Odour Assessment

Peel Street, Marsden

Client: Jennie Steele and Hal Lockwood

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Executive Summary

Redmore Environmental Ltd was commissioned by Jennie Steele and Hal Lockwood to undertake an Odour Assessment in support of a planning application for a residential development on land to the rear of 35 Peel Street, Marsden.

The site is located within the vicinity of a number of commercial food outlets and a school/nursery. These have the potential to produce odour emissions during normal operation which may lead to reduced amenity for future residents of the development. 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 in order to assess existing odour impacts across the development site. An Odour Risk Assessment was also undertaken using a standard screening methodology to consider the potential for reduced amenity. The results of these two methods were combined and a number of additional factors considered to determine the overall significance of odour impact.

Based on the results of the staged assessment, the overall odour effects on the site are not considered to be significant in accordance with the relevant guidance criteria. As such, odour is not considered to represent a constraint to planning consent for the development.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Jennie Steele and Hal Lockwood to undertake an Odour Assessment in support of a planning application for a residential development on land to the rear of 35 Peel Street, Marsden.

1.1.2 The site is located in the vicinity of a number of commercial food outlets and a school/nursery. These have the potential to produce odour emissions during normal operation which may lead to reduced amenity for future residents of the development. A two-stage Odour Assessment was therefore undertaken 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 proposed development is located on land to the rear of 35 Peel Street, Marsden, at approximate National Grid Reference (NGR): 405015, 411555. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the demolition of an existing building and the subsequent construction of a new 1.5 storey dwellinghouse with one bedroom.

1.2.3 The scheme is located within the vicinity of a number or commercial food outlets and a school/nursery. Following submission of a pre-application enquiry, concerns were raised by Kirklees District Council (KDC) regarding the potential for odour emissions associated with the premises to affect amenity levels at the development. An Odour Assessment has therefore been undertaken in order to evaluate baseline conditions, consider potential effects and determine the requirement for any mitigation to control impacts to an acceptable level. The findings are detailed in the following report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 The Institute of Air Quality Management (IAQM) guidance[1] defines odour as:

> "[…] the human olfactory response (perception followed by psychological appraisal) to one, or more often a complex mixture of, chemical species in the air."

2.1.2 The stated definition is considered to be relevant in the context of this 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) guidance[2]) is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM[3] as follows:

- **F**requency of detection - frequent odour incidents are more likely to result in complaints;
- **I**ntensity - the individual's perception of the strength of the odour;
- **D**uration - the overall duration that individuals are exposed to an odour over time;
- **O**dour 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,
- **L**ocation - 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

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

[2] H4: Odour Management, EA, 2011.

[3] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

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 regards 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.

2.3 Odour Legislative Control

2.3.1 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as restaurants and hot food takeaways, 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."

2.3.2 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 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.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework[4] (NPPF) was published in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.1 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 protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

2.4.2 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."

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

[4] NPPF, Ministry of Housing, Communities and Local Government, 2021.

2.5 Local Planning Policy

2.5.1 The Kirklees Local Plan was adopted by KDC on 27th February 2019. A review of the document indicated the following policy of relevance to this report:

> "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 development 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."

2.5.2 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'[5] document on 20th May 2014. This was updated in 2018[6] and specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment

[5] Guidance on the Assessment of Odour for Planning, IAQM, 2014.

[6] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

methodology outlined in the guidance has been utilised in throughout this report where relevant.

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 proposed development is located within the town of Marsden. The site is bordered to the south by residential properties and to the north by Marsden Infant and Nursery School. To the west of the site is Sass Wellbeing Studio & Coffee House, The Shakespeare public house and Marsden Fisheries fish and chip shop. An area of trees and vegetation is located to the east of the development site.

3.3 Potential Odour Sources

Desk Top Study

3.3.1 A desk-top study was undertaken in order to identify any potential odour sources in the vicinity of the proposed development that required specific consideration during the assessment. The findings are summarised in Table 1.

Table 1 Potential Emissions Sources

Source		Distance from Proposed Dwelling (m)	Direction from Development	Description of Activities	Potential Emissions
1	Sass Wellbeing Studio & Coffee House	10	West	Café	Cooked food odours
2	The Shakespeare	7.5	West	Public House	Cooked food odours
3	Marsden Fisheries	30	North-west	Hot Food Takeaway	Cooked food odours
4	Marsden Infant and Nursery School	40	North	School Kitchen	Cooked food odours

3.3.2 As shown in Table 1, there are four potential odour sources within the vicinity of the site. Reference should be made to Figure 2 for a map showing the source locations.

Site Visit

3.3.3 A site visit was undertaken on 26th July 2024 to visually assess and further investigate the potential odour sources identified in Table 1. A summary of the findings is provided in Table 2.

Table 2 Location of Potential Emission Sources

Location		Potential Odour Sources
1	Sass Wellbeing Studio & Coffee House	• Entrance doors - There may be the potential for fugitive emissions from the premises if doors are left open • Operational hours - 09:00 to 16:00 Thursday to Saturday and 10:00 to 16:00 on Sundays • The kitchen extraction arrangements could not be identified during the visit
2	The Shakespeare	• Entrance doors - There may be the potential for fugitive emissions from the premises if doors are left open • Operational hours - 11:00 to 23:00 Monday to Friday and 11:00 to 01:00 Saturday to Sunday • The kitchen extraction arrangements could not be identified during the visit
3	Marsden Fisheries	• Kitchen air extraction system - An extract flue was observed on northern façade of building. This discharges air vertically to atmosphere and terminates above the eaves of the building • Entrance doors - There may be the potential for fugitive emissions from the premises if doors are left open • Operational hours - 16:0 to 20:00 on Wednesday, 11:30 - 14:00 and 16:30 to 20:00 Thursday to Friday, and 11:30 to 19:00 on Saturdays
4	Marsden Infant and Nursery School	• Entrance doors - There may be the potential for fugitive emissions from the premises if doors are left open • Operational hours - 09:00 to 15:30 Monday to Friday • The kitchen extraction arrangements could not be identified during the visit

3.4 Meteorological Conditions

3.4.1 The potential for atmospheric emissions to impact at sensitive locations depends significantly on meteorology, particularly wind direction, during release. In order to consider prevailing conditions at the site, review of historical weather data was undertaken. Meteorological data used in the assessment was taken from Emley Moor meteorological station at NGR: 422297, 412887 which is approximately 17.3km east of the site. 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 Emley Moor meteorological station over the period 1st January 2017 to 31st December 2021 (inclusive). This is summarised in Table 3. Reference should be made to Figure 3 for a wind rose of the meteorological data.

