



Harworth Group

Occupation Lane, Woodville

Odour Survey

July 2019

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1. Introduction

WYG Environment Planning Transport (WYG) have been commissioned by Haworth Group to prepare an odour survey, including an assessment for the proposed residential development at land off Occupation Lane, Woodville, DE11 8ES.

1.1 Site Location and Context

The Site is bounded to the north-east by Food Search Worldwide, to the east by Moira Road, to the south-east by Occupation Lane, to the south, west and north-west by existing commercial units. The approximate United Kingdom National Grid Reference (NGR) is approximately 431061, 318763. Reference should be made to Figure 1 for a map of the proposed development site and surrounding area.

1.2 Overview and Scope of Assessment

The objectives of this odour survey are to study the potential odour impact from the existing industrial works of IG Elements, on the proposed development sensitive receptor locations. An illustrative masterplan is presented in Figure 2.

The following assessment stage and scope have been undertaken as part of this assessment:

- Conducting three field odour surveys to assess the odour impacts from the existing industrial works on the surrounding environment.

The results are detailed in the following sections of this report.



2. Odour Assessment Methodology

Following major regulations/guidance/guidelines have been used in the assessment:

- Guidance on the assessment of odour for planning, IAQM, July 2018; and,
- H4 Odour Management, How to comply with your environmental permit, March 2011.

2.1 Definition of Impact and Effect

IEMA Guidelines for Environmental Impact Assessment (2004) recommend a clear progression from the characterisation of “impact” to the assessment of the significance of the “effect” taking into account the evaluation of the sensitivity and value of the receptors. The guidelines emphasise the need to clearly define at the outset how the two terms will be used and then to apply them in a consistent fashion. In this IAQM guidance, the following definitions are used:

- **Impacts** – these are changes to the environment attributable to the development proposal.
- **Effects** – these are the results of the changes on specific receptors.
- **Receptors** - are the users of the adjacent land, which may vary in their sensitivity to odour.

An increase in odour levels (the impact) would therefore cause a particular effect (e.g. loss of amenity) if the adjacent land use was residential, and perhaps a lesser effect if the adjacent land use was an industrial facility.

2.2 Assessment Methodology

A total of six field odour surveys have been initially undertaken between the 8th January 2018 and the 28th August 2018, including 3 tests during the summer.

The surveys have been using the Environment Agency’s protocol for testing (“sniff testing”) as described in Section 5 of the Guidance Note of *“H4 Odour Management, How to comply with your environmental permit”* (March 2011). The protocol is derived from methodologies set out in the Association of German Engineers(VDI) 3883 Part 1, VDI 3883 Part 2 and VDI 3940. The VDI standards are the German equivalent to British Standards. This odour assessment also used the *“Guidance on the assessment of odour for planning”* published by The Institute of Air Quality Management (IAQM) in July 2018.

The protocol provides a ‘snapshot’ of the presence, strength, character and extent of an odour at the time of the assessment. It is, however, subjective, with individual perception of odour varying. Odour may

vary dependent on weather conditions or when there is limited dispersion due to the presence of an atmospheric inversion.

The odour assessment methodology requires the assessor to use their own sense of smell to detect odour. The assessor should move from areas of weaker odour to stronger.

The route followed by the assessors is shown in Figure 3. All assessors have known olfactory acuity, which means that their sense of smell has been quantified in a laboratory. A description of the odour intensity and its extent was recorded using the following classification system:

Odour Intensity is presented in Table 2.1.

Table 2.1 Odour intensity Scale/Level

Intensity Level	Odour Strength	Comments
0	No odour/not perceptible	No odour when compared to the clean site
<i>The Odour Detection Threshold (ODT) of 1 OU_E/m³ is somewhere between 0 and 1</i>		
1	Slight/very weak	There is probably some doubt as to whether the odour is actually present
2	Slight/weak	The odour is present but cannot be described using precise words or terms
3	Distinct	The odour character is barely recognisable
<i>The recognition threshold intensity is generally 3-10 times higher than the ODT (i.e. 3-10 OU_E/m³)</i>		
4	Strong	The odour character is easily recognisable
5	Very strong	The odour is offensive. Exposure to this level would be considered undesirable
6	Extremely strong	The odour is offensive. An instinctive reaction would be to mitigate against further exposure

Odour Extent (assuming odour detectable, if not then 0):

1. Local and non-persistent (only detected during brief periods when wind drops or blows);
2. Non-persistent as above, but detected away from site boundary;
3. Persistent, but fairly localised;
4. Persistent and pervasive up to 50 m from site boundary; and,
5. Persistent and widespread (odour detected >50 m from site boundary).

