



memorandum

TO Christchurch City Council FROM [REDACTED]
DATE 11 March 2026
RE Living Earth Odour Monitoring: 1st - 28th February 2026 Summary

1.0 Background

Living Earth Limited (Living Earth) operates an organics processing plant and composting facility located at 40 Metro Place, Bromley, Christchurch (the LE Site). Living Earth's air discharges are subject to the conditions attached to air discharge consent CRC080301.1 ("the consent") from Canterbury Regional Council (CRC) to discharge contaminants (odour and dust) to air.

Specifically, Condition 27 of the consent states that:

"The discharges to air shall not cause odour or dust which is offensive or objectionable beyond the boundary of the site on which this consent is exercised."

While Living Earth operates the composting facility, Christchurch City Council (CCC) holds the consent.

Pattle Delamore Partners Limited (PDP) has been providing assistance to CCC and Living Earth regarding the assessment and management of odour effects from the site. This has included regular odour scouting. The objectives of the odour scouting are to:

- ∴ Correlate the intensity and characters of observed odour (where possible) to:
 - Odour sources in the Bromley area.
 - Specific activities and/or sources on the LE Site.
 - Meteorological conditions.
 - Time of day.
- ∴ Undertake FIDOL assessments to determine if offensive or objectionable odours are present beyond the site boundary.
- ∴ Corroborate the content of community (i.e., Smelt-It) complaints.

This letter provides a summary of PDP's observations of off-site odour scouting for the period between 1st and 28th February 2026. The stockpiles of the outdoor material, namely the unscreened compost, oversized stockpiles and screened fines have been cleared from the site since the 12th of January 2024.

2.0 Summary of Methodology

Odour observations are made by PDP odour scouts. To ensure consistency between scouts, PDP ensures the following:

1. Scouts periodically undertake parallel odour assessments with each other in the field.
2. Scouts periodically visit the LE Site and familiarise themselves with the character of the odour from the various onsite sources.
3. Scouts undergo nose calibration via direct dilution olfactometry according to the requirements of AS/NZS 4323.3:2001 Section 9.7.2.

During an assessment, scouts walk at a comfortable pace through the area downwind of the LE Site, making note of odours detected. PDP has defined a series of observation points in the area where the scout makes more detailed observations, shown in Figure 1. The exact route and observation points visited in an assessment depend on the meteorological conditions (wind speed and direction) and the odour (if any) detected by the scout on the route.

Sites H and M are immediately downwind of the site, located along Dyers Road with sites G and F. Sites I, J, K, and N are located in the heavy industrial zone. Sites A, C, B, D, P, and R are located in the residential zone around Bayswater Reserve. Sites E, L, O, and Q are located roughly along the residential-industrial boundary. In assessments, Sites E, O, D and Q are in the residential zone, while Site L is in the general industrial zone.



Figure 1: Odour Observation Locations

In key areas where odour is detected, or at known sensitive areas, a full 10-minute odour observation is taken. Where 10-minute observations are taken at a site, a FIDOL assessment is completed by the scout and a determination made as to whether the odour is offensive or objectionable.

Determinations made are necessarily the opinion of the odour scout at that time to the conditions they encounter. They are based upon observations in the field but may also include consideration of wider factors such as meteorological conditions and patterns of site activity when considering the potential for offensive or objectionable odour over longer time periods.

Each scout makes their determination with reference to other determinations made, both within PDP, and more widely amongst the air quality profession.

Summaries for each odour scout are included in Section 3.0. Detailed analysis of specific observations is included, where necessary. Results of all 10-minute odour observations, summarised by observation location, are appended to this memorandum. This memorandum presents the results of the odour scouting undertaken. This report does not analyse odour trends across time.

Due to a change in meteorological data availability since October 2024, wind speed, wind direction and temperature data from the Bromley AWS is not as readily available post-scouting. Retrospective windspeed and wind direction data will not be reported for this monitoring window.

2.1 FIDOL Analysis

As per Ministry for the Environment's Good Practice Guide for Assessing and Managing Odour (MfE GPG), odours were assessed against the FIDOL factors to determine if they were offensive or objectionable. The FIDOL factors are:

- ∴ Frequency;
- ∴ Intensity;
- ∴ Duration;
- ∴ Offensiveness/Character¹; and
- ∴ Location.

Odour intensity is reported on a scale of (0-6) as per the MfE's GPG Odour. PDP applies the following descriptions to each odour intensity to ensure consistency between scouts:

0. No Odour: No odour.
1. Very Weak: Odour detectable but character not recognisable.
2. Weak: Odour detectable and barely recognisable.
3. Distinct: Odour readily recognisable.
4. Strong: Odour is strong but not causing discomfort to assessor.
5. Very Strong: The odour causes some discomfort; assessor can remain in area but will consider leaving/altering breathing patterns.
6. Extremely Strong: The odour causes assessor to feel nauseous or compelled to leave the area.

