

Air Quality Assessment
Paddock Road, Kirkburton

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Executive Summary

Redmore Environmental Ltd was commissioned by Persimmon Homes West Yorkshire to undertake an Air Quality Assessment in support of a residential development on land off Paddock Road, Kirkburton.

An Air Quality Assessment was undertaken to:

- Assess potential impacts associated with fugitive dust emissions during the construction phase of the proposed development;
- Assess potential impacts associated with road transport emissions during the operational phase of the proposed development; and,
- Identify any requirement for relevant mitigation measures.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of earthworks, construction and trackout activities. It is considered that the use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the development. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the highway network both with and without the development in place. Results were subsequently verified using local monitoring data.

Review of the dispersion modelling results indicated that air quality impacts as a result of traffic generated by the development were not predicted to be significant at any sensitive location in the vicinity of the site.

A number of mitigation measures were identified in line with the requirements of the 'West Yorkshire Air Quality & Emissions: Technical Planning Guidance' in order to reduce vehicle exhaust emissions associated with the proposals. It is considered these are appropriate for a development of this scale and nature and will further control impacts during the operational phase.

Based on the assessment results, air quality factors are not considered a constraint to planning consent for the development.

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1.0 INTRODUCTION

1.1 Instruction

- 1.1.1 Redmore Environmental Ltd was commissioned by Persimmon Homes West Yorkshire to undertake an Air Quality Assessment in support of a residential development on land off Paddock Road, Kirkburton.

1.2 Site Location and Context

- 1.2.1 The proposed development is located on land at the junction of Paddock Road and Moor Lane, Kirkburton, at approximate National Grid Reference (NGR): 419993, 413432. The relevant Local Authority (LA) is Kirklees Council (KC). Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The proposals comprise an outline planning application for up to 160 dwellings with all matters reserved, except for access.

1.3 Assessment Scope

- 1.3.1 The proposals have the potential to cause air quality impacts at sensitive locations. As such, an Air Quality Assessment was undertaken to:
- Assess potential impacts associated with fugitive dust emissions during the construction phase of the development;
 - Assess potential impacts associated with road transport emissions during the operational phase of the development; and,
 - Identify any requirement for relevant mitigation measures.
- 1.3.2 This is detailed in the following report.

2.0 LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- Particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5});
- Benzene; and,
- Carbon monoxide.

2.1.2 Air Quality Target Values were also provided for several additional pollutants. It should be noted that the AQLV for PM_{2.5} stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023¹. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2025² was published in December 2025, providing long term and Interim Targets in order to reduce population exposure to PM_{2.5}. The Concentration Target for 2040 was adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

¹ AQS: Framework for Local Authority Delivery, DEFRA, 2023.

² Environmental Improvement Plan 2025, DEFRA, 2025.

2.1.5 Table 1 presents the AQOs, Interim Target and Concentration Target for pollutants considered within this assessment.

Table 1 Air Quality Objectives/ Interim Target/ Concentration Target

Pollutant	Air Quality Objective/ Interim Target/ Concentration Target	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM ₁₀	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
PM _{2.5}	10 ^(a)	Annual mean
	10 ^(b)	Annual mean

Note: (a) Interim Target to be achieved by 2030.

(b) Concentration Target to be achieved by 2040.

2.1.6 Table 2 summarises the advice provided in DEFRA guidance³ on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term

³ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

- 2.2.1 LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Dust

- 2.3.1 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The National Planning Policy Framework⁴ (NPPF) was published in August 2026. The document sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievements of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to air quality:

"c) an environmental objective - to support efforts to mitigate and adapt to climate change, including moving to a low carbon economy; and to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, and minimising waste and pollution."

2.4.3 The NPPF provides the following policies of relevance to air quality:

- P1: Planning for clean and safe places, paragraph 1b; and,
- P3: Living conditions and pollution, paragraph 1 and 2.

2.4.4 The implications of the NPPF have been considered throughout this assessment.

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2026.

2.5 National Planning Practice Guidance

2.5.1 The National Planning Practice Guidance⁵ (NPPG) web-based resource was launched by the Department for Communities and Local Government to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

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

2.6 Local Planning Policy

2.6.1 The Kirklees Local Plan⁶ (KLP) was adopted by KC on 27th February 2019. A review of the document indicated the following policies in relation to air quality which are relevant to this assessment:

"Policy LP24 - Design

Good design should be at the core of all proposals in the district and should be considered at the outset of the development process, ensuring that design forms part of pre-application consultation of a proposal. Development briefs, design codes and masterplans should be used to secure high quality, green, accessible, inclusive and safe design, where applicable. Where appropriate and in agreement with the developer schemes will be submitted for design review.

⁵ <https://www.gov.uk/guidance/air-quality--3>.

⁶ KLP, KC, 2019.

Proposals should promote good design by ensuring:

[...]

h. development contributes towards enhancement of the natural environment, supports biodiversity and connects to and enhances ecological networks and green infrastructure;

[...]."

"Policy LP47 - Healthy, active and safe lifestyles

The council will, with its partners, create an environment which supports healthy, active and safe communities and reduces inequality.

Healthy, active and safe lifestyles will be enabled by:

[...]

g. ensuring that the current air quality in the district is monitored and maintained and, where required, appropriate mitigation measures included as part of new development proposals; [...]."

"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 unacceptably affect or cause a nuisance to the national or build 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 to unsafe levels must incorporate sustainable mitigation measures that reduce this impact to a safe level. 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."

"Policy LP52 - Protection and improvement of environmental quality

Proposals which have the potential to increase pollution from noise, vibration, light, dust, odour, shadow flicker, chemicals and other forms of pollution or to increase pollution to soil or where environmentally sensitive development would be subject to significant levels of pollution, must be accompanied by evidence to show that the impacts have been evaluated and measures have been incorporated to prevent or reduce the pollution, so as to ensure it does not reduce the quality of life and well-being of people to an unacceptable level or have unacceptable impacts on the environment.

Such developments which cannot incorporate suitable and sustainable mitigation measures which reduce pollution levels to an acceptable level to protect the quality of life and well-being of people or protect the environment will not be permitted.

Where possible, all new development should improve the existing environment."

2.6.2 The West Yorkshire LAs have produced the 'Air Quality & Emissions Technical Planning Guidance'⁷ as part of an overarching Low Emissions Strategy (LES) to reduce road transport emissions in the county. It is aimed at helping LAs deliver AQO compliance through cost effective service planning brought about by the joint working and relevant Local Plan policies.

2.6.3 The above policies and guidance were taken into consideration throughout the undertaking of the assessment.

⁷ Air Quality & Emissions Technical Planning Guidance, West Yorkshire LAs, 2014.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 The proposed development has the potential to cause air quality impacts during the construction and operational phases. These have been assessed in accordance with the following methodology.

3.2 Construction Phase Assessment

3.2.1 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'⁸.

3.2.2 Activities on the proposed construction site have been divided into three types to reflect their different potential impacts. These are:

- Earthworks;
- Construction; and,
- Trackout.

3.2.3 The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.

3.2.4 The assessment steps are detailed below.

⁸ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Step 1 - Screen the Need for an Assessment

- 3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the boundary or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route up to 250m from the site entrance, then the assessment also proceeds to Step 2.
- 3.2.6 Should sensitive receptors not be present within the relevant distances then **negligible** impacts would be expected and further assessment is not necessary.

Step 2 - Assess the Risk of Dust Impacts

- 3.2.7 Step 2 assesses the risk of potential dust impacts. A site is allocated a risk category based on two factors:
- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and,
 - The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).
- 3.2.8 The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.
- 3.2.9 Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Earthworks	• Total site area greater than 110,000m² • Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • More than 10 heavy earth moving vehicles active at any one time • Formation of bunds greater than 6m in height

Magnitude	Activity	Criteria
	Construction	- Total building volume greater than 75,000m³ - 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 100m
Medium	Earthworks	- Total site area 18,000m² to 110,000m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 3m to 6m in height
	Construction	- Total building volume 12,000m³ to 75,000m³ - 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 50m to 100m
Small	Earthworks	- Total site area less than 18,000m² - 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 3m in height
	Construction	- Total building volume less than 12,000m³ - 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 50m

3.2.10 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The sensitivities of specific receptors are shown in Table 4.

Table 4 Construction Dust - Sensitivities of People and Ecological Receptors

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	• Users expect high levels of amenity • High aesthetic or value property • People expected to be present continuously for extended periods of time • Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀. e.g. residential properties, hospitals, schools and residential care homes	• Internationally or nationally designated site e.g. Special Area of Conservation
Medium	• Users would expect to enjoy a reasonable level of amenity • Aesthetics or value of their property could be diminished by soiling • People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	• Nationally designated site e.g. Sites of Special Scientific Interest
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, farmland, short term car parks and roads	• Locally designated site e.g. Local Nature Reserve

3.2.11 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5 Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 250
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 250
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

3.2.12 Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6 Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	Less than 24µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low

3.2.13 Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7 Construction Dust - Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m)	
	Less than 20	Less than 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

3.2.14 Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

3.2.15 Table 8 outlines the risk category from earthworks, construction and trackout activities.

Table 8 Construction Dust - Dust Risk Category from Earthworks, Construction and Trackout Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Step 3 - Site-specific Mitigation

3.2.16 Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance⁹ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4 - Determine Significant Effects

3.2.17 Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

3.2.18 The determination of significance relies on professional judgement and reasoning should be provided as far as practicable. The IAQM guidance suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

3.3 Operational Phase Assessment

3.3.1 The development has the potential to affect existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site. Potential impacts have therefore been defined by predicting pollutant concentrations at sensitive locations using dispersion modelling for the following scenarios:

- 2024 - Verification;
- Opening year Do-Minimum (DM) (predicted traffic flows in 2030 should the proposals not proceed); and,
- Opening year Do-Something (DS) (predicted traffic flows in 2030 should the proposals be completed).

⁹ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

3.3.2 Reference should be made to Appendix 1 for assessment input data and details of the verification process.

3.3.3 Locations sensitive to potential changes in off-site pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided by National Highways¹⁰ on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance¹¹ on where the AQOs apply, as summarised in Table 2, was utilised to determine worst-case receptor positions in the vicinity of links likely to be affected by changes in traffic flows as a result of the development.

3.3.4 The significance of predicted air quality impacts was determined in accordance with the guidance provided within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹². Using this methodology impacts were defined based on the interaction between the predicted pollutant concentration from the DS scenario and the magnitude of change between the DM and DS scenarios, as outlined in Table 9.

