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Noise | Vibration | Air Quality

Odour Assessment

**Land north of Knight Park, Thaxted Road,
Saffron Walden**

Odour Assessment

Project: LAND NORTH OF KNIGHT PARK, THAXTED ROAD,
SAFFRON WALDEN

Report reference: RP01-23407-R0

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1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Kier Property to assess the potential odour impact of a nearby household waste recycling centre on a proposed residential development at Land north of Knight Park, Thaxted Road, Saffron Walden in Essex.
- 1.2 The assessment was carried out in accordance with relevant local and national planning policy and guidance.
- 1.3 An assessment of potential odour impacts at the site is required to inform the outline planning application for the development.
- 1.4 The site is located in an area where the prevailing odour character is primarily influenced by natural sources, agricultural activities and vehicle emissions. However, Saffron Walden Recycling Centre (SWRC) is located adjacent to the southern part of the site's south-western boundary and therefore, also has the potential to influence the odour character of the site.
- 1.5 A semi-quantitative odour assessment was undertaken to consider existing conditions at the site and to assess potential impacts associated with the SWRC operations at the development, with regard to Institute of Air Quality Management (IAQM) odour guidance.
- 1.6 The assessment included analysis of local meteorological data and the nature of the identified odour sources. Site odour surveys were also undertaken to determine the odour character of the area and the potential for prevailing odour conditions to lead to loss of amenity at the development.
- 1.7 Based on the results of the assessment, the SWRC is expected to have a negligible risk of odour impact on proposed users of the development. As such, the residual effect on the development will not be significant.
- 1.8 In summary, it is our view that the site is suitable for the development in terms of odour and therefore odour is not a constraint with respect to planning consent.

2. INTRODUCTION

- 2.1 Cass Allen has been instructed by Kier Property to assess the potential odour impact of a nearby household waste recycling centre on a proposed residential development at Land north of Knight Park, Thaxted Road, Saffron Walden in Essex.
- 2.2 The assessment has been carried out in accordance with relevant local and national planning guidance.
- 2.3 Odour emissions from the SWRC's activities have the potential to affect the amenity of future occupants of the site.
- 2.4 The aim of the assessment was, therefore, to consider potential impacts on future site occupants, of odour resulting from the SWRC operations.
- 2.5 This report contains technical terminology; a glossary of terms can be found at [REDACTED].

3. PROJECT DESCRIPTION AND SITE CONTEXT

- 3.1 The site is currently vacant and is located on the south-eastern edge of the existing built-up area of Saffron Walden. To the north-west of the site is the recently developed 'Land East of Thaxted Road' residential development (planning reference: UTT/18/0824/OP). To the north-east and south-east are fields. To the south-west of the site is Knight Park, which includes the SWRC, a highways depot, a hotel, a gym and various retail stores.
- 3.2 The site location is shown in Figure 1.

Figure 1 Site Location and Surrounding Area



- 3.3 The site is in an area where the prevailing odour character is likely to be primarily influenced by natural sources, such as vegetation, plus agricultural activities and vehicle emissions. However, the SWRC also has the potential to influence the odour character of the site and influence the amenity of future site occupants.

4. PLANNING LEGISLATION, POLICY AND GUIDANCE

Odour Legislation

- 4.1 Section 79 of the Environmental Protection Act 1990 defines statutory nuisance relevant to odour as:

'Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance'; and

'Any accumulation or deposit which is prejudicial to health or a nuisance'.

- 4.2 Furthermore, Section 80 states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. However, due to the inherent subjective nature of odour and the complexities of measuring and assessing odours against any set criteria, there are currently no statutory standards in the UK covering the release of odours or their subsequent impacts.

National Policy

- 4.3 Outline guidance for the assessment of odour affecting or resulting from new developments is given in the National Planning Policy Framework (NPPF), 2021. Relevant sections are detailed below:

'174. Planning policies and decisions should contribute to and enhance the natural and local environment by ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ... air or noise pollution.

185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.

188. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.'

Local Policy

4.4 Policy GEN4 of the adopted Uttlesford Local Plan (January 2005) has relevance to odour, stating:

Policy GEN4 – Good Neighbourliness

Development and uses, whether they involve the installation of plant or machinery or not, will not be permitted where:...

b) smell...

would cause material disturbance or nuisance to occupiers of surrounding properties.

4.5 To address the requirements of the national and local policies, the assessment has considered potential odour impacts, resulting from the operation of the nearby SWRC.

Odour Guidance

4.6 The IAQM 'Guidance on the Assessment of Odour for Planning' (updated 2018) specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in this document has been utilised in the assessment of odour emissions associated with the SWRC.

5. ASSESSMENT METHODOLOGY

- 5.1 The scope and methodology for this assessment has been determined with regard to the following guidance documents:
- IAQM Guidance on the Assessment of Odour for Planning (updated 2018); and
 - Environment Agency (EA) 'H4 Odour Management: How to comply with your environmental permit' (March 2011).
- 5.2 For odour, before an adverse effect, such as disamenity, annoyance, nuisance or complaints can occur, there must be odour exposure. For odour exposure to occur, there must be an emission source, a pathway for the odour to travel through the air, and the presence of a receptor. The magnitude of an odour impact, also known as relative odour exposure, is determined with reference to the following "FIDOL" factors:
- Frequency of detection – How often an individual is exposed to odour.
 - Intensity – The individual's preceptor of the strength of the odour.
 - Duration – The overall duration that individuals are exposed to an odour over time.
 - Odour unpleasantness – Whether it is considered pleasant, unpleasant or neutral.
 - Location – The nature of the receptor, combined with its tolerance / expectation which is affected by surrounding land use, expectations and socio-economic factors.
- 5.3 The IAQM Odour guidance recommends the use of multiple assessment tools due to the partly subjective nature of odour, the lack of a "silver bullet" assessment tool that on its own provides an equivocal answer, and due to the inherent uncertainty associated with the assessments. The individual assessment tools used in this assessment are detailed in Sections 6 and 7, and were utilised with reference to the guidance.
- 5.4 The IAQM Odour Risk Assessment methodology is outlined in Appendix 1.

6. SITE ODOUR SURVEY

- 6.1 A site odour survey, including sniff tests, has been undertaken with reference to the IAQM guidance, to strengthen the understanding of:
- Significant odour sources and receptors across the site and surrounding area;
 - Odour characteristics, including descriptors, intensity, frequency, duration and dispersion;
 - Overall source odour potential; and
 - Ambient stressors that may affect the way odour is experienced by local receptors.
- 6.2 As there is currently no UK national standard of odour intensity for subjective sniff tests, the German national standard (VDI 3940: 1993 'Determination of Odorants in Ambient Air by Field Inspection') was utilised. The VDI standard intensity (I) scale ranges from 0 (no odour), through 1 (slight / very weak), to 6 (extremely strong).
- 6.3 A single day site visit with two separate surveys was undertaken during the morning and afternoon respectively, in order to capture baseline and potential diurnal variability of odour effects.
- 6.4 Figure 2 indicates the survey locations, average and observed wind data, as well as locations of key odour sources. The surveys followed transects covering, approximately, the northern extent of the site, furthest from the source, the centre of the site (representing the closest proposed dwellings to the SWRC), and locations on the site boundary, adjacent to the SWRC, where the highest odour concentrations would be expected. Sampling was carried out in this order, from weakest to strongest potential concentration, in line with IAQM guidance. A summary of the results of each survey are included in Table 1. Full results of the odour surveys are included in Appendix 3, with photographs included in Appendix 4.