Table 3 Wind Frequency Data

Wind Direction (°)	Frequency of Wind (%)
345 - 15	2.9
15 - 45	3.8
45 - 75	4.1
75 - 105	5.1
105 - 135	6.2
135 - 165	4.6
165 - 195	4.2
195 - 225	6.2
225 - 255	11.4
255 - 285	17.3
285 - 315	10.5
315 - 345	2.8
Sub-Total	79.1
Calms	0.4

Wind Direction (°)	Frequency of Wind (%)
Missing/Incomplete	20.5

3.4.3 As shown in Table 3, the prevailing wind direction at the site is from the west. Winds from the east and north 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. A two-stage assessment has therefore been undertaken in accordance with the IAQM 'Guidance on the Assessment of Odour for Planning'[7] document, as summarised in the following Sections.

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.

[7] 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 26th July 2024, 1st August 2024 and 9th August 2024. The survey locations are summarised in Table 4 and shown visually in Figure 4.

4.2.5 It should be noted that the positions were chosen to provide an indication of potential impacts as a result of emissions from all sources, as well as baseline conditions at the proposed development.

Table 4 Survey Locations

Position	Location Description
1	Garden space to the rear of Marsden Fisheries
2	Northern façade of Marsden Fisheries
3	Western façade of The Shakespeare
4	North-western façade of Sass Wellbeing Studio & Coffee House
5	South-western façade of Sass Wellbeing Studio & Coffee House
6	North-eastern façade of Sass Wellbeing Studio & Coffee House
7	South-eastern façade of Sass Wellbeing Studio & Coffee House
8	North-western boundary of proposed development
9	South-western boundary of proposed development

4.2.6 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 5.

Table 5 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, $t_{I\geq4}$, 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.

4.2.7 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

4.2.8 Following completion of the Field Odour Surveys, the matrix outlined in Table 6 was utilised to determine the level of odour exposure at each monitoring location.

Table 6 Odour Exposure

Average Intensity (I_{mean})	Percentage Odour Time ($t_{I\geq4}$)				
	≤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

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

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

- If I_{mean} = 0, then the odour effect can for practical purposes be considered **negligible**; and,
- If I_{mean} = 1 but $t_{I\geq4}$ = 0%, then the odour effect can for practical purposes be considered **negligible**.

Significance of Odour Effect

4.2.11 Following the determination of the odour exposure level, the significance of effect was determined through the interaction with receptor sensitivity, as outlined in Table 7.

Table 7 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

4.2.12 The assessment matrix is provided in Table 8.

Table 8 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

Overall Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible

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:

Effect ≈ Dose x 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 all the 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 9, the Source Odour Potential can be categorised as **small**, **medium** or **large**.

Table 9 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/m^3 per year; area sources of thousands of m^2. The compounds involved are very odorous (e.g. mercaptans), having very low ODTs where known **Unpleasantness** - processes classed as "Most offensive" in EA Guidance H4[8]; 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/m^3 per year; area sources of hundreds of m^2. 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/m^3 per year; area sources of tens m^2. 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;
- 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

[8] H4: Odour Management, EA, 2011.

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 10, the pollutant pathway from source to receptor can be categorised as **ineffective**, **moderately effective**, or **highly effective**.

Table 10 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 7.

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 11.

Table 11 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 12.

Table 12 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 guidance[9] states that a conclusion on the likely significance of the predicted impact should be reached. 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 either it is **significant** or it is **not significant**. This has been considered to determine the overall significance of potential odour effects at the development site.

[9] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

4.4.2 The IAQM guidance recognises that assessment of odour requires some degree of professional judgement[10]. 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.

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

5.0 RESULTS

5.1 Field Odour Surveys

Field Odour Survey 1

5.1.1 Field Odour Survey 1 was undertaken between 12:57 and 13:48 on 26th July 2024. The results are summarised in Table 13.

Table 13 Field Odour Survey 1 - Results

Position	$t_{I\geq4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
1	0	2	3	Neutral	Oil, vegetation, petrol	Position adjacent to large pile of compost. Doors and windows to Marsden fisheries were open
2	0	2	3	Unpleasant	Oil, soap, bins, vegetation, petrol	Soap type odours were detected in the vicinity of a drain. Doors and windows to Marsden fisheries were open
3	0	2	3	Unpleasant	Cigarette smoke, flowers, oil	The front door to The Shakespeare was open. Individuals observed smoking outside of building
4	0	2	3	Neutral	Petrol, cigarette smoke, flowers, food, aftershave, bins	The front door to The Shakespeare was open
5	0	2	3	Neutral	Petrol, vegetation, flowers	-
6	0	2	3	Unpleasant	Oil, food, petrol, bins, flowers, fish and chips	-
7	0	2	3	Pleasant	Oil, flowers, vegetation	-
8	0	2	3	Neutral	Detergent, vegetation, fish and chips, food	-

Position	$t_{I\geq4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
9	7	2	4	Neutral	Fish and chips, flowers, petrol	-

5.1.2 The meteorological conditions during the monitoring were dry and cloudy with temperatures of approximately 17°C. The wind direction was from the south-east at all survey locations. The wind speed was rated between 2 and 3 on the Beaufort scale.

Field Odour Survey 2

5.1.3 Field Odour Survey 2 was undertaken between 13:50 and 14:35 on 1st August 2024. The results are summarised in Table 14.