Table 9 Significance of Operational Phase Road Vehicle Exhaust Emissions Impact

Concentration at Receptor in Assessment Year	Predicted Concentration Change as Proportion of AQO/ Concentration Target (%)			
	1	2 - 5	6 - 10	> 10
75% or less of AQO/ Concentration Target	Negligible	Negligible	Slight	Moderate
76 - 94% of AQO/ Concentration Target	Negligible	Slight	Moderate	Moderate
95 - 102% of AQO/ Concentration Target	Slight	Moderate	Moderate	Substantial
103 - 109% of AQO/ Concentration Target	Moderate	Moderate	Substantial	Substantial
110% or more of AQO/ Concentration Target	Moderate	Substantial	Substantial	Substantial

¹⁰ LA 105: Air Quality, National Highways, 2024.

¹¹ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

¹² Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

3.3.5 The matrix shown in Table 9 is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which makes it clearer which cell the impact falls within. It should be noted that changes of 0%, i.e. less than 0.5%, are described as **negligible**.

3.3.6 Following the prediction of impacts at discrete receptor locations, the IAQM document¹³ provides guidance on determining the overall air quality impact significance of the operation of a development. The following factors are identified for consideration by the assessor:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and,
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

3.3.7 The IAQM guidance states that an assessment must reach a conclusion on the likely significance of the predicted impact. Where the overall effect is **moderate** or **substantial**, the effect is likely to be considered **significant**, whilst if the impact is **slight** or **negligible**, the impact is likely to be considered **not significant**. It should be noted that this is a binary judgement of either it is **significant** or it is **not significant**.

¹³ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

4.0 BASELINE

4.1 Introduction

- 4.1.1 Existing air quality conditions in the vicinity of the proposed development 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), as amended by the Environment Act (2021), KC has undertaken Review and Assessment of air quality within its area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above the relevant AQO within the district. As such, seven AQMAs have been declared. The closest of these to the site is described as follows:

"AQMA 9 Huddersfield Town Centre - The designated area incorporates roads bordering and within the Huddersfield Ring Road."

- 4.2.2 The site is located approximately 5.5km south-east of the AQMA. It is considered unlikely the proposals would cause air quality impacts over a distance of this magnitude. As such, the AQMA has not been considered further in the context of this assessment.
- 4.2.3 KC has concluded that concentrations of all other pollutants considered within the AQs are currently below the relevant AQOs. As such, no further AQMAs have been designated.

4.3 Air Quality Monitoring

- 4.3.1 Monitoring of pollutant levels is undertaken by KC throughout its area of jurisdiction. Recent NO₂ concentrations recorded in the vicinity of the development, as provided in KC's '2025 Air Quality Annual Status Report (ASR)'¹⁴, are shown in Table 10.

¹⁴ 2025 Air Quality ASR, KC, 2025.

Table 10 Monitoring Result

Monitoring Site		Monitored 2024 NO ₂ Concentration (µg/m ³)
154	69 Huddersfield Road at Rowley Lane Junction, LC 085	15.8

4.3.2 As shown in Table 10, annual mean NO₂ concentrations were below the AQO of 40µg/m³ at the 154 - 69 Huddersfield Road at Rowley Lane Junction monitoring location in 2024. Reference should be made to Figure 2 for a map of the survey position.

4.3.3 KC does not undertake PM₁₀ and PM_{2.5} monitoring within the vicinity of the site.

4.4 Background Pollutant Concentrations

4.4.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located across two grid squares. Data for these locations was downloaded from the DEFRA website¹⁵ for the purpose of the assessment and is summarised in Table 11.

Table 11 Background Pollutant Concentration Predictions

NGR (m)	Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
		2024	2026	2030
419500, 413500	NO ₂	7.42	6.97	6.01
	PM ₁₀	10.07	9.94	9.68
	PM _{2.5}	6.01	5.89	5.66
420500, 413500	NO ₂	7.11	6.70	5.84
	PM ₁₀	10.13	9.99	9.73
	PM _{2.5}	5.98	5.86	5.63

4.4.2 As shown in Table 11, predicted background NO₂, PM₁₀ and PM_{2.5} concentrations are below the relevant AQOs and Concentration Target at the development site.

¹⁵ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>.

4.5 Sensitive Receptors

- 4.5.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for construction dust and road vehicle exhaust emission impacts in the following Sections.

Construction Phase Sensitive Receptors

- 4.5.2 Receptors sensitive to potential dust impacts during earthworks and construction were identified from a desk-top study of the area up to 250m from the development boundary. These are summarised in Table 12.

Table 12 Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors			Approximate Number of Ecological Receptors
	Low Sensitivity Receptors	Medium Sensitivity Receptors	High Sensitivity Receptors	
Up to 20	More than 1	More than 10	More than 100	0
Up to 50	More than 1	More than 10	More than 100	0
Up to 100	More than 1	More than 10	More than 100	-
Up to 250	More than 1	More than 10	More than 100	-

- 4.5.3 Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 250m of the site access. These are summarised in Table 13.

Table 13 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors			Approximate Number of Ecological Receptors
	Low Sensitivity Receptors	Medium Sensitivity Receptors	High Sensitivity Receptors	
Up to 20	More than 1	1 - 10	10 - 100	0
Up to 50	More than 1	1 - 10	10 - 100	0

- 4.5.4 There are no ecological receptors within 50m of the development boundary or the access route within 250m of the site entrance. As such, ecological impacts have not been assessed further within this report.

Operational Phase Sensitive Receptors

- 4.5.5 Locations sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study and are summarised in Table 14.

Table 14 Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

Receptor		NGR (m)	
		X	Y
R1	Residential - Linfit Lane	420196.3	413510.5
R2	Residential - Paddock Road	420166.0	413490.0
R3	Residential - Paddock Road	420251.3	413113.2
R4	Residential - Moor Lane	419856.5	413468.0
R5	Residential - Moor Lane	419327.3	413542.1
R6	Residential - Far Dene	418807.4	413721.5
R7	Residential - A629 Penistone Road	418778.4	413675.8
R8	Residential - A629 Penistone Road	418887.1	413460.2
R9	Residential - A629 Penistone Road	418731.5	414012.3
R10	Residential - A629 Penistone Road	418731.5	414216.2
R11	Residential - A629 Penistone Road	418642.6	414581.5
R12	Residential - B6433 Rowley Lane	418945.5	414603.1

- 4.5.6 Reference should be made to Figure 3 for a graphical representation of road vehicle exhaust emission sensitive receptor locations.

5.0 CONSTRUCTION PHASE ASSESSMENT

5.1 Introduction

- 5.1.1 There is the potential for air quality impacts as a result of the construction of the proposed development. These are assessed in the following Sections.

5.2 Step 1 - Screen the Need for an Assessment

- 5.2.1 The undertaking of activities such as excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.
- 5.2.2 The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.
- 5.2.3 The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 250m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

5.3 Step 2a - Define the Potential Dust Emission Magnitude

Earthworks

- 5.3.1 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The area of the proposed site is between 18,000m² and 110,000m². In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **medium**.

Construction

- 5.3.2 Due to the size of the development, the total building volume is likely to be greater than 75,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential

dust emissions from construction is therefore **large**.

Trackout

- 5.3.3 Based on the site area, it is anticipated that the unpaved road length may be greater than 100m during certain stages of construction. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **large**.

5.4 Step 2b - Define the Sensitivity of the Area

Dust Soiling

- 5.4.1 The sensitivity of the area with respect to dust soiling from earthworks and construction was defined based on the number of receptors shown in Table 12 using the criteria summarised in Table 5. This indicated a sensitivity classification of **high**.
- 5.4.2 The sensitivity of the area with respect to dust soiling from trackout was defined based on the number of receptors shown in Table 13 using the criteria summarised in Table 5. This indicated a sensitivity classification of **high**.

Human Health

- 5.4.3 Table 11 shows the highest annual mean PM₁₀ background concentration at the site is 9.99µg/m³. Using the criteria in Table 6 and the number of receptors shown in Table 12, the sensitivity of the area with respect to human health from earthworks and construction is **medium**.
- 5.4.4 Using the criteria in Table 6 and the number of receptors shown in Table 13, the sensitivity of the area with respect to human health from trackout was classified as **low**.

5.5 Step 2c - Define the Risk of Dust Impacts

- 5.5.1 The derived dust emission magnitude for each activity has been combined with the sensitivity of the area to determine the risk of unmitigated impacts in line with the

methodology set out in Table 8. A summary of the risk from each dust generating activity is provided in Table 15.

Table 15 Summary of Potential Unmitigated Dust Risks

Potential Impact	Activity	Step 2A - Dust Emission Magnitude	Step 2B - Sensitivity of the Area	Step 2C - Risk
Dust Soiling	Earthworks	Medium	High	Medium
	Construction	Large	High	High
	Trackout	Large	High	High
Human Health	Earthworks	Medium	Medium	Medium
	Construction	Large	Medium	Medium
	Trackout	Large	Low	Low

5.5.2 As indicated in Table 15, the potential risk of dust soiling is **high** from construction and trackout and **medium** from earthworks. The potential risk of human health impacts is **medium** from earthworks and construction and **low** from trackout.

5.5.3 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

5.6 Step 3 - Site-specific Mitigation

5.6.1 The IAQM guidance¹⁶ provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 16. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan if required by the LA.

¹⁶ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Table 16 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • Develop and implement a Dust Management Plan, which may include measures to control other emissions, approved by the LA
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 LA upon request • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book
Monitoring	• Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the LA when asked • Carry out regular site inspections, record inspection results, and make an inspection log available to the LA upon request • Increase the frequency of site inspections 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 PM₁₀ continuous monitoring locations with the LA. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences
Site preparation	• 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 • Fully enclose site or specific operations where there is a high potential for dust production and they are active for an extensive period • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used • Cover, seed or fence stockpiles to prevent wind whipping

Issue	Control Measure
Operating vehicle/machinery and sustainable travel	• Ensure all vehicles switch off engines when stationary - no idling vehicles • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable • Impose and implement a maximum speed limit of 15mph on surfaced and 10mph on unsurfaced haul roads • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques • Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips • Minimise drop heights and use fine water sprays wherever appropriate • Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods
Waste management	• Avoid bonfires or burning of waste materials
Construction	• Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
Trackout	• Use water-assisted dust sweeper on access and local roads, if required • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving site are covered to prevent escape of materials • Implement a wheel washing system, if required • Access gates to be located at least 10m from receptors where possible

5.7 **Step 4 - Determine Significant Effects**

5.7.1 Assuming the relevant mitigation measures outlined in Table 16 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance¹⁷.

¹⁷ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

6.0 OPERATIONAL PHASE ASSESSMENT

6.1 Introduction

6.1.1 The development has the potential to increase concentrations of NO₂, PM₁₀ and PM_{2.5} as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. An assessment was therefore undertaken using dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the site.

