



Complaints management program for Old Wolverton district

Task 1 – Analysis of odour complaints received

Report for Milton Keynes City Council

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Ricardo Confidential

Customer:

Milton Keynes City Council

Contact:

Dr Nigel Gibson, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

Customer reference:

T: +44 (0) 1235 753 609

E: nigel.gibson@ricardo.com

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Author:

Dr Nigel Gibson, James Southgate

Approved by:

Brian Donovan

Date:

26 July 2021

Ref: ED14823120

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Table of Contents

Table of Contents	iii
Table of Figures	iii
Table of Tables	iii
1 Introduction	1
2 Overview of complaints	2
2.1 Preamble	2
2.2 Complaint profile over the period of interest	2
2.3 Review of available Meteorological data.....	4
3 Complaint interrogation	8
4 Analysis of the complaints	28
4.1 Analysis of complaints with respect to geographical locations	28
4.2 Analysis of complaints with respect to odour description	29
5 Conclusion	30
Appendices	31
A1.1 Break down of monthly wind profiles	31
A1.2 Odour wheel.....	32

Table of Figures

Figure 1: Annotated Google Earth Image showing area of interest.....	1
Figure 2: profile of complaint numbers by month.....	3
Figure 3: profile of complaint days by month	3
Figure 4: Profile of complaints day for the period	4
Figure 5: Annual measurements of wind speed and direction.....	5
Figure 6: Projection of air movement across the study area during 2020	6
Figure 7: Monthly wind roses for the year 2020.....	7
Figure 8: Monthly wind roses for the year 2021	7
Figure 9: Location of where nuisance odours were experienced	8
Figure 10: Distribution of directions during each month during the study period.....	31

Table of Tables

Table 1: Summary of complaints made between January 2020 and June 2021	9
Table 3: Percentage of complaints raised with each wind direction	Error! Bookmark not defined.
Table 4: Relationship between complaint location and daily wind flow	28
Table 5: Themes identified from review of the complaints.....	29

1 Introduction

Ricardo Energy and Environment (Ricardo) has been commissioned by Milton Keynes Council's Environment & Property division to review recent complaints made about odour in the vicinity of Old Wolverton Road.

This review investigates complaints made between February 2020 and June 2021.

The area around Old Wolverton Road is a mixed-use area (see Figure 1) comprising of:

- A series of waste management business which uses the local roads to import and export waste,
- Historic engineering facilities serving the rail industry,
- Light industry, manufacturing and commercial business,
- Agriculture,
- Canal boat mooring linked to the Grand Union Canal,
- Residential areas.

Figure 1: Annotated Google Earth Image showing area of interest



This review is structured as follows:

- Section 2 sets out the complaint numbers received on a monthly basis – the objective of this overview is to determine whether there is a general pattern to the complaints being made.
- Section 3 considers each of the complaints made to determine whether there is any trend that links the complaints to particular operation(s) or to any particular condition(s).

2 Overview of complaints

2.1 Preamble

This analysis of the complaints relies on the quality of the information that is recorded and provided to us to carry out this study. The analysis set out here treats all complaints in the same way, however where information is missing, we cannot be certain about the cause of the experience. For example:

- It is difficult to review the orientation of the odour source where the complaint location is not provided.
- It is difficult to drill down to a potential cause of a complaint if the complainant uses emotive terms (e.g. “it smells disgusting “ or “it smells all the time”) rather than being more precise in their descriptions (e.g. “it smells of food”). It is also recognised that descriptions given to different odour will vary from individual to individual and will be linked to their experience.

In carrying out this review it is recognised that complaints tend to follow an ‘iceberg’ profile, whereby:

- A very small number of people are prepared to complain to a regulator’.
- A larger group of people feel aggrieved but will complain to a local representative.
- A much larger group encounters a problem but does not complain for one reason or another.

Defra¹ identified the following mechanisms used by stakeholders who experience odour:

- They can employ a ‘Problem focussed coping’ strategy – this leads to attempts to control the problem by developing active behaviour aimed at removing the cause of stress, e.g. closing windows, calling authorities or operators to complain, keeping diaries and submitting complaints etc.
- They can employ a ‘Emotion focussed coping’ strategy – this is not aimed at changing the environment by removing the unpleasant stimulus, but consists of modulating the emotional response that is the result of the appraisal, e.g. denial, seeking distractions, reducing one’s mental focus on the problem, making a positive choice to ignore the stressor, etc.

Making a complaint to an ‘regulator’ will not be the route all stakeholders will take.

2.2 Complaint profile over the period of interest

The complaints record that have been reviewed in this study were collated by Amey and cover the period from February 2020 to date.

Over the 17 months from February 2020 onwards a total of 64 complaints have been made (see Figure 2). These complaints were linked to 41 ‘complaint days’. On some ‘complaint days’ several complaints may have been registered (see Figure 3).

In reviewing the complaint database, we have excluded complaints linked a fire which occurred on the Viridor site in February 2020 and any complaints about noise.

¹ Department for Environment, Food and Rural Affairs Odour Guidance for Local Authorities (2010 [now withdrawn])

