

Odour Assessment
Bradley Road, Huddersfield

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Executive Summary

Redmore Environmental Ltd was commissioned by Redrow Homes Yorkshire to undertake an Odour Assessment in support of a proposed residential development on land off Bradley Road, Huddersfield.

The proposals comprise the phased development of the site for residential use. The Bradley Villa Farm phase of development for which planning permission is sought includes the construction of circa 270 dwellings on the south-west section of the site. The Full Allocation, referred to as Allocation Site HS11, involves the delivery of an additional 1,958 units across the remaining area.

The development is located in the vicinity of Bradley Villa Farm and the Bradley Park Waste Management facility. There is the potential for odour emissions from these sites to cause loss of amenity for future occupants of the development and act as a constraint to planning consent. A two stage Odour Assessment was therefore undertaken in order to determine baseline conditions at the site and consider its suitability for the proposed end-use.

Three Field Odour Surveys were undertaken to assess baseline conditions across the development site. An Odour Risk Assessment was also undertaken using a standard screening methodology to consider the potential risk of reduced amenity. The results of these two assessments were combined and a number of additional factors considered to determine the overall significance of effect.

Based on the results of the staged assessment, overall odour effects at the site are not considered to be significant. As such, odour is not considered to represent a constraint to planning consent for the Bradley Villa Farm development or Site Allocation HS11.

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Appendix 1 - Curricula Vitae

1.0 INTRODUCTION

1.1 Background

- 1.1.1 Redmore Environmental Ltd was commissioned by Redrow Homes Yorkshire to undertake an Odour Assessment in support of a proposed residential development on land off Bradley Road, Huddersfield.
- 1.1.2 The development is located in the vicinity of Bradley Villa Farm and the Bradley Park Waste Management facility. There is the potential for odour emissions from these sites to cause loss of amenity for future occupants of the development and act as a constraint to planning consent. An Odour Assessment has therefore been undertaken in order to determine baseline conditions at the site and consider its suitability for the proposed end-use.

1.2 Site Location and Context

- 1.2.1 The development site is located on land off Bradley Road, Huddersfield, at approximate National Grid Reference (NGR): 415222, 420500. Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The proposals comprise the phased development of the site for residential use. The Bradley Villa Farm phase of development includes the construction of circa 270 dwellings on the south-west section of the site. The Full Allocation, referred to as Allocation Site HS11, involves the delivery of an additional 1,958 units across the remaining area. Full Planning permission is sought for the Bradley Villa Farm phase of development only with the remainder of the HS11 allocation site owned by Kirklees Council and to be developed at a later date. Reference should be made to Figure 1 for a map of the separate development areas and Figure 2 for an indicative parameter plan.
- 1.2.3 The development is located in the vicinity of Bradley Villa Farm and the Bradley Park Waste Management facility. There is the potential for odour emissions from these sites to cause loss of amenity for future occupants of the development. A two stage Odour Assessment has therefore been undertaken to investigate potential impacts at the site and consider its suitability for the proposed end-use. This included three Field Odour Surveys and a Risk Assessment. The findings are detailed in the following report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 Department for Environment, Food and Rural Affairs (DEFRA) guidance¹ defines odour as:

"An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of odour. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.

Odours have the potential to trigger strong reactions for good reason. Pleasant odours can provide enjoyment and prompt responses such as those associated with appetite. Equally, unpleasant odours can be useful indicators to protect us from harm such as the ingestion of rotten food. These protective mechanisms are learnt throughout our lives. Whilst there is often agreement about what constitutes pleasant and unpleasant odours, there is a wide variation between individuals as to what is deemed unacceptable and what affects our quality of life."

2.1.2 Although it is recognised that the DEFRA guidance² has been formally withdrawn, the definition of odour provided within the document is still considered to be relevant in the context of the assessment.

2.2 Odour Impacts

2.2.1 The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. The **FIDOL** acronym (also stated as **FIDOR** in Environment Agency (EA) guidance³) is a useful reminder of the

¹ Odour Guidance for Local Authorities, DEFRA, 2010.

² Odour Guidance for Local Authorities, DEFRA, 2010.

³ H4: Odour Management, EA, 2011.

factors that will determine the degree of odour pollution. These are described by the Institute of Air Quality Management (IAQM)⁴ as follows:

- **Frequency** - how often an individual is exposed to odour;
- **Intensity** - the individual's perception of the strength of the odour;
- **Duration** - The overall duration that individuals are exposed to an odour over time;
- **Odour unpleasantness** - Odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/ intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score; and,
- **Location** - The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

2.2.2 It is important to note that even infrequent emissions may cause loss of amenity if odours are perceived to be particularly intense or offensive.

2.2.3 The FIDOL factors can be further considered to provide the following issues in regard to the potential for an odour emission to cause a nuisance:

- The rate of emission of the compound(s);
- The duration and frequency of emissions;
- The time of the day that this emission occurs;
- The prevailing meteorology;
- The sensitivity of receptors to the emission i.e. whether the odorous compound is more likely to cause nuisance, such as the sick or elderly, who may be more sensitive;
- The odour detection capacity of individuals to the various compound(s); and,
- The individual perception of the odour (i.e. whether the odour is regarded as unpleasant). This is greatly subjective and may vary significantly from individual to individual. For example, some individuals may consider some odours as pleasant, such as petrol, paint and creosote.

⁴ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

2.3 Odour Legislative Control

2.3.1 The main requirement with respect to odour control from industrial activities is the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments. If a process is deemed potentially odorous then the relevant regulator will usually include an appropriate condition in the site's Environmental Permit to restrict impacts beyond the facility boundary.

2.3.2 Enforcement of the condition is by the relevant regulator, either the EA for Part A(1) processes, or the Local Authority for Part A(2) and B processes. If the regulator is satisfied that odour from a facility is causing pollution beyond the site boundary, then they can serve an improvement notice that requires remedial works to be undertaken to reduce impacts to an acceptable level. The measures that are deemed appropriate will depend on the industry sector and site-specific circumstances and will take costs and benefits into account. Should appropriate actions not be taken by the operator then the regulator has a number of available options, culminating in the revocation of the Environmental Permit and cessation of all activities on site.

2.3.3 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

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

2.3.4 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 Local Authority 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.

2.3.5 The legislative controls described above were considered as necessary throughout the undertaking of this assessment.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework⁵ (NPPF) was published in February 2019 and 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 achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to odour:

"c) An environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy"

2.4.3 Chapter 12 of the NPPF details objectives in relation to achieving well-designed place. It states that:

"Planning policies and decisions should ensure that developments

f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesions and resilience."

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

2.5 Local Planning Policy

2.5.1 The Kirklees Local Plan (KLP)⁶ was adopted by Kirklees Council (KC) on 27th February 2019. The KLP sets out the spatial vision and strategy for the development of Kirklees for the

⁵ NPPF, Ministry of Housing, Communities and Local Government, 2019.

⁶ KLP, KC, 2019.

period up to 2031 and is used to guide decisions on planning, development and regeneration.

- 2.5.2 A review of the KLP indicated the following policy in relation to odour that is relevant to this assessment:

"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 [...]"

- 2.5.3 The above policy was taken into consideration throughout the undertaking of the assessment.

2.6 Institute of Air Quality Management Guidance

- 2.6.1 The IAQM published the 'Guidance on the Assessment of Odour for Planning'⁷ document on 20th May 2014. This was updated in 2018⁸ and specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in the guidance has been utilised in throughout this report where relevant.

⁷ Guidance on the Assessment of Odour for Planning, IAQM, 2014.

⁸ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

3.0 **BASELINE**

3.1 **Introduction**

3.1.1 Existing conditions in the vicinity of the site were identified in order to provide a baseline for the assessment. These are detailed in the following Sections.

3.2 **Site Description**

3.2.1 The development is located in a semi-rural setting which comprises green space and existing residential land use. The site is bound to the north by woodland and agricultural land with residential properties positioned to the west, south and south-east. Bradley Villa Farm is situated immediately to the west of the of the Bradley Villa Farm development area. The Bradley Park Waste Management facility is located to the north-east of Site Allocation HS11.

3.3 **Potential Odour Sources**

3.3.1 A desk top study was undertaken in order to identify potential odour sources in the vicinity of the development. These are summarised in Table 1.

Table 1 Potential Odour Sources

Source		Distance from Bradley Villa Farm Area (m)	Direction from Bradley Villa Farm Area	Distance from HS11 Allocation (m)	Direction from HS11 Allocation	Description of Activities	Potential Emissions
1	Bradley Park Waste Facility	1,120	North-east	Adjacent	North-east	Landfilling of waste materials	Waste type odours - refuse and landfill gas
2	Bradley Villa Farm	10	South/South-west	380	South-west	Poultry and cattle rearing	Agricultural type odours - poultry, cattle, manure and straw

3.3.2 As shown in Table 1, two potential odour sources were identified within the vicinity of the site. Reference should be made to Figure 3 for a map showing the source locations.

