude

6.2.1 The potential dust emission magnitudes for activities at the Site have been assessed as follows:

Table 6.1: Dust Emission Magnitude

Activity	Class	Comment
demolition	small	Some demolition works required associated with bus company, car wash and Diamond Fireworks buildings; building volume <12,000 m ³ ; primarily metal clad structures with low dust generation potential
earthworks	large	site area >10,000m ²
construction	large	total building volume >100,000m ³ ; potentially dusty construction material
trackout	large	potential internal unpaved road lengths of >100m

Area Sensitivity

6.2.2 The IAQM guidance provides screening distances from an application site boundary of up to 250m for human receptors and 50m for ecological receptors, and up to 50m of routes to be used by construction vehicles up to 250m from a site entrance for human and ecological receptors.

6.2.3 The sensitivity of the area to dust soiling, human health and ecological impacts has been assessed as follows:

Table 6.2: Sensitivity of Area¹

Activity	Sensitivity	Comment
Dust Soiling Effects on People and Property		
demolition	high	10-100 sensitive receptors within 20m of the site boundary
earthworks		>100 sensitive receptors within 50m of the site boundary
construction		
trackout	high	10-100 receptors within 250m of the egress point up to 20m of the road edge
Human Health Impacts²		
demolition	low	predicted background PM ₁₀ <24 µg/m ³
earthworks		10-100 sensitive receptors within 20m of the site boundary
construction		
trackout	low	predicted background PM ₁₀ <24 µg/m ³ 10-100 receptors within 250m of the egress point up to 20m of the road edge
Ecological Impacts		
demolition	n/a	no designated ecological Sites within 50m of the Site
earthworks		
construction		
trackout	n/a	no designated ecological Sites within 250m of the egress point up to 50m of the road edge

1: With reference to Tables 2 to 4 of IAQM guidance

2: IAQM guidance provides different sensitivity banding depending on the area background PM₁₀ concentrations. Defra data provides a predicted background PM₁₀ concentration of 13.60-14.51µg/m³ for the grid squares in which the Site and receptors are located for 2024. On this basis reference to the background concentration band of <24 µg/m³ is considered appropriate.

6.2.4 In determining the overall sensitivity of the area other factors should be taken into account such as other local dust generating sources and the prevailing wind direction. The following points are therefore noted with regards to the Site:

- prevailing wind direction is south-westerly and hence towards human receptors to the northeast.

6.2.5 The overall sensitivity is defined as set out below:

Table 6.3: Outcome of Defining the Sensitivity of the Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	high	high	high	high
Human Health	low	low	low	low
Ecological	n/a	n/a	n/a	n/a

Risk of Dust Impacts

6.2.6 Taking into account the dust emission magnitude and the sensitivity of the area, the risk of dust impacts, in the absence of mitigation, at nearby sensitive receptors are as follows:

Table 6.4: Risk of Dust Impacts – in absence of mitigation

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	medium risk	high risk	high risk	high risk
Human Health	low risk	low risk	low risk	low risk
Ecological	n/a	n/a	n/a	n/a

Note: Based on Tables 7, 8 and 9 in the IAQM guidance

6.2.7 In summary, the assessment indicates that there is a *medium* risk of dust soiling impacts during demolition works and a *high* risk of dust soiling impacts arising from fugitive dust during the earthworks and construction works. There is a *high* risk of dust soiling associated with trackout.

6.2.8 There is a *low* risk of PM₁₀ human health impacts during the demolition, earthworks and construction phases, and from trackout.

6.3 Mitigation

6.3.1 The potential for dust related impacts arising from construction activities can however be readily controlled and mitigated through the implementation of standard dust management techniques. The above assessment is therefore used to determine the level of mitigation that should be employed during the construction works to minimise the risk of adverse dust impacts. Given the scale of the development site-specific mitigation is recommended.