H4 states "the measurement scale for hedonic tones typically ranges from +4 for very pleasant odours (bakeries) to -4 for foul one (rotting flesh, for example. 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."

Hedonic Tone Scale is presented in Table 2.2 (overleaf).

Table 2.2 Hedonic Tone Scale

Hedonic Tone	Scale
Very Pleasant	+4
Pleasant	+3
Moderately Pleasant	+2
Mildly Pleasant	+1
Neutral Odour / No Odour	0
Mildly Unpleasant	-1
Moderately Unpleasant	-2
Unpleasant	-3
Very Unpleasant	-4

Most odours are mixtures of many chemicals that interact to produce what we detect as a smell. A distinction should be made between: odour-free air, containing no odorous chemicals; and fresh air, usually perceived as being air that contains no chemicals or contaminants that are unpleasant (i.e. air that smells 'clean'). Fresh air may contain odorous chemicals, but these odours will usually be pleasant in character, such as freshly-mown grass or sea spray. Perceptions of an odour - whether it is found to be acceptable, objectionable or offensive - are partly innate and hard-wired, and partly determined through life experiences and hence can be subjective to the individual.

2.3 Odour Benchmarks and Odour Effect Descriptors for Impact Assessment

Environment Agency Guidance H4 Odour Management (March 2011) and the latest Institute of Air Quality Management (IAQM) Guidance on the Assessment of Odour for Planning (July 2018) provides a methodology for assessing the impacts of odour based on the combinations of field odour survey observations and odour dispersion modelling.

The modelling method calculates the 98th percentile of hourly average odour concentrations ($C_{98, 1\text{-hour}}$) over a year, (i.e. the levels exceeded for 2% of the time) with the results being expressed as European Odour Unit contours on a map. The exposure contours can then be used to check unacceptable levels of odour pollution against exposure benchmarks at sensitive receptor locations.

The H4 benchmarks are based on the 98th percentile of hourly averages and they are presented in Table 2.3.

Table 2.3 H4 Benchmark Odour Criteria

Criterion $C_{98 \text{ ouE/m}^3}$	Offensiveness	Odour Emission Sources
1.5	Most offensive odours	Processes involving decaying animal or fish remains Processes involving septic effluent or sludge Biological landfill odours

Criterion C ₉₈ ouE/m ³	Offensiveness	Odour Emission Sources
3.0	Moderately offensive odours	Intensive livestock rearing Fat frying (food processing) Sugar beet processing Well aerated green waste composting
6.0	Less offensive odours	Brewery Confectionery Coffee

The latest IAQM guidance states that the predictive, quantitative approach involves obtaining estimates of the odour source emission rate, use of the emissions in a dispersion model to predict 98th percentile concentration at sensitive receptors and comparison of these with criteria that have evolved from research and survey work. At the present time, this remains an accepted technique and the IAQM supports this.

IAQM confirm that in the absence of comprehensive dose-response information the assessor should allow the derivation of exact C₉₈ concentration metrics for different types of odour, IAQM is *'of the opinion that the practitioner should observe, from the various scientific studies, case law and practical examples of the investigation of odour annoyance cases, that in any specific case, an appropriate criterion could lie somewhere in the range of 1 to 10 ouE/m³ as a 98th percentile of hourly mean odour concentrations.*

Taking into account the available scientific evidence and the collective experience of IAQM members involved in drafting this guidance, the odour concentration change descriptors together with impact descriptors in Table 2.4 are proposed by IAQM for an odour at the offensive end of the spectrum. These adopt the C₉₈ as the appropriate frequency metric, encompasses the 1 to 10 ouE/m³ concentration range referred to above and also considers also the potential sensitivity of different receptors. It is also consistent in format and concept with other guidance in the air quality field.

For odours that are less unpleasant, the level of odour exposure required to elicit the same effect may be somewhat higher, requiring professional judgement to be applied. For example, odours from sewage treatment works plant operating normally, i.e. non-septic conditions, would not be expected to be at the 'most offensive' end of the spectrum (Table 2.3) and can be considered on par with 'moderately offensive' odours such as intensive livestock rearing.

3. Odour Survey Observations and Results

3.1 Field Odour Survey Observations and Results

A summary of the field based olfactory (sniff) testing surveys is provided in Table 3.1. During each survey, 182 locations were assessed across the proposed development site, as shown on Figure 3. Detailed survey results were used to identify intensity, extent and geographical distribution of perceived odour.