Figure 2 Odour Survey Locations and Wind

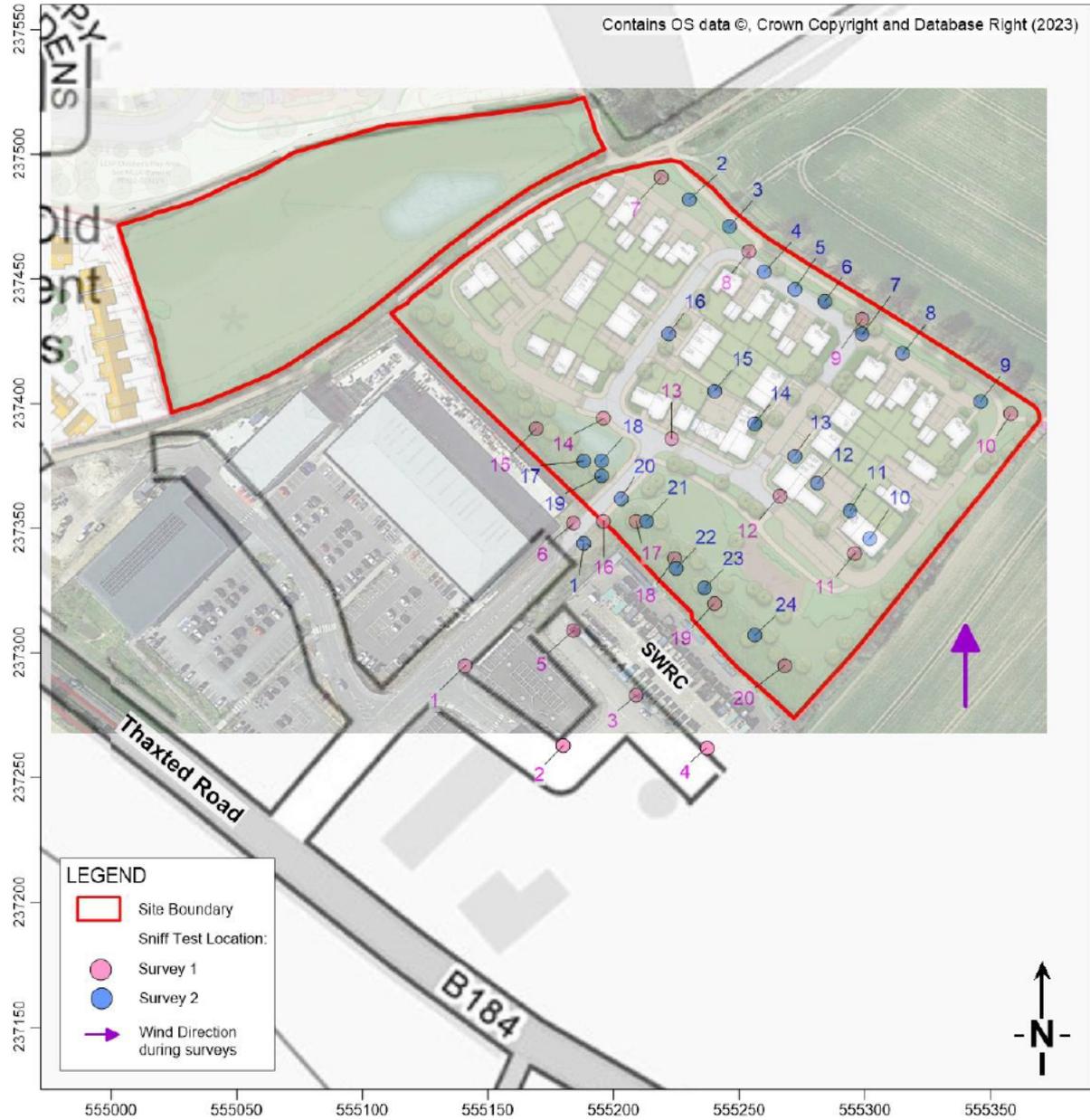


Table 1 Odour Survey 1 Summary: 26th October 2023 10:30 – 11:30

Weather	Ambient Stressors	Location(s)	Odour Descriptor(s)	Intensity (VDI)
11°C	Traffic noise, principally near access to SWRC	1-5, 7, 10-12, 14	Damp earth or similar	1-2
Overcast.		10, 18	Flowers / vegetation	2
Warm, bright.		17	Household waste	2
Southerly wind 2-3m/s		20	Compost	2

Summary: The principal odours throughout the survey were of damp earth or vegetation, in keeping with the nature of the site. These were mild in intensity and of a ‘pleasant’ hedonic tone.