¹ "It is preferable to refer to the character of an odour, rather than its 'offensiveness' to avoid confusion between the inherent characteristics of an odour (i.e., whether it is pleasant or unpleasant) and whether there is an 'objectionable or offensive' effect occurring as a result of exposure to odour." (MfE GPG Odour)

When determining whether odour is having an offensive or objectionable effect, odour scouts make their determination with respect to the FIDOL factors. No regulatory standard exists for the specific combination of FIDOL factors that do or do not constitute an offensive or objectionable odour. However, as a broad litmus test when making determinations at the Living Earth site, PDP scouts consider intermittently distinct (3) or continuous weak (2) odours of a negative hedonic tone (such as compost) to be offensive or objectionable in a residential zone.

Within a heavy industrial zone, there is a lower expectation of amenity as it pertains to odour.

Based on PDP's understanding, this approach is generally consistent with that used by other air quality professionals.

3.0 Results Summary

Result summaries for each odour scout are reported below. Results of all 10-minute odour observations, summarised by observation location, are appended to this memorandum.

Scouts were present in the Bromley area on the:

- ∴ 5th February 2026;
- ∴ 9th February 2026;
- ∴ 10th February 2026;
- ∴ 18th February 2026; and
- ∴ 23rd February 2026.

3.1 5th February 2026

██████████ was the PDP odour scout. The scout was present for approximately 1.25 hours. The scout started near Site D, and then walked along the boundary of the industrial area towards Site M, before returning to site H and circuiting through the industrial area via sites I, J, K and L to return to Site D. Easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 2.



Figure 2: 5th February 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within **Table 1** that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 1: 5th February 2026 - Odour Scouting Summary

Site	Time	Observations
D	12:46	Weak (2) cut grass or floral odour detected.
E	12:51	Distinct (3) cut grass odour detected.
F	12:59	Very weak (1) indeterminate to weak (2) cut grass odour detected.
G	13:04	Intermittent weak (2) to distinct (3) compost odour detected.
H	13:08	Intermittent weak (2) compost odour detected.
H-M	13:11	Distinct (3) compost odour detected. Loading doors open.
M	13:16	Intermittent very weak (1) to weak (2) compost odour detected.
H-M	13:17	Weak (2) to distinct (3) compost odour detected. Loading doors open.
H	13:20	Weak (2) compost odour detected.
H	13:27	FIDOL assessment completed.

Table 1: 5th February 2026 - Odour Scouting Summary

Site	Time	Observations
		No odour (0) was detected 27% of the time. Very weak (1) odours of an indeterminate character were detected 50% of the time. Weak (2) compost odour was detected 17% of the time. Weak (2) gasoline odour was detected 2% of the time. Weak (2) chemical odour was detected 2% of the time. Weak (2) citrus odour was detected 2% of the time. Distinct (3) compost was detected 2% of the time. The odour was determined to be neither offensive nor objectionable.
H - I	13:37	Intermittent distinct (3) solvent odour detected.
I	13:39	No odour (0) detected.
J	13:42	Very weak (1) odour of an indeterminate character detected.
J-K (Intergroup)	13:45	Intermittent distinct (3) refuse odour detected.
K	13:47	Very weak (1) odour of an indeterminate character detected.
L	13:51	Distinct (3) solvent odour detected.
D	13:52	Very weak (1) odour of an indeterminate character detected.

No compost odour was detected in the residential area. Some weak (2) to distinct (3) compost odour was detected in the industrial area at sites G, H and M. This odour was intermittent, and during a 10-minute observation at site H occurred less than 20% of the time mostly at a weak level.

The compost odour in the industrial area was not determined to be offensive or objectionable, due to the highly intermittent nature of the odour.

3.2 9th February 2026

██████████ was the PDP odour scout. The scout was present for approximately 40 minutes. The scout started near Site D, and then walked along the boundary of the industrial area towards Site M, before returning via the same route to finish at site D. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 3.



Figure 3: 9th February 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 2 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 2: 9th February 2026 - Odour Scouting Summary

Site	Time	Observations
D	13:56	Very weak (1) odour of an indeterminate character detected.
D - E	13:57	Intermittent weak (2) compost and weak (2) floral odour detected.
E	13:59	Intermittent very weak (1) to weak (2) negative hedonic or effluent odour detected.
The Lolly Shop	14:02	Weak (2) compost odour detected.
F	14:04	Weak (2) compost odour detected.
G	14:07	Weak (2) cut grass odour detected.
H	14:09	Weak (2) chemical odour detected.
Mr Boats	14:11	Intermittent very weak (1) to weak (2) negative hedonic or effluent odour detected.
M	14:14	Very weak (1) odour of an indeterminate character detected.