Figure 2: Profile of complaint numbers by month

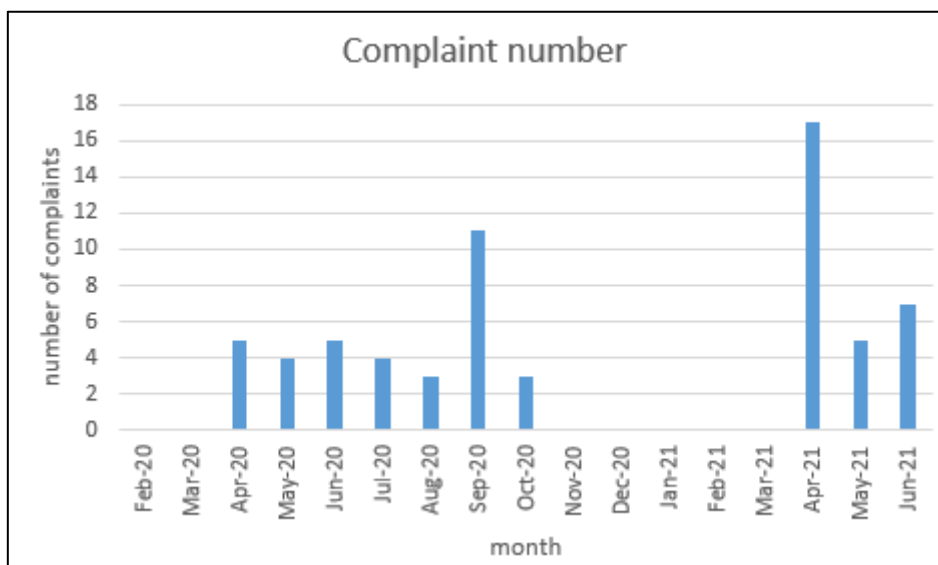
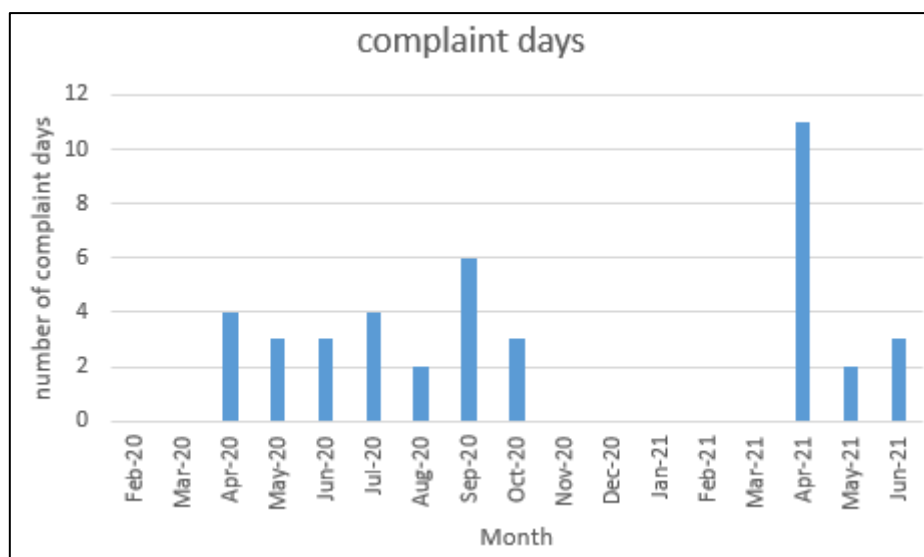


Figure 3: Profile of complaint days by month



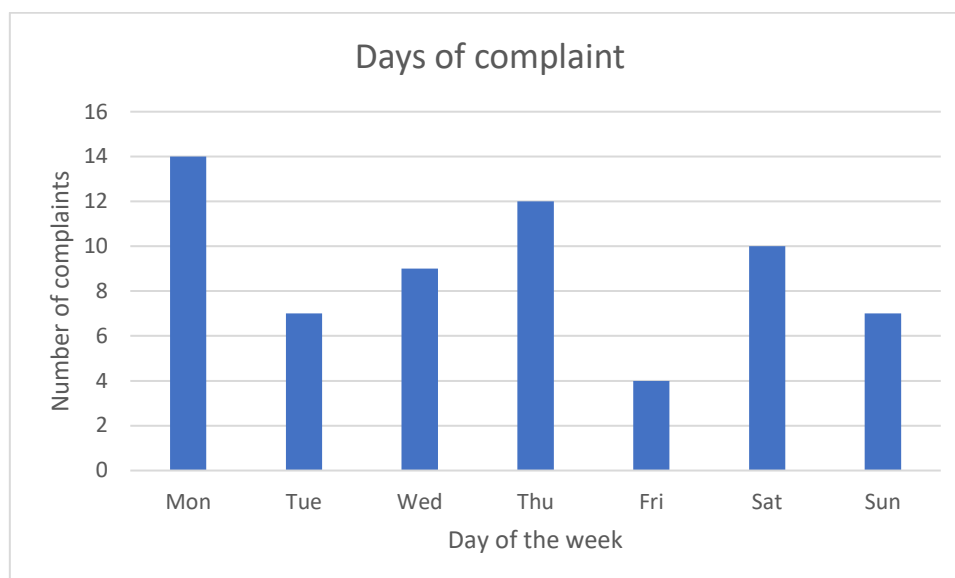
This overview shows that complaints mainly occur during the summer months. This raises the following question about the odour which cause the complaints:

- Is the odour that causes the complaints only present or only present at a high enough levels during the summer; or
- the odour(s) are always present to some extent, but some other factor causes this pattern of complaints to occur. In this case do the complaint odours original from a particular direction with respect to complainants and/or are complaints linked to a particular behaviour when complaints are most prevalent (e.g. during the summer when windows are open or making more use of gardens)?

This initial review of complaint numbers may suggest that there is an underlying condition or event that exacerbates the situation, resulting in the uplift seen in September 2020 and April 2021.

Further analysis of the data seeks to determine whether complaints are linked to particular days of the week. For this we have assumed that date stated in the complaint data base is the day that the complaint odour was perceived. Figure 4 shows the number of times a complaint was registered on a given day during the period.

Figure 4: Profile of complaints day for the period



This figure shows that:

- Complaints were registered most frequently on a Monday (14 complaints) followed by Thursdays (12 complaints). It is unclear whether the complaints assigned to 'Monday' or whether they are linked to the previous weekend but the complaint was made on the 'Monday'.
- The lowest number of complaints were on a Friday, the day during which the local waste service collects household waste locally.
- some complaints occurred over the weekend when stakeholders would be likely to use their gardens etc., although with COVID more people would be at home throughout the normal working week.

Because of the waste management activities in the area the peak odour assigned to Monday could be linked to the onward transfer of material held at the transfer station over the weekend. Although it is possible that some other cause factor (e.g. wind direction) just happens to have occurred more on Mondays than any other day of the week.

2.3 Review of available Meteorological data

For a complaint to be registered, there must be a pathway from the source to the receptor. The pathway will only occur when there is wind blowing from source to receptor.

For this overview analysis we have used meteorology measured at the Met Office site at Bedford Airport. This site is about 28 km to the east of the Old Wolverton Road area.

Figure 5 presented wind roses for 2020 and 2021 (part of). As expected for most of the UK, the wind roses show that:

- The majority of the wind blows from a direction of between a southerly and westerly arc, with a significant proportion (up to 22%) of the wind being south-westerly.
- A small but significant proportion of the wind blows from a direction of between a northerly and easterly arc, with between about 10 – 15% of wind being north easterly.

For illustration the wind rose for 2020 has been superimposed on a Google image of the Wolverton area (see Figure 6) to show how different wind directions will affect residential areas near the Old Wolverton Road, namely:

- Haversham to the north east of the Old Wolverton Road.
- King Stephan Meadow and other areas to the south east of the Old Wolverton Road.
- Residential areas to the south of Stratford Road to the south of the Old Wolverton Road

- Residential areas off Newport Road to the south east of the Old Wolverton Road.

