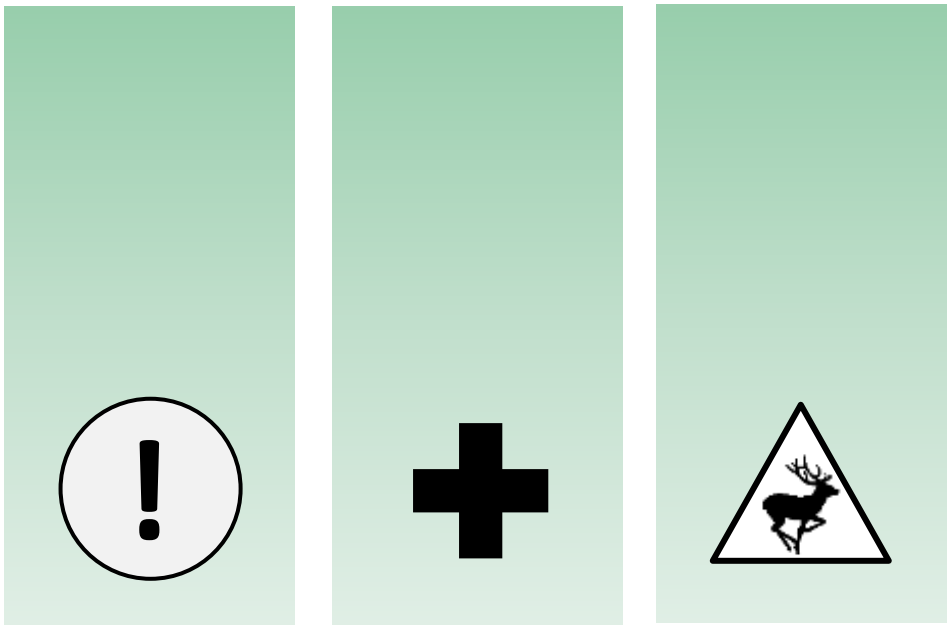
QUALITATIVE ODOUR ASSESSMENT
LAND EAST OF DOWNEND ROAD, PORTCHESTER

ENSAFE PROJECT REFERENCE: AQ108773-2

PREPARED FOR: MILLER HOMES

DATE: JULY 2020



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EXECUTIVE SUMMARY

Ensafe were commissioned by Miller Homes to undertake a Qualitative Odour Assessment in support of a planning application for a residential led development at land east of Downend Road, Portchester.

The proposal is for a primarily residential site with associated infrastructure. The proposed development site is located within the vicinity of a waste wood depot and a waste transfer station. A Qualitative Odour Assessment has therefore been undertaken in order to consider existing conditions at the site and assess its suitability for the proposed end-use.

Based on the assessment results, it is not anticipated that significant odour impacts would occur at any sensitive location as a result of the waste wood depot or waste transfer station. Due to the prevailing wind direction, orientation of the site and nature of potential odour releases, impacts are considered unlikely to result in any significant loss of local residential amenity. As such, the potential for adverse odour impacts at the proposed development site is predicted to be negligible.

Based on the results of this assessment, it is considered odour issues should not be viewed as a constraint to planning consent for the proposed development.

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APPENDICIES

1. INTRODUCTION

1.1 Background

Ensafe Consultants was commissioned by Miller Homes to undertake a Qualitative Odour Assessment in support of a planning application for a residential led development at land east of Downend Road, Portchester. Herein referred to as the 'Proposed Development'.

1.2 Site Location and Context

The Proposed Development is located at Land East of Downend Road, Portchester at approximate National Grid Reference (NGR): 460400, 106335. Reference should be made to Figure 1 within Appendix I for a location plan.

The application site is located within the vicinity of a waste wood depot, which houses a number of empty commercial bins, and a waste transfer station. A Qualitative Odour Assessment has therefore been undertaken in order to consider existing conditions at the site and assess its suitability for the proposed end-use.

1.3 Limitations

This report has been produced in accordance with Ensafe's standard terms of engagement. Ensafe Consultants has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Ensafe.

2. LEGISLATION, GUIDANCE AND POLICY

2.1 Odour Legislation and Guidance

This report has been prepared in line with following legislation and guidance:

- H4: Odour Management, Environment Agency (EA), 2011;
- Odour Guidance for Local Authorities, Department for Environment, Food and Rural Affairs (DEFRA), 2010;
- Environmental Permitting (England and Wales) Regulations (2010);
- Guidance on the Assessment of Odour for Planning, Institute of Air Quality Management (IAQM), 2014; and
- Defra Code of Practice on Odour Nuisance from Sewage Treatment Works, 2006

2.2 Odour Definition

The DEFRA guidance[1] defines odour as:

> *"An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of smell. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.*
>
> *Odours have the potential to trigger strong reactions for good reason. Pleasant odours can provide enjoyment and prompt responses such as those associated with appetite. Equally, unpleasant odours can be useful indicators to protect us from harm such as the ingestion of rotten food. These protective mechanisms are learnt throughout our lives. Whilst there is often agreement about what constitutes pleasant and unpleasant odours, there is a wide variation between individuals as to what is deemed unacceptable and what affects our quality of life."*

Odours that are universally considered as offensive such as decaying animal matter are more likely to cause annoyance than odours of a less offensive character. However it is noted that any odour has the potential to cause loss of amenity if a sensitive receptor considers the odour as 'unwanted'.