Table 14 Field Odour Survey 2 - Results

Position	$t_{I\geq4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
1	0	1	2	N/A	Vegetation, fish and chips	Doors and windows on Marsden fisheries open
2	0	2	2	N/A	Flowers, petrol, drains, bins, oil	Doors and windows on Marsden fisheries open
3	0	2	3	Unpleasant	Fish and chips, flowers, petrol	Front doors on The Shakespeare open. Individuals observed smoking outside of building
4	0	2	2	N/A	Cigarette smoke, fish and chips, flowers	Front doors on The Shakespeare open
5	0	1	2	N/A	Vegetation, flowers	-
6	0	3	3	Unpleasant	Food	-
7	0	1	2	N/A	Vegetation	-
8	0	1	2	N/A	Flowers, vegetation	-
9	0	3	3	Neutral	Food	-

5.1.4 The meteorological conditions during the monitoring were dry and partly cloudy with temperatures of approximately 24°C. The wind direction was from the south-west at all survey locations. The wind speed was rated at one on the Beaufort scale at all survey locations.

Field Odour Survey 3

5.1.5 Field Odour Survey 3 was undertaken between 13:20 and 14:08 on 9th August 2024. The results are summarised in Table 15.

Table 15 Field Odour Survey 3 - Results

Position	$t_{I\geq4}$ (%)	I_{mean}	I_{max}	Unpleasantness	Odour Description	Notes
1	0	1	2	N/A	Fish and chips, flowers	Doors and windows on Marsden fisheries open
2	0	1	3	Neutral	Cigarette smoke, grass, fish and chips	Doors and windows on Marsden fisheries open. Individual smoking in proximity to position
3	0	1	2	N/A	Cigarette smoke	Front doors on The Shakespeare open individuals observed smoking outside of building
4	0	1	2	N/A	Fried food, drains	Front doors on The Shakespeare open
5	0	1	2	N/A	Exhaust fumes, fish and chips	-
6	0	1	2	N/A	Food, beer	-
7	0	1	2	N/A	Paint, vegetation	Painting taking place next to survey position
8	0	1	2	N/A	Food, bins	-
9	0	1	2	N/A	Food, bins	-

5.1.6 The meteorological conditions during the monitoring were dry and cloudy with temperatures of approximately 19°C. The wind direction was from the west at all positions. The wind speed was rated between 2 and 4 on the Beaufort scale.

Odour Exposure and Significance

5.1.7 Following completion of the three Field Odour Surveys, odour exposure at each of the monitoring locations was determined. This is summarised in Table 16. Any exposure greater than **negligible** is shown in **bold**.

Table 16 Field Odour Surveys - Odour Exposure Risk

Position	Odour Exposure		
	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	**Small**	Negligible	Negligible

5.1.8 As shown in Table 16, the risk of odour exposure was **negligible** at all locations during all surveys, except for position 8 where a **small** exposure was recorded during Survey 1. 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 odour impact at each location was determined in accordance with the criteria outlined in Table 8, based on the odour exposure noted during the Field Odour Surveys and the survey position sensitivity. Any significance greater than **negligible** is shown in **bold**.

5.1.10 The proposed development includes a residential dwelling and is therefore considered to be of **high** sensitivity. As such, **high** sensitivity was applied to all survey locations, including those outside the development boundary, in order to ensure a worst-case assessment of potential impacts.

Table 17 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	**Slight**	Negligible	Negligible

5.1.11 As shown in Table 15, impacts were **negligible** at all locations during all surveys, except for position 8 where a **slight** was recorded during Survey 1. Reference should be made to Figure 5 for a graphical representation of the findings.

5.2 Risk Assessment

5.2.1 The odour risk at the development location was assessed in accordance with the IAQM methodology. The first step was to classify the Source Odour Potential of the source identified in Table 1.

5.2.2 The sources identified in Table 1 are considered to represent the premises most likely to cause odour effects at the development site. The Source Odour Potential was categorised as **small** for all sources for the following reasons:

- Activities at the premises are not covered by the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments;
- Cooked food odours would be considered 'less offensive', in accordance with EA Guidance H4[11];
- Most cooked food odours have positive hedonic scores; and,

[11] H4: Odour Management, EA, 2011.

- The premises are not continuously operational.

5.2.3 The pathway effectiveness was subsequently defined between the sources and the development based on the distance between the locations and the prevailing meteorological conditions. This is summarised in Table 18.

Table 18 Odour Pathway Effectiveness

Source		Pathway Effectiveness	Justification
1	Sass Wellbeing Studio & Coffee House	Highly effective	Proposed residential development is located in the immediate vicinity of the source, approximately 10m to the east The development is located downwind of the source with respect to prevailing meteorological conditions Food preparation occurs in a closed building. However, there may be the potential for fugitive releases should entrance doors be left open
2	The Shakespeare	Highly effective	Proposed residential development is located in the immediate vicinity of the source, approximately 5m to the east The development is located downwind of the source with respect to prevailing meteorological conditions Food preparation occurs in a closed building. However, there may be the potential for fugitive releases should entrance doors be left open
3	Marsden Fisheries	Highly effective	Proposed residential development is local to the source, approximately 30m to the south-east The development is not located directly downwind of the source with respect to prevailing meteorological conditions. However, there is a moderate frequency of winds blowing towards the site Food preparation occurs in a closed building. However, there may be the potential for fugitive releases should entrance doors be left open
4	Marsden Infant and Nursery School	Moderately effective	Proposed residential development is local to the source, approximately 40m to the south The development is not located downwind of the source with respect to prevailing meteorological conditions Food preparation occurs in a closed building. However, there may be the potential for fugitive releases should entrance doors be left open

5.2.4 The above information has been used to assess odour risk from the source. This is summarised in Table 19.

Table 19 Odour Risk Assessment

Source		Source Odour Potential	Pathway Effectiveness	Exposure Risk	Sensitivity of Receptor	Effect Significance
1	Sass Wellbeing Studio & Coffee House	Small	Highly effective	Low	High	Slight
2	The Shakespeare	Small	Highly effective	Low	High	Slight
3	Marsden Fisheries	Small	Highly effective	Low	High	Slight
4	Marsden Infant and Nursery School	Small	Moderately effective	Negligible	High	Negligible

5.2.5 As shown in Table 19, the predicted odour effect significance was **slight** as a result of emissions from Sass Wellbeing Studio & Coffee House, The Shakespeare and Marsden Fisheries and **negligible** as a result of releases from Marsden Infant and Nursey School.