A ‘weak’ (VDI 2) odour of household waste was briefly observed at location 17, close the site’s boundary with the SWRC, this was considered to be neutral. A mild compost-like smell was also detected close to the SWRC (location 20) and may have originated from the facility or from the autumn die-back of the hedgerow vegetation.

None of the odours detected were considered strong or persistent enough to likely cause significant loss of amenity at the site. Furthermore, no odours associated with the SWRC were detected away from the site boundary, i.e. in locations where dwellings are proposed.

Table 2 Odour Survey 2 Summary: 26th October 2023 12:00 – 13:00

Weather	Ambient Stressors	Location(s)	Odour Descriptor(s)	Intensity (VDI)
12°C	No significant stressors.	3, 4, 6, 8, 10-12	Damp earth or similar	1-2
Initially overcast, becoming sunny.		5	Fresh air	1-2
Southerly wind		8, 15, 18-21, 24	Vegetation, grassy vegetation	1-2
2-3m/s		16	Possible diesel fumes	2

Summary: The principal odours throughout the survey were of damp earth or vegetation, in keeping with the nature of the site. These were mild in intensity and of a ‘pleasant’ hedonic tone.

None of the odours detected were considered strong or persistent enough to likely cause significant loss of amenity at the site. Furthermore, no odours directly attributable to the SWRC were detected during this survey.

- 6.5 The odour survey undertaken on 26th October 2023 indicated that the odour character on, and in the vicinity of the site, is dominated by natural odours from vegetation and the earth.
- 6.6 The wind during the sniff tests was observed to be blowing from the SWRC towards the site. However, minimal odours associated with the SWRC were detected, with mild household waste and compost odours observed close to the site’s boundary with the SWRC during the first survey, and no clear associated odour during the second.

Summary

6.7 The following observations were made, following the Site Odour Survey:

- The site is located adjacent to the SWRC, however, the closest proposed residential uses will be a minimum of around 70m from the potential odour sources within the SWRC.
- No significant or distinct odours of any kind were detected during the survey, and no odours attributable to the SWRC were detected away from the site boundary.
- Based on the sniff tests, the offensiveness of the SWRC odours, where detectable, were considered neutral.
- Based on the extent of odours detected and their intensity, the source odour potential for the SWRC was considered to be 'small'.

7. ASSESSMENT

Prevailing Meteorological Conditions

- 7.1 The potential for odour to impact at sensitive locations is dependent upon the prevailing meteorological conditions, particularly wind direction and wind speed, during emissions. In order to consider conditions at the site, a review of historical weather data from nearby Stansted observation station was undertaken. This station is located approximately 15km south of the site and it is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data were therefore, considered suitable for the assessment of odour impacts.
- 7.2 Table 3 contains the meteorological data from Stansted observation station, over the period 1st January 2013 to 31st December 2022 (inclusive). The directions which have the potential to impact at the proposed users of the Site are shown in bold. A wind rose for these data is included in Appendix 2.

Table 3 Wind Direction, Frequency and Speed Data

Wind Direction (Degrees)	Direction	Frequency of total Wind (%)	Frequency of Wind at speeds <3m/s (%)
345 – 15	N	6.41	2.68
15 – 45	NNE	5.10	1.64
45 – 75	ENE	5.64	1.47
75 – 105	E	4.05	1.10
105 - 135	ESE	5.96	1.33
135 - 165	SSE	6.64	2.05
165 - 195	S	7.90	1.99
195 - 225	SSW	13.89	2.21
225 - 255	WSW	16.60	3.64
255 - 285	W	8.78	3.58
285 - 315	WNW	8.00	3.85
315 - 345	NNW	8.05	3.72
Total	-	97.01	29.27
Missing / Incomplete	-	2.98	-
Calms	-	0.65	-

