

Odour Assessment

Ellis Ashton Street, Liverpool

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Executive Summary

Redmore Environmental Ltd was commissioned by Veolia ES Merseyside and Halton Ltd to provide an Odour Assessment in support of a planning application for a proposed food waste handling facility at the site of an existing Waste Transfer Station on land off Ellis Ashton Street, Liverpool.

The proposals have the potential to result in odour emissions and associated impacts at sensitive locations in the vicinity of the site. As such, an Odour Assessment was undertaken in order to evaluate baseline conditions and determine the potential for effects as a result of the scheme.

The risk of potential odour impact was assessed using a standard industry method. This involved consideration of a number of factors relating to proposed development including the scale and nature of the potential emission sources, the location of the nearby receptors and the prevailing meteorological conditions.

Following consideration of the relevant factors, overall effects at sensitive receptor locations as a result of emissions from the development were not predicted to be significant. As such, potential odour impacts are not considered to represent a constraint to the proposals.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Veolia ES Merseyside and Halton Ltd to provide an Odour Assessment in support of a planning application for a food waste handling facility at the site of an existing Waste Transfer Station (WTS) on land off Ellis Ashton Street, Liverpool.

1.1.2 The proposals have the potential to result in odour emissions and associated impacts at sensitive locations in the vicinity of the site. As such, an Odour Assessment was undertaken in order to evaluate baseline conditions and determine the potential for effects as a result of the scheme.

1.2 Site Location and Context

1.2.1 The proposed development is located on land off Ashton Street, Liverpool, at approximate National Grid Reference (NGR): 345800, 390170. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the installation of a food waste handling facility at Huyton WTS and Household Waste Recycling Centre (HWRC). This will accept source-segregated food waste deliveries for bulking prior to onwards transfer to other facilities for further processing and recycling. Reference should be made to Figure 2 for a proposed site layout plan and Section 4.3 for a full process description.

1.2.3 There is the potential for odour emissions from the facility during normal operation and associated impacts at sensitive locations within the vicinity of the site. As such, an Odour Assessment has been undertaken in order to consider potential effects. 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) guidance¹ 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) guidance²) is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM³ 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.

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.

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 considered further 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.

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 Operations at the existing WTS and HWRC are included in the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments. As such, the facility operates in accordance with an Environmental Permit issued by the EA (ref: EP3695SH). This requires compliance with specific conditions and operating procedures in order to prevent odour pollution beyond the boundary of the site. Veolia ES Merseyside and Halton Ltd have confirmed that the proposed food waste handling facility will be authorised under the existing Environmental Permit and therefore the same conditions of operation with respect to odour control will apply.

2.3.4 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 Framework⁴ (NPPF) was published in December 2024 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 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"

2.4.3 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:

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2024.

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 Knowsley Local Plan Core Strategy⁵ was adopted by Knowsley Council (KC) in January 2016. The plan sets out the vision, objectives and policies which will guide development within the borough up to 2028. A review of the document did not indicate any policies in relation to odour from industrial processes of relevance to this assessment.

2.6 Institute of Air Quality Management Guidance

2.6.1 The IAQM published the 'Guidance on the Assessment of Odour for Planning'⁶ document on 20th May 2014. This was updated in 2018⁷ 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.

⁵ Knowsley Local Plan Core Strategy, KC, 2016.

⁶ Guidance on the Assessment of Odour for Planning, IAQM, 2014.

⁷ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

3.0 **METHODOLOGY**

3.1 **Introduction**

3.1.1 Odour emissions associated with the proposed development have the potential to cause impacts at sensitive locations. The potential risk of adverse effects has therefore been assessed using the IAQM 'Guidance on the Assessment of Odour for Planning v1.1'⁸ document.

3.2 **Background**

3.2.1 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.

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

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

3.2.3 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.

3.2.4 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;

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

- 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.

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

3.3 Risk Assessment Procedure

3.3.1 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.