6.0 DISCUSSION

6.1 Field Odour Surveys

6.1.1 As shown in Table 13 to Table 15, a range of odours were detected during the three Field Odour Surveys. These are described further in the following Section.

6.1.2 During all surveys, odours associated with vegetation and flowers were detected. These odours resulted in **negligible** impacts at all positions.

6.1.3 Odours associated with pedestrians (cigarette smoke and aftershave) and vehicles were detected across all surveys. These odours resulted in **negligible** impacts at all positions.

6.1.4 Odours associated with the food outlets, including fish and chips, oil, cooked food, fried food, beer, bins and drains were detected at the development and within the immediate vicinity of the site during all Surveys. These odours resulted in **negligible** impacts at all locations except for position 9 during Survey 1, where they contributed to a **slight** impact.

6.1.5 As the Field Odour Surveys were undertaken within the opening hours of each premises, the results are considered to be indicative of the odour climate during periods in which the establishments are open. The results obtained during the surveys are therefore considered to represent worst-case conditions at the site and impacts during hours when the premises are closed would be lower.

6.1.6 As shown in Section 5.1, low wind speeds were experienced during Surveys two and three. These can contribute to poor dispersion and dilution of emissions. In addition, the development and monitoring locations were downwind of the identified odour sources during the Surveys. Consequently, the results can be considered a robust representation of odour conditions at the development site during worst-case conditions.

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 odour sources. This is due to a number of factors, including:

- The proximity of sources to the development;
- The potential offensiveness of odours associated with hot food preparation;
- The frequency of winds from sources to the development; and,
- The dispersion arrangements for odour emissions associated with the sources.

6.2.2 The findings of the Risk Assessment are consistent with the results of the Field Odour Surveys which indicated a maximum potential impact of **slight** as a result of emissions from the identified sources.

6.3 Summary

6.3.1 Three Field Odour Surveys were undertaken in accordance with the IAQM methodology. The results indicated odour impacts ranging between **negligible** and **small** which are predicted to result in effects between **negligible** and **slight** 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 predicted odour effect significance ranged between **negligible** and **slight** at the development which is consistent with the findings of the Field Odour Surveys.

6.3.3 Based the findings of the Field Odour Surveys and the Risk Assessment, the maximum odour effect significance at the development as a result of emissions from the identified sources is predicted to be **slight**.

6.3.4 The IAQM guidance[12] states that only if the impact is **moderate** or **substantial**, the effect is considered **significant**. As such, overall odour effects on the proposed development are considered **not significant**, in accordance with the guidance criteria.

[12] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

7.0 CONCLUSION

7.1.1 Redmore Environmental Ltd was commissioned by Jennie Steele and Hal Lockwood to undertake an Odour Assessment in support of a planning application for a residential development on land to the rear of 35 Peel Street, Marsden.

7.1.2 The site is located in the vicinity of a number of commercial food outlets and a school/nursery. These have the potential to produce odour emissions during normal operation which may lead to reduced amenity for future residents of the development. An Odour Assessment was therefore undertaken in order to determine baseline conditions at the site and consider its suitability for the proposed end-use.

7.1.3 Three Field Odour Surveys were undertaken in accordance with the IAQM methodology. The results indicated odour impacts ranging between **negligible** and **small** which are predicted to result in effects of **negligible** to **slight** at the proposed development site.

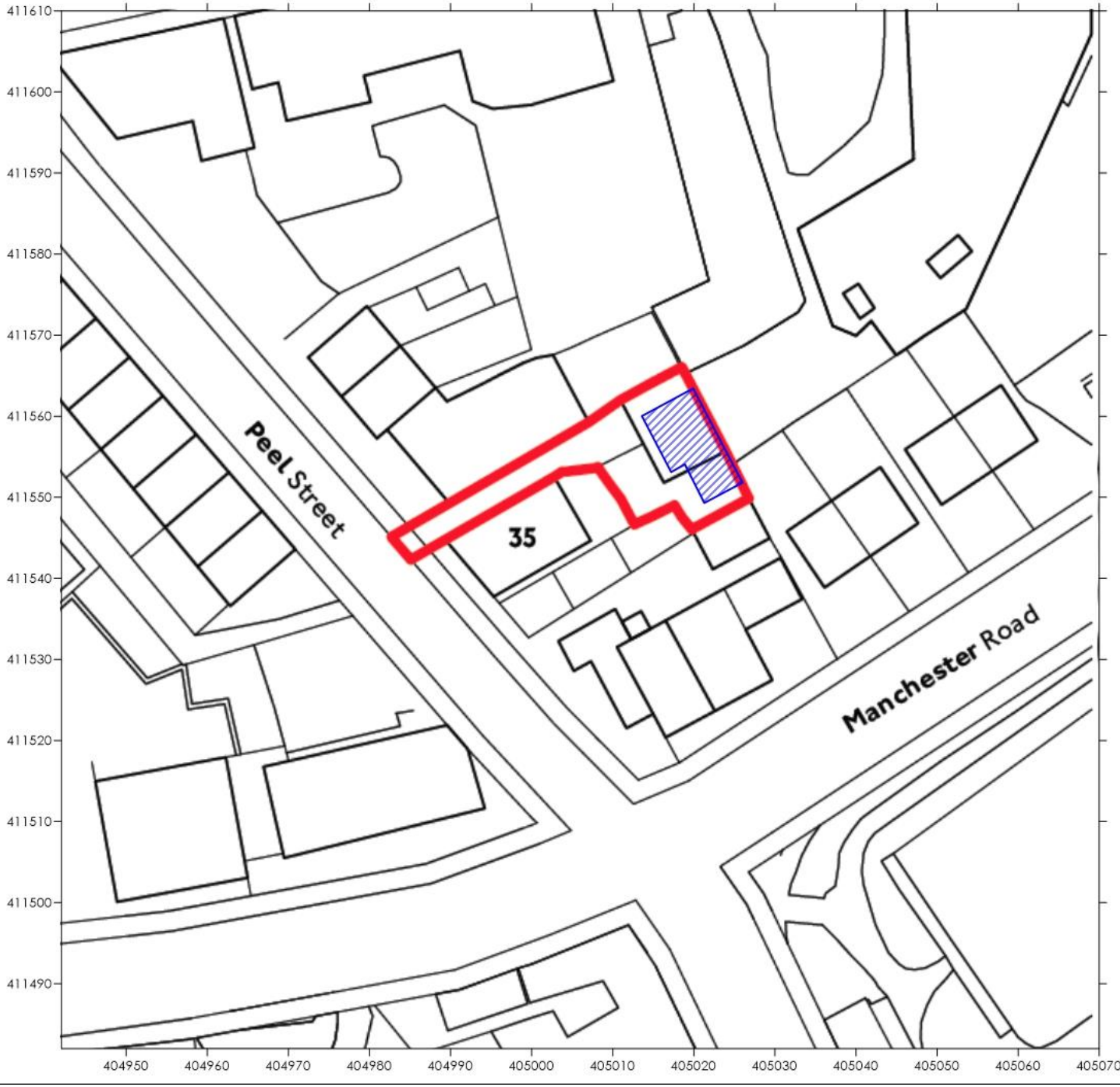
7.1.4 The risk of potential odour effects at the development was assessed using the IAQM methodology. This included consideration of the Source Odour Potential, pathway effectiveness and receptor sensitivity. The results of the assessment indicated the maximum odour effect significance was **slight** at the proposed site.