6.1.2 The assessment considered the following scenarios:

- 2024 - Verification;
- 2030 - DM; and,
- 2030 - DS.

6.1.3 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth and committed developments for the relevant assessment year. The DS scenario (i.e. with development) included baseline traffic data, inclusive of anticipated growth and committed developments for the relevant assessment year, in addition to predicted vehicle trips associated with the operation of the proposals.

6.1.4 For the purpose of the assessment, traffic data for 2030 was utilised as the development opening year. Air quality is predicted to improve in the future. However, in order to provide a robust assessment, emission factors and background concentrations for 2024 were utilised within the dispersion model. The use of 2030 traffic data and 2024 emission factors is considered to provide a conservative scenario and therefore a sufficient level of confidence can be placed within the predicted pollutant concentrations.

6.1.5 Reference should be made to Appendix 1 for full assessment input details.

6.2 Predicted Concentrations

6.2.1 Annual mean NO₂ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 17.

Table 17 Predicted Annual Mean NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Linfit Lane	9.23	9.31	0.08
R2	Residential - Paddock Road	9.61	9.72	0.11
R3	Residential - Paddock Road	8.51	8.55	0.04
R4	Residential - Moor Lane	9.23	9.46	0.23
R5	Residential - Moor Lane	9.22	9.43	0.21
R6	Residential - Far Dene	11.55	11.79	0.24
R7	Residential - A629 Penistone Road	13.12	13.19	0.07
R8	Residential - A629 Penistone Road	13.04	13.07	0.03
R9	Residential - A629 Penistone Road	12.64	12.77	0.13
R10	Residential - A629 Penistone Road	13.90	14.06	0.16
R11	Residential - A629 Penistone Road	14.37	14.48	0.11
R12	Residential - B6433 Rowley Lane	9.55	9.56	0.01

6.2.2 As indicated in Table 17, predicted annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all receptors in both scenarios.

6.2.3 Reference should be made to Figure 4 and 5 for graphical representations of annual mean NO₂ concentrations across the assessment area for the DM and DS scenarios, respectively.

6.2.4 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 18.

Table 18 Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Linfit Lane	10.44	10.46	0.02

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R2	Residential - Paddock Road	10.53	10.56	0.03
R3	Residential - Paddock Road	10.25	10.27	0.01
R4	Residential - Moor Lane	10.46	10.53	0.07
R5	Residential - Moor Lane	10.46	10.52	0.06
R6	Residential - Far Dene	11.00	11.07	0.06
R7	Residential - A629 Penistone Road	11.50	11.52	0.02
R8	Residential - A629 Penistone Road	11.54	11.55	0.01
R9	Residential - A629 Penistone Road	11.42	11.46	0.04
R10	Residential - A629 Penistone Road	11.80	11.85	0.05
R11	Residential - A629 Penistone Road	11.90	11.93	0.03
R12	Residential - B6433 Rowley Lane	10.55	10.55	0.00

6.2.5 As indicated in Table 18, predicted annual mean PM₁₀ concentrations were below the AQO of 40µg/m³ at all receptors in both scenarios.

6.2.6 Reference should be made to Figure 6 and 7 for graphical representations of annual mean PM₁₀ concentrations across the assessment area for the DM and DS scenarios, respectively.

6.2.7 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 19.

Table 19 Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Linfit Lane	6.29	6.30	0.01
R2	Residential - Paddock Road	6.35	6.37	0.02
R3	Residential - Paddock Road	6.16	6.17	0.01
R4	Residential - Moor Lane	6.30	6.35	0.04
R5	Residential - Moor Lane	6.30	6.34	0.04
R6	Residential - Far Dene	6.66	6.70	0.04
R7	Residential - A629 Penistone Road	6.98	6.99	0.01
R8	Residential - A629 Penistone Road	7.01	7.01	0.00
R9	Residential - A629 Penistone Road	6.93	6.95	0.03
R10	Residential - A629 Penistone Road	7.17	7.21	0.03
R11	Residential - A629 Penistone Road	7.24	7.27	0.02
R12	Residential - B6433 Rowley Lane	6.36	6.36	0.00

6.2.8 As indicated in Table 19, predicted annual mean PM_{2.5} concentrations were below the Concentration Target of 10µg/m³ at all receptors in both scenarios.

6.2.9 Reference should be made to Figure 8 and 9 for graphical representations of annual mean PM_{2.5} concentrations across the assessment area for the DM and DS scenarios, respectively.

6.3 Predicted Impacts

6.3.1 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 20.

Table 20 Predicted Impacts - NO₂

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - Linfit Lane	Below 75% of AQO	0	Negligible
R2	Residential - Paddock Road	Below 75% of AQO	0	Negligible
R3	Residential - Paddock Road	Below 75% of AQO	0	Negligible
R4	Residential - Moor Lane	Below 75% of AQO	1	Negligible
R5	Residential - Moor Lane	Below 75% of AQO	1	Negligible
R6	Residential - Far Dene	Below 75% of AQO	1	Negligible
R7	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R8	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R9	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R10	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R11	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R12	Residential - B6433 Rowley Lane	Below 75% of AQO	0	Negligible

6.3.2 As indicated in Table 20, impacts on annual mean NO₂ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.3.3 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 21.

Table 21 Predicted Impacts - PM₁₀

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - Linfit Lane	Below 75% of AQO	0	Negligible
R2	Residential - Paddock Road	Below 75% of AQO	0	Negligible
R3	Residential - Paddock Road	Below 75% of AQO	0	Negligible

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R4	Residential - Moor Lane	Below 75% of AQO	0	Negligible
R5	Residential - Moor Lane	Below 75% of AQO	0	Negligible
R6	Residential - Far Dene	Below 75% of AQO	0	Negligible
R7	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R8	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R9	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R10	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R11	Residential - A629 Penistone Road	Below 75% of AQO	0	Negligible
R12	Residential - B6433 Rowley Lane	Below 75% of AQO	0	Negligible

6.3.4 As indicated in Table 21, impacts on annual mean PM₁₀ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.3.5 Predicted impacts on annual mean PM_{2.5} concentrations at the sensitive receptor locations are summarised in Table 22.

Table 22 Predicted Impacts - PM_{2.5}

Receptor		Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of Concentration Target (%)	Impact Significance
R1	Residential - Linfit Lane	Below 75% of Concentration Target	0	Negligible
R2	Residential - Paddock Road	Below 75% of Concentration Target	0	Negligible
R3	Residential - Paddock Road	Below 75% of Concentration Target	0	Negligible
R4	Residential - Moor Lane	Below 75% of Concentration Target	0	Negligible

Receptor		Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of Concentration Target (%)	Impact Significance
R5	Residential - Moor Lane	Below 75% of Concentration Target	0	Negligible
R6	Residential - Far Dene	Below 75% of Concentration Target	0	Negligible
R7	Residential - A629 Penistone Road	Below 75% of Concentration Target	0	Negligible
R8	Residential - A629 Penistone Road	Below 75% of Concentration Target	0	Negligible
R9	Residential - A629 Penistone Road	Below 75% of Concentration Target	0	Negligible
R10	Residential - A629 Penistone Road	Below 75% of Concentration Target	0	Negligible
R11	Residential - A629 Penistone Road	Below 75% of Concentration Target	0	Negligible
R12	Residential - B6433 Rowley Lane	Below 75% of Concentration Target	0	Negligible

6.3.6 As indicated in Table 22, impacts on annual mean PM_{2.5} concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.4 Overall Impact Significance

6.4.1 The overall significance of operational phase road traffic emissions was determined as **negligible**. This was based on the overall predicted impact at any discrete receptor location and the considerations outlined previously. Further justification is provided in Table 23.

Table 23 Overall Significance of Operational Phase Road Vehicle Exhaust Emission Impacts

Guidance	Comment
The existing and future air quality in the absence of the development	Predicted annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were below the relevant AQOs and Concentration Target at all locations in the DM and DS scenarios The predicted concentrations are considered unlikely to change significantly in the absence of the proposals given the established nature of the area
The extent of current and future population exposure to the impacts	The development is not predicted to affect the population exposed to exceedences of the AQOs and Concentration Target
The influence and validity of any assumptions adopted when undertaking the prediction of impacts	It was assumed that vehicle exhaust emission rates and background concentrations will not reduce in future years. This provides conservative results when compared with DEFRA and National Highways methodologies Due to the adopted assumptions it is considered the presented results are sufficiently robust for an assessment of this nature

6.4.2 The IAQM guidance¹⁸ states that only if the impact is above **slight**, the effect is considered **significant**. As impacts were predicted to be **negligible**, overall effects are considered **not significant**, in accordance with the stated methodology.

6.5 Interim Planning Guidance for PM_{2.5}

6.5.1 Interim Planning Guidance¹⁹ on the consideration of the PM_{2.5} targets identified in the Environment Act (2021) in planning decisions has been produced by DEFRA. This requires evidence that the key sources of air pollution within a development have been identified and appropriate action to minimise emissions of PM_{2.5} and its precursors as far as is reasonably practicable be provided in support of planning applications. To assist the process, two questions and associated considerations are provided. These are summarised in Table 24, along with the development response.

¹⁸ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁹ <https://uk-air.defra.gov.uk/pm25targets/planning>.

Table 24 Interim Planning Guidance

Question	Response
How has exposure to PM_{2.5} been considered when selecting the development site? Factors to consider include: • Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these • Site proximity to pollution sources and the impact of these on users of the development Exposure and emissions during both construction and in-use	The proposals are located in the village of Kirkburton in the vicinity of residential properties and Kirkburton Middle School. As such, the site is in close proximity to a large population. However, as shown in Section 6.0, impacts associated with the development are predicted to be not significant The development is located approximately 870m east of the A629 Penistone Road and associated road vehicle exhaust emissions. As such, the site is distanced from major pollution sources and users of the development are unlikely to be exposed to any existing air quality issues As outlined in Table 16, a number of mitigation measures will be used throughout the construction phase in order to reduce fugitive dust emissions as far as practicable. This will control potential exposure at off-site locations
What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors and to reduce emissions of PM_{2.5} and its precursors? Factors to consider include: • Site layout • The development's design • Technology used in the construction or installed for use in the development Construction and future use of the development	In order to reduce emissions of PM_{2.5} with associated impacts at nearby receptors, the following measures have been included: • Provision of Electric Vehicle (EV) charging points to encourage the use of low emission vehicles • Implementation of a Travel Plan to encourage the use of sustainable transport modes • Provision of secure cycle parking to encourage the uptake of sustainable modes of travel Further to the above, in order to reduce emissions during the construction phase, a number of mitigation measures will be used to minimise dust generation from associated activities

6.5.2 Based on the responses provided in Table 24 and the results of the assessment, as outlined in Sections 5.0 and 6.0, it is considered that the development has identified key sources of air pollution and taken appropriate action to minimise emissions of PM_{2.5}.