- 7.3 As shown in Table 3, the prevailing wind direction at the site is from the south-west, with a total wind frequency of 30.5% from the south-south-west to west-south-west sectors, combined. As described in the IAQM guidance, the dispersion of atmospheric odour is also limited by rainfall, which acts as a natural suppressant. Climate average data for the purposes of the assessment were obtained from the Andrewsfield climate station, which recorded an average of 114 days annually with rainfall over 1mm between 1991 and 2020.

Odour Risk

Source Odour Potential

- 7.4 The potential sources of odour resulting from the operation of the SWRC, are classed as 'moderately offensive' in H4 guidance. The source odour potential is, however, considered to be 'small', following the Site Odour Survey, as detailed in Section 6.

Frequency of Potentially Odorous Winds

- 7.5 As shown in Table 3, the total frequency of winds with the potential to transport odours is 29.27%. However, the frequency of these winds with the potential to impact at the proposed receptors at the development is up to 21.3% (the affected sector being 145° to 265°). This is classed as 'very frequent' in the IAQM guidance, though it should be noted that the frequency for any individual receptor would be less than 5% and therefore, 'infrequent'.

Receptor Distance from Source

- 7.6 The site will be a minimum of ~70m from the closest sources within the SWRC. Therefore, according to the IAQM guidance, the proposed receptors are classed as 'local'.

Pathway Effectiveness

- 7.7 The combination of 'frequent' winds and 'local' proposed receptors leads to an 'highly effective' odour pathway.

Risk of Odour Exposure

- 7.8 The combination of a 'highly effective' pathway and a 'small' source odour potential, results in a 'low risk' of odour exposure at the development.

Receptor Sensitivity

- 7.9 The receptor sensitivity is classed as 'high' according to the IAQM guidance, due to the development being of residential use, where a high level of amenity would be expected.

Magnitude of Odour Effects

- 7.10 The combination of a 'high' receptor sensitivity and a 'low risk' of odour exposure results in a 'slight adverse' odour effect, which is considered to be 'not significant' in line with the IAQM guidance.

Summary

- 7.11 Given the low source odour potential of the SWRC, odour is unlikely to represent a significant constraint to development across the site. However, the proposed offsetting area adjacent to the SWRC boundary will provide an additional buffer to further limit the potential for any effects.
- 7.12 In summary, no significant odour impacts or effects are predicted at the development.

8. CONCLUSIONS

- 8.1 Cass Allen was instructed by Kier Property to assess the potential odour impact of the nearby household waste recycling centre on a proposed residential development at Land north of Knight Park, Thaxted Road, Saffron Walden in Essex.
- 8.2 The assessment was carried out in accordance with relevant local and national planning policy and guidance.
- 8.3 The assessment included analysis of local meteorological data and the nature of the odour sources. The assessment also utilised site odour surveys to determine the general odour character and the potential for prevailing odour conditions to lead to loss of amenity at the development.
- 8.4 The results indicate that there is a low risk of odour impacts at the development, resulting in a not significant effect of the nearby SWRC. In summary, it is our view that the site is suitable for the development in terms of odour and therefore odour is not a constraint with respect to planning consent.

Appendix 1 IAQM Odour Assessment Methodology

The IAQM Guidance on the Assessment of Odour for Planning methodology is summarised below.