Table 3.1 Field Based Odour Assessment Summary

Date/Time	Temp.	Wind Speed	Wind Direction (Blowing From)	Details
03/06/2019 13:00 – 15:00	16 °C	3 – 7 m/s	West	Wind direction at the time of the odour survey was west with a wind speed between 3 and 7 m/s. Distinct solvent smell was detected at two areas: (1) at Location No. 25 (approximately 60 m east of the site boundary) and (2) at Location No. 1 & 55 (approximately 120 m east of the site boundary). From the Location No. 1, the smell became milder further away from the site boundary. The solvent smell was just possibly detectable at the location No. 83 & 84 (approximately 300 m east of the buildings of Industrial Works).
04/06/2019 16:20 – 17:20	16 °C	1 – 4 m/s	East – North - East	Wind Direction at the time of the odour survey was east-north-east with a wind speed of between 1 and 4 m/s. Faint odour was detectable at a small area to the north of the Industrial Works. Faint odour was detected at locations 33 and 34. Moderate odour was detected at locations 169 to 176.
05/06/2019 13:55 – 15:00	16 °C	1 – 3 m/s	South - West	Wind Direction at the time of the odour survey was South-West with a wind speed of between 1 and 3 m/s. Strong solvent smell was detected at the area adjacent to the Industrial Works Building at location 143 & 144. Distinct solvent smell was detected at the area Location No. 50 (approximately 65 m east of the site boundary). The solvent smell was just possibly detectable at the location No. 157 & 158 (approximately 175 m northeast of the buildings of Industrial Works).

A detailed summary of the on-site assessments using the classification system described in the EA/VDI methodology, is provided in Appendix I.

The areas of odour extent from three survey observations are presented in Figures 4 to 6.



3.2 Complaint History

Consultation has been undertaken with South Derbyshire District Council (SDDC) with regards to any odour complaints from the neighbouring industrial works. An email request for information was sent to the Council on the 12th June 2019.

Heather Foster, Environmental Protection Officer for SDDC emailed WYG back on the 13th June 2019 and confirmed that:

"Please find below the locations of where odour complaints have been received below:

- *Vicarage Road, Woodville, Swadlincote – 25/02/2019*
- *Rivoli Drive, Woodville, Swadlincote – DE11 8 – 10/04/2017, 05/07/2018 & 9/04/2019*

3.3 Identifications of Odour Effect Zones

The relevant Preliminary Masterplan for the proposed development and the recommended odour effect zones associated with the operation of the existing industrial works are provided in Figure 7.

Odour Effect Zone A (Salmon)

Given the results of the sniffing survey, it is considered that odour is likely to be regularly detected over a limited area close to the existing industrial works. Further mitigation measures, such as, changes of the proposed layout, no private amenity spaces in this area, or providing mechanical ventilation and/or filtration to the proposed properties should be considered.

Odour Effect Zone B (Yellow)

The odour effect of Zone B is only likely to experience odour from time to time, depending on weather conditions and operations at existing industrial works. In the Zone B, there remains a risk of odour being detected but the risk is minimal. No further mitigation is required.

Odour Effect Zone C (Green)

The odour effect of Zone C is unlikely to experience odour from the existing industrial works frequently. It is considered that the odour may be potentially detectable only very infrequently. The potential odour impacts on the proposed residential development from the existing industrial works are therefore not significant. No further mitigation is required.



4. Conclusion

WYG Environment Planning Transport (WYG) have been commissioned by Harworth Group to undertake an odour survey to support a residential development at land off Occupation Lane, Woodville.

The objectives of this odour survey and assessment are to study the potential magnitude and significance of potential odour impact from the existing industrial works of the IG Elements operations on the sensitive receptor locations within the proposed development site.

The assessment included the following assessment major stage and scope:

- Undertook 3 field odour assessments to assess the extent of existing odour exposure from the existing industrial works operations.

There were records of two odour complaints made to SDDC regarding the existing neighbouring industrial works.

Three odour effect zones associated with the operation of the existing industrial works have been identified.

Odour Effect Zone A (Salmon)

Given the results of the sniffing survey, it is considered that odour is likely to be regularly detected over a limited area close to the existing industrial works. Further mitigation measures, such as, changes of the proposed layout, no private amenity spaces in this area, or providing mechanical ventilation and/or filtration to the proposed properties should be considered.

Odour Effect Zone B (Yellow)

The odour effect of Zone B is only likely to experience odour from time to time, depending on weather conditions and operations at existing industrial works. In the Zone B, there remains a risk of odour being detected but the risk is minimal. No further mitigation is required.

Odour Effect Zone C (Green)

The odour effect of Zone C is unlikely to experience odour from the existing industrial works frequently. It is considered that the odour may be potentially detectable only very infrequently. The potential odour impacts on the proposed residential development from the existing industrial works are therefore not significant. No further mitigation is required.