6.6 West Yorkshire Technical Planning Guidance

Development Classification

6.6.1 The West Yorkshire LAs have produced 'Air Quality & Emissions: Technical Planning Guidance'²⁰ as part of an overarching Low Emission Strategy to reduce road transport emissions in the county. It is aimed at helping LAs deliver AQO compliance through cost effective service planning brought about by the joint working and relevant Local Plan policies.

6.6.2 The guidance provides a methodology for determining the scale of a development as minor, medium or major and the required air quality mitigation for the relevant banding. Review of the relevant criteria indicated the proposals were classified as **medium** due to the following:

- Dwelling Houses (C3) more than 50 units;
- Generates 100 or more two-way vehicle movements per day; and,
- The proposals do not meet the Additional Trigger Criteria for Major Developments.

Mitigation

6.6.3 Based on the development classification, the guidance states that the proposals are required to implement mitigation in order to reduce air quality effects. Those included in the proposals the following:

- Provision of secure cycle storage;
- On-site tree planting;
- Internal cycleway/ footpath connecting to existing routes, including the public right of way to the west of the site;
- Provision of a Travel Plan;
- Welcome packs for residents;
- Funding of travel cards to encourage access to bus and rail travel through MCards; and,
- EV charging points in accordance with national standards.

²⁰ Air Quality and Emissions: Technical Planning Guidance, West Yorkshire Low Emissions Group, 2014.

6.6.4 In addition to the above, the development will adhere to Fugitive Dust Emission Mitigation Measures throughout construction. These are outlined in Table 16.

6.6.5 It is considered these measures are appropriate for a development of this scale and nature and will further control impacts during construction and operational phase.

7.0 CONCLUSION

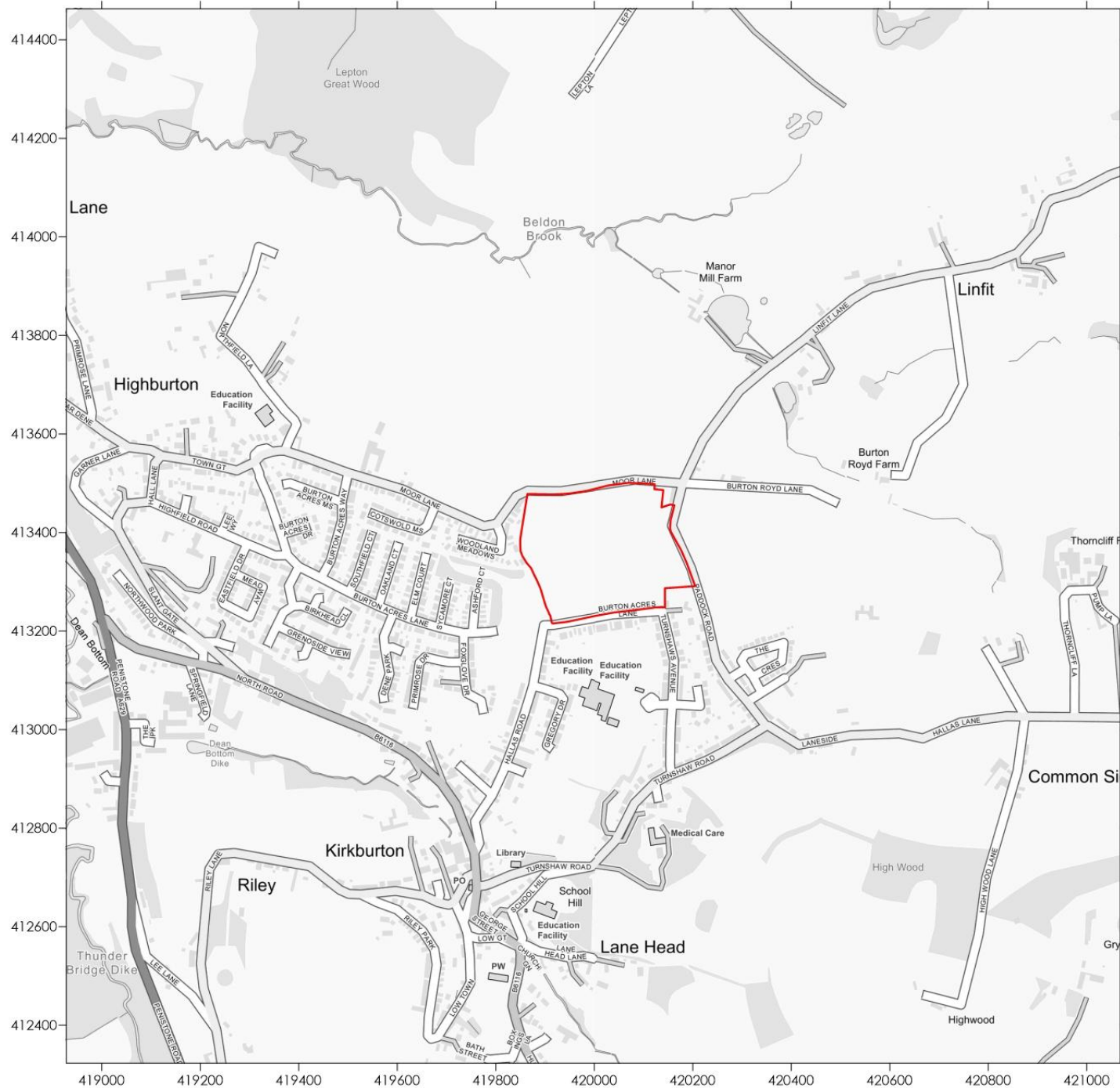
- 7.1.1 Redmore Environmental Ltd was commissioned by Persimmon Homes West Yorkshire to undertake an Air Quality Assessment in support of a residential development on land off Paddock Road, Kirkburton.
- 7.1.2 The development has the potential to cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions and assess potential effects as a result of the construction and operation of the proposals.
- 7.1.3 During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM methodology. Site-specific dust control measures were subsequently determined. Following implementation, the residual significance of potential air quality impacts from dust generated by earthworks, construction and trackout activities are predicted to be **not significant**.
- 7.1.4 Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the highway network both with and without the development in place. Results were subsequently verified using local monitoring data.
- 7.1.5 Review of the dispersion modelling results indicated that impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations as a result of traffic generated by the development were predicted to be **negligible** at all sensitive receptor locations. Following consideration of the relevant issues, air quality impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.
- 7.1.6 A number of mitigation measures were identified in line with the requirements of the 'West Yorkshire Air Quality & Emissions: Technical Planning Guidance' in order to reduce vehicle exhaust emissions associated with the proposals. It is considered these are appropriate for a development of this scale and nature and will further control impacts during the operational phase.

7.1.7 Based on the assessment results, air quality factors are not considered a constraint to the development.

8.0 **ABBREVIATIONS**

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQMA	Air Quality Management Area
AQLV	Air Quality Limit Value
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASR	Annual Status Report
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DM	Do-Minimum
DS	Do-Something
EFT	Emissions Factor Toolkit
EV	Electric Vehicle
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
KC	Kirklees Council
KLP	Kirklees Local Plan
LA	Local Authority
LAQM	Local Air Quality Management
LES	Low Emissions Strategy
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5µm
SP	Slow Phase
Z ₀	Roughness length