7.1.5 Based on the results of the staged assessment, the overall odour effects on the site are considered to be **not significant** in accordance with the IAQM guidance criteria. As such, odour emissions from the premises are not considered to represent a constraint to planning consent for the proposals.

8.0 ABBREVIATIONS

EA	Environment Agency
I_{max}	Maximum odour intensity
I_{mean}	Average odour intensity
IAQM	Institute of Air Quality Management
KDC	Kirklees District Council
NGR	National Grid Reference
NPPF	National Planning Policy Framework
ODT	Odour Detection Threshold
STW	Sewage Treatment Works
$t_{I \geq 4}$	Percentage odour time

Figures



Legend

Site Boundary

Proposed Development

Title
Figure 1 - Site Location Plan

Project
Odour Assessment
Peel Street, Marsden

Project Reference
8335

Client
Jennie Steele and Hal Lockwood

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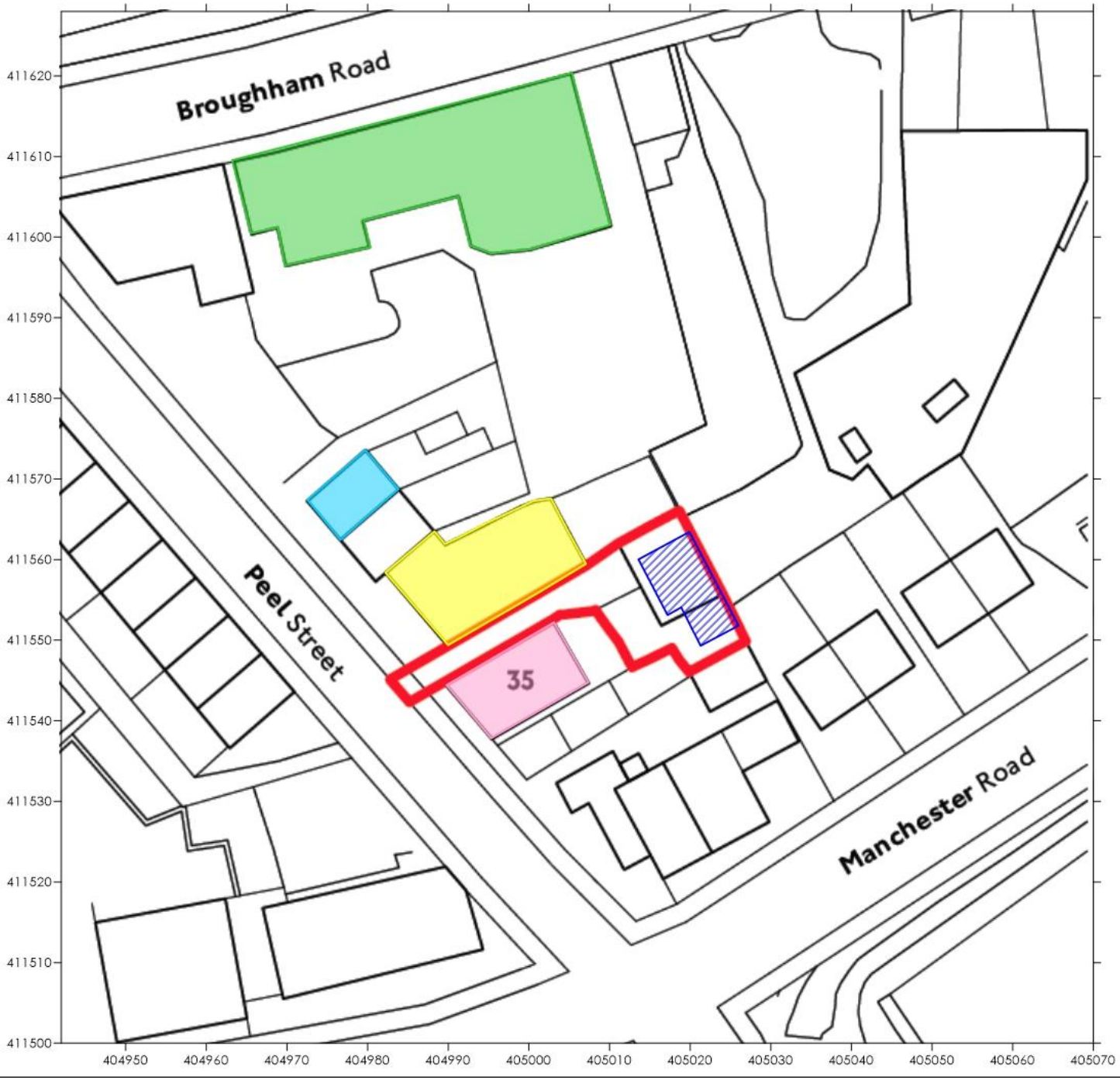