The windrose shown in Figure 6 would indicate that if there were sources of odour from these two dominating wind directions, it would be expected to be seen in the complaint records:

- Any odours from sources located in a south-westerly direction of the centre of this figure are likely to be experienced by a large proportion of the local population, King Stephen Meadows area (west of centre of Figure 6) on the basis of probability would expect to experience complaint odours from that location.
- Some odours generated from sources located to the north-east of the centre of this figure are expected to occasionally be experienced by local residents.

What is not drawn out for this simple review of direction frequency is that odour emitted from any source(s) will disperse and dilute over distance.

Further analysis of the wind profile has been carried out to see how the wind changes over time. Figure 7 (a) & (b) shows the monthly wind roses for 2020 and 2021 respectively.

This figure shows that in most months there is predominance of south westerly winds which is to be expected, however in some months the proportion of easterly through northerly will become more significant. Of note, the proportion of easterly wind are higher in March 2020, April 2020 May 2020, August 2020, February 2021, possibly March 2021, April 2021 and June 2021.

Figure 5: Annual measurements of wind speed and direction

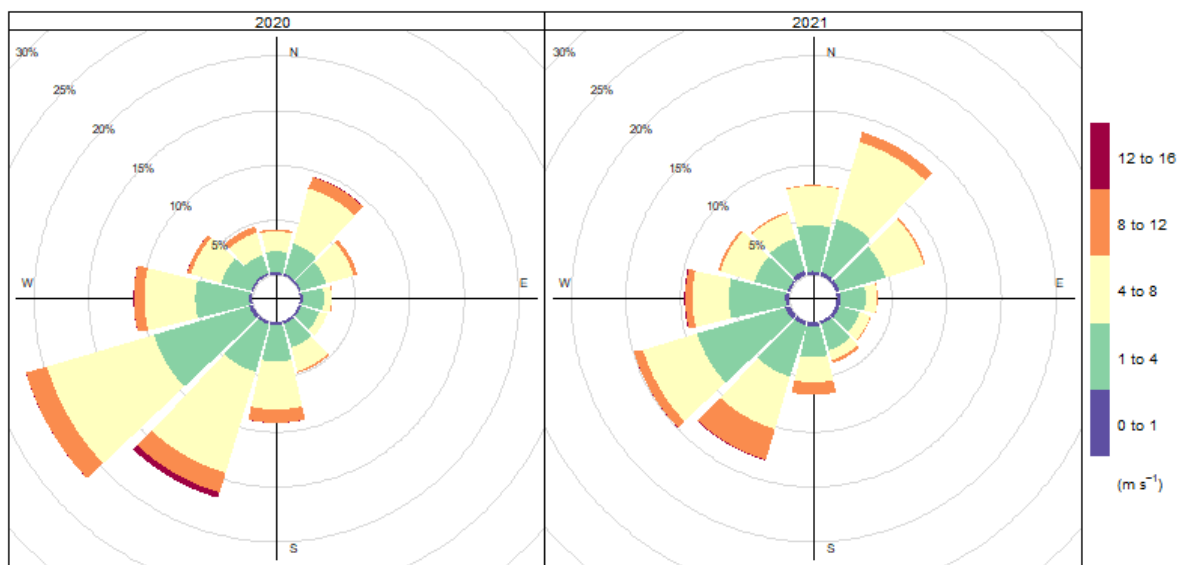
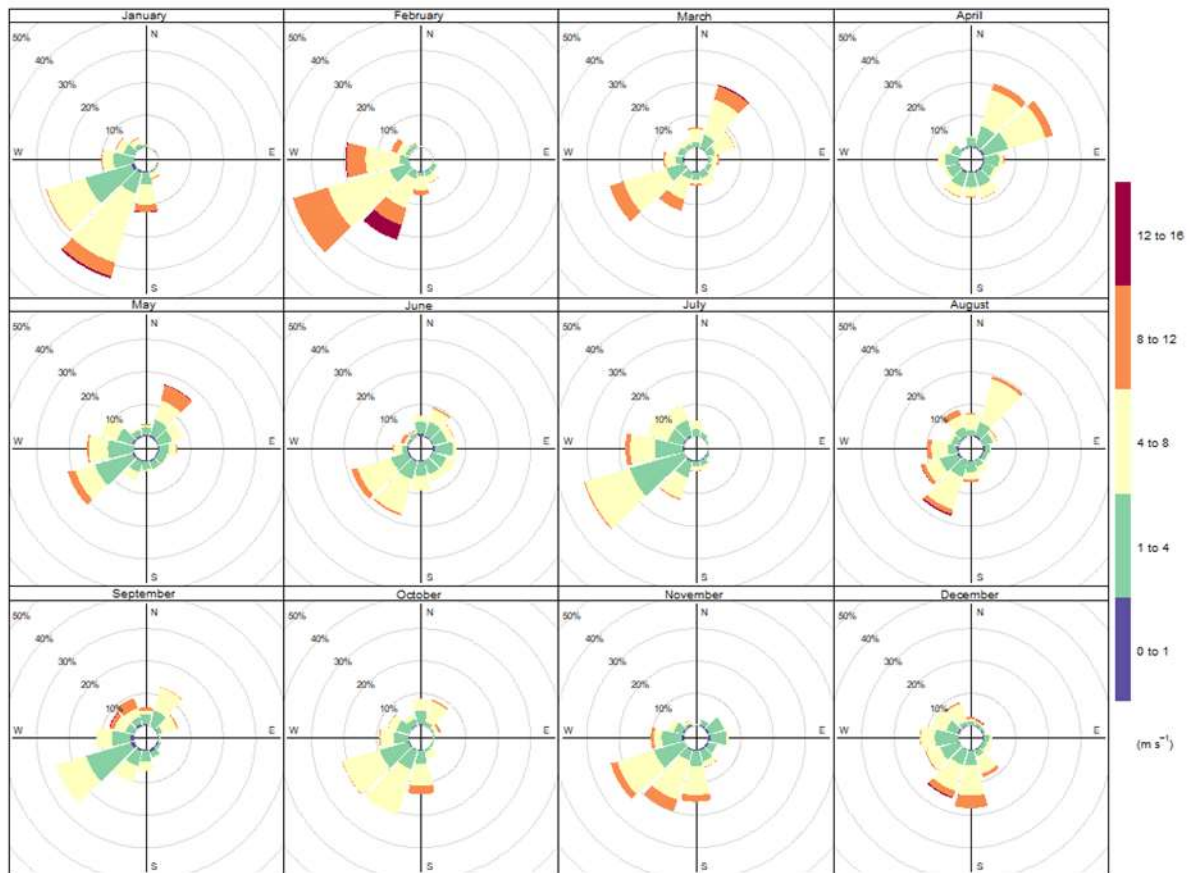


Figure 6: Frequency of different wind directions around Wolverton using 2020 as example.