3.3.2 Using the example risk ranking in Table 1, the Source Odour Potential can be categorised as **small**, **medium** or **large**.

Table 1 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 EA Guidance H4⁹; 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 H4¹⁰ 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 H4¹¹; 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

3.3.3 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;

⁹ H4: Odour Management, EA, 2011.

¹⁰ H4: Odour Management, EA, 2011.

¹¹ 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.

3.3.4 Using the example risk ranking in Table 2, the pollutant pathway from source to receptor can be categorised as **ineffective**, **moderately effective** or **highly effective**.

Table 2 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

3.3.5 The sensitivity of the receiving receptor is defined based on the criteria shown in Table 3.

Table 3 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

3.3.6 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 4.

Table 4 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

3.3.7 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 5.

Table 5 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

- 3.3.8 The IAQM guidance¹² 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 either it is **significant** or it is **not significant**. This has been considered to determine the overall significance of potential odour effects associated with the development.
- 3.3.9 The IAQM guidance recognises that assessment of odour requires some degree of professional judgement¹³. 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 v1.1, IAQM, 2018.

¹³ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

4.0 BASELINE

4.1 Introduction

- 4.1.1 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.

4.2 Site Description

- 4.2.1 The proposed development is situated at Huyton WTS and HWRC, to the south of Ellis Ashton Street. The site is located within Huyton Business Park with commercial and industrial premises surrounding in the immediate vicinity. The nearest residential receptors are located on Logwood Road, approximately 400m south-west of the proposals.

4.3 Process Description

- 4.3.1 The proposals comprise the development of a food waste handling facility. This will accept source-segregated food waste deliveries for bulking prior to onwards transfer to other facilities for further processing and recycling. All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors.
- 4.3.2 The facility will operate between 08:00 and 17:30 Monday to Friday and between 08:00 and 12:30 on Saturdays. Vehicles delivering food waste to the facility are expected to arrive between 10:00 and 15:00 Monday to Friday. Following arrival, delivery vehicles will enter the building via one of the roller shutter doors and tip their loads into a dedicated bay. There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions.
- 4.3.3 Following completion of tipping, vehicles will leave the building and will have their backs and wheels washed and disinfected in order to reduce the potential for track out of potentially odorous materials to the local road network. The deposited food waste will be transferred from the bay into a trailer within the building using a front-loading shovel. The trailer will be removed daily and the building will be empty of food waste at the end of each working day.

- 4.3.4 The building will be fitted with rotary atomisers above the waste bay and loading area to provide odour control and dust suppression. These will distribute a chemical/water mix into the atmosphere to intercept and absorb odours and dust. The atomisers will automatically activate when the roller shutter doors are opened in order to reduce the potential for fugitive emissions during vehicle access.

4.4 **Sensitive Receptors**

- 4.4.1 A desk-top study was undertaken in order to identify sensitive receptor locations in the vicinity of the site that required specific consideration during the assessment. The identified receptors and associated sensitivity are summarised in Table 6.

Table 6 Sensitive Receptors

Receptor		NGR (m)		Sensitivity	Distance from development (m)
		X	Y		
R1	Residential - West View	345584.3	390535.7	High	420
R2	Commercial - Hardwood Sales Ltd	345807.0	390288.5	Medium	110
R3	Commercial - Pine Precision Engineering Ltd	345897.8	390178.5	Medium	85
R4	Commercial - Evri Huyton Delivery Unit	345742.2	390170.2	Medium	45
R5	Residential - Logwood Road	345441.9	389944.0	High	400
R6	Commercial - Dedicated SuperGym	345677.2	390241.2	Medium	140

- 4.4.2 Reference should be made to Figure 3 for a map of the sensitive receptor locations.

4.5 **Meteorological Conditions**

- 4.5.1 The potential for atmospheric 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. Meteorological data used in the assessment was obtained from Liverpool Airport meteorological station at NGR: 343488, 381791, which is approximately 8.6km south of the site boundary. 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.