6.3.2 It is envisaged the required measures would be specified within a Dust Management Plan (DMP) to be incorporated within an overarching Construction Environmental Management Plan (CEMP). The Construction Environmental Management Plan (CEMP) would be prepared and agreed prior to the onset of construction works and would include best practice measures with respect dust. This is consistent with the Bury MBC pre-application advice that a Construction Management Plan would be required¹.

6.3.3 Recommended standard measures include, but are not limited to, the following:

- as an over-riding requirement, should winds carry visible dust towards the Site boundaries the operations giving rise to the dust in that part of the Site should be modified or suspended until more suitable conditions pertain, or until effective dust control measures are implemented;
- undertake daily on-site and off-site inspections to monitor dust;
- restriction of haulage to designated haul routes; preparation of haulage routes with compacted stone or other similar material; regular inspection and maintenance of good running surfaces;
- setting an appropriate Site speed limit;
- dust suppression by regular spraying with clean water in dry conditions;
- cleaning of any trackout or other deposits from the adjacent highways.;

- minimisation of drop heights during tipping and loading; loading and tipping in the lee of existing structures and stockpiles; and,
- effective staff training in respect of the causes and prevention of dust.

6.3.4 In designing the DMP further reference should be made to the recommended measures provided in the IAQM guidance⁶ (or as may be appropriate at the time) for 'high' risk sites.

6.3.5 In addition, the DMP should any site-specific measures determined as necessary through intrusive site investigations.

6.3.6 Through the implementation of an appropriate DMP during the construction works no significant adverse impacts associated with construction dust are likely.

7 Vehicle Exhaust Emissions

7.1 Potential Traffic Generation and Routing

7.1.1 Information has been provided by the appointed Transport Consultant, Tetra Tech, on the estimated vehicle movements associated with the Proposed Development.

7.1.2 Proposed Development of 87 dwellings is expected to generate 393 2-way traffic movements (197 in / 197 out) as AADT. These would all comprise Light Duty Vehicle (LDV) movements. All access / egress is to be via a single point off Dumers Lane. The east / west split on Dumers Lane is expected to be 50%:50%, resulting in +197 AADT additional movements on Dumers Lane to / from the west of the Site access and +197 AADT to / from the east of the Site access.

7.2 Screening Assessment – Human Health

7.2.1 As detailed in Appendix B the IAQM guidance on air quality and planning provides the following indicative criteria for proceeding to an Air Quality Assessment (AQA) for a planning application:

- **where within, or close to, an AQMA:** results in a change of LDV flows of more than 100 Annual Average Daily Traffic (AADT) and / or Heavy Goods Vehicles (HGV) flows of more than 50 AADT;
- **where distant from an AQMA:** results in a change in LDV flows of 500 AADT and / or HGV flows of more than 100 AADT.

7.2.2 Such an AQA may take the forms of a 'Simple' or 'Detailed' Assessment. This will dependant on site-specific circumstances such as the proximity of any relevant receptors to any affected roads.

7.2.3 As discussed in Section 5, there are no AQMAs within the immediate vicinity of the Site. The GMCA AQMA extends to 750m of the Site at the nearest point.

7.2.4 The maximum vehicle movements would be experienced at the site access, with movements being dispersed on the wider local road network. At +393 AADT the predicted LDV movements to and from the Proposed Development are below the indicative threshold of +500 AADT for where distant from an AQMA. Existing properties near the access are also set-back at least 9m from the roadside. The additional vehicle movements at this location and along the nearby stretches of the Dumers Lane are not therefore expected to result in significant adverse impacts due to vehicle emissions.

7.2.5 The presence of the GMCA AQMA on the A56 to the east and A6053 / A665 to the west of the Site is noted. At +197 AADT the predicted development movements along these stretches or roads would be above the IAQM screening threshold of +100 AADT for where within, or close to, an AQMA.

7.2.6 It is however noted that recent air quality monitoring in the area shows annual mean NO₂ concentrations to be well below the AQO. This includes at monitoring location BUR1 which forms

a 'roadside' location within the AQMA. Annual mean NO₂ concentrations here in 2023 were 19 µg/m³.