Figures

Occupation Lane, Woodville Odour Survey



Figure 1 Site Location



Occupation Lane, Woodville Odour Survey



Figure 2 Masterplan





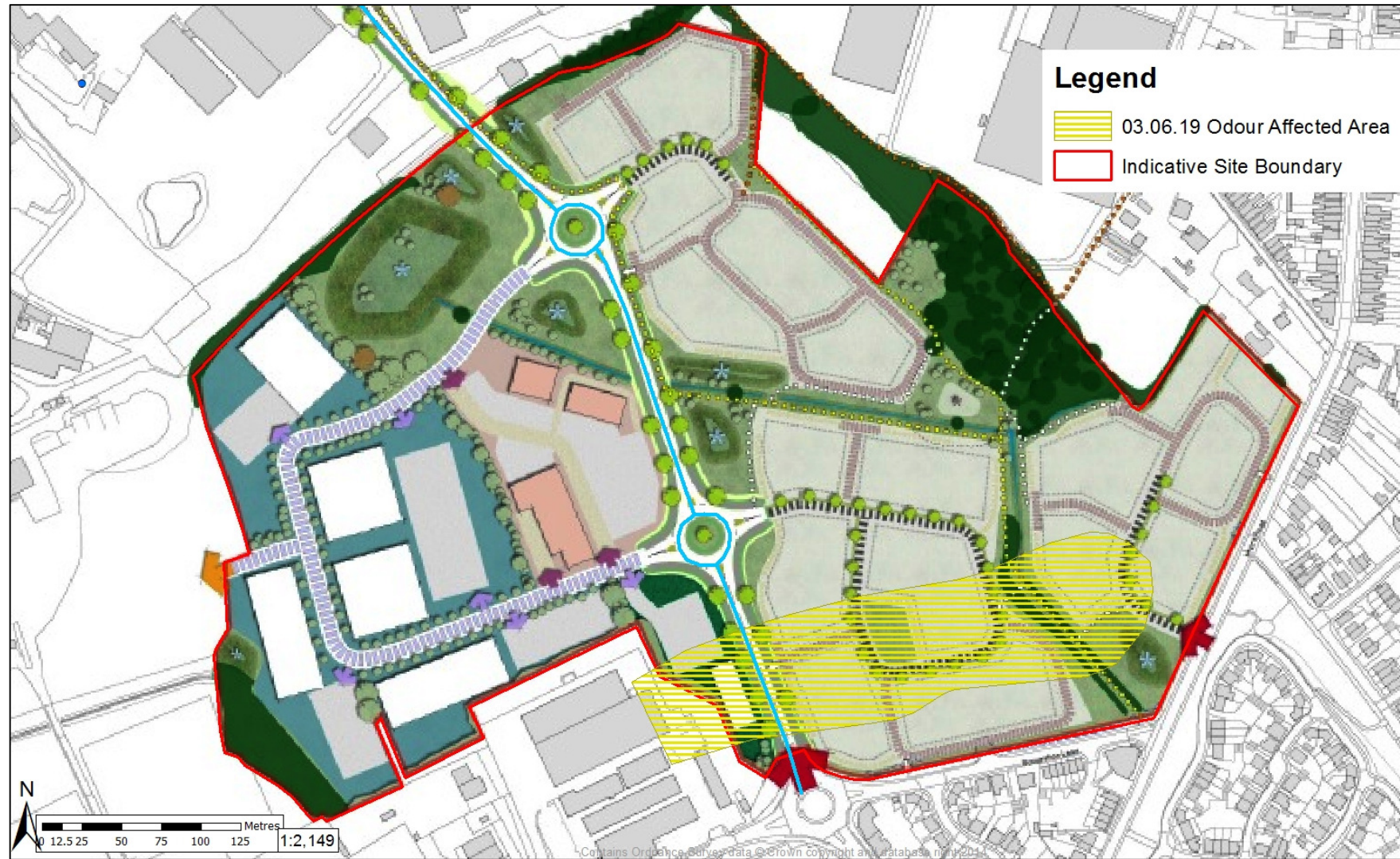