Risk of Odour Exposure (Impact) at a Specific Receptor Location

		Source Odour Potential		
		Small	Medium	Large
Pathway Effectiveness	Highly effective pathway	Low Risk	Medium Risk	High Risk
	Moderately effective pathway	Negligible Risk	Low Risk	Medium Risk
	Ineffective pathway	Negligible Risk	Negligible Risk	Low Risk

Likely Magnitude of Effect at a Specific Receptor Location

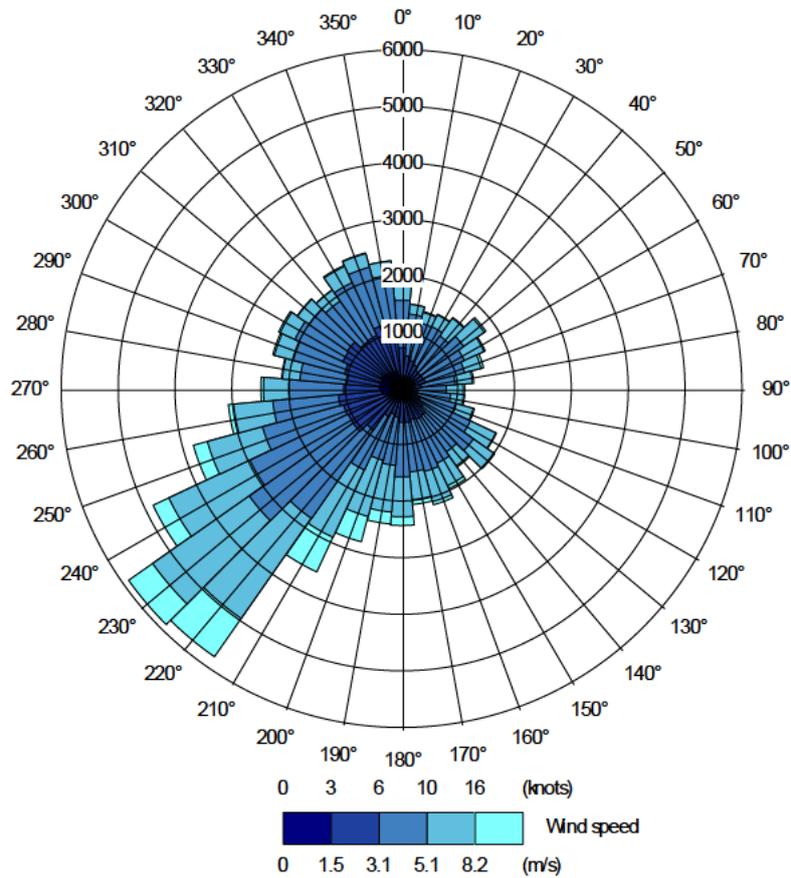
Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
High Risk of Odour Exposure	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk of Odour Exposure	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk of Odour Exposure	Negligible Effect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

Suggested Descriptors for Magnitudes of Odour Effects

Relative Odour Exposure (Impact)	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

In line with the IAQM guidance, an assessment should reach a conclusion on the likely significance of the predicted effect. It should be noted that this is a binary judgement of either it is significant, or it is not significant. Where a 'negligible' or 'slight adverse' magnitude of effect is predicted, the overall effect is typically considered to be 'not significant'.

Appendix 2 Wind Rose for Stansted (2013 - 2022)