7.2.7 In addition, as discussed above in paragraph 5.6.8, indications are that roadside NO₂ concentrations are expected to continue to decrease due to improvements in emission technologies and evolution of the UK vehicle fleet with increased take up of low emission vehicles. It is considered unlikely that the majority of UK roadside locations are likely to experience concentrations above those experienced in 2019 at any point in the foreseeable future²¹.

7.2.8 It is further noted that parts of the Site are in current existing use, including as a car wash and bus company. There are therefore existing vehicle movements associated with the Site. The actual change in vehicle movements to / from the Site due to the proposals would therefore be less than +393 AADT stated above. The additional movements due to the proposals on the wider local road network would therefore be less than the +197 AADT stated above.

7.2.9 In light of the above comments, and on-going expected improvements in vehicle emissions, it is not expected that the additional vehicle movements would result in significant adverse impacts on local air quality in relation to human health.

7.3 Screening Assessment – Ecological

7.3.1 Separate guidance is provided by Natural England (NE) in relation to vehicle exhaust emissions and ecological sites and is re-iterated in IAQM guidance [ref]. Where the total vehicle flow changes by 1,000 AADT or more, **and** where an ecological receptor is located within 200m of the affected road, then further assessment in relation to ecological receptors may be required.

7.3.2 The predicted development related vehicle movements are well below this screening threshold. In addition, the two Local Nature Reserves identified within 2km of the Site are distant from the local road network as shown in Figure 5.1.

7.3.3 The proposals would not therefore result in significant adverse impacts due to vehicle emissions on nature conservation sites.

7.4 Mitigation

7.4.1 The planning application is supported by a Travel Plan Framework²². This set out the applicant's strategy for reducing the number of vehicular trips by the development and to support and promote more sustainable modes of travel.

²¹ Air Quality Consultants, Trends in UK NO_x and NO₂ Concentrations – May 2022 Update, 13.05.22

²² Tetra Tech, Proposed Residential Development: Land off Dumers Lane, Radcliffe, Bury, Travel Plan Framework, Rev 01, ref: 784-B054854, November 2024

7.4.2 In addition, all dwellings will be provided with electric vehicle (EV) charging points as standard in accordance with Approved Document S of the Building Regulations (2021 Edition). This will further encourage the uptake of low emission vehicles.

7.4.3 Additional mitigation is not deemed necessary.

8 Other Considerations

8.1 Existing Local Air Quality

- 8.1.1 The Site is adjoined to the west by the existing Bealey Industrial Estates which houses a variety of light industrial activities. The nearest activities include Glosta Engineering in the northeast corner of the estate which is reported as 'manufacturing skips and containers' and an Eastern Yard Area. The Proposed Development would introduce new receptors closer to these parts of the estate than currently exist.
- 8.1.2 These adjoining activities may give rise to aerial emissions including combustion emissions, dust and odours. Glosta Engineering is noted to have a unit in the northeast corner which may be associated with volatile organic carbon (VOC) or flammable material extraction (sign saying 'this is a no smoking area') along with a stack located on the northern edge of Unit 10a.
- 8.1.3 The Environmental Protection Team at Bury MBC has advised they are not aware of any sites facilities holding Integrated Pollution Prevention Control (IPPC) Part A1, or Local Authority Integrated Pollution Prevention and Control (LAIPPC) Part A2 Permits within 250m of the site²³. They are aware of one site with a Local Authority Pollution Prevention and Control (LAPPC) Part B Permits within 250m of the site. This is held by M&S Commercial, Unit 5, Bealey Industrial Site for a vehicle respraying permit (Permit ref: LAPPC04-14)²¹.
- 8.1.4 At the time of preparation of this report a copy of the Permit itself has not been provided by Bury MBC or obtained. It is therefore unknown at this stage if this relates to the unit noted above in paragraph 8.1.2 or a different unit. The specific requirements of the Permit held by M&S Commercial are also unknown.
- 8.1.5 Bury MBC has further advised that No complaints have been logged against Bealey Industrial Estate in relation to dust or air emissions from any activities on the site in the last 3 years. No Statutory Notices for nuisance have been served against Bealey Industrial Estate or the immediate area within the last 12 months.
- 8.1.6 The proposals include for retention of the existing earth bund in the northwest of the Site as shown in the planning layout plan in Appendix A. This provides screening from parts of the Glosta Engineering facility.
- 8.1.7 Proposals are for the provision of additional acoustic fence to this bund for noise mitigation purposes, providing a six metre high acoustic fence/bund in this area¹⁴. A further three metre high acoustic fence has also been recommended for noise mitigation along the western Site boundary providing screening from the development to the estate.