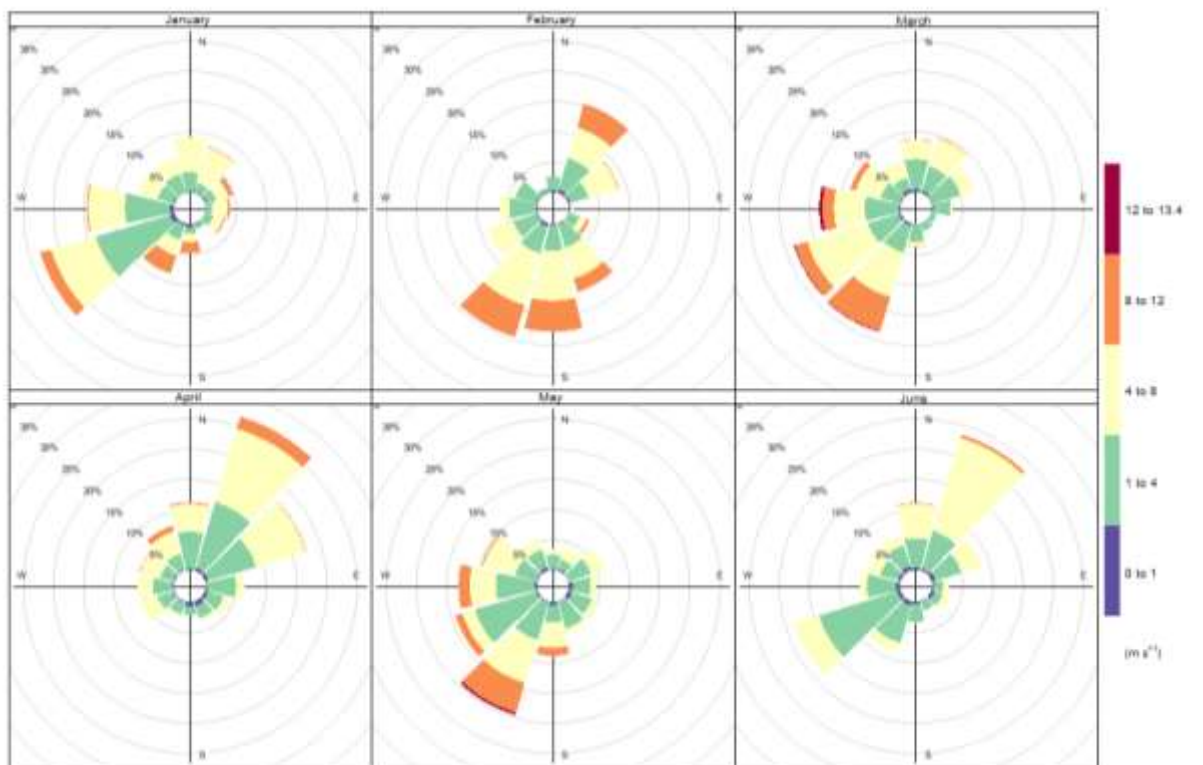


Figure 7: Monthly wind roses 2020-2021

(a) For the year 2020



(b) For the year 2021



3 Complaint interrogation

For this section we have reviewed the complaint database held by Milton Keynes Waste Recover Park (MKWRP) to extract any useful information about the complaints that have been made to determine whether there is a pattern or obvious cause driving the complaint profile. The database contained 50 complaints which relate to the period of the study. A summary of the complaints are given in Table 1, which shows:

- The time and date on which the complaint odour was registered. In many instances the records did not include a time for the complaint.
- The location for the complainant. In many instances the record did not include a location for the complainant. It is assumed that the location given is where the complaint odour was observed.
- The description of the odour that was observed. In many instances the record did not include a description of the odour being complained about.
- Wind directional data recorded by the meteorological station at Bedford airport for the day the complaint relates to.

Figure 8 gives the locations of where some of the complaint events were experienced. This has been provided to further aid understanding of the information given in Table 1. The information is limited to the information given by the complainant (via the EA, the Council or direct to MKWRP) and captured by MKWRP. The figure shows that the location of where complaints were registered are generally concentrated in one area of Old Wolverton with one complaint linked to a location in Haversham.

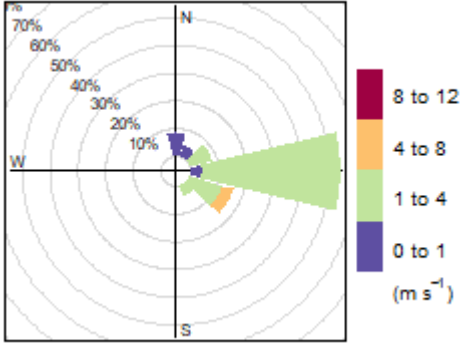
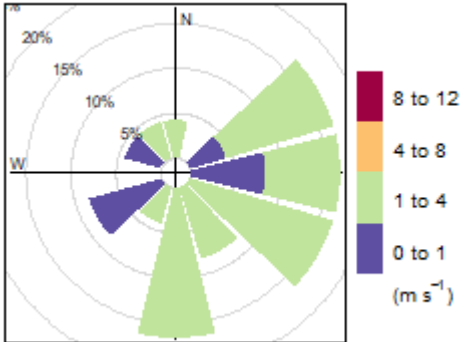
Figure 8: Location of where nuisance odours were experienced



Table 1: Summary of complaints made between January 2020 and June 2021

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
16/04/2020	1	--	No details	
17/04/2020	1	--	No details	