Figure 3 Odour Survey Points Plan



Occupation Lane, Woodville Odour Survey



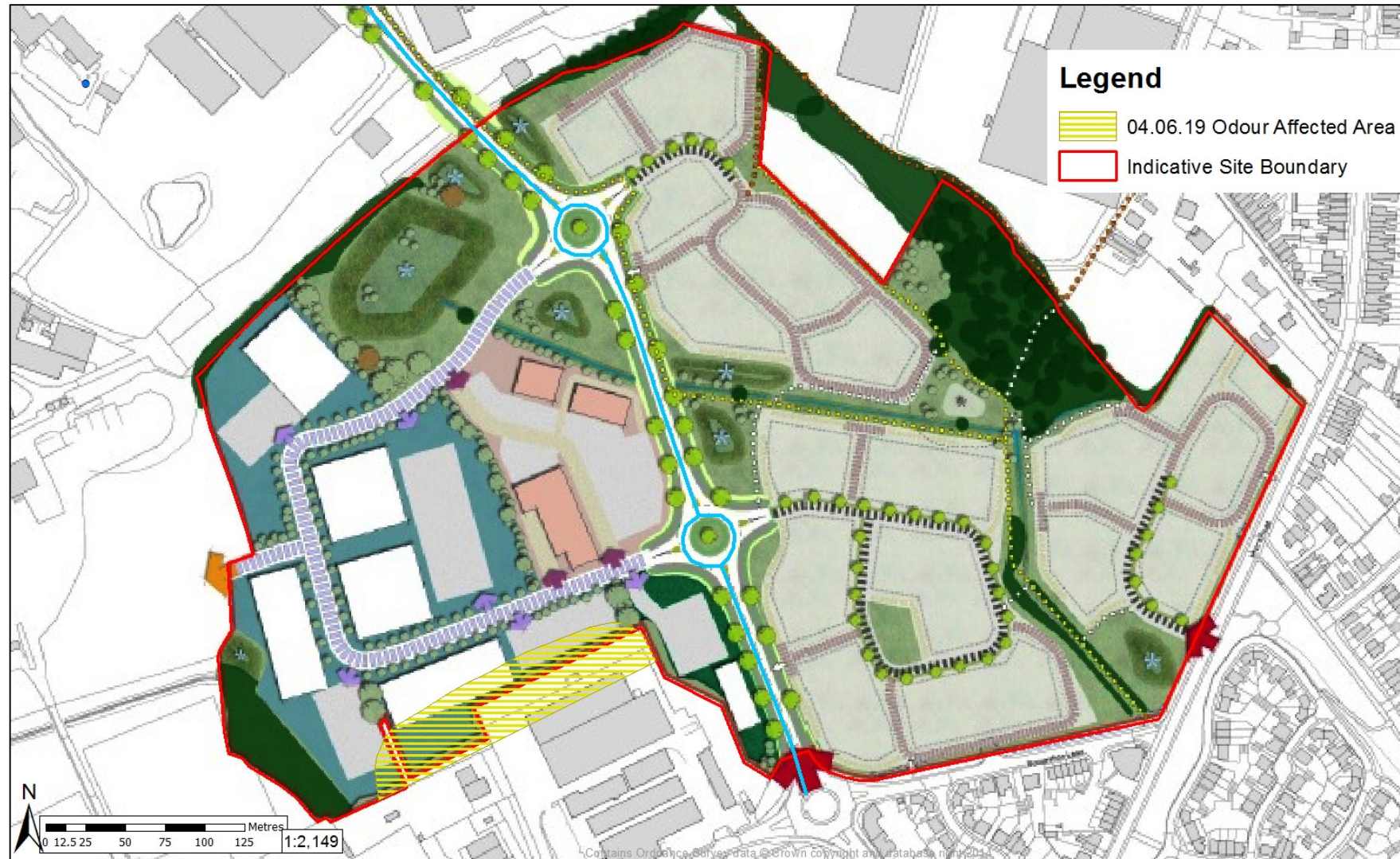
Figure 4 Areas of Odour Extent – Survey Observations on the 3rd June 2019