2.3 Odour Impacts

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 FIDOR acronym is a useful reminder of the factors that will determine the degree of odour pollution:

- **F**requency of detection - frequent odour incidents are more likely to result in complaints;
- **I**ntensity as perceived - intense odour incidents are more likely to result in complaints;
- **D**uration of exposure - prolonged exposure is more likely to result in complaints;
- **O**ffensiveness - more offensive odours have a higher risk of resulting in complaints; and
- **R**eceptor sensitivity - sensitive areas are more likely to have a lower odour tolerance.

[1] Odour Guidance for Local Authorities, Department for Environment, Food and Rural Affairs, 2010.

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

2.4 Institute of Air Quality Management Guidance

The Institute of Air Quality Management (IAQM) published the 'Guidance on the Assessment of Odour for Planning'[2] document on 20th May 2014. This guidance specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in the guidance has been used in this report where relevant.

2.5 Hedonic Tone

The hedonic tone of an odour is a measure of its relative offensiveness or pleasantness. It can be determined under laboratory conditions and typically ranges from +4 for very pleasant odours (bakeries) to -4 for foul ones (rotting flesh). Neutral odours score 0. This score refers to the type of smell, irrespective of its strength (intensity) and can help to decide how offensive an odour may be.

2.6 Odour Measurement

The concentration at which an odour is just detectable to a human nose is referred to as the detection threshold. This concept of a threshold concentration is the basis of olfactometry in which a quantitative sensory measurement is used to define the concentration of an odour. Standardised methods for measuring and reporting the detectability or concentration of an odour sample have been defined by European standard BS:EN 13725:2003. The concentration at which an odour is just detectable by a panel of selected human odour assessors is defined as the detection threshold and has an odour concentration of 1 European odour unit per cubic metre ($1ou_E/m^3$).

At the detection threshold, the concentration of an odour is so low that it is not recognisable as any specific odour at all, but the presence of some, very faint, odour can be sensed when the "sample" odour is compared to a clean, odour-free sample of air.

For a simple, single odorous compound (e.g. H_2S), the concentration of odour present in a sample of air can be expressed in terms of parts per million (ppm), parts per billion (ppb) or mg/m^3. More usually, odours are complex mixtures of many different compounds and the concentration of the mixture can be expressed in ou_E/m^3.

[2] Guidance on the Assessment of Odour for Planning, Institute of Air Quality Management, 2014.

The concept of odour concentrations, as ou_E/m^3, is based on a correlation between a physiological response when odour is detected by the nose and exposure to a particular sample at a specific concentration. The results of this assessment are expressed in terms of a single number. The odour sample assessed can be one of many individual odorous substances or a complex mixture of many substances, and so the odour unit or concentration will vary between test samples. A defined measurement standard for the odour unit is prescribed in the EN13725:2003 standard on olfactometry using n-butanol. This gas is used to select and calibrate odour panel members.

An odour at a strength of $1ou_E/m^3$ is the concentration at which 50% of the population can detect the odour and 50% cannot within the controlled environment of an odour laboratory[3]. As an odour becomes more concentrated, then it gradually becomes more apparent. Some guidance as to concentrations when this occurs can be derived from laboratory measurements of intensity. The following guideline values have been stated by DEFRA[1] to provide some context for discussion about exposure to odours:

- $1ou_E/m^3$ is the point of detection;
- $5ou_E/m^3$ is a faint odour; and
- $10ou_E/m^3$ is a distinct odour.

It is important to note that these values are based on laboratory measurements and in the general environment other factors affect our sense of odour perception, such as:

- The population is continuously exposed to a wide range of background odours at a range of different concentrations, and usually people are unaware of there being any background odours at all due to normal habituation. Individuals can also develop a tolerance to background and other specific odours. In an odour laboratory the determination of detection threshold is undertaken by comparison with non-odorous air, and in carefully controlled, odour-free, conditions. Normal background odours such as those from traffic, vegetation, grass mowings etc., can provide background odour concentrations from 5 to $60ou_E/m^3$ or more;
- The recognition threshold may be about $3ou_E/m^3$, although it might be less for offensive substances or higher if the receptor is less familiar with the odour or distracted by other stimuli; and
- An odour which fluctuates rapidly in concentration is often more noticeable than a steady odour at a low concentration.