- 4.5.2 Meteorological data was obtained from Liverpool Airport meteorological station over the period 1st January 2019 to 31st December 2023 (inclusive). This is summarised in Table 7. Reference should be made to Figure 4 for a wind rose of the meteorological data.

Table 7 Wind Frequency Data

Wind Direction (°)	Frequency of Wind (%)
345 - 15	3.80
15 - 45	3.06
45 - 75	5.62
75 - 105	6.99
105 - 135	7.34
135 - 165	12.33
165 - 195	10.53
195 - 225	8.25
225 - 255	9.59
255 - 285	11.80
285 - 315	12.20
315 - 345	5.89
Sub-Total	97.39
Calms	1.80
Missing/Incomplete	0.81

- 4.5.3 As shown in Table 7, the prevailing wind direction at the site is from the south-east, with notable frequencies from the south, west and west-north-west.
- 4.5.4 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.

5.0 **ASSESSMENT**

5.1 **Introduction**

5.1.1 There is the potential for odour impacts as a result of emissions from the proposed development. The risk was therefore assessed at the identified receptor locations in accordance with the IAQM methodology¹⁴.

5.2 **Risk Assessment**

5.2.1 The Source Odour Potential of the development was categorised as **medium** for the following reasons:

- The facility is considered to be a smaller Environmentally Permitted process and with an anticipated annual throughput of less than 18,000t;
- Odours associated with the facility are likely to be classified as 'moderately offensive' in accordance with EA guidance¹⁵;
- All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions;
- The building will be empty of food waste and will be cleaned down and disinfected at the end of each working day in order to minimise the potential for accumulation of potentially odorous materials and associated emissions; and,
- The building will be fitted with rotary atomisers above the waste bay and loading area to provide odour control and dust suppression. These will automatically activate when the roller shutter doors are opened in order to reduce the potential for fugitive emissions during vehicle access.

5.2.2 The Pathway Effectiveness was subsequently defined for each individual receptor based on the distance from the relevant source, the prevailing wind direction in relation to the site, the nature of releases and any constraints to dispersion. The results are summarised in Table 8.

¹⁴ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

¹⁵ H4: Odour Management, EA, 2011.

Table 8 Pathway Effectiveness Classification

Receptor		Pathway Effectiveness	Justification
R1	Residential - West View	Ineffective	Receptor is remote from the source, approximately 420m to the north-west Moderate frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions
R2	Commercial - Hardwood Sales Ltd	Moderately Effective	Receptor is remote from the source, approximately 110m to the north Moderate frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions
R3	Commercial - Pine Precision Engineering Ltd	Moderately Effective	Receptor is local to the source, approximately 85m to the east Moderate frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions

Receptor		Pathway Effectiveness	Justification
R4	Commercial - Evri Huyton Delivery Unit	Moderately Effective	Receptor is local to the source, approximately 45m to the west Low frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions
R5	Residential - Logwood Road	Ineffective	Receptor is remote from the source, approximately 400m to the south-west Low frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions
R6	Commercial - Dedicated SuperGym	Moderately Effective	Receptor is remote from the source, approximately 140m to the west Low frequency of winds from source to receptor All waste reception and bulking operations will be undertaken within a completely enclosed building fitted with fast-acting roller shutter doors to reduce the potential for fugitive emissions There will be a maximum of two vehicles tipping within the waste transfer hall at any one time with a maximum of 12 tips per hour in order to reduce the frequency of door opening events and the associated potential for fugitive emissions

5.2.3 The above information has been used with the land use sensitivity identified within Table 3 to assess odour risk and effect significance at the proposed development. This is summarised in Table 9.