3.4 Meteorological Conditions

3.4.1 The potential for odour emissions to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during release. In order to consider prevailing conditions at the site, review of historical weather data was undertaken.

Bingley meteorological station is located at NGR: 408874, 435015, which is approximately 15.7km north-west of the development. It is considered that conditions are likely to be reasonably similar over a distance of this magnitude and the information is a suitable source of data for an assessment of this nature.

3.4.2 Meteorological data was obtained from Bingley over the period 1st January 2015 to 31st December 2019 (inclusive). This is summarised in Table 2. Reference should be made to Figure 5 for a wind rose of the meteorological data.

Table 2 Wind Frequency Data

Wind Direction (°)	Frequency of Wind (%)
345 - 15	2.29
15 - 45	4.07
45 - 75	5.23
75 - 105	5.36
105 - 135	7.26
135 - 165	4.97
165 - 195	5.26
195 - 225	15.66
225 - 255	14.44
255 - 285	21.11
285 - 315	9.41
315 - 345	3.19
Sub-Total	98.24
Calms	0.98
Missing/Incomplete	0.78

3.4.3 As shown in Table 2, the prevailing wind direction at the site is from the west. Winds from the north and east are relatively infrequent, which is indicative of conditions throughout the majority of the UK.

3.4.4 All meteorological data used in the assessment was provided by Atmospheric Dispersion Modelling Ltd, which is an established distributor of meteorological data within the UK.

4.0 METHODOLOGY

4.1 Introduction

- 4.1.1 The development has the potential to expose future residents to any existing odour issues at the site. An Odour Impact Assessment has therefore been undertaken in accordance with the IAQM 'Guidance on the Assessment of Odour for Planning'⁹ document, as summarised in the following Sections. This methodology was agreed with Rebecca Muff, Senior Technical Officer at KC, on 16th November 2020.

4.2 Field Odour Surveys

Background

- 4.2.1 An adverse effect of odour exposure, such as annoyance or loss of amenity, is subjective and is not something that can be wholly defined or assessed by scientific methods alone. An assessment can therefore be strengthened by including a subjective assessment of prevailing odour conditions by those directly affected or by experienced, trained, observers.
- 4.2.2 Sensory testing techniques use the human nose as the analytical sensor to enable the odour magnitude (as either intensity or concentration), frequency, duration and offensiveness of the odour to be recorded at a particular location at a specific time. This is a sound approach considering that no analytical instrument can currently give a unified measure of a complex mixture of compounds that quantifies it as a whole in the same way that a human experiences odour. Sensory testing also allows the character of the odour to be assessed, which is a great benefit when there are a number of different odour sources.
- 4.2.3 Subjective sensory tests, such as the Field Odour Survey, should not automatically be considered inferior to quantitative ambient monitoring. When carried out to a rigorous, well-designed methodology, the results of such sensory surveys can be expected to be robust and reproducible.

⁹ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

Field Odour Survey Procedure

4.2.4 Sensory tests were carried out at a number of survey locations on 17th December 2020, 30th January 2021 and 10th February 2021. The survey positions were chosen to represent potential residential exposure locations throughout both the Bradley Villa Farm development area and Site Allocation HS11.

4.2.5 The survey locations are summarised in Table 3 and shown visually on Figure 4.

Table 3 Survey Locations

Position	Location Description	NGR (m)	
		X	Y
1	Site Allocation HS11 - Eastern Section	416184.5	421073.6
2	Site Allocation HS11 - Eastern Section	416220.5	420957.1
3	Site Allocation HS11 - Eastern Section	416008.2	420878.4
4	Site Allocation HS11 - North-eastern Section	415970.5	421063.3
5	Site Allocation HS11 - North-eastern Section	415855.8	420943.4
6	Site Allocation HS11 - Central Section	415717.2	420823.6
7	Site Allocation HS11 - Central Section	415766.8	420750.0
8	Site Allocation HS11 - South-western Section	415670.9	420661.0
9	Bradley Villa Farm - Eastern Section	415433.0	420517.1
10	Site Allocation HS11 - North-western Section	415515.1	420828.7
11	Site Allocation HS11 - North-western Section	415362.8	420765.4
12	Bradley Villa Farm - Northern Section	415153.9	420649.0
13	Bradley Villa Farm - Western Section	415015.2	420494.9
14	Bradley Villa Farm - Western Section	415106.0	420464.1
15	Bradley Villa Farm - Southern Section	415391.9	420426.4
16	Bradley Villa Farm - Central Section	415280.6	420554.8

4.2.8 Monitoring was undertaken over a 5-minute period at each position. For each test location, the start time of the observation period, meteorological conditions and the attributes of the odour were recorded as follows:

- The assessor breathed normally, inhaling ambient air samples through the nose every 10-seconds, to give 30 samples over the 5-minute observation period;
- For each sample, the odour intensity was recorded using the scale outlined in Table 4.

Table 4 Odour Intensity Scale

Odour Strength	Intensity Level	Comments
No odour/not perceptible	0	No odour when compared to the clean site
Slight/very weak	1	There is probably some doubt as to whether the odour is actually present
Slight/weak	2	The odour is present but cannot be described using precise words or terms
Distinct	3	The odour character is barely recognisable
Strong	4	The odour character is easily recognisable
Very strong	5	The odour is offensive. Exposure to this level would be considered undesirable
Extremely strong	6	The odour is offensive. An instinctive reaction would be to mitigate against further exposure

- At the end of the observation period at the test location, the odour unpleasantness was noted by classifying it as unpleasant, neutral (neither pleasant nor unpleasant) or pleasant. This assumed that at least some of the 30 samples were of intensity 3 or more (i.e. the odour is at least 'barely recognisable');
- The odour descriptor and meteorological conditions were also noted;
- The pervasiveness/extent of the odour at the test location was assessed by calculating the percentage odour time, $t_{\geq 4}$, which is the number of samples where odour was recognisable divided by the total number of samples (i.e. 30). Note that 'recognisable odour' is where the odour strength exceeds the recognition threshold and is definitely recognisable by the assessor i.e. the assessor is capable of definitely identifying its quality/character, which corresponds to an intensity of 4 or more; and,

- The average odour intensity (I_{mean}) over the test period was calculated and the maximum intensity (I_{max}) noted.

4.2.9 The following additional factors were also adopted to safeguard the quality of the sensory assessments:

- The odour assessor would not have undertaken the assessment if they had a cold, sore throat, sinus trouble, etc;
- The odour assessor was not hungry or thirsty;
- The odour assessor did not work within half an hour of the end of their last meal;
- The odour assessor did not smoke or consume strongly flavoured food or drink, including coffee, for at least half an hour before the field odour survey was carried out, or during the survey;
- The odour assessor did not consume confectionery or soft drinks for at least half an hour before the field odour survey was carried out, or during the survey;
- Scented toiletries, such as perfume/aftershave were not used on the day of the field odour survey; and,
- The vehicle used during the field odour survey did not contain any deodorisers.

Odour Exposure

4.2.10 Following completion of the Field Odour Surveys, the matrix outlined in Table 5 was utilised to determine the level of odour exposure at each monitoring location.

Table 5 Odour Exposure

Average Intensity (I_{mean})	Percentage Odour Time ($t_{I \geq 4}$)				
	≤10%	11% to 20%	21% to 30%	31% to 40%	≥41%
6	Large	Very Large	Very Large	Very Large	Very Large
5	Medium	Large	Large	Very Large	Very Large
4	Small	Medium	Medium	Large	Large
3	Small	Medium	Medium	Medium	Medium
2	Small	Small	Medium	Medium	Medium
1	Small	Small	Small	N/A	N/A

4.2.11 It should be noted that I_{mean} was rounded to the nearest whole number.

4.2.12 The following overriding considerations also affect the scoring of the odour annoyance impact:

- If $I_{\text{mean}} = 0$, then the odour effect can for practical purposes be considered **negligible**; and,
- If $I_{\text{mean}} = 1$ but $t_{\geq 4} = 0\%$, then the odour effect can for practical purposes be considered **negligible**.

Significance of Odour Effect

4.2.13 Following the determination of the odour exposure level, the significance of effect was determined through the interaction with receptor sensitivity, as outlined in Table 6.