2.7 National Planning Policy

The National Planning Policy Framework[4] (NPPF) was published on 27th March 2012 (and subsequently updated on 24 July 2018 and 19 February 2019 respectively) and sets out the Government's core policies and principles with respect to land use planning, including air quality. The document includes the following considerations which are relevant to this assessment:

> "*Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *[…]*

[3] Code of Practice on Odour Nuisance from Sewage Treatment Works, DEFRA, 2006.
[4] National Planning Policy Framework, Department for Communities and Local Government, 2018.

Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.

Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

The implications of the NPPF have been considered during the production of this report.

2.8 Local Planning Policy

The Fareham Borough Council (FBC) Local Plan consists of three parts (Core Strategy, Development Sites and Policies, and the Welborne Plan) and sets out the Planning Strategy for the Borough up to 2026.

A review of the Core Strategy, adopted on August 2011, indicated the following policies in relation to air quality that are relevant to this assessment:

- ***CS12: Daedalus Airfield Strategic Development Allocation***

A review of the draft Fareham Local Plan is currently under development and aims to address the development needs of Fareham Borough up until 2036. A review of the draft local plan indicates the following policies

- ***Policy D2: Impact on Living Conditions***

Reference has been made to this policy during the undertaking of this Odour Assessment by assessing the impacts of surrounding wood

3. METHODOLOGY

The existing waste wood depot and waste transfer station may result in odour emissions at the development site during normal operation. There are a number of tools available for the assessment of odour, ranging from site observations to quantitative measurement and computer modelling. In this case, based on an understanding of the key issues, the background to the project and the nature of the adjacent facility, a qualitative based assessment has been completed incorporating the assessment stages as described in Table 1. The method and scope of the assessment were agreed with the Environmental Health Department at Fareham Borough Council (FBC).

Table 1 Assessment Stages

Stage	Description of Main Activities
Review of Wind Data	Wind data was obtained from ADM Ltd for Thorney Island meteorological station. This was reviewed in the context of the relative positioning of the application site and the identified potential sources of odour at the existing waste wood depot and waste transfer station
Qualitative Odour Assessment	A qualitative odour assessment was completed based on the IAQM guidance2

3.1 Assessment Methodology

In 2014 the IAQM published a guidance document[2] which provides recommendations on how odour should be considered in the preparation and determination of planning applications and gives guidance on the application of various techniques for odour assessments with the method for qualitative assessment comprising of four stages, as detailed within this section.

3.1.1 Stage 1 - Characterise the Source Odour Potential

The IAQM guidance refers to three categories of source odour potential: Large, Medium and Small. The judgement over the source odour potential is based on three key factors: the magnitude of the odour release (taking into account control measures), how inherently odorous the compounds or materials being assessed are and the unpleasantness (or offensiveness) of the odour.

Definitions are provided for each category as detailed in Table 2 (all repeated exactly as suggested by the guidance).

Table 2 Source Odour Potential

Source Odour Potential	Suggested Definition
Large	Magnitude - Larger 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 Odour Detection Thresholds (ODTs) where known. Unpleasantness - processes classed as "Most offensive" in H4; 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.

Source Odour Potential	Suggested Definition
Medium	Magnitude - smaller 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 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 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 H4; or (where known) compounds/odours having neutral (0) to very pleasant (+4) hedonic score. Mitigation/control - effective, tangible mitigation measures in place (e.g. BAT, BPM) leading to little or no residual odour.

3.1.2 Stage 2 - Assess Effectiveness of Transport Mechanism to a Receptor

This stage aims to assess the means by which odours released from the source may effect sensitive receptors; in this case, occupants of the proposed new housing. This effectiveness of transport of odours (or the pathway) takes into account five main factors: distance from source to receptor, the frequency of winds blowing from the source towards the receptor, the effectiveness of any mitigation or controls, the effectiveness of dispersion and dilution (a tall stack for example), and topography and terrain in the local areas.

Suggested definitions of pathway effectiveness are provided by the guidance and summarised in Table 3.

Table 3 Pathway Effectiveness

Pathway Effectiveness	Suggested Definition
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.

Pathway Effectiveness	Suggested Definition
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 > 3m above ridge height) and are not compromised by surrounding buildings.

3.1.3 Stage 3 - Predict Risk of Odour Exposure

At this stage the source odour potential and pathway effectiveness are brought together to predict the risk of odour exposure at the receptor being considered. The guidance recommends that this is done by a matrix approach, replicated in Table 4.