²³ Environmental Protection Officer, Bury Metropolitan Borough Council, Environmental Search Request, Bealey Industrial Estate, Hallam Street, Radcliffe Manchester, M26 2BD, ref: ES912.191124.1, dated 19 November 2024

8.1.8 It is unlikely there are any sources of aerial emissions on the estate that may result in significant adverse impacts on occupants of the new dwellings. The permit process highlight above would be subject to certain physical and management controls and measures to mitigate aerial emissions. However, it is advised the permit information is subject to review. In addition, it is advised a period of ambient air quality monitoring is undertaken within the Site to obtain further information on potential baseline air quality conditions. Parts of the Site are currently covered with trees minimising the suitability for monitoring. At this stage this could comprise the deployment of passive diffusion tubes along the earth bund and within accessible open areas with sampling carried out for NO₂ and VOCs. This would need to be undertaken for a minimum of 3 months to account for seasonal fluctuations.

8.1.9 The proposals would also introduce new receptors closer to Dumers Lane than currently exist along this stretch of the road. However, this stretch of road does not lie within the GMCVA AQMA and no air quality concerns with the existing air quality here in relation to vehicle emissions have been identified. There is not considered to be a significant risk of adverse impacts on new receptors due to road traffic emissions.

9 Summary and Conclusions

- 9.1 This Air Quality Assessment (AQA) has been prepared by Smith Grant LLP (SGP) for Westchurch Homes Ltd. In relation to a planning application for the construction of 87 residential units and associated infrastructure (the Proposed Development) on land off Dumers Lane, Radcliffe, Bury.
- 9.2 Given the scale of the development suitable measures will be required to minimise the risk of adverse dust impacts during the construction phase. The potential for dust related impacts arising from construction activities can however be readily controlled and mitigated through the implementation of standard dust management techniques.
- 9.3 The required measures should be specified within a Dust Management Plan (DMP) to be incorporated within an overarching Construction Environmental Management Plan (CEMP). The Construction Environmental Management Plan (CEMP) would be prepared and agreed prior to the onset of construction works and would include best practice measures with respect dust.
- 9.4 The Site and immediate local road network is not located within an AQMA. Stretches of the wider road network to the east and west do lie within the GMCA AQMA. The nearest ambient air quality monitoring is undertaken by Bury MBC at busy roadside locations over 1km distant, one location being within the AQMA. Data for 2023 reports annual mean NO₂ concentrations at these locations, including that within the AQMA, to be well below the relevant air quality objective. Further monitoring on the wider local road network similarly reports annual mean NO₂ concentrations to remain well below the objective.
- 9.5 It is predicted that the development would result in 393 2-way LDV movements a day to / from the Site. The actual additional movements generated by the development would be less than this due to the removal of the existing uses, including a car wash and bus company. All additional movements would be experienced at the Site access and thereafter dispersed east/west on Dumers Lane, on a 50%:50% split.
- 9.6 The predicted development related movements at the Site access and on the immediate local road network would be less than the screening thresholds referred to as indicating the need for an air quality assessment.
- 9.7 Movements on the wider road network to the east and west, where within the existing AQMA, would be more than the relevant screening thresholds. However, as noted above the additional movements generated would be less due to removal of existing Site uses and recent air quality monitoring shows annual mean NO₂ levels to be well below the AQO.