Table 6 Odour Receptor Sensitivity

Sensitivity	Description
High	Surrounding land where: • Users can reasonably expect enjoyment of a high level of amenity; and, • People would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land Examples may include residential dwellings, hospitals, schools/education and tourist/cultural
Medium	Surrounding land where: • Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or, • People would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land Examples may include places of work, commercial/retail premises and playing/recreation fields
Low	Surrounding land where: • The enjoyment of amenity would not reasonably be expected; or, • There is transient exposure, where the people would reasonably be expected to present only for limited periods of time as part of the normal pattern of use of the land Examples may include industrial use, farms, footpaths and roads

4.2.14 The assessment matrix is provided in Table 7.

Table 7 Odour Effect Significance

Overall Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
Very Large	Substantial	Substantial	Substantial
Large	Moderate	Moderate	Substantial
Medium	Slight	Slight	Moderate
Small	Negligible	Negligible	Slight

4.3 Risk Assessment

Background

4.3.1 The basic concept of risk assessment is that the overall risk depends on the probability of an event occurring together with the likely consequences if it was to occur. For odour assessments the probability can be considered as the likelihood of exposure (impact), and the consequence can be considered to be the effect on the receptor if that exposure (impact) took place. These two facets can be summarised by the source-pathway-receptor concept.

4.3.2 Behind the source-pathway-receptor concept, is the fundamental relationship:

$$\text{Effect} \approx \text{Dose} \times \text{Response}$$

4.3.3 In the specific case of odour assessments, the dose can be considered equivalent to the odour exposure, or impact. This will be determined by FIDO of the FIDOL factors. The effect is the result of the changes on specific receptors (people in the case of odour) taking into account their sensitivities (i.e. responsiveness to odour), the L (location) in FIDOL is to categorise the sensitivity.

4.3.4 The IAQM guidance states that a qualitative risk-based approach is appropriate for:

- Screening of odour impacts;
- Development proposals likely to have a low risk of adverse effects;

- Situations where there is insufficient information to carry out detailed predictive dispersion modelling;
- Situations where the information has wide uncertainties and its use as input to a detailed predictive dispersion model would be at best a waste of time, money and effort or, worse, would lead to an illusory and false impression of accuracy and precision in the numbers generated; and,
- When the model is not able to properly represent the reality of the situation being assessed, e.g. if the odour effects are likely to be significantly influenced by accidental, unexpected, or unknown releases. In such instances a qualitative estimate may be more appropriate, on the basis that it is better to be broadly correct than precisely wrong.

4.3.5 It is considered that the third, fourth and fifth of these criteria are met for this project. As such, a qualitative assessment methodology was deemed appropriate.

Risk Assessment Procedure

4.3.6 The first step in the assessment is to estimate the odour generating potential of the site activities. This is termed the Source Odour Potential, which takes into account three factors:

- The scale (magnitude) of the release from the odour source, taking into account the effectiveness of any odour control or mitigation measures that are already in place. This involves judging the relative size of the release rate after mitigation and taking account of any pattern of release (e.g. intermittency);
- How inherently odorous the emission is. In some cases it may be known whether the release has a low, medium or high Odour Detection Threshold (ODT). This is the concentration at which an odour becomes detectable to the human nose. In most instances the odours released by a source will be a complex mixture of compounds and the detectability will not be known. However, for some industrial processes the odour will be due to one or a small number of known compounds and the detection thresholds will be a good indication of whether the release is highly odorous or mildly odorous; and,
- The relative pleasantness/unpleasantness of the odour.

4.3.7 Using the example risk ranking in Table 8, the Source Odour Potential can be categorised as **small**, **medium** or **large**.

Table 8 Source Odour Potential

Source Odour Potential	Comments
Large	Magnitude - Larger Environmentally Permitted processes of odorous nature or large Sewage Treatment Works (STWs); materials usage hundreds of thousands of tonnes/m³ per year; area sources of thousands of m². The compounds involved are very odorous (e.g. mercaptans), having very low ODTs where known Unpleasantness - processes classed as "Most offensive" in Environment Agency (EA) Guidance H4¹⁰; or (where known) compounds/odours having unpleasant (-2) to very unpleasant (-4) hedonic score Mitigation/control - open air operation with no containment, reliance solely on good management techniques and best practice
Medium	Magnitude - smaller Environmentally Permitted processes or small STWs; materials usage thousands of tonnes/m³ per year; area sources of hundreds of m². The compounds involved are moderately odorous Unpleasantness - processes classed in EA Guidance H4 as "Moderately offensive"; or (where known) odours having neutral (0) to unpleasant (-2) hedonic score Mitigation/control - some mitigation measures in place, but significant residual odour remains
Small	Magnitude - falls below Environmental Permit Part B threshold; materials usage hundreds of tonnes/m³ per year; area sources of tens m². The compounds involved are only mildly odorous, having relatively high ODTs where known Unpleasantness - processes classed as "Less offensive" in EA Guidance H4; or (where known) compounds/odours having neutral (0) to very pleasant (+4) hedonic score Mitigation/control - effective, tangible mitigation measures in place leading to little or no residual odour

4.3.8 The next step is to estimate the effectiveness of the pollutant pathway as the transport mechanism for odour through the air to the receptor, versus the dilution/dispersion in the atmosphere. Any factor that increases dilution and dispersion of the plume as it travels from source to receptor will reduce the concentration at the end point, and hence reduce exposure. Important factors for consideration are:

- The distance between sensitive receptors and the odour source;

¹⁰

H4: Odour Management, EA, 2011.

- Whether receptors are downwind with respect to the prevailing wind direction. Odour episodes often tend to occur during stable atmospheric conditions with low wind speed, which gives poor dispersion and dilution. Receptors close to the source in all directions can be affected under these conditions. When circumstances are not calm, it will be the downwind receptors that are affected. As such, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact;
- The effectiveness of the point of release in promoting good dispersion e.g. releasing emissions from a high stack will increase the pathway, dilution and dispersion; and,
- The topography and terrain between the source and receptor. The presence of topographical features such as hills and valleys, or urban terrain features such as buildings, can affect air flow and therefore increase, or inhibit, dispersion and dilution.

4.3.9 Using the example risk ranking in Table 9, the pollutant pathway from source to receptor can be categorised as **ineffective**, **moderately effective** or **highly effective**.

Table 9 Pathway Effectiveness

Pathway Effectiveness	Comments
Highly effective	Distance - receptor is adjacent to the source/site; distance well below any official set-back distances Direction - high frequency of winds from source to receptor, or, qualitatively, receptors downwind of source with respect to prevailing wind Effectiveness of dispersion/dilution - open processes with low-level releases, e.g. lagoons, uncovered effluent treatment plant, landfilling of putrescible wastes
Moderately effective	Distance - receptor is local to the source Where mitigation relies on dispersion/dilution - releases are elevated, but compromised by building effects
Ineffective	Distance - receptor is remote from the source; distance exceeds any official set-back distances Direction - low frequency of winds from source to receptor, or, qualitatively, receptors upwind of source with respect to prevailing wind Where mitigation relies on dispersion/dilution - releases are from high level (e.g. stacks, or roof vents greater than 3m above ridge height) and are not compromised by surrounding buildings

4.3.10 The sensitivity of the receiving receptor is defined based on the criteria shown in Table 6.

4.3.11 The estimates of Source Odour Potential and Pathway Effectiveness are considered together to predict the risk of odour exposure (impact) at the receptor location, as shown by the matrix in Table 10.

Table 10 Risk of Odour Exposure

Pathway Effectiveness	Source Odour Potential		
	Small	Medium	Large
Highly effective	Low	Medium	High
Moderately effective	Negligible	Low	Medium
Ineffective	Negligible	Negligible	Low

4.3.12 The final step is to determine the significance of odour effect at the specified receptor location through the interaction between sensitivity and risk, as outlined in Table 11.

Table 11 Significance of Odour Effect

Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
High	Slight	Moderate	Substantial
Medium	Negligible	Slight	Moderate
Low	Negligible	Negligible	Slight
Negligible	Negligible	Negligible	Negligible

4.4 Overall Odour Significance

4.4.1 Following completion of the Field Odour Surveys and Risk Assessment, the IAQM guidance¹¹ 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 effect is **slight** or **negligible**, the impact is likely to be considered **not significant**. It should be noted that this is a binary judgement of

¹¹ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

either it is **significant** or it is **not significant**. This has been considered to determine the overall significance of potential odour effects at the proposed development site.

- 4.4.2 The IAQM guidance recognises that assessment of odour requires some degree of professional judgement¹². Qualitative methodologies such as those utilised within this report provide guidance for assessing potential impacts. However, professional judgement should be exercised in order to take account of the specific details which are unique to each development. This has been considered as necessary throughout the assessment. The IAQM also suggest that the assessor's qualifications and experience are detailed within an Odour Assessment. These are provided in Appendix 1.