Figures



Legend



Site Boundary

Title

Figure 1 - Site Location Plan

Project

Air Quality Assessment
Paddock Road, Kirkburton

Project Reference

9662

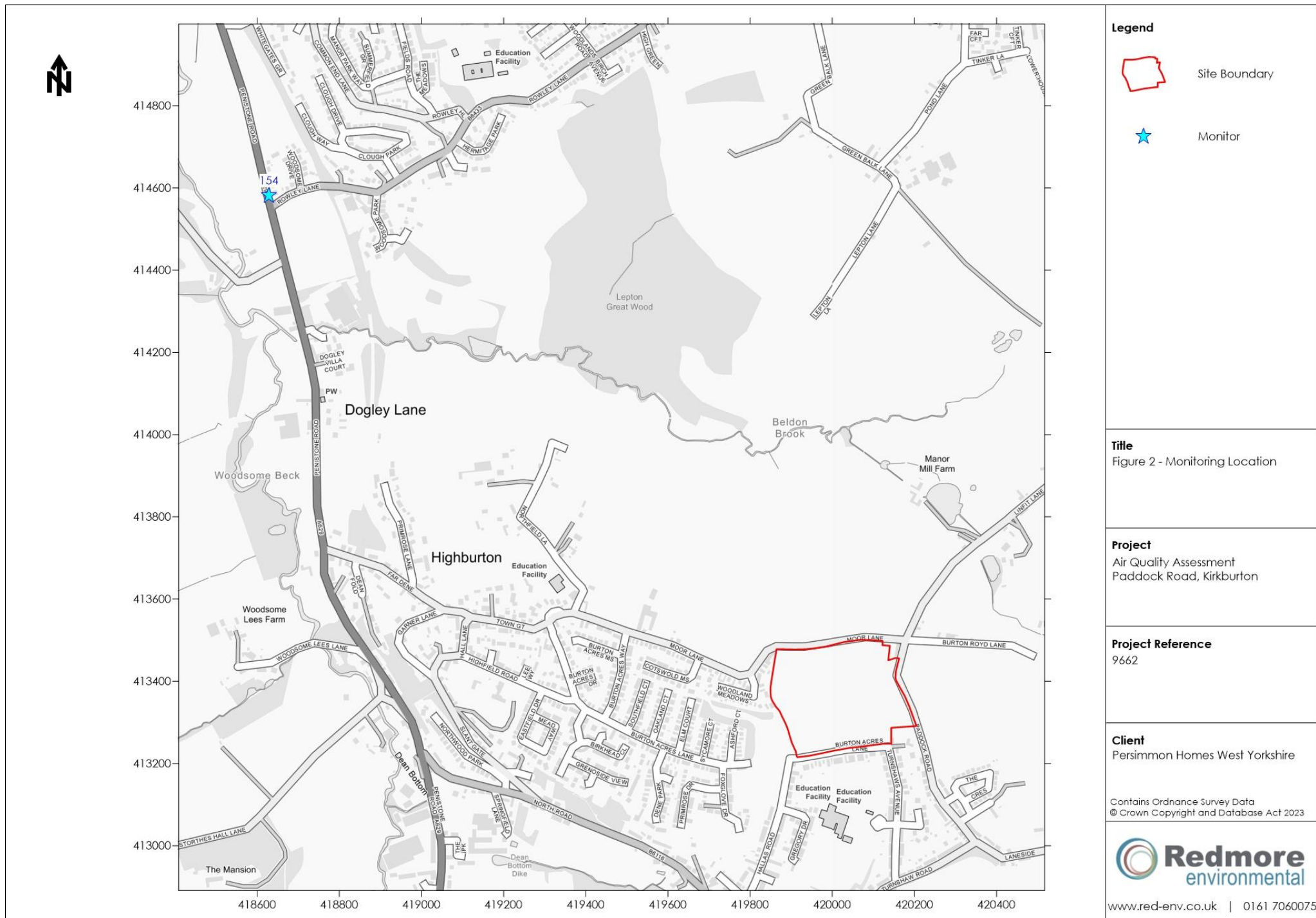
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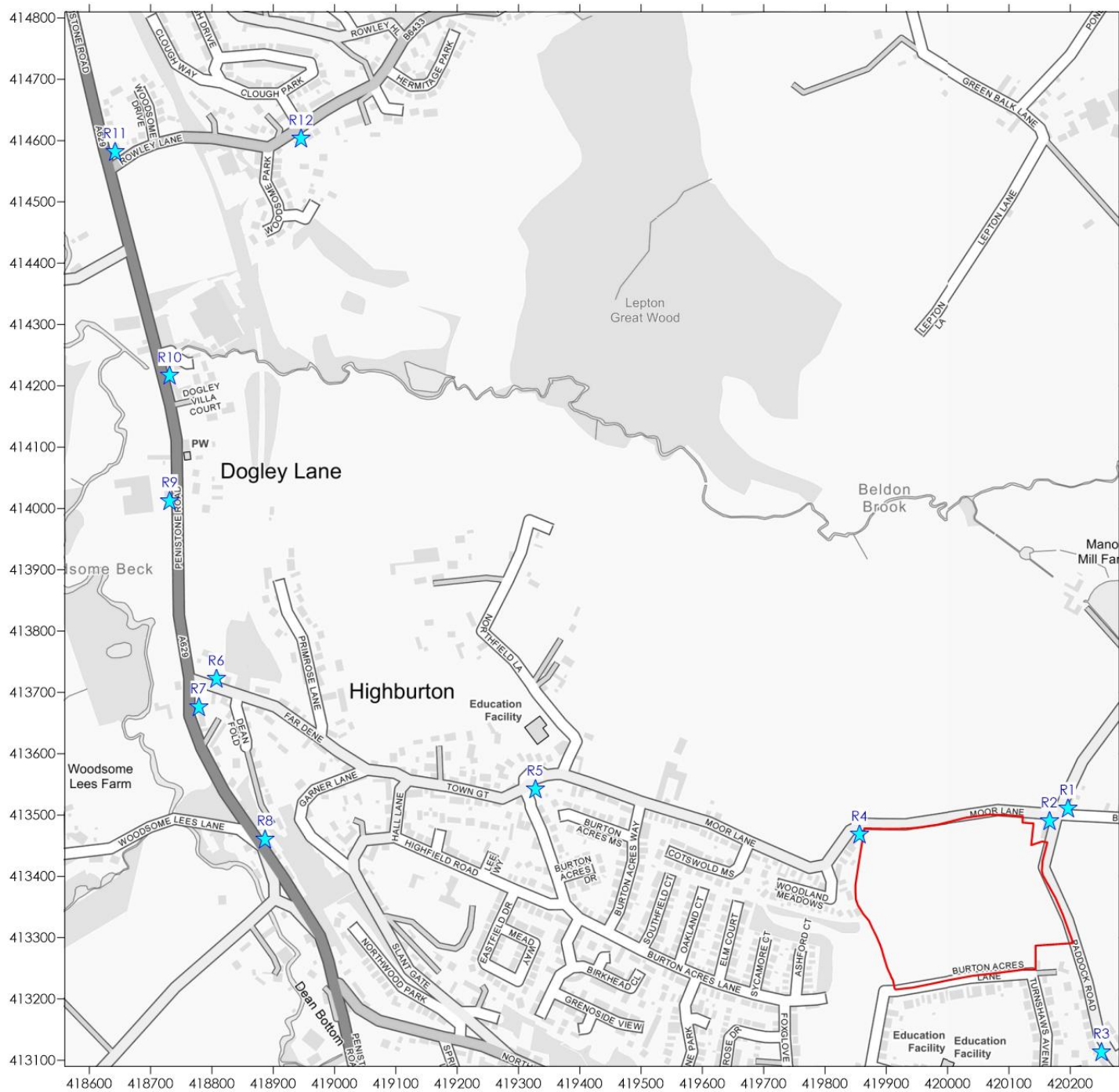
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Legend



Site Boundary



Receptor

Title

Figure 3 - Road Vehicle Exhaust Emissions Sensitive Receptor Locations

Project

Air Quality Assessment
Paddock Road, Kirkburton

Project Reference

9662

Client

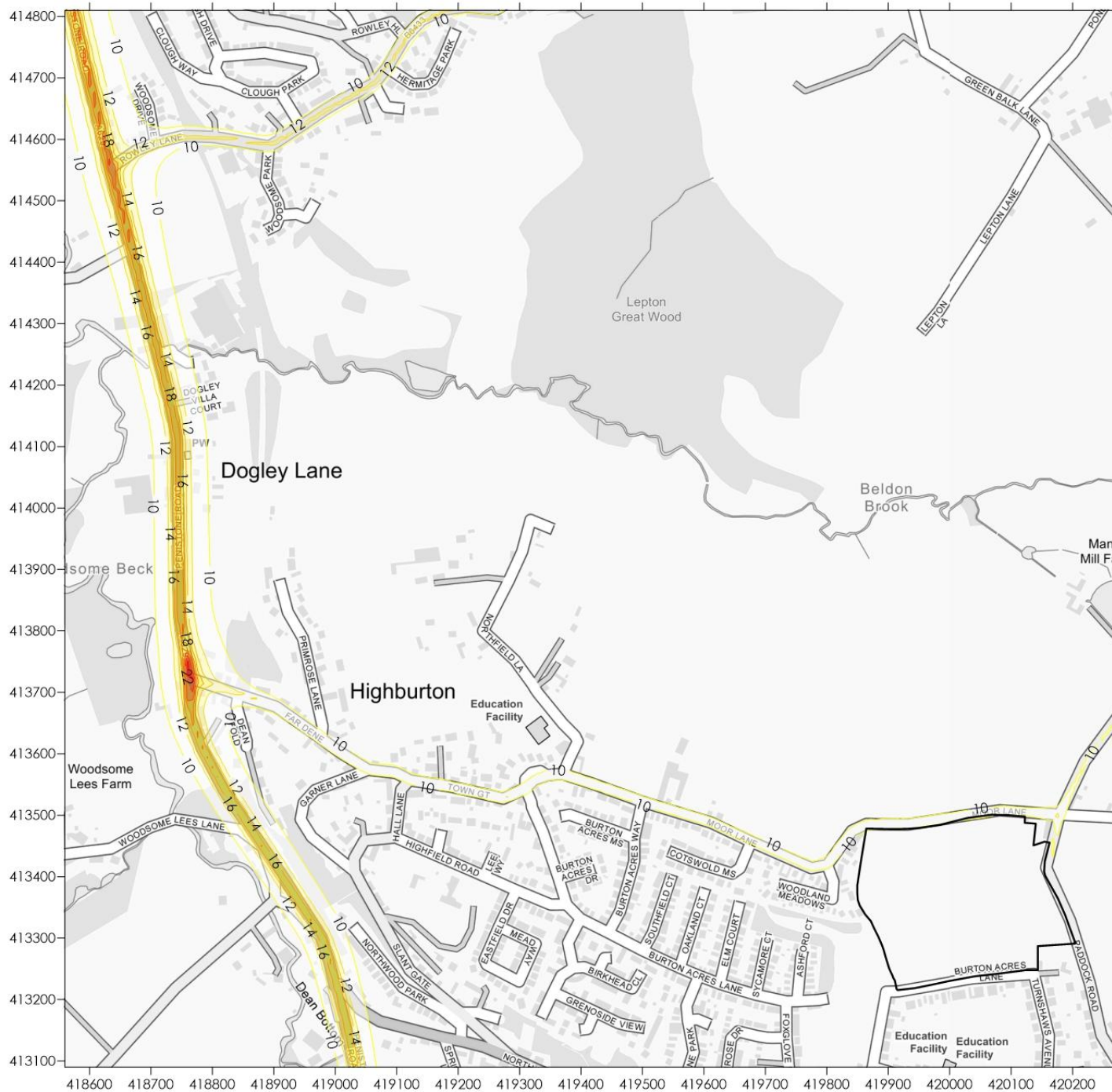
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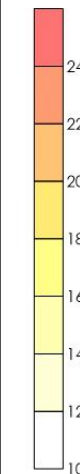




Legend



Site Boundary



Annual Mean
NO₂
Concentration
(µg/m³)