Table 9 Odour Risk Assessment

Receptor		Source Odour Potential	Pathway Effectiveness	Exposure Risk	Sensitivity	Effect Significance
R1	Residential - West View	Medium	Ineffective	Negligible	High	Negligible
R2	Commercial - Hardwood Sales Ltd	Medium	Moderately Effective	Low	Medium	Negligible
R3	Commercial - Pine Precision Engineering Ltd	Medium	Moderately Effective	Low	Medium	Negligible
R4	Commercial - Evri Huyton Delivery Unit	Medium	Moderately Effective	Low	Medium	Negligible
R5	Residential - Logwood Road	Medium	Ineffective	Negligible	High	Negligible
R6	Commercial - Dedicated SuperGym	Medium	Moderately Effective	Low	Medium	Negligible

5.2.4 As shown in Table 9, the predicted odour effect significance was **negligible** at all receptors.

5.2.5 The IAQM guidance states that only if the impact is **moderate** or **substantial**, the effect is considered **significant**. As such, potential impacts at the development as a result of emissions from the development are considered to be **not significant**, in accordance with the stated methodology.

6.0 CONCLUSION

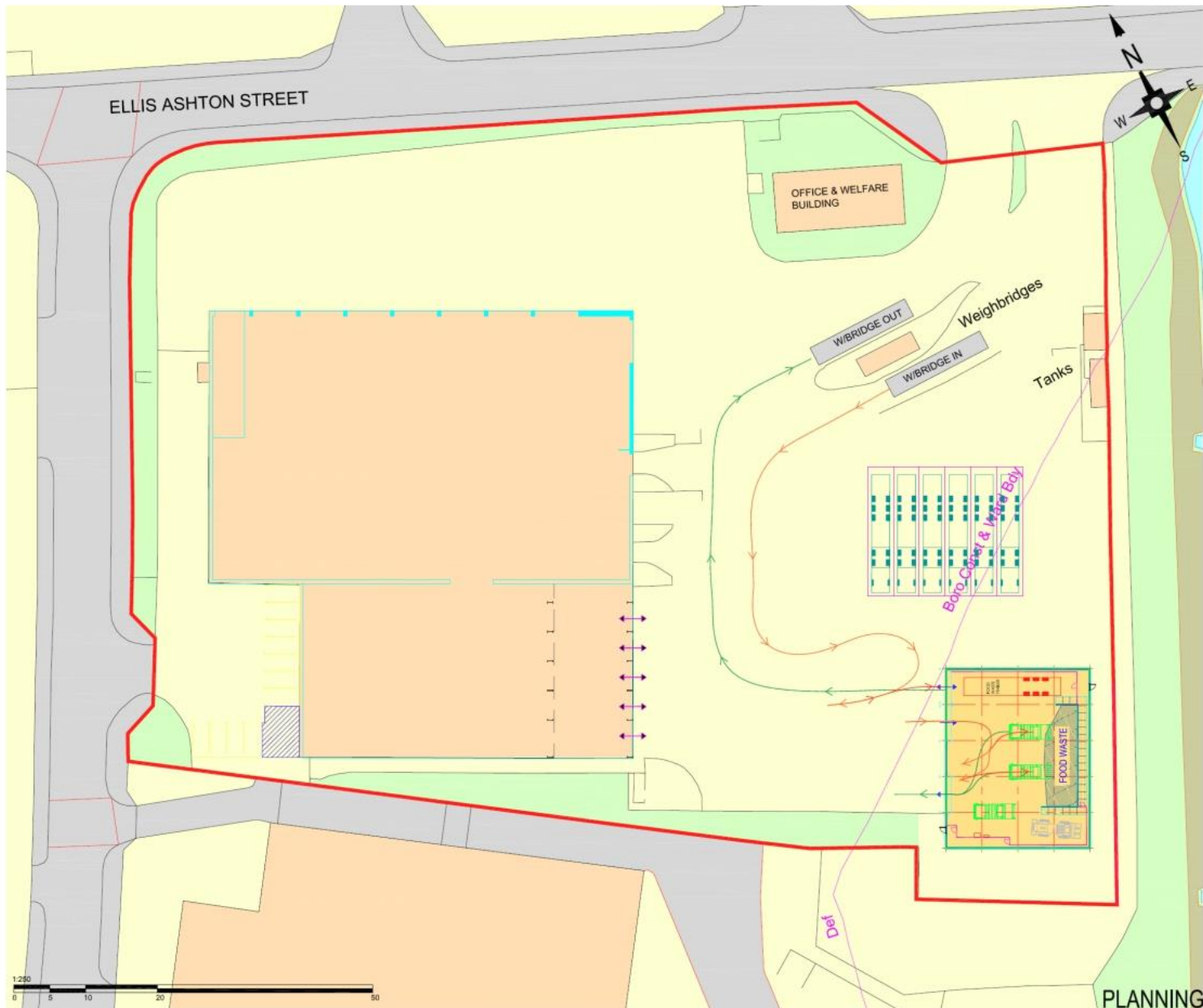
- 6.1.1 Redmore Environmental was commissioned by Veolia ES Merseyside and Halton Ltd to provide an Odour Assessment in support of a planning application for a food waste handling facility at the site of an existing WTS on land off Ellis Ashton Street, Liverpool.
- 6.1.2 The proposals have the potential to result in odour emissions and associated impacts at sensitive locations in the vicinity of the site. As such, an Odour Assessment was undertaken in order to determine baseline conditions and assess potential effects as a result of the scheme.
- 6.1.3 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 predicted odour effect significance was **negligible** at all receptors.
- 6.1.4 Following review of the relevant factors, overall effects as a result of emissions associated with the proposals are predicted to be **not significant** in accordance with the IAQM guidance criteria. As such, it is considered that odour should not be viewed as a constraint to the development.