¹² Guidance on the Assessment of Odour for Planning, IAQM, 2018.

5.0 **RESULTS**

5.1 **Field Odour Surveys**

Field Odour Survey 1 - 17th December 2020

5.1.1 Field Odour Survey 1 was undertaken between 09:10 and 11:46 on 17th December 2020. The results are summarised in Table 12.

Table 12 Field Odour Survey 1 - Results

Position	f ₁ ≥4 (%)	I _{mean}	I _{max}	Unpleasantness	Odour Description	Notes
1	0	1	2	N/A	Refuse, Vegetation	Machinery operational at Bradley Park Waste Management facility
2	0	0	2	N/A	Vegetation	-
3	0	1	2	N/A	Vegetation	-
4	0	1	2	N/A	Vegetation	-
5	0	1	2	N/A	Vegetation	-
6	0	1	2	N/A	Vegetation	-
7	0	0	1	N/A	No discernible odour	-
8	0	0	1	N/A	No discernible odour	-
9	0	0	1	N/A	No discernible odour	-
10	0	1	2	N/A	Vehicle exhaust fumes, vegetation	Vehicle passing during survey
11	0	1	2	N/A	Vegetation	-
12	0	2	3	Neutral	Agricultural	-
13	0	1	2	N/A	Agricultural	-
14	0	2	3	Unpleasant	Agricultural, agricultural ammonia, manure	Monitoring position downwind of the gable end fans serving buildings at Bradley Villa Farm

Position	$t_{\geq 4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
15	0	0	1	N/A	No discernible odour	-
16	0	1	2	N/A	Agricultural, vegetation	Feeding cattle visible in livestock cubicle building at Bradley Villa Farm

5.1.2 The meteorological conditions during the survey were dry and clear. The temperature was approximately 5°C. The wind direction was from the south-west at all monitoring locations. The wind speed rated between 0 and 3 on the Beaufort scale.

Field Odour Survey 2 - 30th January 2021

5.1.3 Field Odour Survey 2 was undertaken between 08:20 and 10:28 on 30th January 2021. The results are summarised in Table 13.

Table 13 Field Odour Survey 2 - Results

Position	$t_{\geq 4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
1	0	1	3	Neutral	Vegetation, grass	No activities visible at Bradley Park Waste Management facility
2	0	1	2	N/A	Vegetation	-
3	0	1	3	Neutral	Grass	-
4	0	1	2	N/A	Vegetation	-
5	0	1	1	N/A	No discernible odour	Light rain shower
6	0	2	2	N/A	Vegetation	-
7	0	1	2	N/A	Vegetation	-
8	0	0	1	N/A	No discernible odour	-
9	0	0	1	N/A	No discernible odour	-
10	0	1	2	N/A	Vegetation	Light rain shower

Position	f _{≥4} (%)	I _{mean}	I _{max}	Unpleasantness	Odour Description	Notes
11	0	2	3	Neutral	Vegetation, grass	-
12	0	2	2	N/A	Agricultural	-
13	0	2	3	Unpleasant	Agricultural, agricultural ammonia	Machinery operational at Bradley Villa Farm
14	0	2	3	Unpleasant	Agricultural, agricultural ammonia	Feeding cattle visible in livestock cubicle building at Bradley Villa Farm
15	0	0	1	N/A	No discernible odour	-
16	0	1	1	N/A	No discernible odour	Feeding cattle visible in livestock cubicle building at Bradley Villa Farm

5.1.4 The meteorological conditions during the survey were damp and overcast. The temperature was approximately 2°C. The wind direction was from the north-east at all monitoring locations. The wind speed rated between 2 and 3 on the Beaufort scale.

Field Odour Survey 3 - 10th February 2021

5.1.5 Field Odour Survey 3 was undertaken between 08:56 and 10:47 on 10th February 2021. The results are summarised in Table 14.

Table 14 Field Odour Survey 3 - Results

Position	f _{≥4} (%)	I _{mean}	I _{max}	Unpleasantness	Odour Description	Notes
1	0	2	3	Unpleasant	Refuse	Machinery operational at Bradley Park Waste Management facility
2	0	3	3	Unpleasant	Refuse	-
3	0	1	2	N/A	Vegetation	-
4	0	2	3	Unpleasant	Refuse	-
5	0	1	2	N/A	Refuse, vegetation	-

Position	f _{≥4} (%)	I _{mean}	I _{max}	Unpleasantness	Odour Description	Notes
6	0	1	2	N/A	Vegetation	-
7	0	1	2	N/A	Vegetation	-
8	0	1	2	N/A	Vegetation	-
9	0	2	3	Unpleasant	Agricultural, ammonia, vegetation	-
10	0	1	2	N/A	Vegetation	-
11	0	1	2	N/A	Vegetation	-
12	0	2	3	Unpleasant	Agricultural	-
13	0	2	3	Unpleasant	Agricultural	-
14	0	3	3	Unpleasant	Agricultural, ammonia	-
15	0	3	3	Unpleasant	Smoke, agricultural, vegetation	No visual evidence of smoke in the vicinity of the monitoring location
16	0	2	3	Unpleasant	Smoke, agricultural	Feeding cattle visible in livestock cubicle building at Bradley Villa Farm

5.1.6 The meteorological conditions during the survey were dry and clear. The temperature was approximately -2°C. The wind direction was either from the north or north-east at all locations. The wind speed rated between 1 and 2 on the Beaufort scale.

Odour Exposure and Significance

5.1.7 Following completion of the Field Odour Surveys, odour exposure at each of the monitoring locations was determined. This is summarised in Table 15.

Table 15 Field Odour Surveys - Odour Exposure Risk

Position	Odour Exposure Risk		
	Field Odour Survey 1	Field Odour Survey 2	Field Odour Survey 3
1	Negligible	Negligible	Negligible

Position	Odour Exposure Risk		
	Field Odour Survey 1	Field Odour Survey 2	Field Odour Survey 3
2	Negligible	Negligible	Negligible
3	Negligible	Negligible	Negligible
4	Negligible	Negligible	Negligible
5	Negligible	Negligible	Negligible
6	Negligible	Negligible	Negligible
7	Negligible	Negligible	Negligible
8	Negligible	Negligible	Negligible
9	Negligible	Negligible	Negligible
10	Negligible	Negligible	Negligible
11	Negligible	Negligible	Negligible
12	Negligible	Negligible	Negligible
13	Negligible	Negligible	Negligible
14	Negligible	Negligible	Negligible
15	Negligible	Negligible	Negligible
16	Negligible	Negligible	Negligible

5.1.8 As shown in Table 15, the risk of odour exposure was **negligible** at all survey locations. It should be noted that impacts relate to all odours detected, as well as those thought to be associated with the identified sources.

5.1.9 The significance of the survey results was determined in accordance with the criteria outlined in Table 7. The proposed development includes residential units and is therefore considered to be of **high** sensitivity.

5.1.10 The significance of the odour exposure results for the Field Odour Surveys is summarised in Table 16.

Table 16 Field Odour Surveys - Odour Significance

Position	Odour Significance		
	Field Odour Survey 1	Field Odour Survey 2	Field Odour Survey 3
1	Negligible	Negligible	Negligible
2	Negligible	Negligible	Negligible
3	Negligible	Negligible	Negligible
4	Negligible	Negligible	Negligible
5	Negligible	Negligible	Negligible
6	Negligible	Negligible	Negligible
7	Negligible	Negligible	Negligible
8	Negligible	Negligible	Negligible
9	Negligible	Negligible	Negligible
10	Negligible	Negligible	Negligible
11	Negligible	Negligible	Negligible
12	Negligible	Negligible	Negligible
13	Negligible	Negligible	Negligible
14	Negligible	Negligible	Negligible
15	Negligible	Negligible	Negligible
16	Negligible	Negligible	Negligible

5.1.11 As shown in Table 16, impacts were classified as **negligible** at all locations during the surveys.

5.1.12 Reference should be made to Figure 6 for a graphical representation of the findings.

5.2 Risk Assessment

5.2.1 The odour risk at the development was assessed in accordance with the IAQM methodology.

5.2.2 The first step was to classify the Source Odour Potential for each source identified in Table 1. This is summarised in Table 17.