Legend

- Site Boundary
- Proposed Development
- Sass Wellbeing Stuido & Coffee House
- The Shakespeare
- Marsden Fisheries
- Marsden Infant and Nursery School

Title
Figure 2 - Potential Odour Sources

Project
Odour Assessment
Peel Street, Marsden

Project Reference
8335

Client
Jennie Steele and Hal Lockwood

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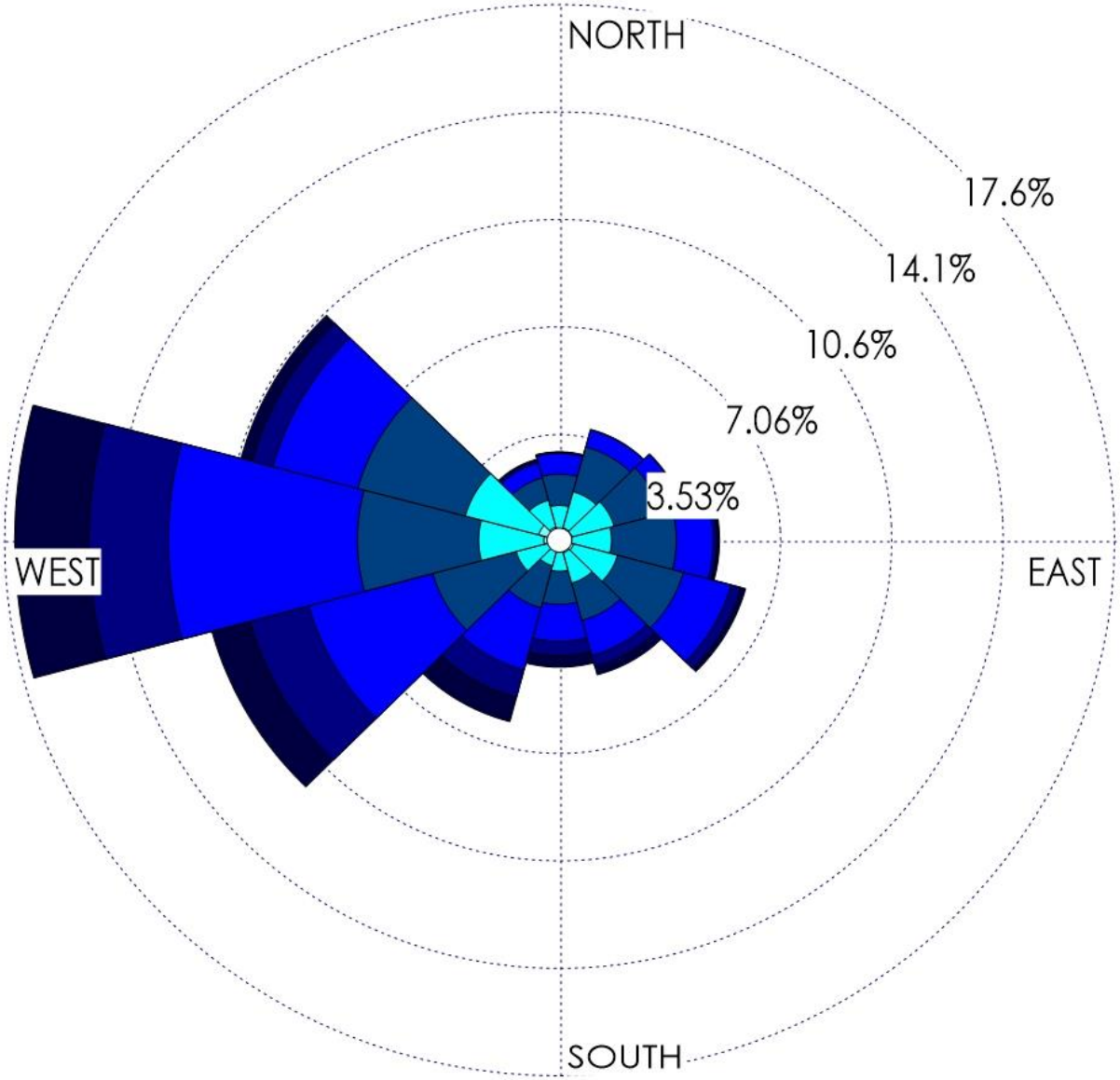