Table 4 Risk of Odour Exposure

Pathway Effectiveness	Source Odour Potential		
	Low	Medium	High
Highly Effective	Low Risk	Medium Risk	High Risk
Moderately Effective	Negligible Risk	Low Risk	Medium Risk
Ineffective	Negligible Risk	Negligible Risk	Low Risk

3.1.4 Stage 4 - Assess Impact at Receptor based on Predicted Level of Risk

Finally the method involves using the prediction of risk to assess the likely impact on the receptor based on the level of risk, with the suggested assessment methods repeated below. Differing levels of receptor sensitivity are defined by the guidance but as this assessment is only concerned with future occupants of the development site, which corresponds to high sensitivity, full definitions are not repeated here. The matrix utilised to predict the level of odour risk is summarised in Table 5.

Table 5 Odour Effect Levels

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

4. ASSESSMENT

The existing waste wood depot and the waste transfer station may result in odour emissions during normal operation. The potential of these emissions to impact at the proposed development are assessed in this Section. With regards to the nearby Portchester Crematorium, crematoriums operate at very high temperatures and therefore odour emissions are illuminated from this potential source and have not been considered further.

4.1 Prevailing Meteorological Conditions

The potential for odour to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during emissions. In order to consider prevailing conditions at the site, a review of meteorological data was undertaken. In order to represent conditions at the proposed site, data was taken from Thorney Island meteorological station over a 5-year period (1st January 2014 to 31st December 2018 inclusive). The Thorney Island meteorological station is located at NGR: 476389, 102497 which is approximately 16.4km south-east of the proposed development 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.

The frequency of wind from the eight sectors which best describe the directions which may cause impacts from the existing waste wood depot and waste transfer station are shown in Table 6. The directions which have the potential to impact at the proposed residential units is shown in **bold** text.

Table 6 Wind Frequency Data

Wind Direction	Wind Direction (˚)	Total Frequency of Wind (%)
North	**337.5 - 22.5**	**9.85**
North-east	**22.5 - 67.5**	**11.90**
East	67.5 - 112.5	8.67
South-east	112.5 - 157.5	4.07
South	157.5 - 202.5	10.89
South-west	202.5 - 247.5	16.74
West	**247.5 - 292.5**	**21.25**
North-west	**292.5 - 337.5**	**10.12**
-	Sub-Total	93.49
-	Calms	4.80
-	Missing/Incomplete	1.72

All meteorological data used in the assessment was provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of meteorological data within the UK. Reference should be made to Figure 2 for a graphical representation of the meteorological data.

As shown in Table 6, the prevailing wind direction at the proposed development site is from the west.

Winds from the north and east are relatively infrequent, which is indicative of conditions throughout the UK.

Potential receptors on the development site have the potential to individually be affected by winds from the north, north-east, west and south west from the waste wood depot and from the north from the waste transfer station.

4.1.1 Waste Wood Depot

The most affected potential sensitive receptors would be those in the northern portion of the proposed development site which are considered to be downwind from the waste wood facility in the sector of 337.5 - 22.5° occurring for approximately 21% of the time annually. These would also be the closest receptors to the waste wood facility. Therefore these are considered further in this report as the most sensitive of the potential receptors.

Winds are therefore predicted to blow from the direction of the waste wood depot to potential receptors for a worst case frequency of approximately 21% of the time and consequently should odours be generated by the activities at the depot then there is a reasonable probability of these odours being carried towards and over the proposed residential development.

However, odour episodes 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 around it can be affected under these conditions. The IAQM guidance states that when conditions are not calm, it will be the downwind receptors that are affected. Overall, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact.

Analysis of the 5-years of meteorological data from Thorney Island meteorological station indicated wind speeds of 3m/s or lower occur on average for approximately 29.50% of the year. A review of the 20-years Climate Averages obtained from the Met Office[5] from Thorney Island Climate Station indicated that the average annual rainfall is 726.5mm. As such, the potential for entrainment of odours into the air is limited by both wind speed and rainfall.

The analysis of cumulative effects of the directional winds and wind speeds indicated that potential receptor locations closest to the waste wood depot could be affected by potential odour episodes for approximately 4% of the time.

4.1.2 Waste Transfer Station

The most affected potential sensitive receptors would be those in the northern portion of the proposed development site which are considered to be downwind from the waste transfer facility in the sector of 337.5 - 22.5° occurring for approximately 9.76% of the time annually.

Winds are therefore predicted to blow from the direction of the waste transfer station to potential receptors for approximately 9.76% of the time and consequently should odours be generated by the activities at that facility then there is a limited probability of these odours being carried towards and over the proposed residential development.

[5] http://www.metoffice.gov.uk/public/weather/climate/gcp34fxfu

In addition, odour episodes 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 around it can be affected under these conditions. The IAQM guidance states that when conditions are not calm, it will be the downwind receptors that are affected. Overall, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact.

Analysis of the 5-years of meteorological data from Thorney Island meteorological station indicated wind speeds of 3m/s or lower occur on average for approximately 29.50% of the year. A review of the 20-years Climate Averages obtained from the Met Office[6] from Thorney Island Climate Station indicated that the average annual rainfall is 726.5mm. As such, the potential for entrainment of odours into the air is limited by both wind speed and rainfall.