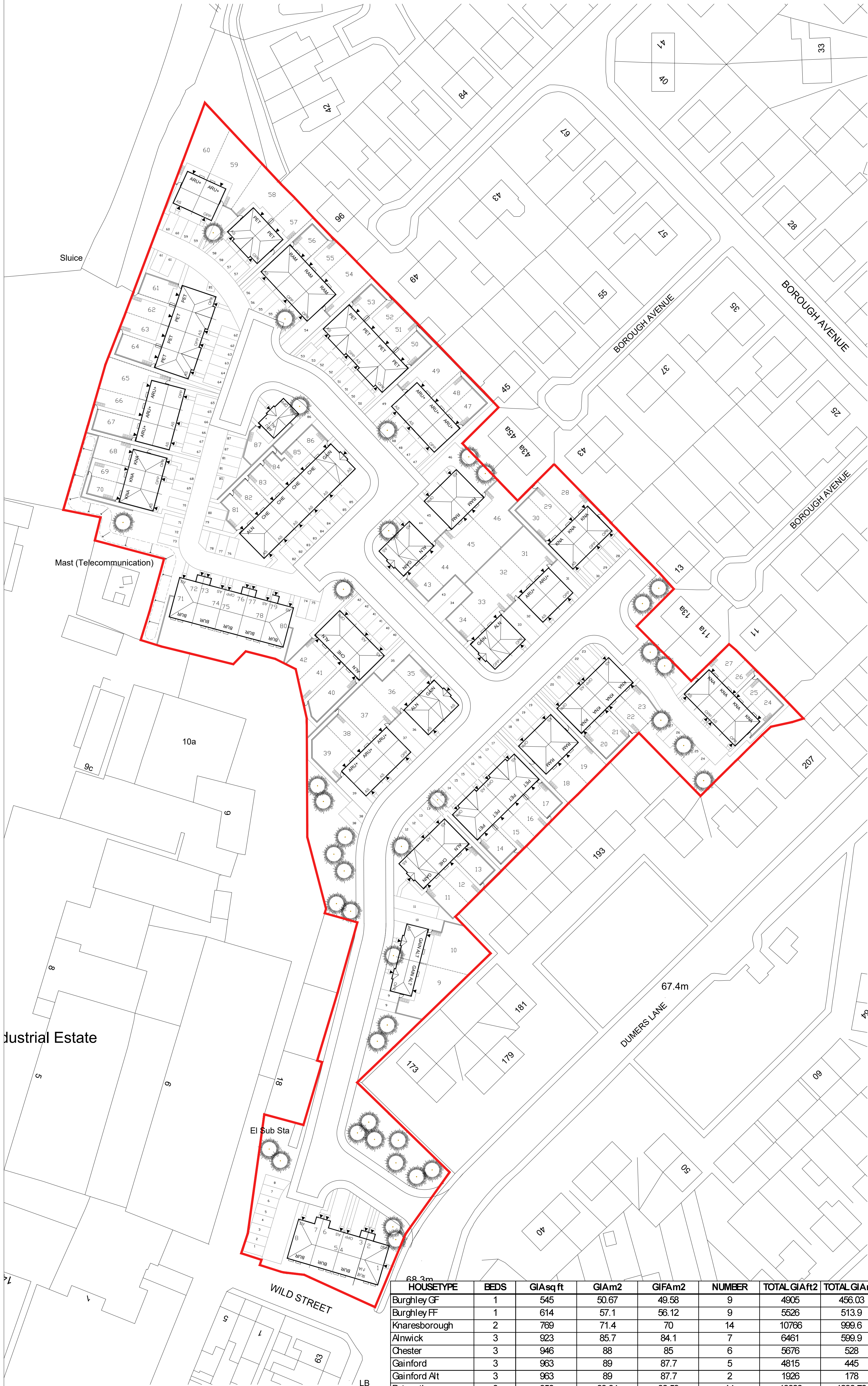
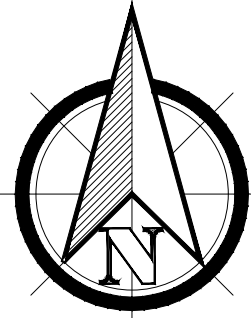
- 9.8 The planning application is supported by a Travel Plan Framework with the aim of encouraging use of sustainable transport methods. All dwellings would be provided with EV charging points where appropriate in accordance with Building Regulations.
- 9.9 Overall, it is considered the additional traffic associated with the Proposed Development would not result in any unacceptable impacts on existing or future human health receptors.
- 9.10 The proposals would result in the introduction of new receptors closer to some of the activities on the industrial estate compared to currently. It is unlikely these activities would result in any significant adverse impacts due to aerial emissions. However, it is recommended this is subject to further review and a period of monitoring to obtain further information.