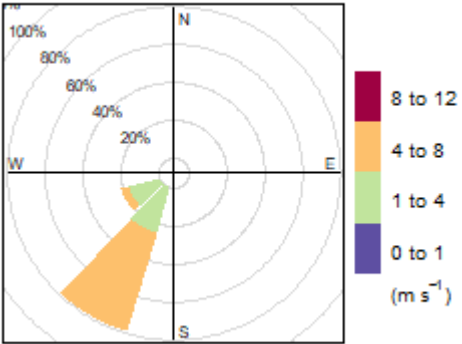
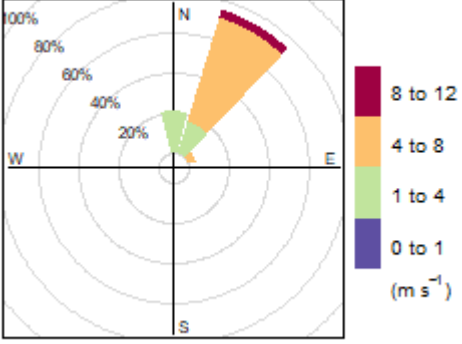
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
20/04/2020	2	<ul style="list-style-type: none"> Unknown location King Stephens Way 	<ul style="list-style-type: none"> No details Odour from the Amey site 	
29/04/2020	1	Unknown location	Odour from the Amey site	
27/05/2020	1	Unknown location	Smell of refuse	No met data available
29/05/2020	2	<ul style="list-style-type: none"> Unknown location Unknown location 	<ul style="list-style-type: none"> Strong odour Agricultural, stagnant water smell 	No met data available
31/05/2020	1	Unknown location	Sickly, sweet smelling, burnt rubbish	No met data available

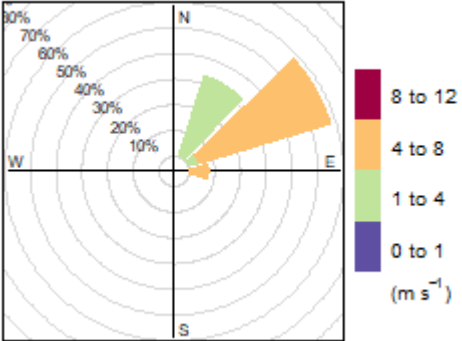
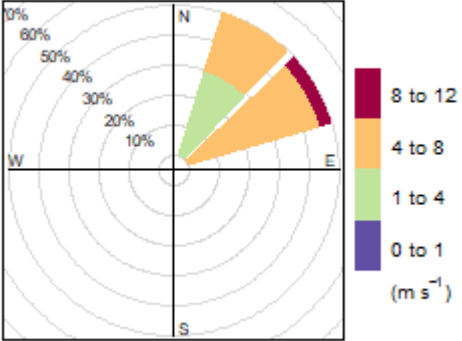
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
01/06/2020	1	Unknown location	No information provided	No met data available
09/06/2020	2	<ul style="list-style-type: none"> • Outside the waste recovery park • Outside the waste recovery park 	<ul style="list-style-type: none"> • Sickly sweet bin smell • Bin smell 	
16/06/2020	1	Unknown location	Sweet rubbish smell	

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
24/06/2020	1	Outside the waste recovery park	No details	
08/07/2020	1	Unknown location	Sweet sickly bin smell	

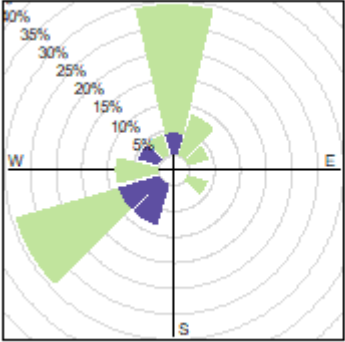
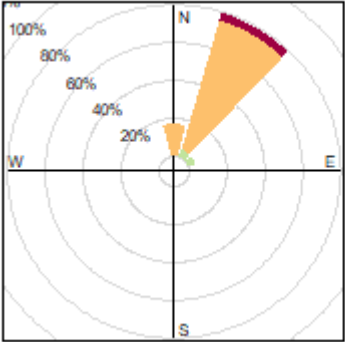
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
12/07/2020	1	Unknown location	Sickly burned rubbish	 <p>Wind rose for 12/07/2020. The chart shows wind frequency percentages (0% to 40%) and wind speed ranges in m/s (0 to 12). The dominant wind direction is West-Northwest (WNW) at 35% frequency with a speed of 4 to 8 m/s. Other directions include West (W) at 25% and West-Southwest (WSW) at 20%.</p>
14/07/2020	1	Deans Road (to the south of Old Wolverton Road)	Strong pungent odour	 <p>Wind rose for 14/07/2020. The chart shows wind frequency percentages (0% to 80%) and wind speed ranges in m/s (0 to 12). The dominant wind direction is West-Northwest (WNW) at 60% frequency with a speed of 4 to 8 m/s. Other directions include West (W) at 50% and West-Southwest (WSW) at 30%.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
22/07/2020	1	Haversham (located to the north east of old Wolverton)	No information provided	
10/08/2020	2	<ul style="list-style-type: none"> King Stephen Meadow Caxton Road 	<ul style="list-style-type: none"> Sickly smell of rubbish Rotten waste smell 	

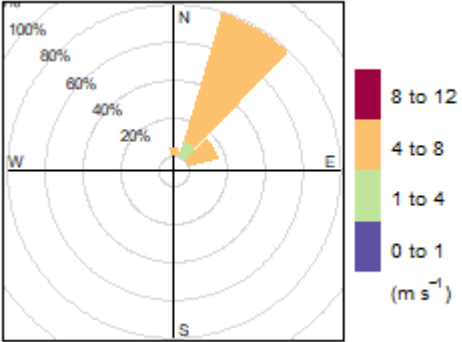
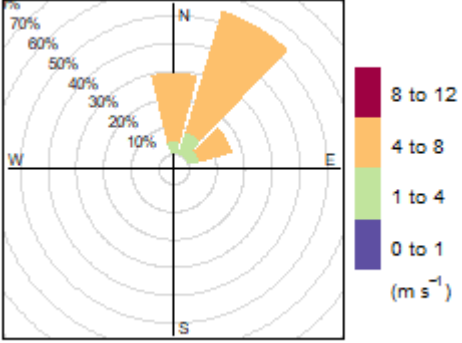
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
18/08/2020	1	Unknown location	Very strong odour, very distinctive, disgusting pungent	
16/09/2020	1	Unknown location	Complaint about odours coming from the plant	