7.0 ABBREVIATIONS

EA	Environment Agency
HWRC	Household Waste Recycling Centre
IAQM	Institute of Air Quality Management
KC	Knowsley Council
NGR	National Grid Reference
NPPF	National Planning Policy Framework
ODT	Odour Detection Threshold
STW	Sewage Treatment Works
WTS	Waste Transfer Station

Figures





Legend



Title

Figure 2 - Proposed Site Layout

Project

Odour Assessment
Ellis Ashton Street, Liverpool

Project Reference

9008

Client

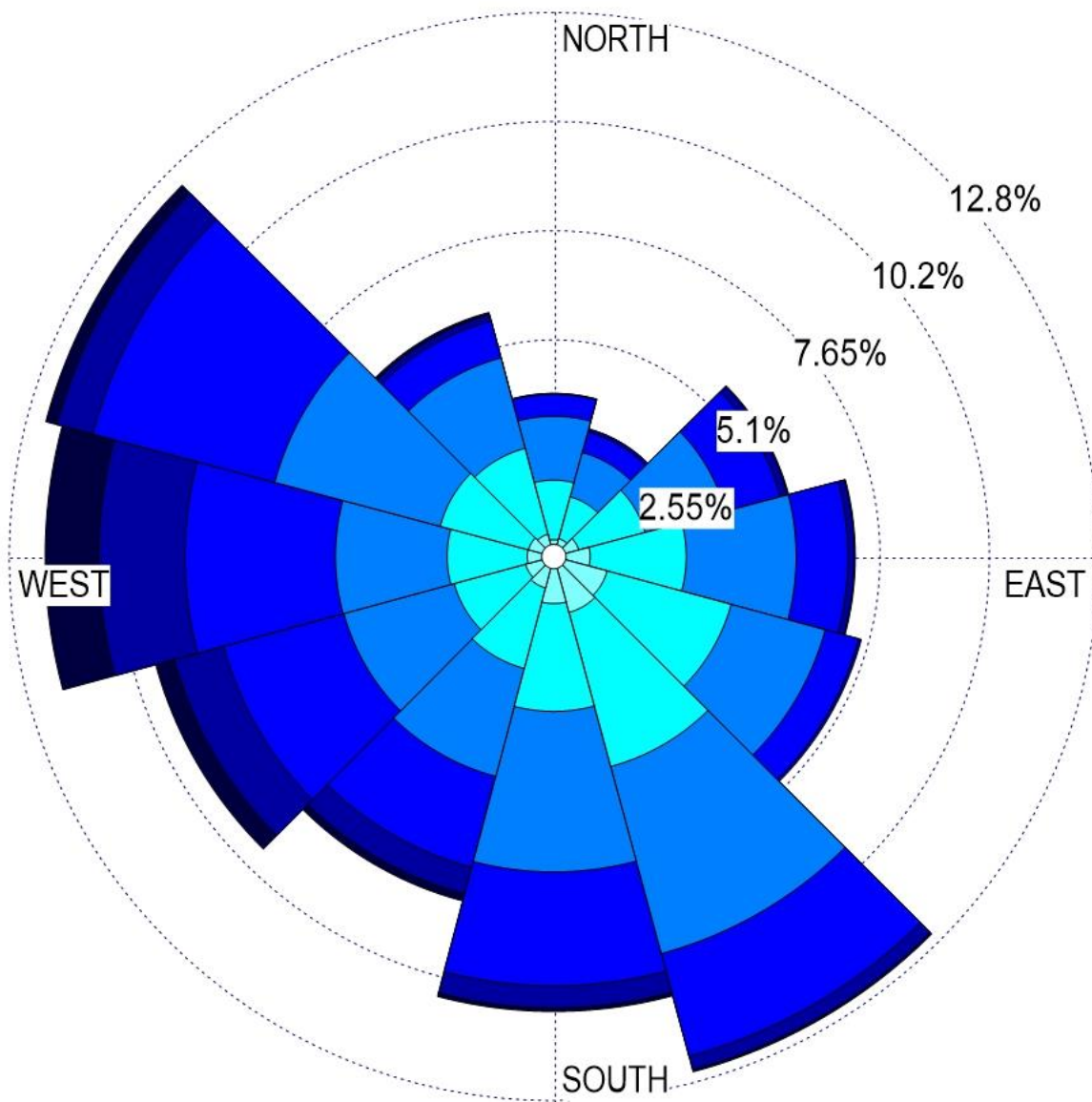
Veolia ES Merseyside and Halton Ltd

Contains Ordnance Survey Data
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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: 0.86%

Title

Figure 4 - Wind Rose of 2019 to 2023
Liverpool Airport Meteorological
Data

Project

Odour Assessment
Ellis Ashton Street, Liverpool

Project Reference

9007

Client

Veolia ES Merseyside and Halton Ltd



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Appendix 1 - Curricula Vitae

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.

KEY EXPERIENCE:

Jonathan 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 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.
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.
- Kitchen odour assessments to assess fugitive emission risks and suitable controls.
- Production of Damage Cost Assessments in accordance with DEFRA guidance.
- Production of Air Quality Neutral Assessments in accordance with The London Plan.

SELECT PROJECTS SUMMARY:

Dialstone Lane, Stockport

Air Quality Assessment in support of a residential development of circa 100 dwellings at a Greenfield Site on land off Dialstone Lane, Stockport. The development had the potential to expose future occupants to any existing air quality issues and cause impacts at sensitive locations. Dispersion modelling was undertaken using ADMS-Roads due to the number of vehicle movements expected to be generated by the development and the proximity of the nearby Air Quality Management Area (AQMA). A construction dust assessment was also performed to provide mitigation for proposed dust generating activities. Results of the study indicated that air quality impacts and fugitive dust emissions were not significant.

Beckenham Road, West Wickham

Air Quality Assessment in support of the erection of a new school building and the extension of an existing building at St David's Prep. The proposal had the potential to expose staff and students to elevated pollutant levels due to proximity of the site to the A214. Dispersion modelling was undertaken to assess pollutant concentrations across the development with results compared against the Air Pollution Exposure Criteria contained within the London Councils Air Quality and Planning Guidance. Modelling concentrations were below the relevant standards across the site. As a result, the proposals were considered suitable for proposed end use.