Table 17 Source Odour Potential

Source		Source Odour Potential	Justification
1	Bradley Park Waste Management Facility	Large	The facility is classified as an A(1) Installation and is regulated by the EA in accordance with an Environmental Permit Biological landfill odours would be considered 'most offensive', in accordance with EA Guidance H4¹³ Most waste type odours have negative hedonic scores Activities include landfilling of waste in open air with minimal containment
2	Bradley Villa Farm	Medium	Activities at the farm are not controlled under the Environmental Permitting (England and Wales) Regulations (2016) Agricultural odours would be considered 'moderately offensive', in accordance with EA Guidance H4¹⁴ Most agricultural type odours have negative hedonic scores Poultry rearing operations are undertaken within enclosed buildings. However, there is the potential for odour release from the mechanical ventilation systems serving the sheds Cattle rearing operations are undertaken within buildings that provide partial containment of emissions. However, there is the potential for residual fugitive odour release

5.2.3 The pathway effectiveness was subsequently defined based on the distance between the identified sources and the development and the prevailing wind direction in relation to the proposals. This is summarised in Table 18.

5.2.4 It should be noted the pathway effectiveness for the Bradley Villa Farm phase of development and Site Allocation HS11 was assessed separately in order to provide consideration of site specific factors which may influence transfer of odours from the identified sources to the relevant areas.

¹³ H4: Odour Management, EA, 2011.

¹⁴ H4: Odour Management, EA, 2011.

Table 18 Odour Pathway Effectiveness

Source		Development Area	Pathway Effectiveness	Justification
1	Bradley Park Waste Management Facility	Site Allocation HS11	Ineffective	The closest proposed residential development area within the allocation is located approximately 260m from the boundary of the facility Low frequency of winds from source to receptor (14.8%)
		Bradley Villa Farm	Ineffective	The development is located approximately 1,120m from the source at its closest point Low frequency of winds from source to receptor (6.4%)
2	Poultry Sheds at Bradley Villa Farm	Site Allocation HS11	Ineffective	The development is located approximately 380m from the source at its closest point Moderate frequency of winds from source to receptor (30.1%) The structure of the poultry sheds is likely to provide containment of odours. Channelled release of air to atmosphere from the fans on the buildings is likely to contribute to enhanced dispersion and dilution of emissions. The structure of the cattle rearing cubicles is likely to provide partial containment of odours
		Bradley Villa Farm	Moderately Effective	The development is located approximately 10m from the source at its closest point High frequency of winds from source to receptor (68.7%) The structure of the poultry sheds is likely to provide containment of odours. Channelled release of air to atmosphere from the fans on the buildings is likely to contribute to enhanced dispersion and dilution of emissions The structure of the cattle rearing cubicles is likely to provide partial containment of odours

5.2.7 The above information has been used to assess odour risk from the identified sources for both the Bradley Villa Farm development and Site Allocation HS11. This is summarised in Table 19.

Table 19 Odour Risk Assessment

Source		Area	Source Odour Potential	Pathway Effectiveness	Exposure Risk	Sensitivity of Receptor	Effect Significance
1	Bradley Park Waste Facility	Allocation HS11	Large	Ineffective	Low	High	Slight
		Bradley Villa Farm	Large	Ineffective	Low	High	Slight
2	Bradley Villa Farm	Allocation HS11	Medium	Ineffective	Negligible	High	Negligible
		Bradley Villa Farm	Medium	Moderately Effective	Low	High	Slight

5.2.8 As shown in Table 19, the predicted odour effect significance ranged between **negligible** and **slight** at the development as a result of emissions from the identified sources.

6.0 DISCUSSION

6.1 Field Odour Surveys

- 6.1.1 A range of odours were detected during the three Field Odour Surveys, as shown in Table 12 to Table 14. These included vegetation, smoke, vehicle exhaust fume, agricultural and refuse type odours.
- 6.1.2 Vegetation odours were detected at a number of the monitoring locations during the Surveys. These odours are natural in nature and resulted in **negligible** impacts in all cases. Smoke type odours were detected at locations 15 and 16 during Survey 3. The specific source of the odours could not be identified. However, it is considered likely that these were associated emissions from open fires or solid fuel stoves at nearby residential properties and not the identified sources. Furthermore, the odours resulted in **negligible** impacts in all cases.
- 6.1.3 Vehicle exhaust odours were detected at location 10 during Survey 1. However, these were only identified as a result of a vehicle at Bradley Park Golf Course passing the monitoring position during the survey and resulted in **negligible** impacts.
- 6.1.4 Refuse type odours associated with Bradley Park Waste Management facility were detected at a number of the monitoring locations situated in the eastern section of Site Allocation HS11 during Surveys 1 and 3. However, these odours resulted in **negligible** impacts in all cases. It should be noted that during Survey 3, the monitoring positions where refuse type odours were identified were situated directly downwind of the facility. As such, it is considered that findings provide a worst-case assessment of potential impacts as a result of emissions from the site.
- 6.1.5 Agricultural odours associated with Bradley Villa Farm were detected at several locations across the Bradley Villa Farm development area during all of the surveys. The highest intensity odours were noted at positions 13 and 14 during Surveys 1 and 2. These were situated in close proximity to and directly downwind of the poultry buildings at the farm. However, these odours resulted in **negligible** impacts at these positions and all other monitoring locations.

6.1.6 In overview of the Field Odour Survey results, although odours associated with both Bradley Park Waste Management facility and Bradley Villa Farm were detected, equivalent exposure across the Bradley Villa Farm development area and Site Allocation HS11 is not expected to be at a level to cause loss of amenity for future residents. The information gathered therefore did not provide any reason to constrain the development on odour grounds.

6.2 **Risk Assessment**

6.2.1 The Odour Risk Assessment indicated that the predicted odour effect significance ranged between **negligible** and **slight** as a result of emissions from the identified sources. This conclusion is due to a number of considerations, including the following:

- The potential for generation of moderately offensive and most offensive odours from activities at Bradley Villa Farm and the Bradley Park Waste Management facility, respectively;
- The distance between the identified sources and Bradley Villa Farm development area/ Site Allocation HS11;
- The level of containment for the identified sources and associated potential for residual fugitive emissions; and,
- The frequency of winds from the relevant sources towards the development site.

6.3 **Summary**

6.3.1 Three Field Odour Surveys were undertaken in accordance with the IAQM methodology. The results indicated odour exposure was **negligible** at all survey locations across both the Bradley Villa Farm area and Site Allocation HS11. This is predicted to result in **negligible** effects at the proposed development.

6.3.2 The risk of potential odour effects at the development was also assessed using the IAQM methodology. This included consideration of the Source Odour Potential, pathway effectiveness and receptor sensitivity. The results of the assessment indicated the maximum predicted odour effect significance was **slight** as a result of emissions from the Bradley Park Waste Management facility at both the Bradley Villa Farm area and Site Allocation HS11. The predicted odour effect significance was **negligible** at the Site

Allocation HS11 as a result of emissions from the Bradley Villa Farm and **slight** at the Bradley Villa Farm area.

6.3.3 The IAQM guidance¹⁵ states that only if the impact is **moderate** or **substantial**, the effect is considered **significant**. As impacts were predicted to be between **slight** and **negligible**, overall effects are considered to be **not significant**, in accordance with the stated methodology.

6.3.4 In consideration of the assessment results, it is predicted that although odour from the identified sources may be experienced at the development during specific conditions, this is not likely to cause significant effects. As such, the overall predicted impact is predicted to be **slight**.