The analysis of cumulative effects of the directional winds and wind speeds indicated that potential receptor locations closest to the waste wood depot could be affected by potential odour episodes for approximately 4.8% of the time.

4.2 Odour Risk Assessment

4.2.1 Risk Assessment Outcomes

The predicted impact of the waste wood depot and waste transfer station on the proposed development was assessed based on the process described in Section 3.

4.2.2 Source Odour Potential

The compounds involved with waste wood are only mildly odorous and it is considered that it would be classed as less offensive in terms of unpleasantness. Mitigation is expected to be applied in the form of standard good site management. The commercial bins stored at the site are constantly empty and are therefore not likely to generate significant odour.

In addition, it is understood that the waste wood site was formerly an open composting facility and since this use changed there has not been a history of complaints from its current use.

The Source Odour Potential of the activities at the waste wood depot and commercial bin storage are therefore assessed as **Low** with reference to the IAQM guidance2.

The waste transfer station processes various types of waste. Domestic waste is considered the most likely to cause potentially odourous emissions and any such waste should be removed from the site within 24 hours. The site is controlled by odour management techniques and waste handling and processing activities are contained within the waste transfer station.

The size and potential offensiveness of the waste transfer station are not considered to be in the largest category as defined in the IAQM guidance2.

The Source Odour Potential of the activities at the waste transfer station are therefore assessed as **Medium** with reference to the IAQM guidance2.

[6] http://www.metoffice.gov.uk/public/weather/climate/gcp34fxfu

4.2.3 Effectiveness of Pathway

Waste Wood Depot

The application site is located immediately to the east of the waste wood depot. There is no recognised set-back distance between proposed residential receptors and the on-site activities being considered at the facility but the separation distances are sufficiently short to be classified as 'adjacent' in the IAQM terminology.

The main sources of odour at those places are, mainly open, uncontrolled and low level.

Winds blow from the direction of the odour sources towards the residential development for approximately 10.12% of the time. Due to low wind speeds, the potential to result in odour impacts at the closest sensitive locations within the proposed development site is approximately 4.95%.

The effectiveness of the pathway is therefore assessed as **Moderately Effective** with reference to the IAQM definitions.

Waste Transfer Station

The application site is located to the south of the waste transfer station. There is no recognised set-back distance between proposed residential receptors and the on-site activities being considered at the facility but the separation distances of approximately 300 metres is considered to be classified at worst case as 'local' in the IAQM terminology.

The main sources of odour at those places are, mainly contained, controlled and not only reliant on dispersion. The waste transfer station is located in a former minerals extraction area and there is high bunding to its southern boundary. This barrier would aid dispersion of any odour emissions and significantly decrease the effectiveness of the pathway.

Winds blow from the direction of the odour sources towards the residential development for approximately 9.85% of the time. Due to low wind speeds, the potential to result in odour impacts at the closest sensitive locations within the proposed development site is approximately 9.76%.

Considering the above, the effectiveness of the pathway is therefore assessed as **Ineffective** with reference to the IAQM definitions.

4.2.4 Risk of Odour Exposure

Waste Wood Depot

With a **Low** source odour potential and **moderately effective** pathway, the risk of odour exposure of future occupants of the proposed residential development is **Negligible**.

Waste Transfer Station

With a **Medium** source odour potential and **ineffective** pathway, the risk of odour exposure of future occupants of the proposed residential development is **Negligible**.

4.2.5 Assessment of Impact

Waste Wood Depot

The sensitivity of the proposed receptor locations is considered to be **high**, therefore in line with the IAQM impact assessment criteria for a high sensitivity receptor and a negligible risk of odour exposure results in a **negligible** impact.

Waste Transfer Station

The sensitivity of the proposed receptor locations is considered to be **high**, therefore in line with the IAQM impact assessment criteria for a high sensitivity receptor and a negligible risk of odour exposure results in a **Negligible** impact.

4.2.6 Discussion

As identified previously, the development site is located immediately to the east of the waste wood depot and approximately 140m south of a waste transfer station. Winds with low speed from the west and north, which would be required to disperse emissions from those places, towards the application site only occur for approximately 9.76% and 3.70% of the year respectively.

In addition odours from the waste wood depot are limited by its low odour source potential, whilst odour from the waste transfer station are limited by the wind direction, its distance from the development site and odour controls at the facility.

Future users of the site are not expected to be present at sensitive locations at all times. Similarly, some odour impacts may occur during the winter when residents are likely to be indoors and as such will have a level of protection from any exposure that may occur.

It is not considered likely that significant odour impacts will occur at any sensitive location as a result of emissions from the wood depot and the waste transfer station.