Title

Figure 5 - Predicted Annual Mean
NO₂ Concentrations (µg/m³)
Do-Something

Project

Air Quality Assessment
Paddock Road, Kirkburton

Project Reference

9662

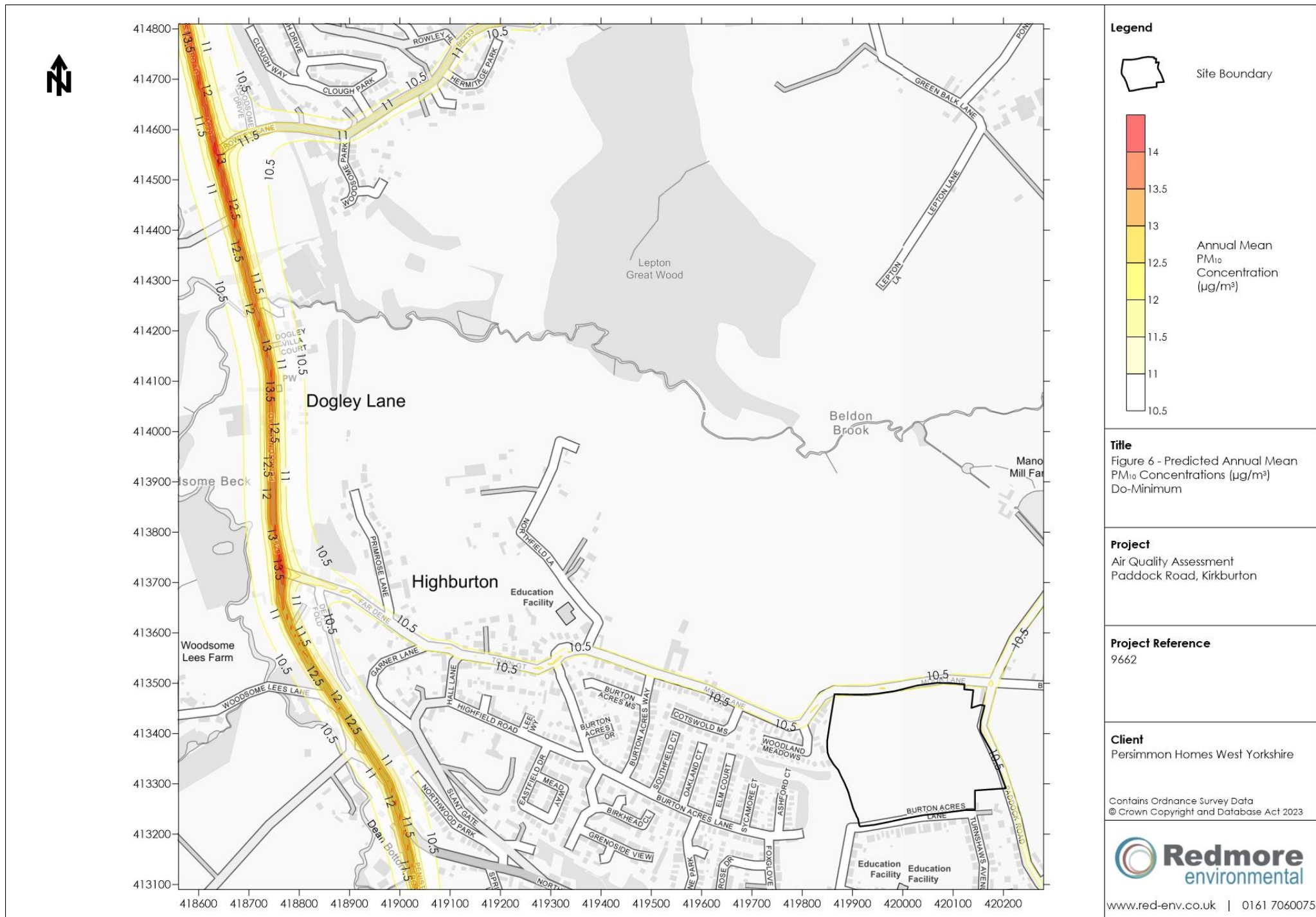
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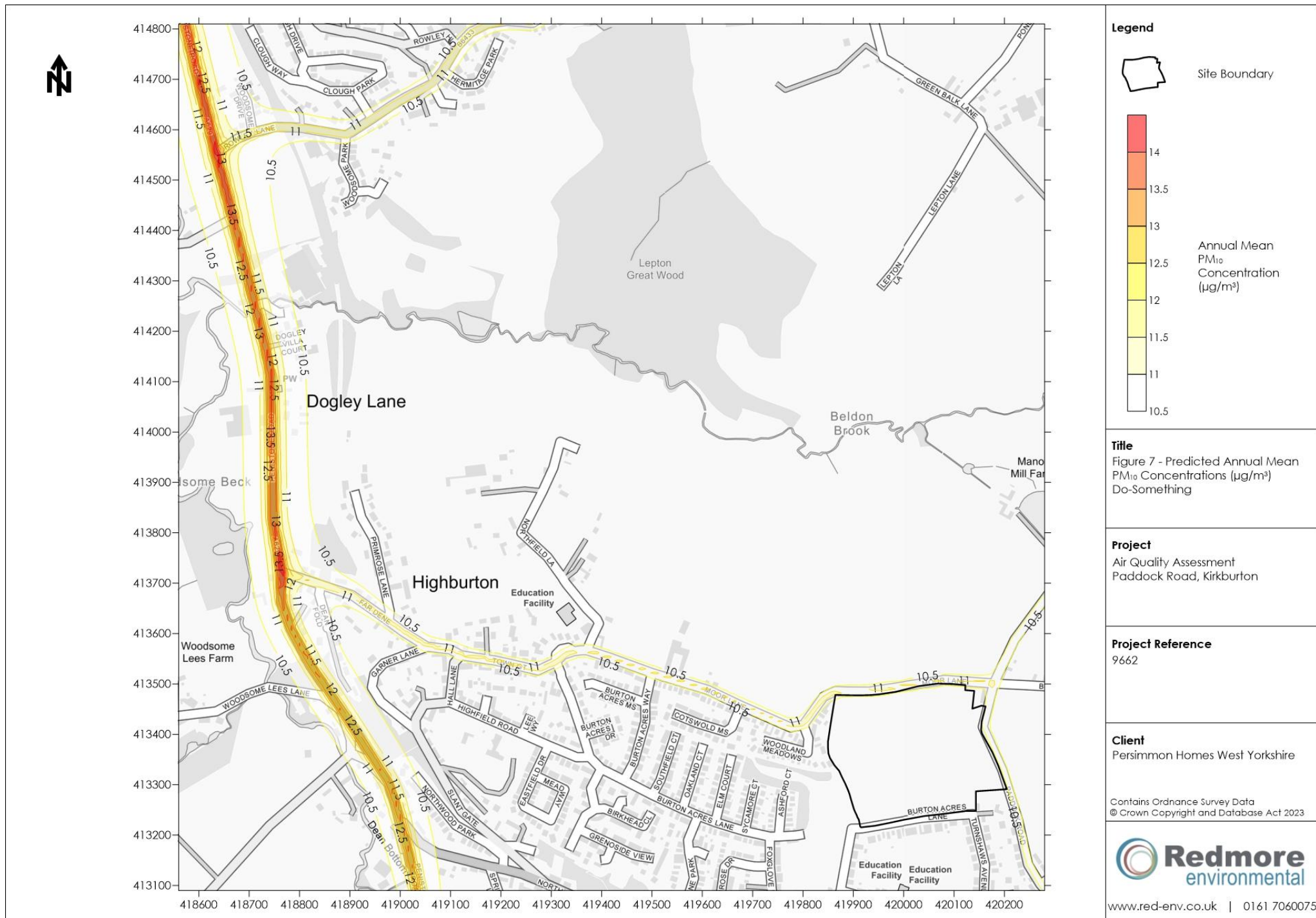
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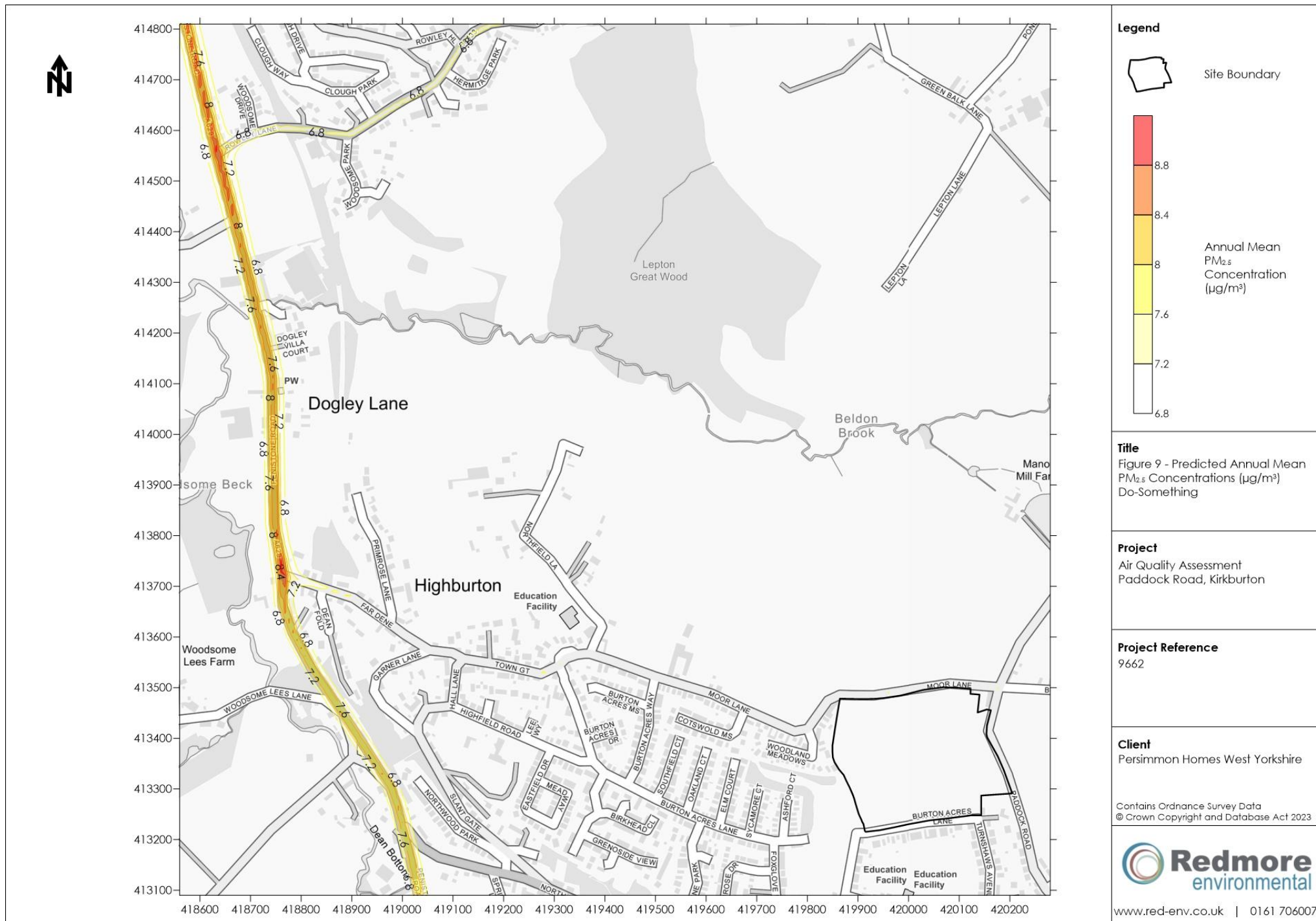