Table 2: 9th February 2026 - Odour Scouting Summary

Site	Time	Observations
H	14:18	Intermittent very weak (1) indeterminate, to weak (2) compost odour detected.
G	14:20	Weak (2) cut grass odour detected.
F	14:22	Very weak (1) odour of an indeterminate character detected.
E	14:28	No odour (0) detected.
D	14:32	Very weak (1) odour of an indeterminate character detected.

Intermittent weak (2) compost odour was detected in the residential area, at the intersection of Newtown and Maces roads, and in the industrial area including, sites F, H and by the Lolly shop.

The compost odour in the residential area was not determined to be offensive or objectionable, due to the highly intermittent nature of the odour. The compost odour detected in the industrial area was also not determined to be offensive or objectionable.

Intermittent weak (2) odour of a negative hedonic character was observed to the east of Mr Boats. This odour is separate from the odour associated with the LE site and is separate from the odour associated with the wastewater treatment plant.

3.3 10th February 2026

██████████ was the PDP odour scout. The scout was present for approximately 1 hour. The scout started near Site D, and then walked along the boundary of the industrial area towards Site M, before walking through the industrial area and then returning to Site D. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 4.



Figure 4: 10th February 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 3 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 3: 10th February 2026 - Odour Scouting Summary

Site	Time	Observations
D	13:20	Very weak (1) odour of an indeterminate character detected.
D - E	13:22	Weak (2) solvent odour detected.
E	13:24	Weak (2) cut grass odour detected.
F	13:28	No odour (0) detected.
G	13:30	Very weak (1) odour of an indeterminate character detected.
H	13:32	No odour (0) detected.
Mr Boats	13:33	Intermittent distinct (3) negative hedonic or effluent, weak (2) compost odour detected.
M	13:36	No odour (0) detected.
Mr Boats	13:40	Weak (2) negative hedonic or effluent, weak (2) compost odour detected.
H	13:42	Very weak (1) odour of an indeterminate character detected.

Table 3: 10th February 2026 - Odour Scouting Summary

Site	Time	Observations
Mr Boats	13:49	<p>FIDOL assessment completed.</p> <p>No odour (0) was detected 30% of the time. Very weak (1) odours of an indeterminate character were detected 40% of the time. Weak (2) compost odour was detected 10% of the time. Weak (2) negative hedonic odour was detected 18% of the time. Distinct (3) negative hedonic odour was detected 2% of the time.</p> <p>The odour was determined to be neither offensive nor objectionable.</p>
H	14:05	Very weak (1) indeterminate to Weak (2) compost odour detected.
I	14:08	Very weak (1) odour of an indeterminate character detected.
I - J	14:09	Weak (2) smoke odour detected. Haze to North.
J	14:12	Very weak (1) odour of an indeterminate character detected.
J-K (Intergroup)	14:15	Intermittent weak (2) to distinct (3) refuse odour detected.
K	14:16	Very weak (1) odour of an indeterminate character detected.
L	14:19	Weak (2) solvent odour detected.
D	14:22	Weak (2) solvent odour detected.

No compost odour was detected in the residential area. Weak (2) compost odour was detected at Mr Boats and site H in the industrial area. The compost odour in the industrial area was determined to be neither offensive nor objectionable.

Intermittent weak (2) to Distinct (3) odour of a negative hedonic character was observed to the east of Mr Boats. This odour is separate from the odour associated with the LE site and is separate from the odour associated with the wastewater treatment plant.

3.1 18th February 2026

██████████ were the PDP odour scouts. The scouts were present for approximately 35 minutes. The scouts started near Site D and then walked along the boundary of the industrial area towards Site M, returning to Site D by the same route. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 4.



Figure 5: 18th February 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 4 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 4: 18th February 2026 - Odour Scouting Summary

Site	Time	Observations
D	15:30	No odour (0) detected.
E	15:34	Very weak (1) odour of an indeterminate character detected.
F	15:38	No odour (0) detected.
G	15:41	Intermittent weak (2) compost odour detected.
H	15:43	Very weak (1) odour of an indeterminate character detected.
Mr Boats	15:45	Weak (2) negative hedonic or effluent.
M	15:47	No odour (0) detected.
M -H	15:50	Weak (2) compost odour detected.
Mr Boats	15:51	Intermittent weak (2) negative hedonic odour detected.
H	15:53	Very weak (1) odour of an indeterminate character detected.
G	15:54	No odour (0) detected.