¹⁵ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

7.0 CONCLUSION

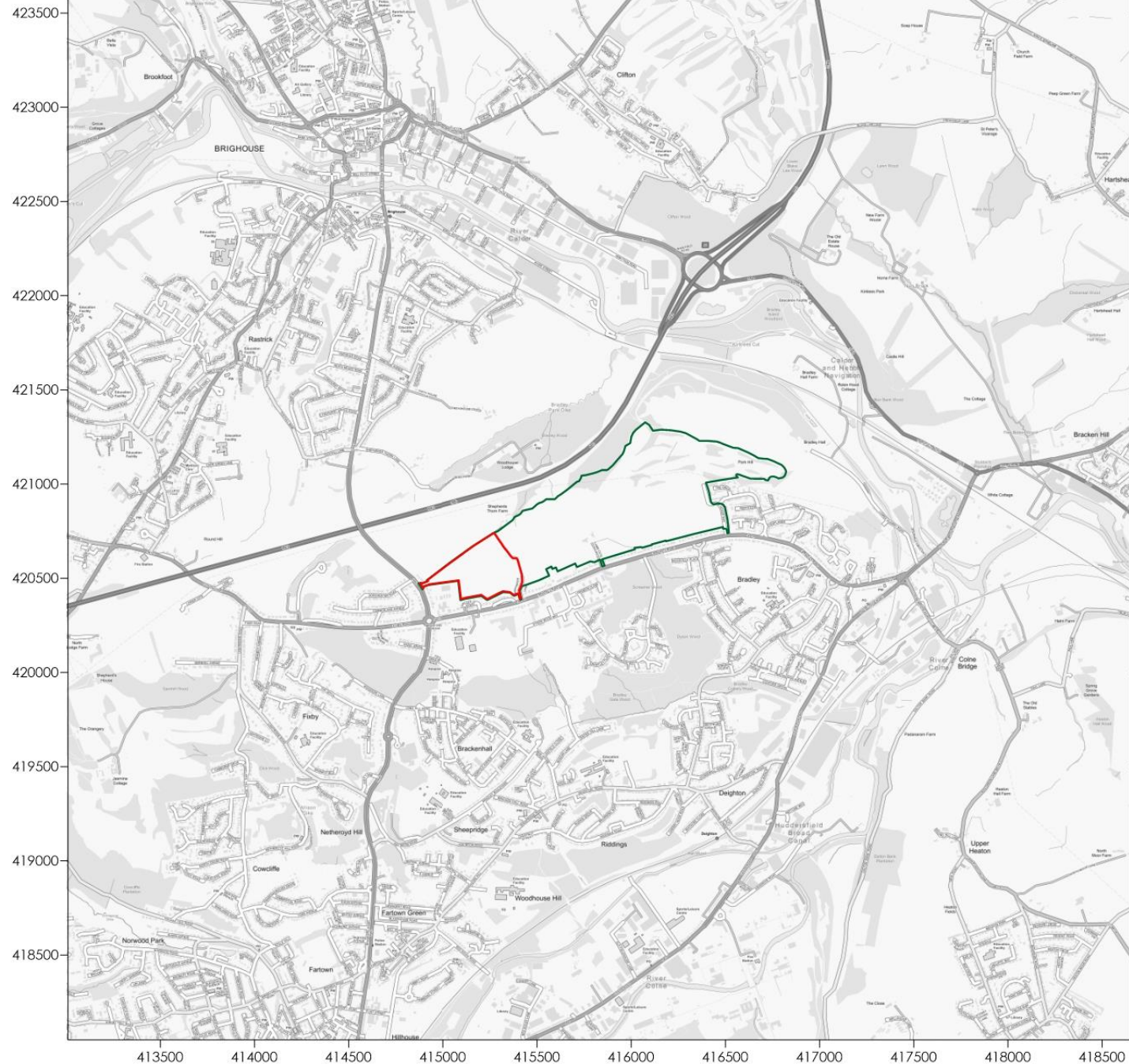
- 7.1.1 Redmore Environmental was commissioned by Redrow Homes Yorkshire to undertake an Odour Assessment in support of a proposed residential development on land off Bradley Road, Huddersfield.
- 7.1.2 The proposals comprise the phased development of the site for residential use. The Bradley Villa Farm phase of development includes the construction of circa 270 dwellings on the south-west section of the site. The Full Allocation, referred to as Allocation Site HS11, involves the delivery of an additional 1,958 units across the remaining area. Full Planning permission is sought for the Bradley Villa Farm phase of development only with the remaining HS11 site owned by Kirklees Council and expected to be developed at a later stage.
- 7.1.3 The development is located in the vicinity of Bradley Villa Farm and the Bradley Park Waste Management facility. There is the potential for odour emissions from these sites to cause loss of amenity for future occupants of the development and act as a constraint to planning consent. An Odour Assessment was therefore undertaken in order to determine baseline conditions at the site and consider its suitability for the proposed end-use.
- 7.1.4 Three Field Odour Surveys were undertaken in accordance with the IAQM methodology. The results indicated that odour impacts were **negligible** at all monitoring locations across both the Bradley Villa Farm development and Site Allocation HS11. The resultant effects were classified as **negligible** in accordance with the relevant criteria.
- 7.1.5 The risk of potential odour effects was also assessed using the IAQM methodology. This included consideration of the Source Odour Potential, pathway effectiveness and receptor sensitivity. The results of the assessment indicated the predicted odour effect significance was **slight** at both the Bradley Villa Farm development and ranged between **negligible** and **slight** at Site Allocation HS11.
- 7.1.6 In consideration of the assessment results, it is predicted that although odour from the identified sources may be experienced at the development during specific conditions, this is not likely to cause significant effects. As such, the overall predicted impact is predicted to be **slight**.

7.1.7 In accordance with the stated guidance, the overall predicted odour effects on the development are **not significant**. As such, odour emissions from existing sources in the vicinity of the site are not considered to represent a constraint to planning consent for the Bradley Villa Farm development or Site Allocation HS11.

8.0 **ABBREVIATIONS**

DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
I _{max}	Maximum odour intensity
I _{mean}	Average odour intensity
IAQM	Institute of Air Quality Management
KC	Kirklees Council
KLP	Kirklees Local Plan
NGR	National Grid Reference
ODT	Odour Detection Threshold
t _{≥4}	Percentage odour time

Figures



Legend

-  Phase 1 Site Boundary
-  Site Allocation HS11

Title

Figure 1 - Site Location Plan

Project

Odour Assessment
Bradley Road, Huddersfield

Project Reference

3841-1

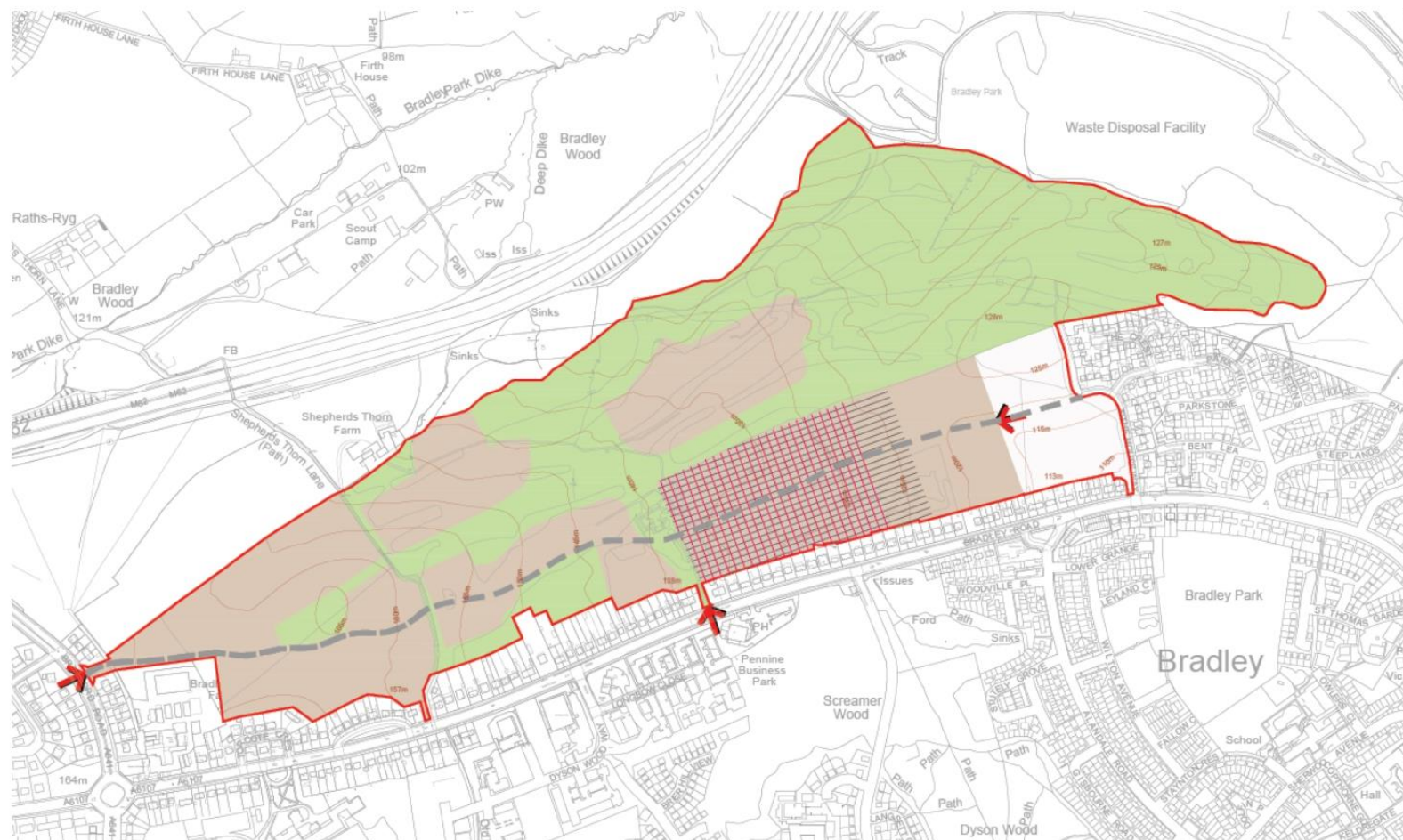
Client

Redrow Homes Yorkshire

Contains Ordnance Survey Data
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Legend