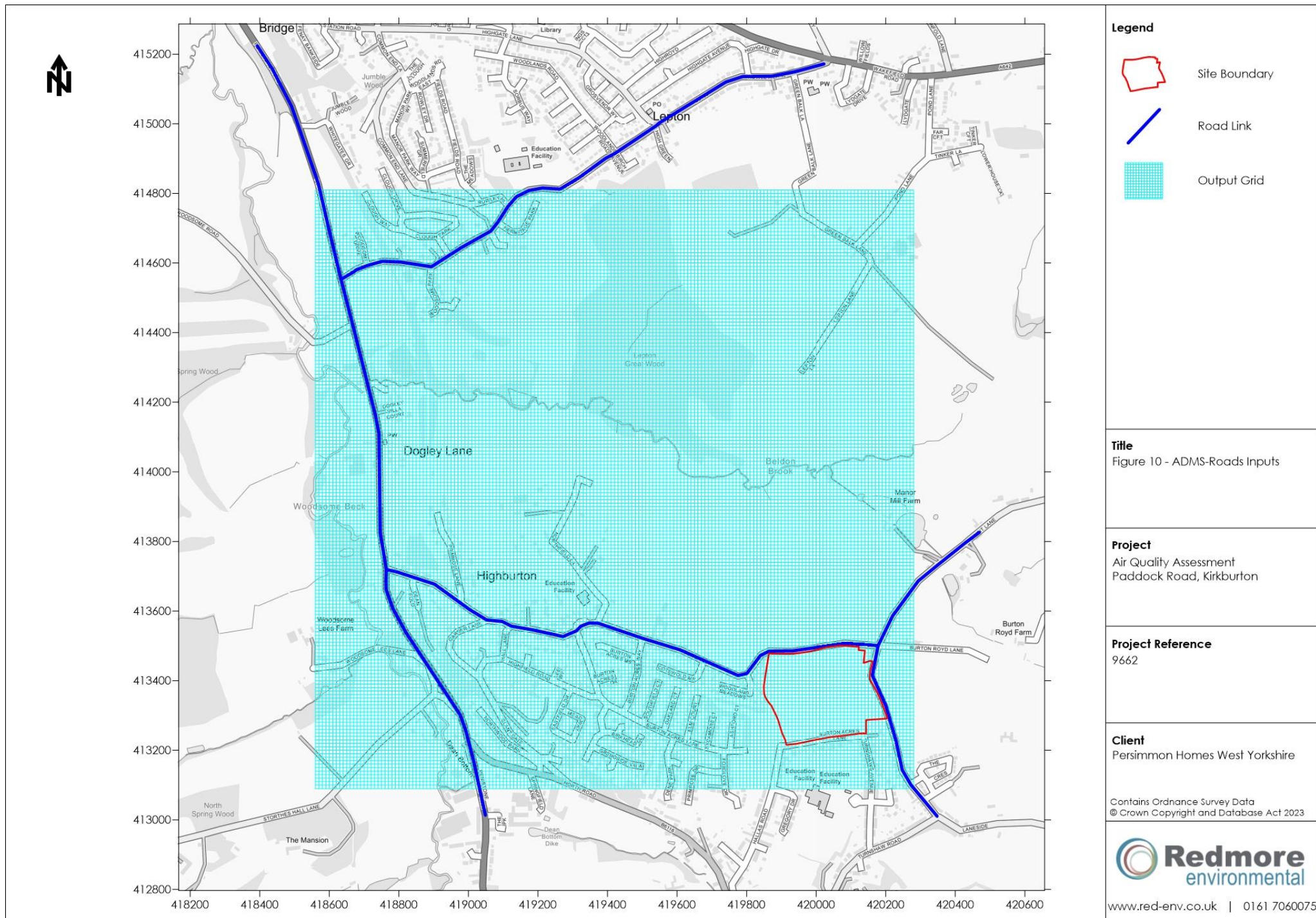
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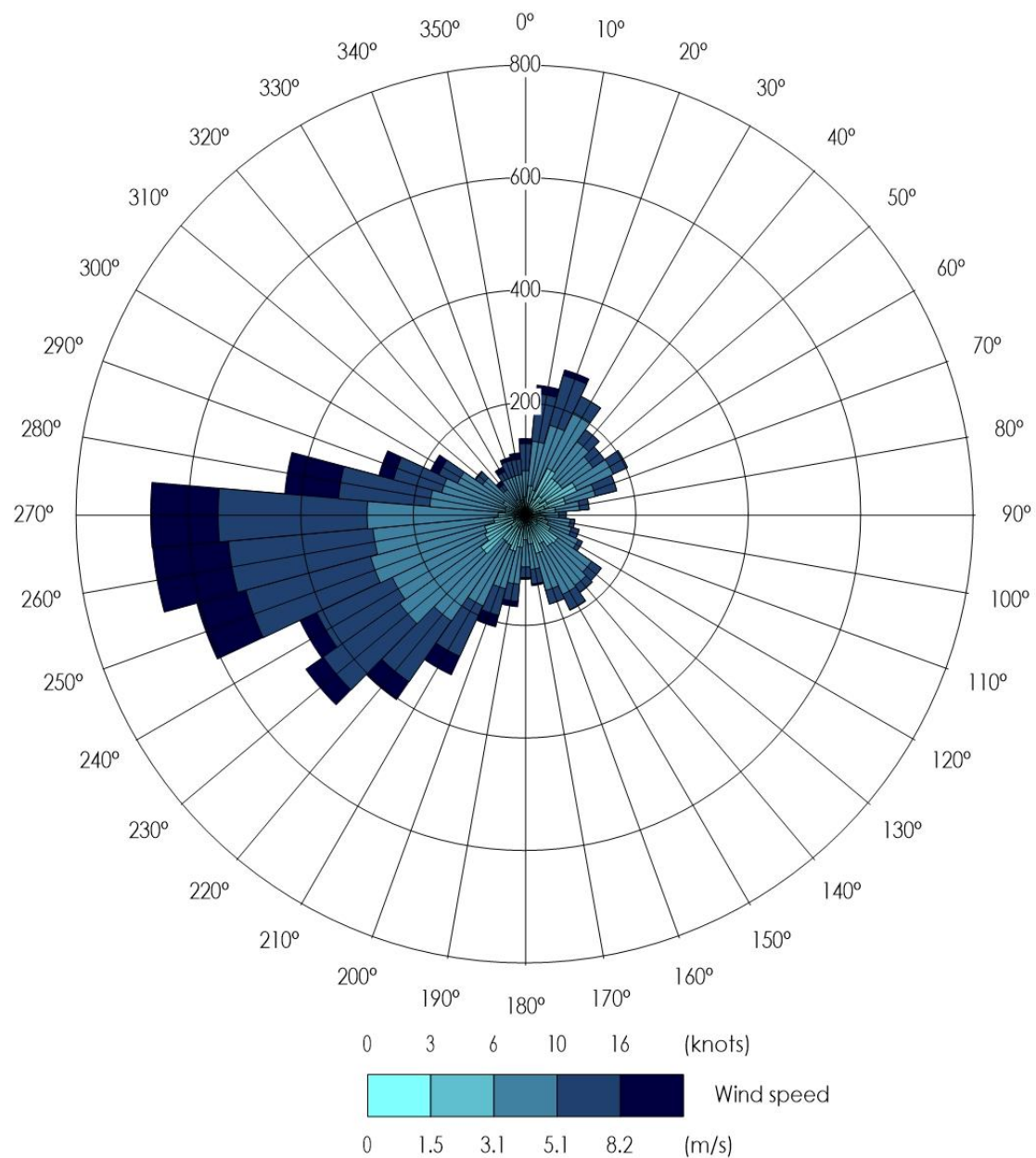












Legend

Title

Figure 11 - Wind Rose of 2024 Leeds
Bradford Airport Meteorological
Data

Project

Air Quality Assessment
Paddock Road, Kirkburton

Project Reference

9662

Client

Persimmon Homes West Yorkshire



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Appendix 1 - Assessment Input Data

Introduction

The proposed development has the potential to cause air quality impacts as a result of emissions associated with vehicles travelling to and from the site. In order to assess changes in NO₂, PM₁₀ and PM_{2.5} concentrations at sensitive locations, detailed dispersion modelling was undertaken in accordance with the following methodology.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.1.0.2). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

The model requires input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

The relevant inputs are detailed in the following Sections.

Assessment Area

Ambient concentrations were predicted over the area NGR: 418560, 413090 to 420280, 414810. One Cartesian grid was included within the model to produce data suitable for contour plotting using the Surfer software package. The default intelligent grid spacing option was selected within ADMS-Roads in order to improve contour resolution within the vicinity of sources.

Receptors sensitive to potential changes in pollutant concentrations were included in the

assessment as outlined in the main report text.

Reference should be made to Figure 10 for a graphical representation of the assessment grid extents.

Traffic Flow Data

Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as HDV proportion, was provided by Andrew Moseley Associates Ltd, the Transport Consultants for the scheme.

Baseline traffic data for Linfit Lane and the B6433 Rowley Lane were not available from the Transport Consultants. As such, flows for these links were obtained from the Department for Transport (DfT)²¹. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads, in Great Britain for the years 2000 to 2025. It should be noted that the DfT web tool is referenced in DEFRA guidance²² as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

The baseline traffic data for Linfit Lane and the B6433 was converted to the site opening year utilising a factor obtained from TEMPro (version 8.0). This software package has been developed by the DfT to calculate future traffic growth throughout the UK.

Road parameters for input into the model were based on the following:

- Road widths were estimated from aerial photography and UK highway design standards;
- Vehicle speeds were estimated as an average for the relevant road link over the course of a 24-hour period;
- Vehicle speeds were determined following review of speed limits within the study extents, as well as congestion data available from GoogleMaps;
- Vehicle speeds specific to slow phases were determined using the methodology outlined in

²¹ <https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints>.

²² Local Air Quality Management (TG22) Technical Guidance, DEFRA, 2022.

DEFRA guidance²³;

- Necessary adjustments to slow phase vehicle speeds were based upon congestion data available from GoogleMaps; and,
- The length for slow phases was derived using the approaching distance of 25m outlined in DEFRA guidance²⁴, and adjusted accordingly based on aerial photography and congestion data available from GoogleMaps.

A summary of the traffic flow data is provided in Table A1.1.