5. CONCLUSION

Ensafe Consultants was commissioned by Miller Homes to undertake a Qualitative Odour Assessment in support of a planning application for a residential led development at land east of Downend Road, Portchester.

The proposed development site is located within close proximity to a waste wood depot and in the vicinity of a waste transfer station. A Qualitative Odour Assessment has therefore been undertaken in order to consider existing conditions at the site and assess its suitability for the proposed end-use.

The odour assessment indicated that the waste wood depot and waste transfer station have a relatively limited potential to give rise to significant or any offensive odours at the proposed development.

The application site is in close proximity to the waste wood facility boundary although its location is downwind for approximately a worst case of 4% of the time from winds with any potential to carry odour towards the closest receptors. Therefore, where the odours from the waste wood depot occur there will be little natural attenuation over the distance between the source and the site but there will be a very low probability at any given time that any odours will be carried towards the housing development. In addition, odours from the waste wood facility are not considered to be intense or offensive

Applying the IAQM assessment method indicates that the waste wood depot is likely to have a negligible impact on the housing development. An impact of this magnitude would be considered not significant, i.e., it would not be a deciding factor in planning determination and would not trigger the implementation of additional mitigation.

Whilst the odour potential from the waste transfer station is considered greater than that from the waste wood site, the application site is more remote from the waste transfer station facility boundary and its location is downwind for approximately 9.76% of the time from winds with any potential to carry odour towards the closest receptors. Therefore where the odours from the waste transfer station, there will be a low probability at any given time that odours will be carried towards the housing development.

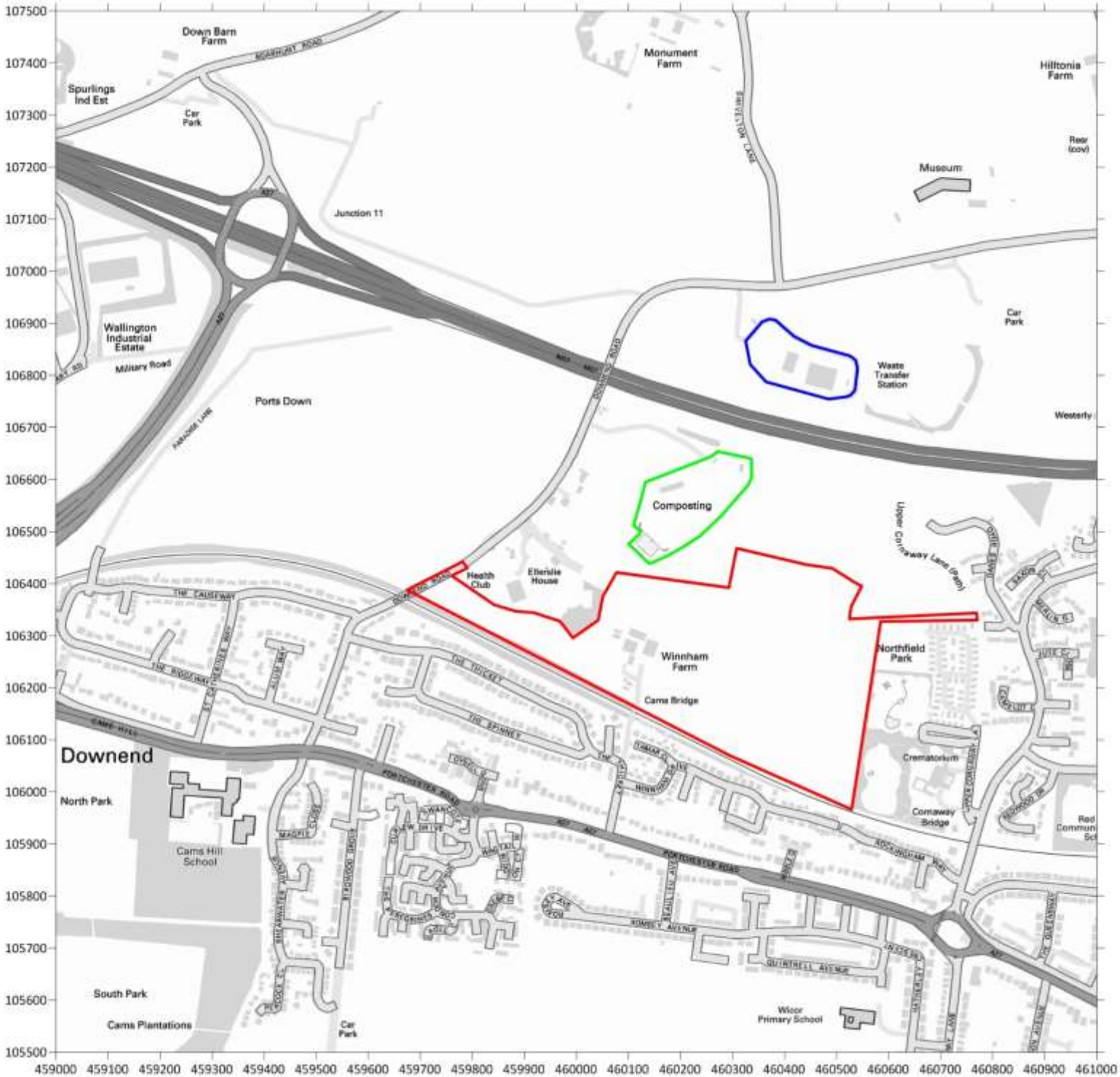
Applying the IAQM assessment method indicates that the waste transfer station is likely to have a negligible impact on the housing development. An impact of this magnitude would be considered not significant, i.e., it would not be a deciding factor in planning determination and would not trigger the implementation of additional mitigation.