Proposed
Residential
Development

Title

Figure 2 - Indicative Parameter Plan

Project

Odour Assessment
Bradley Road, Huddersfield

Project Reference

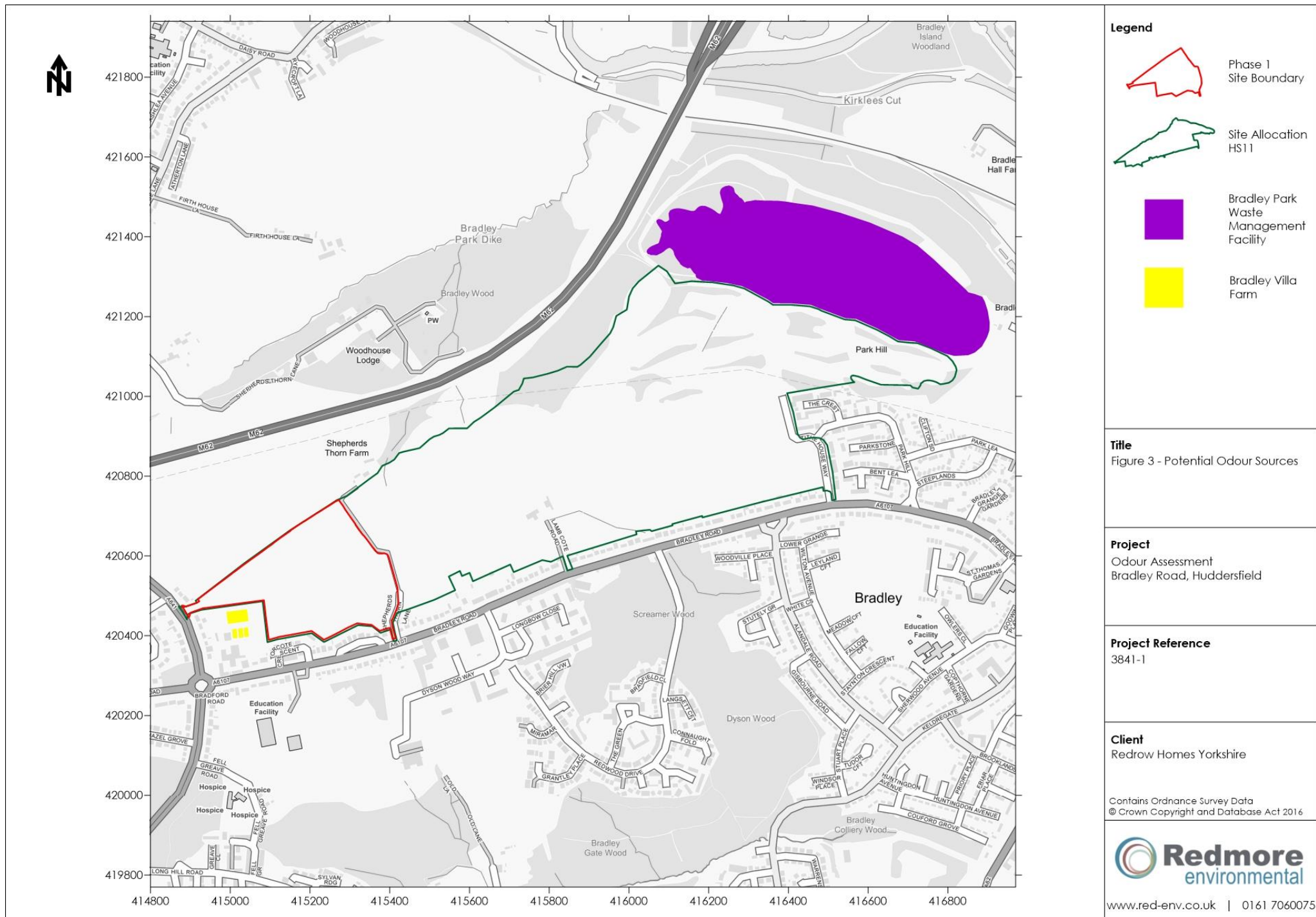
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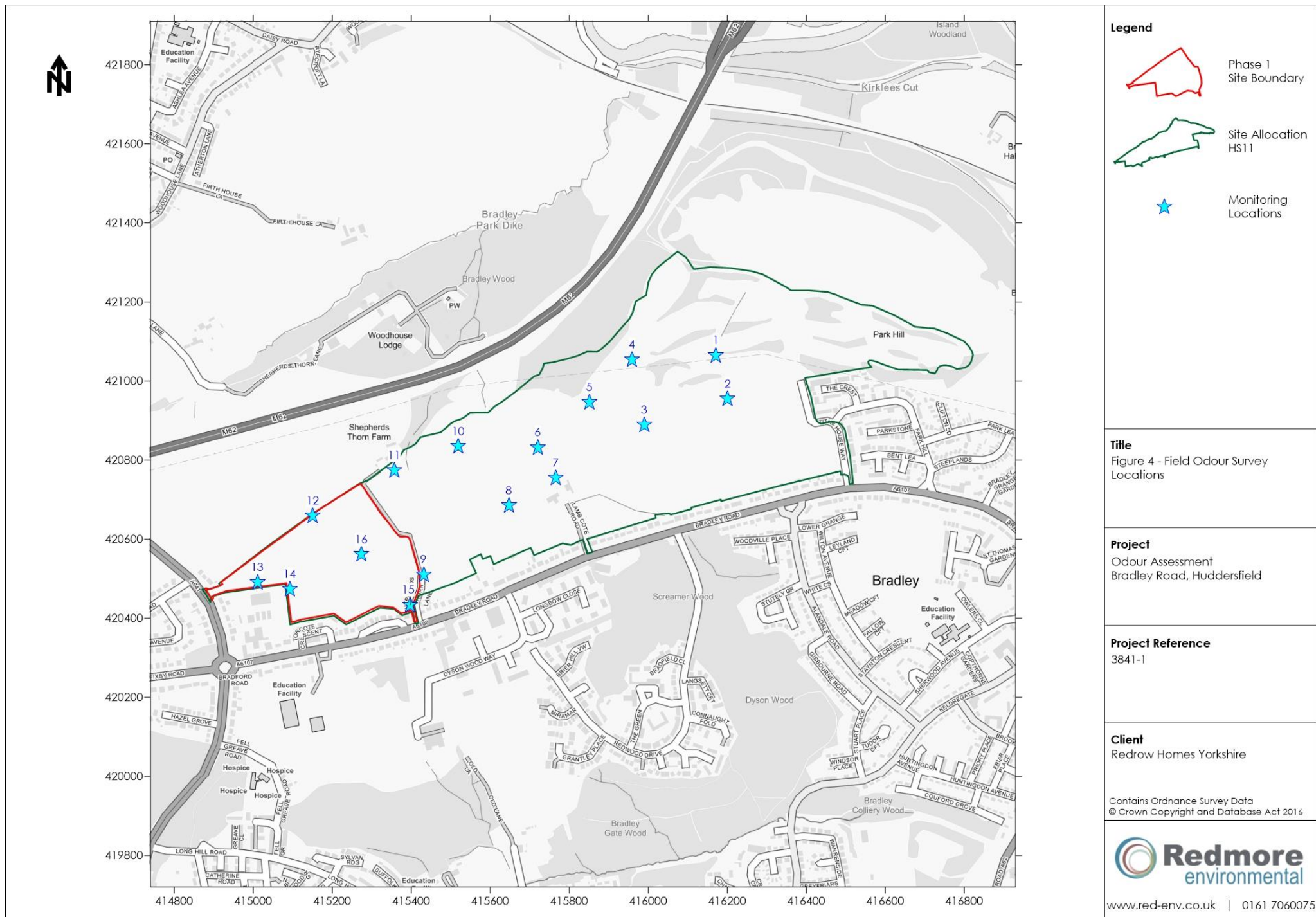
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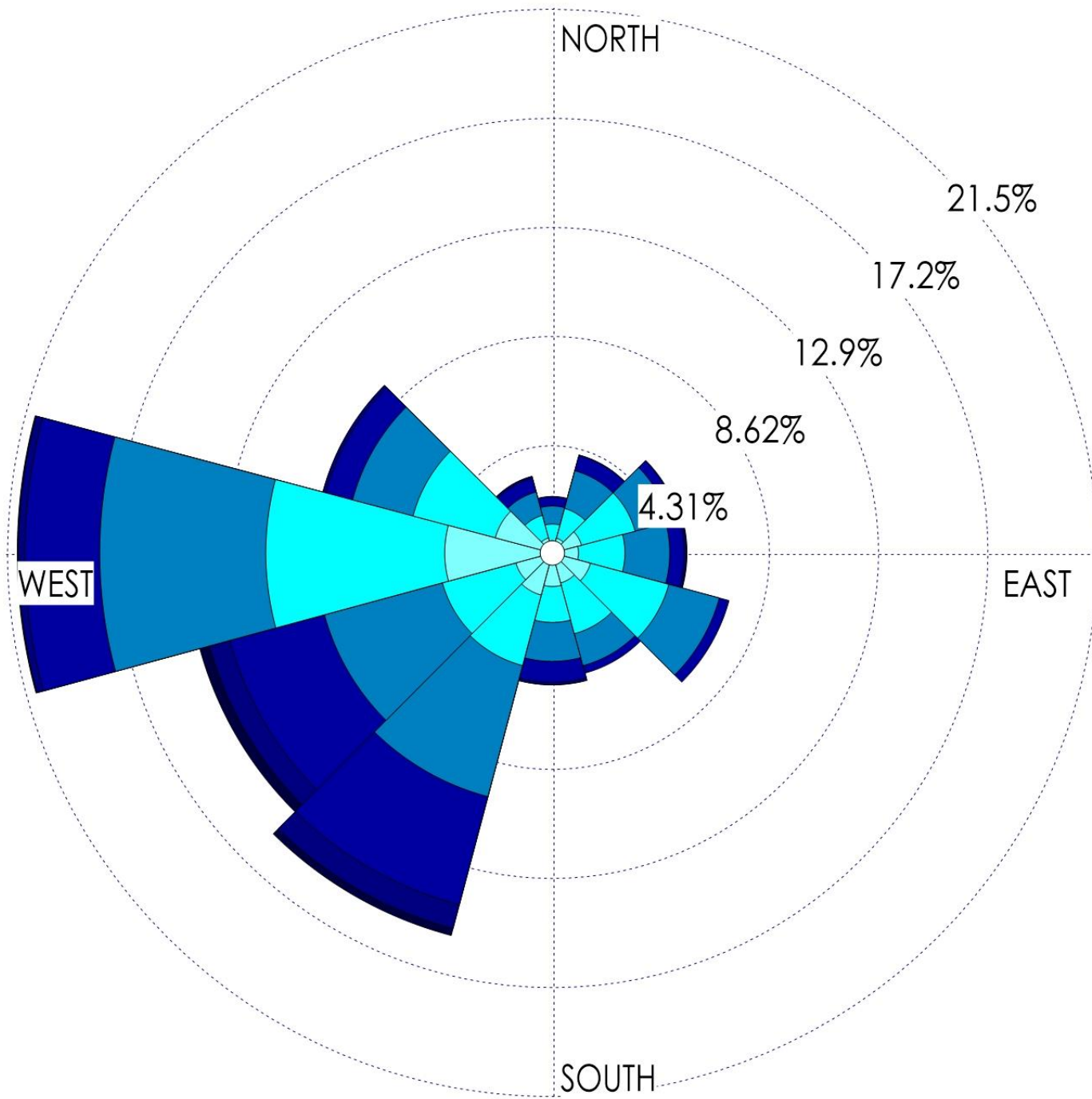
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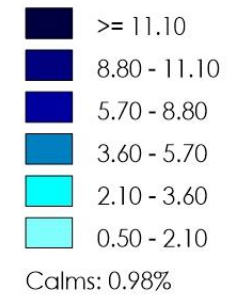