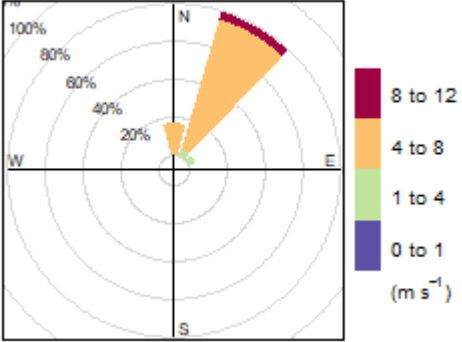
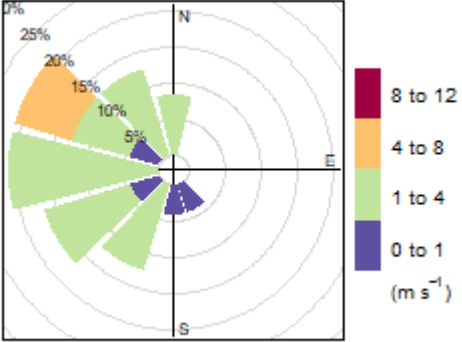
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
17/09/2020	2	<ul style="list-style-type: none"> Unknown location Unknown location 	<ul style="list-style-type: none"> Complaint about the Amey stink Complaint about foul stench 	 <p>The wind rose for 17/09/2020 shows wind frequency in percentages (0% to 80%) and wind speed in m/s (0 to 12). The dominant wind direction is East (E), with a frequency of approximately 65% and a speed of 4 to 8 m/s. A secondary direction is East-North-East (ENE), with a frequency of approximately 25% and a speed of 1 to 4 m/s. Other directions have 0% frequency.</p>
18/09/2020	2	<ul style="list-style-type: none"> Unknown location King Stephens Meadow 	<ul style="list-style-type: none"> Complaint about odours Smell of rotten waste 	 <p>The wind rose for 18/09/2020 shows wind frequency in percentages (0% to 80%) and wind speed in m/s (0 to 12). The dominant wind direction is East (E), with a frequency of approximately 65% and a speed of 4 to 8 m/s. A secondary direction is East-North-East (ENE), with a frequency of approximately 25% and a speed of 1 to 4 m/s. Other directions have 0% frequency.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
19/09/2020	3	<ul style="list-style-type: none"> King Stephen Meadows King Stephen Meadows Unknown location 	<ul style="list-style-type: none"> Describes as rotten waste Sweet sick and burning Noxious smell of refuse 	
20/09/2020	1	Unknown location	sickly bin smell	

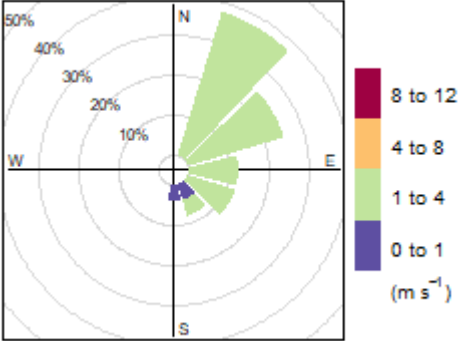
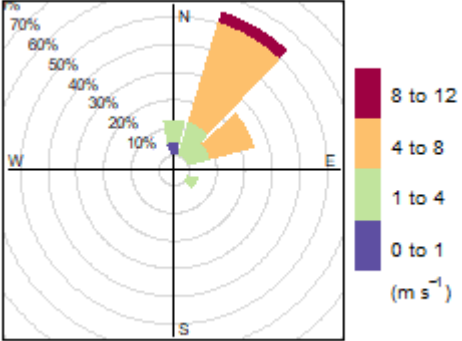
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
21/09/2020	1	Caxton road	Decomposing smell	 <p>Wind rose for 21/09/2020. The chart shows wind frequency by direction (N, NE, E, SE, S, SW, W, NW) and wind speed in m/s. The legend indicates speed ranges: 8 to 12 (dark red), 4 to 8 (orange), 1 to 4 (light green), and 0 to 1 (dark blue). The dominant wind direction is North-North-East (NNE) with a frequency of approximately 35% and a speed of 8-12 m/s.</p>
14/10/2020	1	Unknown location	No details	 <p>Wind rose for 14/10/2020. The chart shows wind frequency by direction (N, NE, E, SE, S, SW, W, NW) and wind speed in m/s. The legend indicates speed ranges: 8 to 12 (dark red), 4 to 8 (orange), 1 to 4 (light green), and 0 to 1 (dark blue). The dominant wind direction is North (N) with a frequency of approximately 100% and a speed of 8-12 m/s.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
15/10/2020	1	Unknown location	No details	
16/10/2020	1	Unknown location	No details	

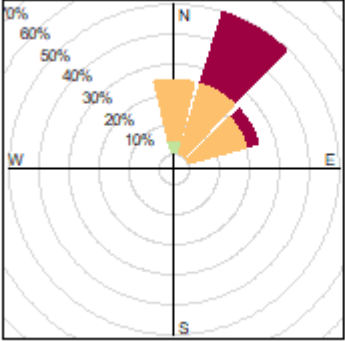
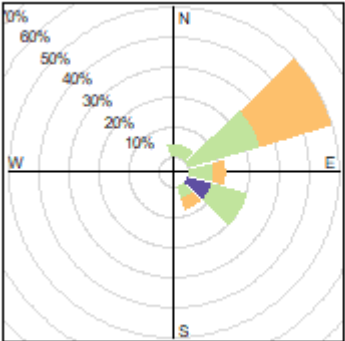
Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
02/04/2021	2	<ul style="list-style-type: none"> Trevelyan way King Stephen Meadows 	<ul style="list-style-type: none"> Sickening rubbish smell Sickening rubbish smell 	 <p>A wind rose diagram for 02/04/2021. The diagram shows wind frequency in percentages (0% to 100%) and wind speed in m/s (0 to 12). The dominant wind direction is North (N), with a frequency of approximately 80% and a speed of 8-12 m/s. A secondary direction is North-East (NE), with a frequency of approximately 20% and a speed of 4-8 m/s. Other directions (East, South, South-West, West) show very low frequencies.</p>
03/04/2021	2	<ul style="list-style-type: none"> Trevelyan way King Stephen Meadows 	<ul style="list-style-type: none"> Sickening rubbish smell Sickening rubbish smell 	 <p>A wind rose diagram for 03/04/2021. The diagram shows wind frequency in percentages (0% to 70%) and wind speed in m/s (0 to 12). The dominant wind direction is North (N), with a frequency of approximately 60% and a speed of 8-12 m/s. A secondary direction is North-East (NE), with a frequency of approximately 20% and a speed of 4-8 m/s. Other directions (East, South, South-West, West) show very low frequencies.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
10/04/2021	1	Unknown location	Chemical vinegar odour	 <p>A wind rose diagram for 10/04/2021. The diagram shows a dominant wind direction from the North-North-East (NNE) quadrant. The wind speed is categorized into four ranges: 0 to 1 m/s (dark blue), 1 to 4 m/s (light green), 4 to 8 m/s (orange), and 8 to 12 m/s (dark red). The NNE sector shows a concentration of orange and dark red segments, indicating higher wind speeds. The legend on the right indicates the wind speed ranges in m/s.</p>
12/04/2021	1	Unknown location	No details given	 <p>A wind rose diagram for 12/04/2021. The diagram shows multiple wind directions with varying frequencies. The wind speed is categorized into four ranges: 0 to 1 m/s (dark blue), 1 to 4 m/s (light green), 4 to 8 m/s (orange), and 8 to 12 m/s (dark red). The legend on the right indicates the wind speed ranges in m/s. The diagram shows several sectors with light green segments, indicating wind speeds between 1 and 4 m/s.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
15/04/2021	1	Unknown location	Foul stench	
17/04/2021	1	Empress Matilda Gardens	Chemical, vinegar odour	