Based on the above, it is considered odour issues should not be viewed as a constraint to planning.

6. ABBREVIATIONS

BCC	
DEFRA	Department for Environment, Food and Rural Affairs
ESP	Electro Static Precipitation
LAQM	Local Air Quality Management
NGR	National Grid Reference
NPPF	National Planning Policy Framework

APPENDIX I - FIGURES



Legend

- Site Boundary
- Waste Wood Depot
- Waste Transfer Station

Title

Figure 1

Site Location

Project

Qualitative Odour Assessment
Land East of Downend Road, Portchester

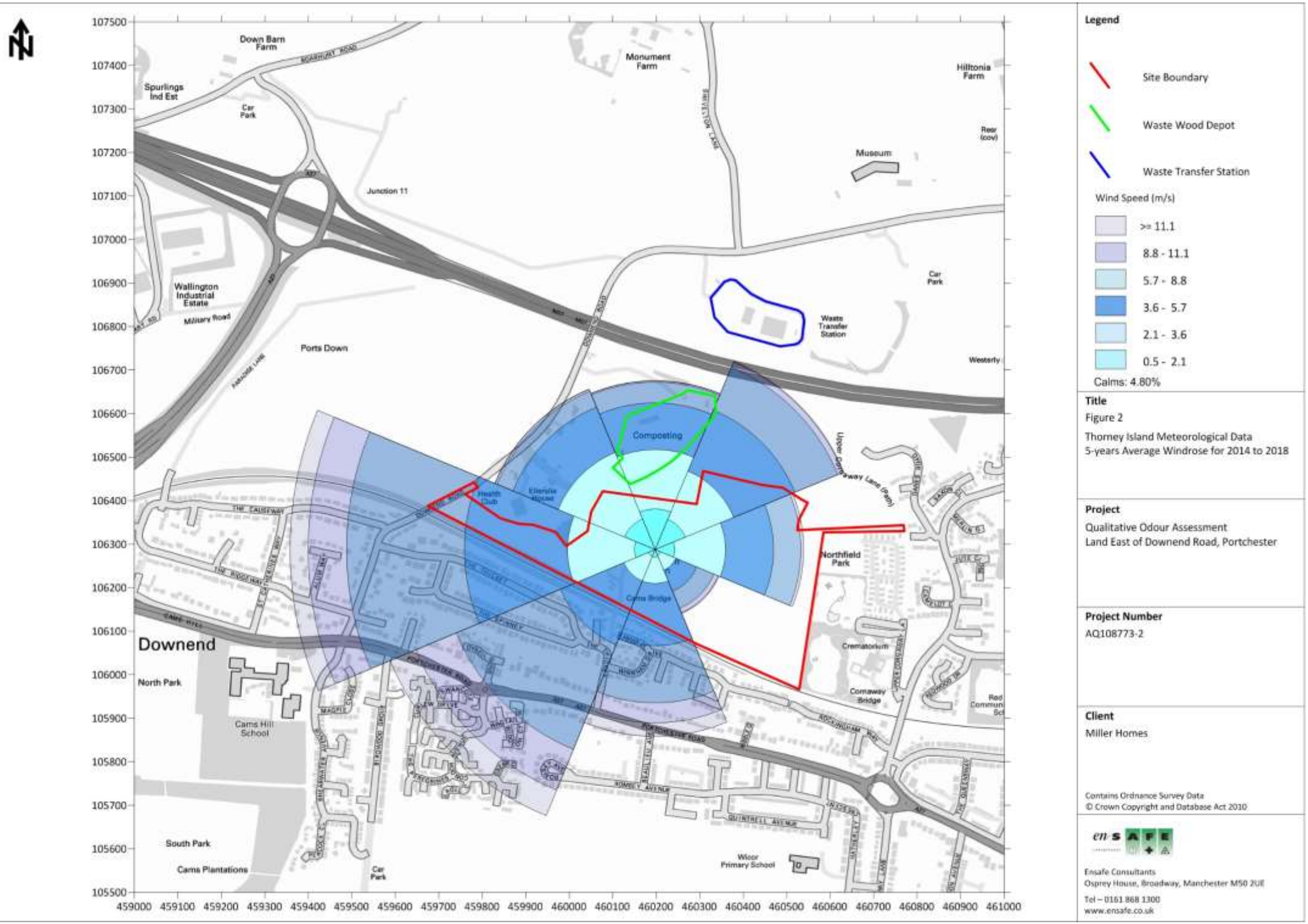
Project Number

AQ108773-2

Client

Miller Homes

Ensafe Consultants
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300
www.ensafe.co.uk