Legend

WIND SPEED
(m/s)



Title

Figure 5 - Wind Rose of 2015 to 2019
Bingley Meteorological Data

Project

Odour Assessment
Bradley Road, Huddersfield

Project Reference

3841-1

Client

Redrow Homes Yorkshire

Date: 23rd February 2021

Ref: 3841-1

Appendix 1 - Curricula Vitae

KEY EXPERIENCE:

Ger is an Associate Director with specialist experience in the odour and air quality sectors. His key capabilities include:

- Production of Air Quality, Dust and Odour Assessments in accordance with Department for Environment, Food and Rural Affairs (DEFRA) and Institute of Air Quality Management (IAQM) methodologies for a range of residential, commercial and industrial sectors.
- Detailed dispersion modelling of industrial sources using ADMS-5 to determine impacts of emissions on local air quality and amenity as a consequence of odour.
- Odour sampling and analysis as part of performance testing for odour abatement plant and mitigation appraisal.
- Odour and dust surveys to assess amenity and suitability of sites for residential development.
- Odour and dust risk assessments to determine odour effect significance in accordance with IAQM Guidance.
- 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.

SELECT PROJECTS SUMMARY:

Anaerobic Digestion Plant, Somerset

Production of a Dust Management Plan in support of a proposed Anaerobic Digestion (AD) facility in Somerset. The purpose of the plan was to establish the likely sources of dust emissions from the AD plant and set out the procedures which should be followed in order to prevent or minimise dust emissions.

Irrigation Reservoir, Colchester

Production of a Dust Monitoring Schedule in support of a proposed irrigation reservoir in Colchester. The schedule identified suitable locations for dust monitoring points, sampling methods and formalised the procedures for dealing with dust complaints.

Residential Development, Ramsbottom

Odour Assessment to determine suitability of a site for residential development. Survey work was undertaken to odour sources in the vicinity of the site and to assess potential impacts at the proposed development. An Odour Risk Assessment was then carried out using standard screening methodology.

Energy from Waste Plant, Hull

A programme of background pollutant measurement work was undertaken to collect baseline data prior to the operational phase of an Energy from Waste plant in Hull. The results revealed that baseline pollutant concentrations are within the range that can be expected in background air.

Whyte & Mackay Distillery, Invergordon

Odour Assessment in support of a planning application for an AD facility at the Whyte and Mackay Distillery, Invergordon. There is the potential for odour emissions from a number of sources at the plant. These were assessed using dispersion modelling in order to quantify impacts at sensitive locations in the vicinity of the site. The results indicated that residents should not be exposed to unacceptable levels of odour during the operation of the facility.

Cofresh Snack Foods, Leicester

Odour Assessment in support of the Cofresh Snack Foods facility, Leicester. Odours from a number of sources on site have the potential to cause impacts at sensitive locations. Odour sources were identified and site specific emission rates quantified during a measurement survey. Impacts were determined using dispersion modelling, the results were compared with the relevant odour benchmarks level and the significance of impacts assessed in accordance with industry guidance.

Café, Petersfield Drive, Manchester

Odour Assessment in support of the proposed change of use of an existing retail premises at Petersfield Drive, Manchester to a cafe. The Local Planning Authority indicated concerns regarding potential odour impacts associated with the proposed development. The potential odour impacts were determined based on DEFRA methodology for commercial kitchens and an appropriate level of mitigation was identified.

KEY EXPERIENCE:

Amelia is an 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:

Eagle House, South Ruislip

Air Quality Assessment for the change of use from an office block to a hotel in an Air Quality Management Area (AQMA). 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 PM₁₀ and NO₂ concentrations across the site as well as an Air Quality Neutral Assessment in accordance with the London Plan requirements. Results revealed that pollution levels were below the air quality standards across the development.

Parr Bridge, Tyldesley

Air Quality Assessment to support a residential development of 154 units. Dispersion modelling was undertaken due to the proximity of the site to an AQMA. Using sensitive receptors located in areas where increased road traffic may affect NO₂ levels, a comparison was made between concentrations with and without the development in place. Results indicated the impacts were not significant.

St James's Street, Westminster

Air Quality Assessment in support of a mixed-use development in an AQMA. Dispersion modelling was undertaken at several different heights reflective of residential units within the development. Predicted concentrations of NO₂ were found to exceed air quality criteria from ground to third floor level. As such, mitigation was specified for the affected units to ensure future residents would not be exposed to poor air quality.

Rookery Avenue, Whiteley, Farnborough

Odour Impact Assessment in support of a hot food takeaway with a drive thru facility in Whiteley. The assessment considered a number of factors, including the scale and nature of potential emissions, the location of nearest receptors and the proposed cooking type in accordance with the relevant DEFRA guidance. An appropriate ventilation system was identified and described on the basis of the assessment results.

Hoole Way, Chester

Air Quality Assessment in support of an eight-storey student accommodation block to provide circa 373 units on land off Hoole Way, Chester. Concerns had been raised in relation to the potential exposure of future occupants to elevated pollution concentrations. An assessment was therefore undertaken using dispersion modelling in order to quantify air quality conditions across the site. The results revealed that the use of good practice control measures would provide suitable mitigation for the development.

St James Place, Liverpool

Air Quality Assessment in support of a residential-led development located across three different sites in an AQMA on land off St James Place, Liverpool. 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. The results revealed pollutant concentrations were below the relevant standards across the site.