Occupation Lane, Woodville Odour Survey



Figure 5 Areas of Odour Extent – Survey Observations on the 4th June 2019



Occupation Lane, Woodville Odour Survey



Figure 6 Areas of Odour Extent – Survey Observations on 5th June 2019

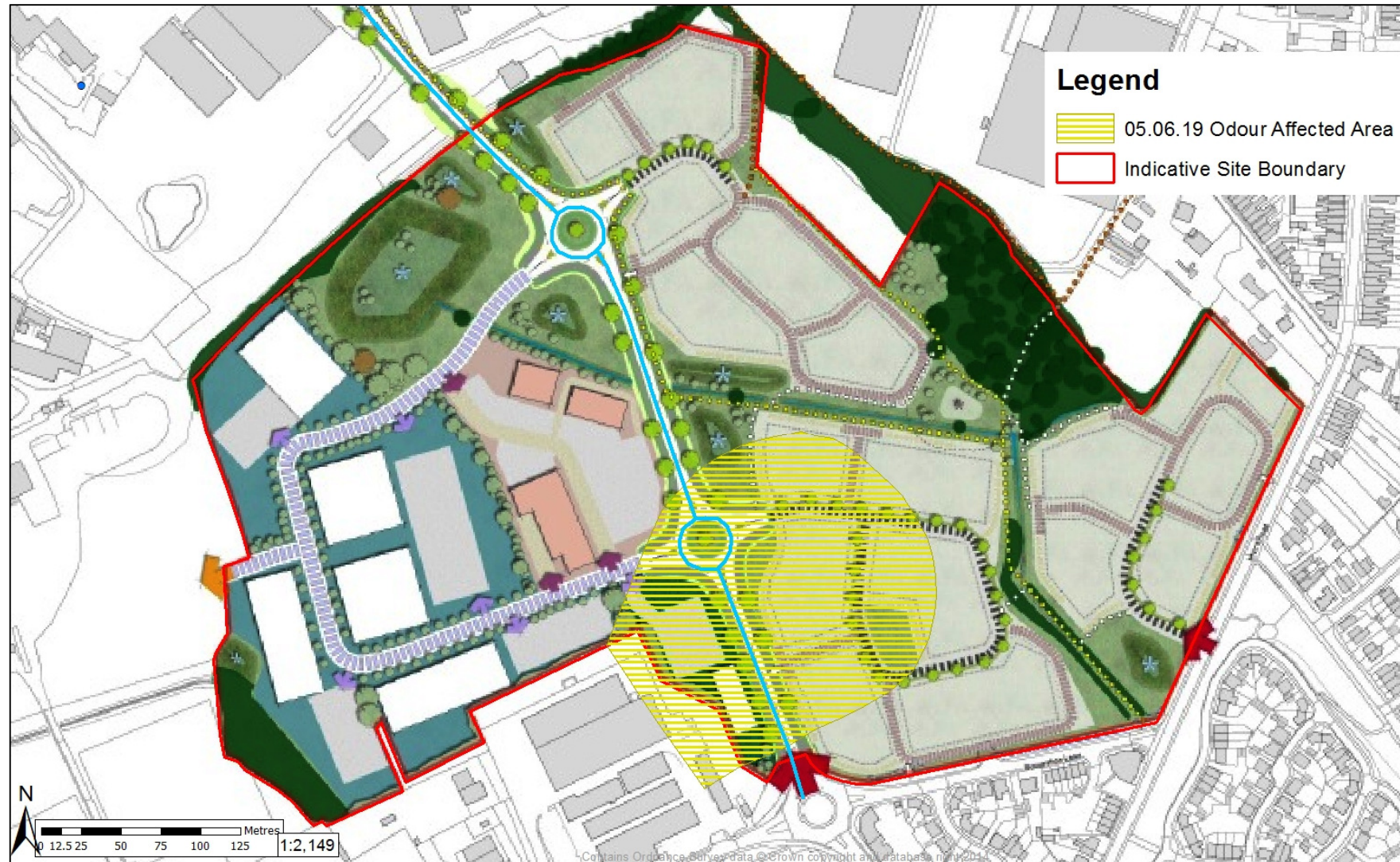


Figure 7 Odour Effect Zones





Appendices



Appendix I - Site Survey Data - Odour Intensity and Extent

Assessment Point	03/06/2019			04/06/2019			05/06/2019		
	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone
D1	3	2	-2	0	0	0	1	1	-1
D2	2	2	-1	0	0	0	0	0	0
D3	1	2	-1	0	0	0	0	0	0
D4	1	2	-1	0	0	0	0	0	0
D5	0	0	0	0	0	0	0	0	0
D6	0	0	0	0	0	0	1	1	-1
D7	2	2	-1	0	0	0	1	1	-1
D8	2	1	-1	0	0	0	1	1	-1
D9	2	1	-1	0	0	0	0	0	0
D10	2	1	-1	0	0	0	0	0	0
D11	0	0	0	0	0	0	0	0	0
D12	1	1	-1	0	0	0	0	0	0
D13	0	0	0	0	0	0	1	1	-1
D14	2	1	-1	0	0	0	1	1	-1
D15	3	1	-1	0	0	0	1	1	-1
D16	2	1	-1	0	0	0	1	1	-1
D17	2	1	-1	0	0	0	1	1	-1
D18	1	1	-1	0	0	0	1	1	-1
D19	1	1	-1	0	0	0	1	1	-1
D20	2	2	-2	0	0	0	0	0	0
D21	1	1	-1	0	0	0	0	0	0
D22	0	0	0	0	0	0	0	0	0
D23	0	0	0	0	0	0	0	0	0
D24	2	2	-1	0	0	0	0	0	0
D25	3	3	-2	0	0	0	1	1	-1
D26	2	3	-1	0	0	0	1	1	-1
D27	0	0	0	0	0	0	2	2	-2
D28	1	1	-1	0	0	0	2	2	-2
D29	2	3	-1	0	0	0	3	2	-2
D30	2	2	-1	0	0	0	3	2	-2
D31	1	2	-1	0	0	0	1	1	-1
D32	0	0	0	0	0	0	1	1	-2
D33	2	2	-1	1	1	-1	2	2	-2
D34	0	0	0	1	1	-1	3	2	-2
D35	0	0	0	0	0	0	0	0	0
D36	1	2	-1	0	0	0	3	2	-2
D37	0	0	0	0	0	0	0	0	0
D38	1	1	-1	0	0	0	0	0	0
D39	0	0	0	0	0	0	0	0	0