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
19/04/2021	4	<ul style="list-style-type: none"> Unknown location King Stephen Meadows King Stephen Meadows Empress Matilda Gardens 	<ul style="list-style-type: none"> No specific details Burnt sickly odour Rubbish odour Rubbish odour 	
21/04/2021	2	<ul style="list-style-type: none"> Unknown location Unknown location 	<ul style="list-style-type: none"> Rotting rubbish Rotting rubbish and chemicals 	

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
26/04/2021	1	Unknown location	Rubbish dump, rotting garbage	
27/04/2021	1	Unknown location	Strong rubbish smell	

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
28/04/2021	1	King Stephens Meadow	Rotting smells	 <p>The wind rose for 28/04/2021 shows a dominant wind direction from the North-East (NE). The frequency of wind from this direction is approximately 55%. The wind speed is categorized as 4 to 8 m/s (orange). There are also smaller segments from the North (N) and East (E) directions.</p>
13/05/2021	4	<ul style="list-style-type: none"> King Stephens Meadow King Stephens Meadow Empress Matilda Gardens Walburton Mill 	<ul style="list-style-type: none"> No information given Burning plastic and rubbish smell Burning plastic and rubbish smell Burning plastic and rubbish smell 	 <p>The wind rose for 13/05/2021 shows a dominant wind direction from the East (E). The frequency of wind from this direction is approximately 55%. The wind speed is categorized as 4 to 8 m/s (orange). There are also smaller segments from the North-East (NE), South-East (SE), and South (S) directions.</p>

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
31/05/2021	1	Empress Matilda Gardens	Burning rubbish smell	
17/06/2021	4	<ul style="list-style-type: none"> • Empress Matilda Gardens • Empress Matilda Gardens • Traveyan Way • Manor Road 	<ul style="list-style-type: none"> • Horrible vinegar smell • Rubbish smell • Sweet decaying rubbish • Rotting rubbish smell 	

Date	Number of complaints received	Location where odour was experienced	Complaint description	Wind rose
20/06/2021	1	King Stephen Gardens	Smells like rotten food	
21/06/2021	2	<ul style="list-style-type: none"> Manor Road King Stephen Meadows 	<ul style="list-style-type: none"> Unpleasant smell Smells like smelly bins 	

4 Analysis of the complaints

4.1 Analysis of complaints with respect to geographical locations

The complaints data have been reviewed to determine whether there is a direct link between a complaint event and a particular wind direction.

As complaints are made by stakeholders linked to different locations, it is not surprising therefore that complaint events are linked to different directions.

Table 2 provides an assessment for each location that complaints have been registered for against four wind quadrants. This table will be missing information from complaints where no location was reported or recorded.

This analysis relies on the wind data measured at Bedford being representative of the conditions in Wolverton. This analysis shows that:

- The majority of events for which data could be considered were made in relation to experiences at King Stephen Meadows. The analysis indicates that events mostly occurred on days when wind blew from the north – east quadrant (90% of instances).
- A significant number of the events relating to Empress Matilda Gardens occurred when the wind direction was from the north - east quadrant (60% of instances). Events were also linked to periods when the wind blew from the east – south and south – west quadrants (40% in total).
- Wind from the north - east quadrant appears to be responsible for a large proportion of complaints linked to Caxton Road, Trevelyan Road and Manor Road
- Events linked to Dean Close and Haversham occur when wind are from the north-west and south-west quadrants respectively.

This limited analysis strongly suggests that the most likely cause of nuisance events lies to the north east of King Stephen Meadows and Empress Matilda Gardens, to the north of Dean Close and South West of Haversham.

Table 2: Relationship between complaint location and daily wind flow

	Number of complaints registered	North – East	East – South	South – West	North – West
Dean's Road	1	0%	0%	0%	100%
Haversham	1	0%	0%	100%	0%
Caxton Road	2	50%	0%	50%	0%
King Stephen Meadows	14	90%	10%	0%	0%
Trevelyan Road	2	100%	0%	0%	0%
Empress Matilda Gardens	6	60%	20%	20%	0%
Manor Road	2	50%	0%	50%	0%
Deans Rd	1	0%	0%	0%	100%

4.2 Analysis of complaints with respect to odour description

A review of the description given in the complaints database was undertaken. Table 3 provides a summary of the analysis. To ensure this analysis has been carried out in an impartial manner we have referred to the 'odour wheel' which is reproduced in Appendix A1.2.

Table 3 shows that:

- Over half of the complaints (54%) stated that the complaint related to experiencing odours associated with household waste.
- A small proportion of the complaints (11%) mentioned 'burning' in their complaint. This may be linked to an odour that may have 'nose feel' rather than an odour (e.g. perhaps caused by an acid gas).
- A very small proportion (3%) stated that the odours had an acidic ("vinegar") quality. This may be linked to rancid or sour type odour.
- A significant proportion of the complaints (25%) did not provide a useful description of the offensive odour.