New Street, Salisbury

Air Quality Assessment for the redevelopment of an existing building to a House of Multiple Occupancy. The development was located within an AQMA, within a street canyon and adjacent to a multi-storey car park (MSCP). Detailed dispersion modelling in ADMS-Roads was undertaken with the inclusion of advanced canyon modelling and consideration of the MSCP. Based on the assessment results, future occupants were not predicted to be exposed to pollutant concentrations above relevant standards at the development.

Strayfield Road, Enfield

Air Quality Neutral Assessment in support of a residential-led development comprising circa 58 residential units and associated infrastructure. 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. Emissions from vehicles associated with the scheme exceeded the relevant benchmarks. As such, suitable mitigation measures were identified in order to ensure compliance with the Greater London Authority guidance.

Maidenhead Road, Windsor

Odour Assessment in support of the installation of a wood/gas fired-pizza oven within a café on land off Maidenhead Road, Windsor. The site had the potential to cause odour impacts at sensitive locations in close proximity to the site as a result of the proposed operations. A mitigation scheme was therefore identified to protect residents from loss of amenity. Subject to the inclusion of the specified mitigation, overall effects of odour were considered to be not significant at the development.

KEY EXPERIENCE:

Ceri 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.
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.

SELECT PROJECTS SUMMARY:**Warren Street, Stockport**

Air Quality Assessment in support of a residential-led development comprising 553 apartments and two commercial units located in an Air Quality Management Area (AQMA). The development had the potential to expose future occupants to poor air quality and cause impacts at sensitive locations. Detailed dispersion modelling and a construction dust assessment indicated air quality factors were not a constraint to the development.

Belgrave Gate, Leicester

Air Quality Assessment in support of the conversion of an existing building to provide three residential units on Belgrave Gate, Leicester. The scheme was located in an AQMA, alongside a bus station. As such, the development had potential to expose future residents to elevated pollution levels and adverse air quality effects. Results of detailed dispersion modelling utilising advanced canyons and a volume source to represent the bus station indicated air quality issues were not a constraint to planning consent for the development.

Kings Arms Hotel, Stansted

Odour Assessment in support of a Discharge of Condition application for a consented development on land to the rear of the Kings Arms Hotel, Stansted. The site was located in close proximity to several fast food restaurants which have the potential to cause odour emissions during normal operation. A mitigation scheme was therefore identified to protect future residents from loss of amenity. Subject to the inclusion of the specified mitigation, overall effects of odour were considered to be not significant at the development.

Manchester Road West, Little Hulton

Odour Assessment in support of construction of 152 residences on land off Manchester Road West, Little Hulton. The development was located in the vicinity of several waste management facilities which may form a source of odour emissions and cause loss of amenity for future residents. A two stage Odour Assessment was undertaken to assess baseline conditions across the site and consider the risk of reduced amenity. Results of the assessment indicated odour effects at the site did not represent a constraint to planning consent.

Gravel Pit Farm, Sand Hutton

Odour Assessment in support of the conversion of existing buildings into two residential dwellings on land at Gravel Pit Farm, Sand Hutton. The development was located in the vicinity of the Sand Hutton Anaerobic Digestion Plant, which may form a source of odour emissions and cause loss of amenity for future residents. Results of a two stage Odour Assessment indicated odour effects at the site were not significant. As such, odour was not considered to represent a constraint to planning consent.

A1 Trunk Road, Long Bennington

Odour Assessment in support of a residential development on land off the A1 Trunk Road, Long Bennington. The development was located in the vicinity of a maggot farm growing bait for fishermen. Results of a two stage Odour Assessment indicated that at the location of the proposed dwellings, impacts were not at a level considered to cause loss of amenity as a result of emissions. As such, odour was not considered to represent a constraint to planning consent.