Legend

- Site Boundary
- Waste Wood Depot
- Waste Transfer Station

Wind Speed (m/s)

- >= 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

Calms: 4.80%

Title

Figure 2

Thorney Island Meteorological Data
5-years Average Windrose for 2014 to 2018

Project

Qualitative Odour Assessment
Land East of Downend Road, Portchester

Project Number

AQ108773-2

Client

Miller Homes

Ensafe Consultants
Osprey House, Broadway, Manchester M50 2UE
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APPENDIX I - ASSESSOR'S CURRICULUM VITAE

CONAL KEARNEY

Head of Noise and Air Quality

BEng(Hons), MSc, MIAQM, MIEnvSc

KEY EXPERIENCE:

Conal is Head of Noise and Air with specialist experience in the air quality and odour sector. His key capabilities include:

- Advanced atmospheric air dispersion modelling of road vehicle and industrial emissions using ADMS-ROADS and AIRVIRO.
- Preparation of factual and interpretative Air Quality Assessment reports and Air Quality Environmental Statement chapters in the vicinity of proposed schemes and developments in accordance with DEFRA, Environment Agency and Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) methodologies.
- Management and delivery of project work on key, land development and urban regeneration projects.
- Assessment of dust impacts from construction sites to the Institute of Air Quality Management (IAQM) methodology.
- Dust and Odour impact assessments from minerals and waste sites
- Representing clients at public inquiries and planning hearings as an expert witness.

QUALIFICATIONS:

- Bachelor of Engineering
- Master of Science
- Member of the Institute of Air Quality Management
- Member of the Institute of Environmental Science

SELECT PROJECTS SUMMARY:

Industrial Developments

Land at Mossdown Road, Oldham – energy from waste incinerator. Industrial and road impacts on air quality dust and odour.

Buck Park, Denholme - AQA and dust assessment for proposed mineral extraction and site restoration project.

Messingham Quarry, North Lincolnshire - AQA and dust impacts for proposed new sand extraction site.

Arden Quarry, Derbyshire - AQA for proposed mineral extraction and site restoration

Granta Park, Oxfordshire. Assessment of VOC fume emissions.

University of Birmingham. Permit application for CHP scheme.

Arbroath Road, Carnoustie. Odour and AQA for biogas CHP scheme.

Brenda Road, Hartlepool – Dispersion modelling to inform stack design for biogas AD facility environmental permit.

Highways Developments

Alderley Edge Bypass, Cheshire - AQA for major new road scheme.

South Heywood – EIA for new link road and mixed use joint development

Residential and Mixed-Use Developments

Orchard Close, Knaresborough. AQA and public inquiry evidence.

Friars School, Southwark, London. School development for mixed use education and residential building in AQMA.

Fairoaks Garden Village – ES chapter and input fir major mixed use development

Westcraig, Edinburgh - EIA chapter and input for major residential development

Queensway, Lytham St Annes. Dust and odour assessment for development. Public Inquiry expert witness

Manor Place, London. Road and energy generation dispersion emissions assessment

Craven Park, London. Mitigation statement and planning hearing expert opinion

Public Sector

Technical advisor on Manchester Airport Consultative Committee - advise members on environmental technical matters in relation to the airport's operations.

Cheshire County Council - compile AQ chapters for Local Transport Plan

Cheshire East Council - specialist AQ advice on highways, minerals and waste projects

Local Air Quality Management

Broughton Gyratory, Chester - dispersion model for City Centre detailed assessment report

Congleton town centre - dispersion modelling assessment for detailed and further assessment reports.

Disley - dispersion modelling assessment for detailed and further assessments

Holmes Chapel - dispersion modelling assessment for detailed and further assessment reports for road and rail sources.

Crewe - town centre dispersion modelling for detailed and further assessment reports.

Granta Park Daycare Centre, Oxfordshire. AQA for new build daycare centre adjacent to major road.

Curzon Cinema, Colchester. Air quality assessment for town centre new build cinema.

Newfoundland Circus, Bristol - AQA for hotel development in city centre

Salesians School, Chertsey - AQA for school extension near M25.

Cathedral Street and Thistle Street, Glasgow. University energy generation emission assessments.