APPENDIX A

Proposed Site Layout

LAND OFF DUMERS LANE, RADCLIFFE

general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any
discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and
specifications relating to the job whether or not indicated on the drawing.
copyright reserved to mck associates ltd. and this drawing may not be used or
reproduced without prior written consent.



C	21.10.24	KLW	Plot around the acoustic bund reconfigured.
B	03.10.24	KLW	Plot 61-79 adjusted and private drive amended to allow for acoustic bund.
A	13.09.24	KLW	Access road relocated and plots 1-8 adjusted to suit.
Rev	Date	By	Description

Client:

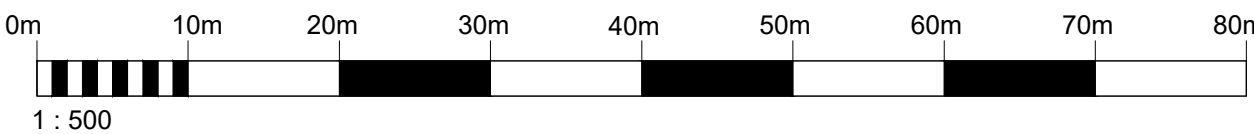


Project:
BEALEY IND EST
RADCLIFFE

Drawing Title:
PROPOSED SITE LAYOUT

Drawn: KW	Checked:	Scale: 1:500	Date: AUG 2024
Job No: 1025	Drawing No: SL01	Rev: C	

HOUSETYPE	BEDS	GIA sqft	GIA m2	GIFA m2	NUMBER	TOTAL GIA ft2	TOTAL GIA m2
Burghley GF	1	545	50.67	49.58	9	4905	456.03
Burghley FF	1	614	57.1	56.12	9	5526	513.9
Knarborough	2	769	71.4	70	14	10766	999.6
Alnwick	3	923	85.7	84.1	7	6461	599.9
Chester	3	946	88	85	6	5676	528
Gainford	3	963	89	87.7	5	4815	445
Gainford Alt	3	963	89	87.7	2	1926	178
Petworth	3	950	88.34	86.53	14	13300	1236.76
Ramsdell	4	1070	99.37	97.58	7	7490	695.59
Arundel +	4	1212	112.5	110.8	13	15756	1462.5
Arundel + Alt	4	1259	116.97	115.94	1	1259	116.97
TOTAL					87	77880	7232.25



APPENDIX B

Assessment Methodologies

Appendix B

Air Quality Assessment Methodology

1. Construction Dust Assessment

- 1.1. The assessment of the air quality impacts due to the generation and dispersion of dust and PM₁₀ during the construction phase has been undertaken in accordance with the current guidance issued by the IAQM in relation to demolition and construction dust¹. The guidance describes a qualitative assessment methodology to assess the risks of dust and PM₁₀ impacts from demolition, earthworks and construction activities and from trackout, and provides guidance for assessing the significance of the effects. The assessment methodology is summarised below but for full details reference should be made to the IAQM guidance.