Occupation Lane, Woodville Odour Survey



Assessment Point	03/06/2019			04/06/2019			05/06/2019		
	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone
D40	1	1	-1	0	0	0	0	0	0
D41	1	1	-1	0	0	0	0	0	0
D42	0	0	0	0	0	0	0	0	0
D43	0	0	0	0	0	0	0	0	0
D44	0	0	0	0	0	0	0	0	0
D45	0	0	0	0	0	0	0	0	0
D46	0	0	0	0	0	0	0	0	0
D47	1	1	-1	0	0	0	0	0	0
D48	1	1	-1	0	0	0	0	0	0
D49	0	0	0	0	0	0	2	2	-2
D50	0	0	0	0	0	0	2	2	-2
D51	1	1	-1	0	0	0	2	2	-2
D52	2	2	-1	0	0	0	1	1	-1
D53	0	0	0	0	0	0	1	1	-1
D54	2	2	-1	0	0	0	2	2	-2
D55	1	1	-1	0	0	0	1	1	-1
D56	0	0	0	0	0	0	1	1	-1
D57	0	0	0	0	0	0	1	1	-1
D58	0	0	0	0	0	0	1	1	-1
D59	0	0	0	0	0	0	1	1	-1
D60	0	0	0	0	0	0	0	0	0
D61	0	0	0	0	0	0	0	0	0
D62	2	2	-2	0	0	0	0	0	0
D63	1	1	-1	0	0	0	0	0	0
D64	0	0	0	0	0	0	0	0	0
D65	0	0	0	0	0	0	0	0	0
D66	1	1	-1	0	0	0	0	0	0
D67	2	2	-1	0	0	0	0	0	0
D68	0	0	0	0	0	0	0	0	0
D69	0	0	0	0	0	0	0	0	0
D70	0	0	0	0	0	0	0	0	0
D71	0	0	0	0	0	0	0	0	0
D72	0	0	0	0	0	0	0	0	0
D73	0	0	0	0	0	0	0	0	0
D74	0	0	0	0	0	0	0	0	0
D75	1	1	-1	0	0	0	0	0	0
D76	0	0	0	0	0	0	1	1	-1
D77	0	0	0	0	0	0	0	0	0
D78	0	0	0	0	0	0	0	0	0
D79	1	2	-1	0	0	0	0	0	0

Occupation Lane, Woodville Odour Survey



Assessment Point	03/06/2019			04/06/2019			05/06/2019		
	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone
D80	1	2	-1	0	0	0	0	0	0
D81	1	1	-1	0	0	0	0	0	0
D82	1	1	-1	0	0	0	0	0	0
D83	1	1	-1	0	0	0	0	0	0
D84	1	1	-1	0	0	0	0	0	0
D85	0	0	0	0	0	0	0	0	0
D86	0	0	0	0	0	0	0	0	0
D87	0	0	0	0	0	0	0	0	0
D88	0	0	0	0	0	0	0	0	0
D89	0	0	0	0	0	0	0	0	0
D90	0	0	0	0	0	0	0	0	0
D91	0	0	0	0	0	0	0	0	0
D92	1	1	-1	0	0	0	0	0	0
D93	1	1	-1	0	0	0	0	0	0
D94	1	1	-1	0	0	0	0	0	0
D95	0	0	0	0	0	0	0	0	0
D96	0	0	0	0	0	0	0	0	0
D97	0	0	0	0	0	0	0	0	0
D98	0	0	0	0	0	0	0	0	0
D99	0	0	0	0	0	0	0	0	0
D100	0	0	0	0	0	0	0	0	0
D101	0	0	0	0	0	0	0	0	0
D102	0	0	0	0	0	0	0	0	0
D103	0	0	0	0	0	0	0	0	0
D104	0	0	0	0	0	0	0	0	0
D105	0	0	0	0	0	0	0	0	0
D106	0	0	0	0	0	0	0	0	0
D107	0	0	0	0	0	0	0	0	0
D108	0	0	0	0	0	0	0	0	0
D109	0	0	0	0	0	0	0	0	0
D110	0	0	0	0	0	0	0	0	0
D111	0	0	0	0	0	0	0	0	0
D112	0	0	0	0	0	0	0	0	0
D113	0	0	0	0	0	0	0	0	0
D114	0	0	0	0	0	0	0	0	0
D115	0	0	0	0	0	0	0	0	0
D116	0	0	0	0	0	0	0	0	0
D117	0	0	0	0	0	0	0	0	0
D118	0	0	0	0	0	0	0	0	0
D119	0	0	0	0	0	0	0	0	0