Appendix 3 Odour Survey Results

Survey 1 Sniff Test Results

Location	X	Y	Time	Weather Conditions	Approx Air Temp	Wind Strength (m/s)	Odour Intensity (VDI)	Ambient Stressors	Odour description	Offensiveness	Odour Time (%)
1	555141	237295	10:30-10:33				1-2	-	Damp earth	Pleasant	80
2	555180	237263	10:34-10:36				2	-	Damp earth	Pleasant	80
3	555209	237283	10:37-10:39				1		Damp earth	Pleasant	50
4	555237	237262	10:40-10:42				1	Traffic noise	Damp earth	Pleasant	50
5	555184	237309	10:43-10:46				1	-	Damp earth	Pleasant	30
6	555184	237352	10:47-10:49				0	-	No discernible odour	-	-
7	555219	237491	10:50-10:52	Overcast, mostly dry but with a little drizzle at times.	11°C	2-3	2	-	Damp earth	Pleasant	40
8	555254	237461	10:53-10:55				0	-	No discernible odour	-	-
9	555299	237434	10:56-10:57				0	-	No discernible odour	-	-
10	555358	237396	10:58-11:00				2	-	Damp earth, slight sweet tang – flowers?		30
11	555296	237340	11:01-11:03				2	-	Damp earth		20
12	555266	237363	11:04-11:06	Ground damp.			1	-	Mild damp smell		50
13	555223	237386	11:07-11:08				0	-	No discernible odour	-	-
14	555196	237394	11:09-11:10	Southerly wind.			1	-	Damp earth		20
15	555169	237390	11:11-11:13				0	-	No discernible odour	-	-
16	555196	237353	11:14-11:15				0	-	No discernible odour	-	-
17	555209	237353	11:16-11:18				2	-	Very brief smell of household waste	Neutral	10
18	555224	237338	11:19-11:22				2	-	Plants/vegetation		30
19	555240	237320	11:23-11:24				0	-	No discernible odour	-	-
20	555268	237295	11:25-11:29				2	-	Mild compost-like smell	Neutral	50

Survey 2 Sniff Test Results

Location	X	Y	Time	Weather Conditions	Approx Air Temp	Wind Strength (m/s)	Odour Intensity (VDI)	Ambient Stressors	Odour description	Offensiveness	Odour Time (%)
1	555188	237344	12:00-12:03				0	-	No discernible odour	-	-
2	555230	237482	12:04-12:06				0	-	No discernible odour	-	-
3	555246	237471	12:07-12:09				1	-	Very mild damp odour	Pleasant	20
4	555260	237453	12:10-12:11				1	-	Very mild damp odour	Pleasant	20
5	555272	237446	12:12-12:14				1	-	Just fresh air	Pleasant	50
6	555284	237441	12:15-12:16				2	-	Damp earth	Pleasant	60
7	555299	237428	12:17-12:18	Dry, initially overcast but sunny towards the end of survey (from location 17). Ground damp. Southerly wind.	12°C	2-3	0	-	No discernible odour	-	-
8	555315	237420	12:19-12:21				2	-	Damp, vegetation	Pleasant	30
9	555346	237401	12:22-12:24				0	-	No discernible odour	-	-
10	555302	237346	12:25-12:26				1	-	Very mild damp odour	Pleasant	20
11	555294	237357	12:27-12:29				1	-	Damp earth	Pleasant	20
12	555281	237368	12:30-12:32				1	-	Damp earth	Pleasant	20
13	555272	237379	12:33-12:34				2	-	Grassy vegetation odour	Pleasant	50
14	555256	237392	12:35-12:36				0	-	No discernible odour	-	-
15	555240	237405	12:37-12:38				1	-	Vegetation?	Pleasant	20
16	555222	237428	12:39-12:41				2	-	Possible diesel fumes?	Unpleasant	10
17	555188	237377	12:42-12:43				0	-	No discernible odour	-	-
18	555195	237377	12:44-12:45				2	-	Grassy vegetation	Pleasant	30
19	555195	237371	12:46-12:47				2	-	Grassy vegetation	Pleasant	60
20	555203	237362	12:48-12:50				2	-	Grassy vegetation	Pleasant	60
21	555213	237353	12:51-12:52				2	-	Grassy vegetation	Pleasant	30
22	555225	237334	12:53-12:54				0	-	No discernible odour	-	-
23	555236	237326	12:55-12:57				0	-	No discernible odour	-	-
24	555256	237307	12:58-13:00				1	-	Grassy vegetation	Pleasant	50

Note: Our assessors have had their odour sensitivity evaluated using the St. Croix Sensory 'Odor Sensitivity Test Kit'.

Appendix 4 Odour Survey Photographs

Photograph 1 – SWRC from near Location 2, Survey 1, looking north



Photograph 2 – Looking north-east across the SWRC from Location 3, Survey



Photograph 3 – Looking south-east across the Site from Location 8, Survey 2



Photograph 4 – Looking south-west to SWRC from Site at Location 12, Survey 1





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