Table A1.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		2024 Verif.	2028 DM	2028 DS			
L1	Linfit Lane, north of Moor Lane	2,069	2,085	2,161	3.71	6.4	45
L2	Paddock Road, south of Moor Lane	2,069	2,085	2,222	3.71	6.3	45
L3	Moor Lane, Slow Phase (SP)	2,816	2,969	3,181	4.00	7.6	20
L4	Moor Lane, east of site access	2,816	2,969	3,181	4.00	6.1	45
L5	Moor Lane/ Far Dene, west of site access	2,816	2,969	3,520	4.00	5.5	45
L6	Far Dene, SP	2,816	2,969	3,520	4.00	8.3	20
L7	A629 Penistone Road, south of Far Dene, SP	15,107	16,014	16,051	2.00	8.2	20
L8	A629 Penistone Road, south of Far Dene	15,107	16,014	16,051	2.00	8.2	65
L9	A929 Penistone Road, north of Far Dene, SP	16,973	17,982	18,497	3.00	8.5	20
L10	A929 Penistone Road, between Far Dene and Woodsome Road	16,973	17,982	18,497	3.00	8.5	65
L11	A929 Penistone Road, north of Woodsome Road	19,017	20,208	20,631	3.00	8.3	65
L12	B6433 Rowley Lane, SP	4,030	4,170	4,170	4.15	13.2	20

²³ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

²⁴ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		2024 Verif.	2028 DM	2028 DS			
L13	B6433 Rowley Lane	4,030	4,170	4,170	4.15	6.1	45

Reference should be made to Figure 10 for a graphical representation of the road link locations.

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the EFT (version 14.1). This has been produced by DEFRA and incorporates COPERT 5.9.1 vehicle emission factors and fleet information.

There is current uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2024 emission factors were utilised in preference to the development opening year in order to provide robust model outputs. As predictions for 2024 were verified, it is considered the results are a robust indication of concentrations for the future year.

Meteorological Data

Meteorological data used in the assessment was taken from Leeds Bradford Airport meteorological station over the period 1st January 2024 to 31st December 2024 (inclusive). Leeds Bradford Airport is located at NGR: 422676, 441150, which is approximately 27.9km north of the development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 11 for a wind rose of utilised meteorological data.

Roughness Length

The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This value is considered appropriate for the morphology of the area and is suggested within ADMS- Roads as being

suitable for 'parkland, open suburbia'.

A z_0 of 0.3m was used to describe the meteorological site. This value is considered appropriate for the morphology of the area due to the large expanse of surrounding flat land use, such as runways and surrounding grassland, and is suggested within ADMS-Roads as being suitable for 'agricultural areas (max)'.

Monin-Obukhov Length

The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 10m was used to describe the modelling extents. This is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'small towns <50,000'.

A minimum Monin-Obukhov length of 30m was used to describe the meteorological site. This is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'mixed urban/ industrial'.

Background Concentrations

Annual mean NO₂, PM₁₀ and PM_{2.5} background concentrations for use in this assessment were obtained from the DEFRA mapping study for the grid square containing the 154 monitor, NGR: 418500, 414500. These are shown in Table A1.2.

Table A1.2 Background Pollutant Concentrations - Modelling Extents

Pollutant	Predicted Annual Mean 2024 Background Concentration (µg/m ³)
NO ₂	7.88
PM ₁₀	10.07
PM _{2.5}	6.04

The values for NO₂ and PM_{2.5} were chosen to represent concentrations throughout the dispersion modelling extents without the contribution from road vehicles as they were higher than the DEFRA background for the grid squares containing the site, as shown in Table 11. The value for PM₁₀ was chosen to provide continuity through the assessment.

Similarly to emission factors, background concentrations from 2024 were utilised in preference to the future year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

NO_x to NO₂ Conversion

Predicted annual mean NO_x concentrations were converted to NO₂ concentrations using the spreadsheet (version 9.1) provided by DEFRA, which is the method detailed within DEFRA guidance²⁵.

Verification

The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

For the purpose of the assessment, model verification was undertaken for 2024 using traffic data, meteorological data and monitoring results from this year.

Monitoring of NO₂ concentrations was undertaken at one location within the vicinity of the roads included in the dispersion model during 2024. The result was obtained and the road contribution to total NO_x concentration calculated following the methodology contained within DEFRA guidance²⁶. The monitored annual mean NO₂ concentration and calculated road NO_x concentration are summarised in Table A1.3.

²⁵ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

²⁶ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table A1.3 NO_x Verification - Monitoring Result

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
154	69 Huddersfield Road at Rowley Lane junction LC 085	15.80	16.96

The annual mean road NO_x concentration predicted from the dispersion model and the road NO_x concentration calculated from the monitoring result are summarised in Table A1.4.

Table A1.4 NO_x Verification - Modelling Result

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
154	69 Huddersfield Road at Rowley Lane junction LC 085	16.96	6.81

The monitored and modelled road NO_x concentrations were compared to calculate the associated ratio. This indicated a verification factor of 2.4912 was required to be applied to all modelling results.

Monitoring of PM₁₀ and PM_{2.5} concentrations was not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with DEFRA guidance²⁷.

²⁷ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Appendix 2 - Curricula Vitae

KEY EXPERIENCE:

Jethro is a Chartered Environmentalist and Director of Redmore Environmental with specialist experience in the air quality and odour sectors. His key capabilities include:

- Production and management of Air Quality, Dust and Odour Assessments for a wide-range of clients from the retail, residential, infrastructure, commercial and industrial sectors.
- Production and co-ordination of Environmental Permit applications for a variety of industrial sectors.
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads, ADMS-5, AERMOD-PRIME and BREEZE-ROADS. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Project management and co-ordination of Environmental Impact Assessments and scoping reports for developments throughout the UK.
- Provision of expert witness services at Planning Inquiries.
- Design and project management of pollutant monitoring campaigns.
- Co-ordination and management of large-scale multi-disciplinary projects and submissions.
- Provision of expert advice to local government and international environmental bodies, as well as involvement in production of industry guidance.

SELECT PROJECTS SUMMARY:

Industrial

Shanks Waste Management - Odour Assessments of two waste management facilities to support Environmental Permit Applications.

Tatweer Petroleum - dispersion modelling of Bahrain oil field.

Doha South Sewage Treatment Works - AQA for works extension in Qatar.

IRIS Environmental Appraisal Report Reviews, Isle of Man Government - odour assessment reviews.

Lankem, Greater Manchester - Environmental Permit Application for chemical manufacturing plant.

Newport Docks Bulk Drying, Pelleting and CHP Facility - air quality EIA for gas CHP.

Springshades, Leicester - Environmental Permit Variation Application for textile manufacturing plant.

Valspar, Chester - Odour Assessment and production of Odour Management Plan for a paint manufacturing plant in response to neighbour complaints.

Agrivert - dispersion modelling of odour and CHP emissions from numerous AD plants.

James Cropper Paper Mill, Cumbria - air quality EIA, Environmental Permit Variation and Human Health Risk Assessment for new biomass boiler adjacent to SSSI.

Rigg Approach, Leyton - Air Quality Assessment in support of waste transfer site.

Lynchford Lane Waste Transfer Station - biomass facility energy recovery plant.

Barnes Wallis Heat and Power, Cobham - biomass facility adjacent to AQMA.

Residential

Wood St Mill, Bury - residential development adjacent to scrap metal yard.

Hyams Lane, Holbrook - Odour Assessment to support residential development adjacent to sewage works.

North Wharf Gardens, London - peer review of EIA undertaken for large residential development.

Loxford Road, Alford - Air Quality EIA for residential development, included consideration of impacts from associated package sewage works

Elephant and Castle Leisure Centre - baseline AQA for redevelopment.

Carr Lodge, Doncaster - EIA for large residential development.

Queensland Road, Highbury - residential scheme including CHP.

Bicester Ecotown - dispersion modelling of energy centre.

Castleford Growth Delivery Plan - baseline air quality constraints assessment for town redevelopment.

York St, Bury - residential development adjacent to AQMA.

Temple Point Leeds - residential development adjacent to M1.

Commercial and Retail

Etihad Stadium - Air Quality EIA for the extension to the capacity of the Etihad Stadium, Manchester.

Wakefield College - redevelopment of city centre campus in AQMA.

Manchester Airport Cargo Shed - commercial development.

Manchester Airport Apron Extension - EIA including aircraft emission modelling.

National Youth Theatre, Islington - redevelopment to provide new arts space and accommodation.

KEY EXPERIENCE:

Emily is a Senior Environmental Consultant with specialist experience in the air quality sector. Her key capabilities include:

- Production of Air Quality Assessments in accordance with Department for Environment, Food and Rural Affairs (DEFRA) methodologies for a range of residential, commercial and industrial sectors.
- Detailed dispersion modelling of road vehicle exhaust emissions using ADMS-Roads. Studies have included assessment of road traffic exhaust emissions on sensitive receptors and exposure of new residents to poor air quality.
- Advanced canyon modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Assessment of construction dust impacts from a range of development sizes.
- Definition of baseline air quality and identification of sensitive areas across the UK.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Air quality monitoring at industrial sites to quantify pollutant concentrations
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.

SELECT PROJECTS SUMMARY:

Bowlers Yard, Manchester

Air Quality Assessment in support of an eleven storey residential development to provide circa 65 units on land known as Bowlers Yard, Manchester. The site was located in an Air Quality Management Area (AQMA) and concerns were raised regarding the exposure of future occupants to poor air quality due to road traffic emissions. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM_{2.5}, PM₁₀ and NO₂ concentrations across the site. Results indicated that pollution levels were below the air quality objectives across the development.

Freemasons Arms Hotel, Heywood

Air Quality Assessment to support a residential-led development in an AQMA. Detailed dispersion modelling was undertaken with the inclusion of advanced canyon modelling to evaluate the impact of the urban topography within the locality on the dispersion of traffic related pollutants. Predicted concentrations of NO₂ were found to exceed air quality criteria at the building façade fronting Market Place at first floor level. As such, mitigation was specified for the affected units to ensure future residents would not be exposed to poor air quality.

Griffin Road, London

Air Quality Assessment in support of a residential development located in an AQMA. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM₁₀ and NO₂ concentrations across the site. Results indicated that pollution levels were classified as APEC - A in accordance with the London Councils Air Quality and Planning Guidance.

High Street, Dudley

Odour Impact Assessment in support of a proposed residential-led development. Due to the location of the site, being above an existing hot food takeaway, odour surveys were required to assess the level of odour across the development. A risk assessment was also undertaken in accordance with the relevant odour guidance. An appropriate ventilation system was identified on the basis of the assessment results.

East Common Lane, Selby

Air Quality Assessment in support of an industrial development on land associated with Access 63 Business Park, East Common Lane Selby. Due to the size of the development it was possible that traffic generated from the scheme may cause negative impacts on sensitive receptors nearby. NO₂ and PM₁₀ concentrations were quantified at specific receptor points to ensure there would be no significant increases in pollution levels. Results revealed negligible impacts at all locations.

Wharton Road, Winsford

Air Quality Assessment in support of a residential development of circa 138 units on land off Wharton Road, Winsford. Using sensitive receptors, located in areas where increased road traffic may affect NO₂ concentrations, a comparison was made between overall concentrations with and without the development in place. Results revealed pollutant concentrations were below the relevant standards across the site and impacts associated with the development were not significant.