Step 1

- 1.2. In accordance with the IAQM guidance, the following screening criteria are referred to indicate whether further detailed assessment is required:
- A human receptor within:
 - 350m of a site boundary; or
 - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s);
 - An ecological receptor within;
 - 50m of the boundary of the site; or
 - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- 1.3. Where the need for further assessment can be screened out it can be concluded that the level of risk is *negligible* and any effects would not be significant.

Step 2

- 1.4. Where further assessment is required this is undertaken through use of the source-pathway-receptor concept. The risk of dust arising in sufficient quantities from a site to cause annoyance and / or health or ecological impacts and resulting effects is dependent on:
- the scale and nature of the works (potential **magnitude** of dust emissions);
 - the effectiveness of the pathway (i.e. dispersion towards a receptor; proximity of receptors); and
 - the sensitivity of the receptors, both human and ecological.

¹ Institute of Air Quality Management (2014), *Guidance on the Assessment of Dust from Demolition and Construction*. v1.1.

- 1.5. A site is allocated a Potential Dust Emissions Magnitude of large / medium / small for demolition, earthworks, construction and track out taking into account factors such as the size of the site, type of soils, building volume and vehicle movements. Examples are provided below:

Table 1.1: Examples definitions to define dust emission magnitudes for each activity

Activity	Dust Emission Magnitude		
	Large	Medium	Small
Demolition	• >50,000m³ build volume • dusty material (e.g. concrete) • on-site crushing	• between 20,000m³ and 50,000m³ build volume • potentially dusty material	• <20,000m³ build volume • low dust material • occurs in winter
Earthworks	• >10,000m² site area • >100,000 tonnes material moved • dusty soil type (e.g. clay) • >10 active plant	• <10,000m² site area • <100,000 tonnes material moved • possible dusty soil type (e.g. silt) • 5-10 active plant	• <2,500m² site area • <20,000 tonnes material moved • large grain soil type (e.g. sand) • <5 active plant
Construction	• >100,000m³ build volume • onsite concrete batching	• <100,000m³ build volume • dusty construction material (e.g. concrete)	• <25,000m³ build volume • low dust construction material (e.g. metal)
Trackout	• >50 outward HDV movements • unpaved road 100m	• 10-50 outward HDV movements • unpaved road 50-100m	• <10 outward HDV movements • unpaved road <50m

- 1.6. The impact of generated dust will depend on the sensitivity of an area. The sensitivity of the area is determined for dust soiling, human health and ecological impacts respectively taking into account several factors, as follows:

- the specific sensitivities of receptors in the area;
- the number of those receptors;
- the distance of the receptors from the dust source;
- in the case of PM₁₀, the local background concentrations; and
- site specific factors, such as whether there are natural shelters or screening e.g. trees to reduce the risk of wind-blown dust.

- 1.7. Examples of receptor sensitivities are summarised in the tables below.

Table 1.2: Example sensitivity of receptors to dust soiling effects

Sensitivity		
High	Medium	Low
people and property		
- Users expect high level of amenity - Users present continuously - Property appearance / value would be expected to be diminished by dust soiling	- Users expect reasonable level of amenity - Users not present continuously - Property appearance / value might be expected to be diminished by dust soiling	- Users do not expect reasonable level of amenity - Users present for limited time - Property appearance / value would not be expected to be diminished by dust soiling
examples		
Dwellings, car showrooms, long-term car parks, sensitive horticultural land	Places of work, parks	Short-term car parks, playing fields, footpaths, non-sensitive farmland, roads

Table 1.3: Example sensitivity of receptors to PM₁₀ health effects

Sensitivity		
High	Medium	Low
Exposure of members of the public for eight hours or more in a day	Exposure of workers for eight hours or more in a day	Exposure is transient
examples		
- Members of the public - Dwellings, hospitals, schools, care homes	- Workers - Offices, shops	Playing fields, footpaths, parks, shopping streets

Note: assessment of sensitivity also takes into account local background PM₁₀ concentrations