Occupation Lane, Woodville Odour Survey



Assessment Point	03/06/2019			04/06/2019			05/06/2019		
	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone
D120	0	0	0	0	0	0	0	0	0
D121	0	0	0	0	0	0	0	0	0
D122	0	0	0	0	0	0	0	0	0
D123	0	0	0	0	0	0	0	0	0
D124	0	0	0	0	0	0	0	0	0
D125	0	0	0	0	0	0	0	0	0
D126	0	0	0	0	0	0	0	0	0
D127	0	0	0	0	0	0	0	0	0
D128	0	0	0	0	0	0	0	0	0
D129	0	0	0	0	0	0	0	0	0
D130	0	0	0	0	0	0	0	0	0
D131	0	0	0	0	0	0	0	0	0
D132	0	0	0	0	0	0	0	0	0
D133	0	0	0	0	0	0	0	0	0
D134	0	0	0	0	0	0	0	0	0
D135	0	0	0	0	0	0	0	0	0
D136	0	0	0	0	0	0	0	0	0
D137	0	0	0	0	0	0	0	0	0
D138	0	0	0	0	0	0	0	0	0
D139	0	0	0	0	0	0	0	0	0
D140	0	0	0	0	0	0	0	0	0
D141	0	0	0	0	0	0	0	0	0
D142	0	0	0	0	0	0	0	0	0
D143	0	0	0	1	1	-1	4	2	-2
D144	0	0	0	1	1	-1	3	2	-2
D145	0	0	0	0	0	0	1	1	-1
D146	0	0	0	0	0	0	1	1	-1
D147	0	0	0	0	0	0	1	1	-1
D148	0	0	0	0	0	0	0	0	0
D149	0	0	0	0	0	0	0	0	0
D150	0	0	0	0	0	0	2	2	-2
D151	0	0	0	0	0	0	2	2	-2
D152	0	0	0	0	0	0	1	1	-1
D153	0	0	0	0	0	0	0	0	0
D154	0	0	0	0	0	0	2	1	-1
D155	0	0	0	0	0	0	1	1	-1
D156	0	0	0	0	0	0	1	1	-1
D157	0	0	0	0	0	0	1	1	-1
D158	0	0	0	0	0	0	1	1	-1
D159	0	0	0	0	0	0	0	0	0



Assessment Point	03/06/2019			04/06/2019			05/06/2019		
	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone	Intensity	Extent	Hedonic Tone
D160	0	0	0	0	0	0	0	0	0
D161	0	0	0	1	1	-1	0	0	0
D162	0	0	0	1	1	-1	0	0	0
D163	0	0	0	1	1	-1	0	0	0
D164	0	0	0	1	1	-1	0	0	0
D165	0	0	0	1	1	-1	0	0	0
D166	0	0	0	1	1	-1	0	0	0
D167	0	0	0	1	1	-1	0	0	0
D168	0	0	0	1	1	-1	0	0	0
D169	0	0	0	2	2	-2	0	0	0
D170	0	0	0	2	2	-2	0	0	0
D171	0	0	0	2	2	-2	0	0	0
D172	0	0	0	2	2	-2	0	0	0
D173	0	0	0	2	2	-2	0	0	0
D174	0	0	0	2	2	-2	0	0	0
D175	0	0	0	2	2	-2	0	0	0
D176	0	0	0	2	2	-2	0	0	0
D177	0	0	0	2	2	-2	0	0	0
D178	0	0	0	2	2	-2	0	0	0
D179	0	0	0	2	2	-2	0	0	0
D180	0	0	0	2	2	-2	0	0	0
D181	0	0	0	2	2	-2	0	0	0
D182	0	0	0	2	2	-2	0	0	0

Note:

(1) Assessment points refer to those shown in Figures 3a and 3b.



Appendix II – Report Terms and Conditions

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