Legend

WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.36%

Title
Figure 3 - Wind Rose of 2017 to 2021
Emley Moor Meteorological Data

Project
Odour Assessment
Peel Street, Marsden

Project Reference
8335

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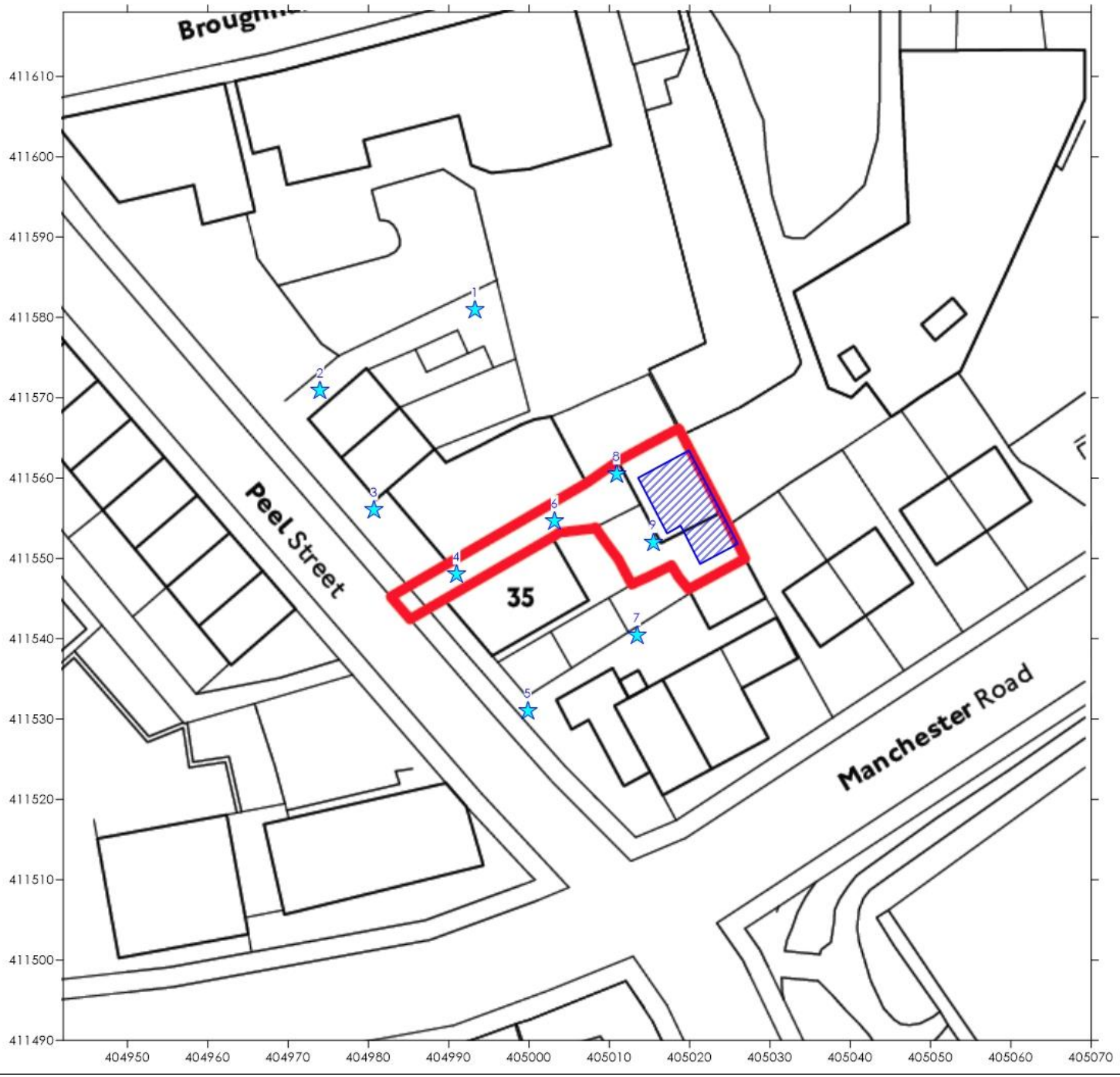

Legend

Site Boundary

Proposed Development

Monitoring Location

Title
Figure 4 - Field Odour Survey Locations

Project
Odour Assessment
Peel Street, Marsden

Project Reference
8335

Client
Jennie Steele and Hal Lockwood

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Legend

- Site Boundary
- Proposed Development
- Negligible
- Slight
- Moderate
- Substantial

Title
Figure 5 - Field Odour Survey Results

Project
Odour Assessment
Peel Street, Marsden

Project Reference
8335

Client
Jennie Steele and Hal Lockwood

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Appendix 1 - Curricula Vita

GER PARRY

Director

BSc (Hons), MIAQM, MIEnvSc

Tel: 0161 706 0075 | Email: ger.parry@red-env.co.uk

KEY EXPERIENCE:

Ger is a 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.
- Design and project management of pollutant monitoring campaigns.
- Co-ordination and management of large-scale multi-disciplinary projects and submissions.

SELECT PROJECTS SUMMARY:

Industrial

GP Plantscape, Blantyre - Odour Assessment in relation to existing operations at the In-Vessel Composting (IVC) facility operated by the company.

Moir Seafoods, Morpeth - Odour Management Plan prepared to control impacts associated with emissions from the facility operated by the company.

Bioganix, Bonby - Odour Assessment in support of an Environmental Permit Variation for the food waste processing facility operated by the company.

Alne Material Recycling, York - Odour Emissions Monitoring and Odour Assessment undertaken in support of compliance with the Environmental Permit for the facility.

Dryholme Anaerobic Digestion (AD) Plant - Odour Assessment in support of an Environmental Permit Variation for the facility.

Pets Choice, Blackburn - Odour Assessment in support of an Environmental Permit Application for the manufacturing facility operated by the company.

Crofthead Biogas AD Plant - Odour Assessment in support of an Environmental Permit Application for the facility.

Cofresh Snack Foods - Odour Assessment to investigate potential impacts associated with emissions from the manufacturing facility operated by the company.

Tulip Fresh Meats, Ashton-Under-Lyne - Odour consultancy services in support of an Environmental Permit Variation Application for the facility.

Five Ways Road, Warwick - Odour Assessment in support of a planning application for an extension to an existing poultry abattoir.

Residential

Broadnook Garden Suburb, Birstall - Odour Assessment in support of a residential development which involved completion of Field Odour Surveys and a Risk Assessment in accordance with IAQM guidance.

Hungerford House Farm, Madeley - Odour Assessment in support of the conversion of an existing agricultural building to a residential dwelling.

Hales Pasture Farm, Allostock - Odour consultancy services in support of a nuisance claim by the owner of the property.

North Leigh Park, Wigan - Odour Assessment in support of a planning application for residential development.

New Road, Tintwistle - Odour Assessment to evaluate potential impacts at a proposed residential development as a result of emissions from an existing Wastewater Treatment Works (WwTWs).

Land at Mobberley - Odour Assessment to evaluate potential impacts at a proposed residential development as a result of emissions from an existing WwTWs.

Island Carr Road, Brigg - Odour Assessment to evaluate potential impacts at a proposed residential development as a result of emissions from an existing WwTWs.

Moorland Grange Farm, Bingley - Odour Assessment in support of the conversion of an existing agricultural building to a residential dwelling.

Irwell Vale Mill, Ramsbottom - Odour Assessment to evaluate potential impacts at a proposed residential development as a result of emissions from an existing WwTWs.