Table 3: Themes identified from review of the complaints

Complaint theme	Percentage of complaints (%)
Bin related odour	54%
Vinegar odour	3%
Burning odour	11%
Did not provide any useful description for the nuisance odour	25%

5 Conclusion

This review has relied on a relatively small data set which makes it difficult to be certain as to the cause of complaint events. However, it is likely that:

- Events such as local bin collection may contribute to the overall picture but the lack of complaints on a Friday would indicate that complaints are not linked to the weekly rubbish collection.
- The movement of refuse vehicles on the Old Wolverton Road is unlikely to be the cause because complaints registered at King Stephen Meadows, Empress Matilda Gardens, Caxton Road, Trevelyan Road and Manor Road are not linked to both north-east and north-west quadrants – which would be the case if the source was mobile and spread out along the road.
- Wind direction analysis – where the information in the complaints data set allows, indicates that the majority of complaint odour comes:
 - When winds blow from the north-east quadrant when the majority of complaints are linked to King Stephen Meadows, Empress Matilda Gardens, Caxton Road, Trevelyan Road and Manor Road
 - When winds are from the north-west and south-west quadrants when complaints are registered to Dean Close and Haversham, respectively.
- Over half of the complaints (54%) describe the odour with qualities associated with bins (e.g. rotten, sickly, bins, refuse). There are a number of waste activities in the area.
- A small proportion of complaints associated the odour with burning (11%) or vinegar (3%). There are a number of potential sources in the area that could give rise to this type of odour including:
 - Emissions from the spray bake operation used by Gemini when painting trains.
 - Emissions from the thermal process on the MKWRP.
 - Emissions from the solid fuel stoves on the canalboats – although this is unlikely because stoves will be mainly used during the winter when no complaints are recorded.

This Task 1 analysis feeds in to Task 2 which will investigate the types of process carried out in the Old Wolverton Road area in more detail.

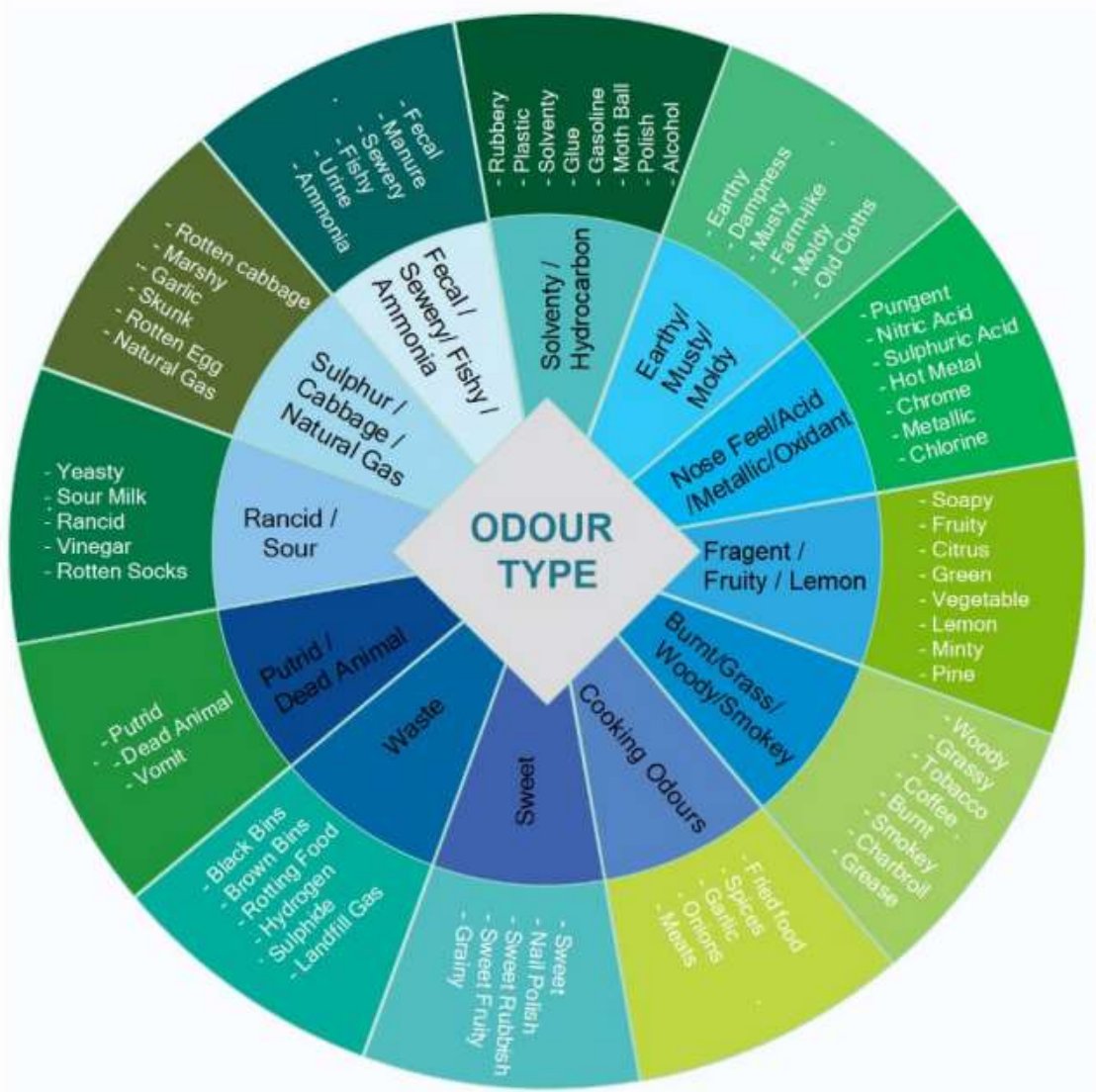
Appendices

A1.1 Break down of monthly wind profiles

Table A1: Distribution of directions during each month during the study period

Month	% when wind is from			
	north -east	east -south	south-west	west – north
January 2020	1%	6%	76%	15%
February 2020	0%	9%	74%	17%
March 2020	35%	11%	42%	12%
April 2020	48%	22%	19%	10%
May 2020	23%	7%	27%	18%
June 2020	19%	20%	39%	10%
July 2020	4%	5%	57%	34%
August 2020	28%	10%	38%	23%
September 2020	21%	7%	47%	25%
October 2020	15%	8%	58%	19%
November 2020	10%	18%	58%	13%
December 2020	12%	19%	44%	26%
January 2021	25%	8%	42%	25%
February 2021	22%	18%	37%	8%
March 2021	22%	4%	46%	27%
April 2021	51%	12%	12%	25%
May 2021	14%	16%	44%	27%
June 2021	38%	8%	32%	22%

A1.2 Odour wheel²



² Irish EPA Odour Emissions Guidance Note (Air Guidance Note AG9) (2019)



T: +44 (0) 1235 753000

E: enquiry@ricardo.com

W: ee.ricardo.com