Table 1.4: Example sensitivity of receptors to ecological effects

Sensitivity		
High	Medium	Low
Locations with international or national designation where the designated feature may be affected by dust soiling	Locations with national designation where the designated feature may be affected by dust soiling	Locations with local designation where the designated feature may be affected by dust soiling
Locations with communities of dust-sensitive species	Locations with important species where dust sensitivity is uncertain	

1.8. Receptors are considered up to the following distances:

Table 1.5: Summary of Distances to Receptors Considered

	dust soiling	human health	ecological
demolition, earthworks, and construction	up to a distance of 350m from a site		up to a distance of 50m from a site
trackout	up to a distance of 50m from the edge of a road used for construction traffic and up to 500m from the site exit along that road		

- 1.9. The overall sensitivity of an area to dust soiling effects can therefore be assessed as summarised in the example table below.

Table 1.6: Example Summary of the Outcome of the Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	Medium
Human Health	High	High	High	High
Ecological	Medium	Medium	Low	Low

- 1.10. The overall risk of impacts and effects for each activity considers the derived sensitivity of the area and the dust emission magnitude for each phase of the development, as summarised in the matrix below.

Table 1.7: Risk of Dust Impacts

Sensitivity of Area	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			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

- 1.11. Other factors such as local topography and prevailing wind direction are also considered.

2. Vehicle Emissions – Screening Assessment Methodology

2.1. Introduction

2.1.1. The assessment of vehicle emissions associated with the Proposed Development has been undertaken in accordance with the IAQM planning guidance in relation to planning, air quality and human health² and ecological³ receptors. Relevant receptors include residential dwellings, schools and hospitals, areas of leisure use and ecologically sensitive sites.

2.2. Screening Assessment

2.2.1. The level of assessment required was determined through an initial screening review considering the predicted vehicle movements in association with the proposed activities, the routing of vehicles along the roads within the transport assessment study area and locations of sensitive receptors.

2.2.2. The following criteria were used to determine potentially affected roads:

- LDV (Light Duty Vehicle) flow change by 500 AADT (annual average daily traffic) or more outside an AQMA (Air Quality Management Area), or 100 AADT or more within or adjacent to an AQMA;
- HDV (Heavy Duty Vehicle) flows change by 100 AADT or more outside an AQMA, or 25 AADT or more within or adjacent to an AQMA;
- Road alignment changing by 5m or more;
- Introduction or removal of a junction.

2.2.3. Where these criteria are met and there are relevant receptors present further assessment is required. This may take the form of a Simple or Detailed Assessment. The IAQM guidance does not specify at what distance a receptor should be to an affected road to indicate the need for further assessment. However, pollution concentrations fall rapidly away from the roadside and are expected to return to background levels within 100m of a road source⁴. For the purposes of the assessment reference is made to Highways England (*now National Highways*) DMRB⁵ guidance which requires assessment of receptors within 200m of affected roads.

2.2.4. Where there are no receptors within 200m of affected roads, these roads have not been considered further and potential impacts of vehicle emissions can be considered *negligible* and as having an insignificant effect.

² Institute of Air Quality Management (2017), Land-use Planning & Development Control: Planning for Air Quality. v1.2.

³ Institute of Air Quality Management (IAQM), A guide to the assessment of air quality impacts on designated nature conservation sites, version 1.0, June 2019

⁴ Air Quality Consultants (2008), NO₂ Concentrations and Distance from Roads, J504

⁵ Highways England (HE), Design Manual for Roads and Bridges (DMRB), LA 105 Air Quality, Revision 0, November 2019

2.2.5. Separate guidance is provided by Natural England (NE) in relation to ecological sites⁶ and is reiterated in IAQM guidance².

2.2.6. To assess whether further assessment in relation to ecological receptors was required reference was initially made to the following screening criteria:

- Total vehicle flow change by 1,000 AADT or more; or HDV flows change by 200 HGV AADT or more, where an ecological receptor is located within 200m of the affected road.

2.2.7. With regards to this planning application the screening assessment concluded that no further consideration of vehicle emissions was required.

⁶ Natural England (NE), Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, v1.4 Final, June 2018