MEGAN HALL

Air Quality Consultant

BSc, AMIEnvSC

Tel: 0161 706 0075 | Email: megan.hall@red-env.co.uk

KEY EXPERIENCE:

Megan 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 and industrial emissions using ADMS-Roads and ADMS-6. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Advanced Canyon Modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Odour surveys to assess amenity of suitability of sites for potential future development for residential use.
- Production of Air Quality Neutral Assessment in accordance with The London Plan.
- Measurement and assessment of indoor air quality in support of BREEAM accreditation. She has conducted Total Volatile Organic Compound (TVOC) and formaldehyde monitoring at numerous commercial developments throughout the UK in pursuit of the relevant credit specified under BREEAM category Hea 02 'Indoor Air Quality'.

SELECT PROJECTS SUMMARY:

Princess of Wales Hospital, Ely

Production of an Air Quality Assessment in support of the installation of an emergency generator unit located at Princess of Wales Hospital, Ely. Dispersion modelling of combustion emissions using ADMS-6 was undertaken in order to predict impacts at sensitive receptors. The results indicated pollutant levels as a result of the operation of the plant were below the relevant AQOs at all locations within the vicinity of the installation. Mitigation was therefore not required.

West Town Road, Avonmouth

Air Quality Assessment in support of a Bio-Compressed Natural Gas fuelling station on land off West Town Road, Avonmouth. Dispersion modelling was undertaken to determine potential changes in pollution levels as a result of emissions from the installation and consider potential impacts at nearby sensitive receptor locations. The overall effects of the development were predicted to be not significant.

Kent Street, Birmingham

Production of an Air Quality Assessment in support of the construction of a residential development across eight blocks. This development was located just outside the boundary of the Birmingham Clean Air Zone (CAZ). ADMS-Roads dispersion modelling was undertaken to determine the exposure of future residents to elevated pollutant concentrations. The results indicated that concentrations were below the relevant AQOs and Interim Target.

Nearsden Lane, London

Air Quality Neutral Assessment in support of the construction of a ten-storey building, with 74 commercial kitchen units. The assessment was carried out in accordance with the London Plan requirements to ensure proposals did not lead to further deterioration of existing air quality. Following discussions and implementation of the identified strategies, compliance with the London Plan was achieved.

Moss Side, Manchester

Odour Assessment in support of a residential development within Moss-Side, Manchester. The proposals were located in close proximity to the Heineken UK Limited Brewery. As such, the Local Authority raised concerns that odour emissions may cause loss of amenity to future residents. A programme of Field Odour Surveys was undertaken to assess odour impacts from said premises. Results indicated odour effects t the site did not represent a constraint to planning consent.

Arax Euston House, London

Indoor Air Quality Monitoring in support of the construction of a redeveloped office space. The scheme was registered to pursue certification through the BREEAM 2014 standard. As such, Indoor Air Quality Monitoring was undertaken at four locations to determine conditions within the building and identify any issues. The results indicated concentrations of TVOCs and formaldehyde were below the BREEAM criteria at all positions.

ALEC BARNETT

Air Quality Consultant

MEarthSci, MSc, AMIEnvSc, AMIAQM

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KEY EXPERIENCE:

Alec is an Environmental Consultant with specialist experience in the air quality sector. His 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 and industrial emissions using ADMS-Roads and ADMS-6. Studies have included impact assessment of ground level pollutant concentrations and assessment of suitability of development sites for proposed end-use.
- Advanced Canyon Modelling to evaluate the impact of altered urban topography on air quality in built up areas
- Assessment of fugitive dust impacts from a range of industrial developments.
- Assessment of petrol stations to address benzene concentrations and their impact on adjacent developments.
- Periodic bioaerosol monitoring campaigns at a number of waste facilities in support of permit compliance.
- Assessment of potential effects associated with network realignment schemes and highway developments.
- Development of bespoke monitoring programmes to assess workplace exposure at commercial and industrial facilities and colleges.

SELECT PROJECTS SUMMARY:

1 Piccadilly Circus, London

Air Quality Assessment in support of a tourist hostel located within an Air Quality Management Area (AQMA). The development had the potential to expose future occupants to elevated pollution levels and cause impacts at sensitive locations. Potential emissions from the proposals were also assessed to determine compliance with the Air Quality Neutral requirements of the London Plan. Results of the assessment indicated that the site was Air Quality Neutral and air quality factors were not a constraint to the development.

Kingscroft Farm, Havant

Air Quality Assessment in support of a residential development located in close proximity to the A27 and a number of gas-fired generator sites. The development had the potential to expose future residents to elevated pollution concentrations and cause impacts at sensitive locations. Detailed dispersion modelling was undertaken using ADMS-roads to assess pollutant concentrations across the development and a comparison was made between overall concentrations with and without the development in place. Results indicated pollutant concentrations were below the relevant standards across the site and impacts associated with the development were not significant.

Trademark House, Petersfield

Odour Assessment in support of a mixed-use development at Trademark House, Petersfield. The site was located in close proximity to a petrol filling station (PFS) and associated retail unit, which may result in loss of amenity at the development site. A two stage Odour Assessment was undertaken to assess baseline conditions across the site and consider the risk of reduced amenity. An Air Quality Benzene Assessment was also undertaken to determine potential exposure of future occupants to elevated benzene concentrations associated with the PFS. Results indicated odour effects at the site did not represent a constraint to planning consent and that exceedences of the Air Quality Objective (AQO) were not predicted at the development location

Granby Road, Buxton

Air Quality Assessment in support of a residential development on land off Granby Road, Buxton. Results of detailed dispersion modelling utilising advanced canyons indicated air quality impacts associated with the development were not significant. The scheme was also located in close proximity to Ashwood Dale Quarry. Potential impacts on future residential amenity were assessed using the Source-Pathway-Receptor approach, which indicated that existing emissions associated with the operation of the quarry were not considered significant.

Industrial Chemicals Ltd, West Thurrock

Air Quality Assessment in support of the relocation of an existing polyaluminium chloride process from Titan Works, Hogg Lane Grays, to West Thurrock Works, Stoneness Road, Grays. Results of the assessment indicated that potential emissions associated with construction and operation of the site were not significant.