Table 4: 18th February 2026 - Odour Scouting Summary

Site	Time	Observations
F	15:57	No odour (0) detected.
E	16:01	No odour (0) detected.
E to D	16:03	Very intermittent weak (2) chemical odour detected.
D	16:05	No odour (0) detected.

No compost odour was detected in the residential area. Weak (2) compost odour was detected at Sites G and between M and H in the industrial area. The compost odour in the industrial area was determined to be neither offensive nor objectionable.

Intermittent weak (2) odour of a negative hedonic character was observed to the east of Mr Boats. This odour is separate from the odour associated with the LE site and is separate from the odour associated with the wastewater treatment plant.

3.1 23rd February 2026

██████ was the PDP odour scout. The scout was present for approximately 30 minutes. The scout started near Site D and then walked along the boundary of the industrial area towards Site M, returning to Site D by the same route. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 4.



Figure 6: 23rd February 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 5 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 5: 23rd February 2026 - Odour Scouting Summary

Site	Time	Observations
D	14:27	No odour (0) detected.
E	14:31	Weak (2) cut grass odour detected.
F	14:35	Very weak (1) odour of an indeterminate character detected.
G	14:37	Weak (2) compost odour detected.
H	14:39	Weak (2) compost and intermittent weak (2) chemical odour detected.
Mr Boats	14:40	Distinct (3) negative hedonic odour detected.
M	14:43	No odour (0) detected.
M -H	14:45	Weak (2) compost odour detected.
Mr Boats	14:47	Weak (2) negative hedonic odour detected.
H	14:47	Very weak (1) odour of an indeterminate character detected.
G	14:50	No odour (0) detected.
F	14:52	Very weak (1) odour of an indeterminate character detected.
E	14:56	No odour (0) detected.
D	15:00	No odour (0) detected.

No compost odour was detected in the residential area. Weak (2) compost odour was detected at Sites G and H in the industrial area. The compost odour in the industrial area was determined to be neither offensive nor objectionable.

Intermittent weak (2) to distinct (3) odour of a negative hedonic character was observed to the east of Mr Boats. This odour is separate from the odour associated with the LE site and is separate from the odour associated with the wastewater treatment plant.

4.0 Summary

PDP undertook odour scouting on five occasions between the 1st of February 2026 and the 27th of February 2026.

Typically, PDP considers that intermittent distinct (3) or continuous weak (2) odours of a negative hedonic tone (such as compost) are offensive or objectionable in a residential zone.

Based on PDP's observations:

5th February 2026

- ∴ No compost odour was detected in the residential area.
- ∴ Some intermittent weak (2) to distinct (3) compost odour was detected in the industrial area at sites G, H and M.

9th February 2026

- ∴ Intermittent weak (2) compost odour was detected in the residential area, at the intersection of Newtown and Maces roads.

- ✧ Weak (2) compost odour was detected at sites F, H and by the Lolly shop.

10th February 2026

- ✧ No compost odour was detected in the residential area.
- ✧ Weak (2) compost odour was detected at Mr Boats and site H in the industrial area.

18th February 2026

- ✧ No compost odour was detected in the residential area.
- ✧ Weak (2) compost odour was detected at Sites G and between M and H in the industrial area.

23rd February 2026

- ✧ No compost odour was detected in the residential area.
- ✧ Weak (2) compost odour was detected at Sites G and H in the industrial area.

Across the scouting days intermittent weak (2) and distinct (3) odour of a negative hedonic character was observed to the east of Mr Boats. This odour is separate from the odour associated with the LE site and is separate from the odour associated with the wastewater treatment plant. Based on a review of the CCC wastewater plans, PDP believes it is likely that the odour is sourced from a wastewater vent located in the middle of the road next to Mr Boats.

The weak (2) compost odours in the residential area were determined to be neither offensive nor objectionable due to the highly intermittent nature of the odour observed.

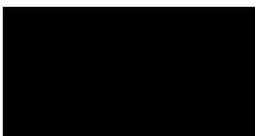
5.0 Limitations

This memorandum has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Christchurch City Council and Living Earth. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the memorandum. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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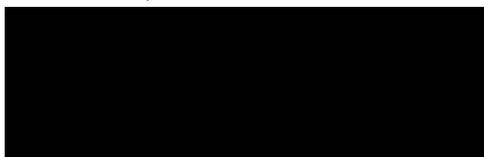
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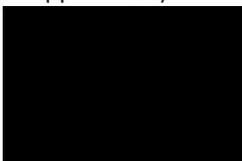
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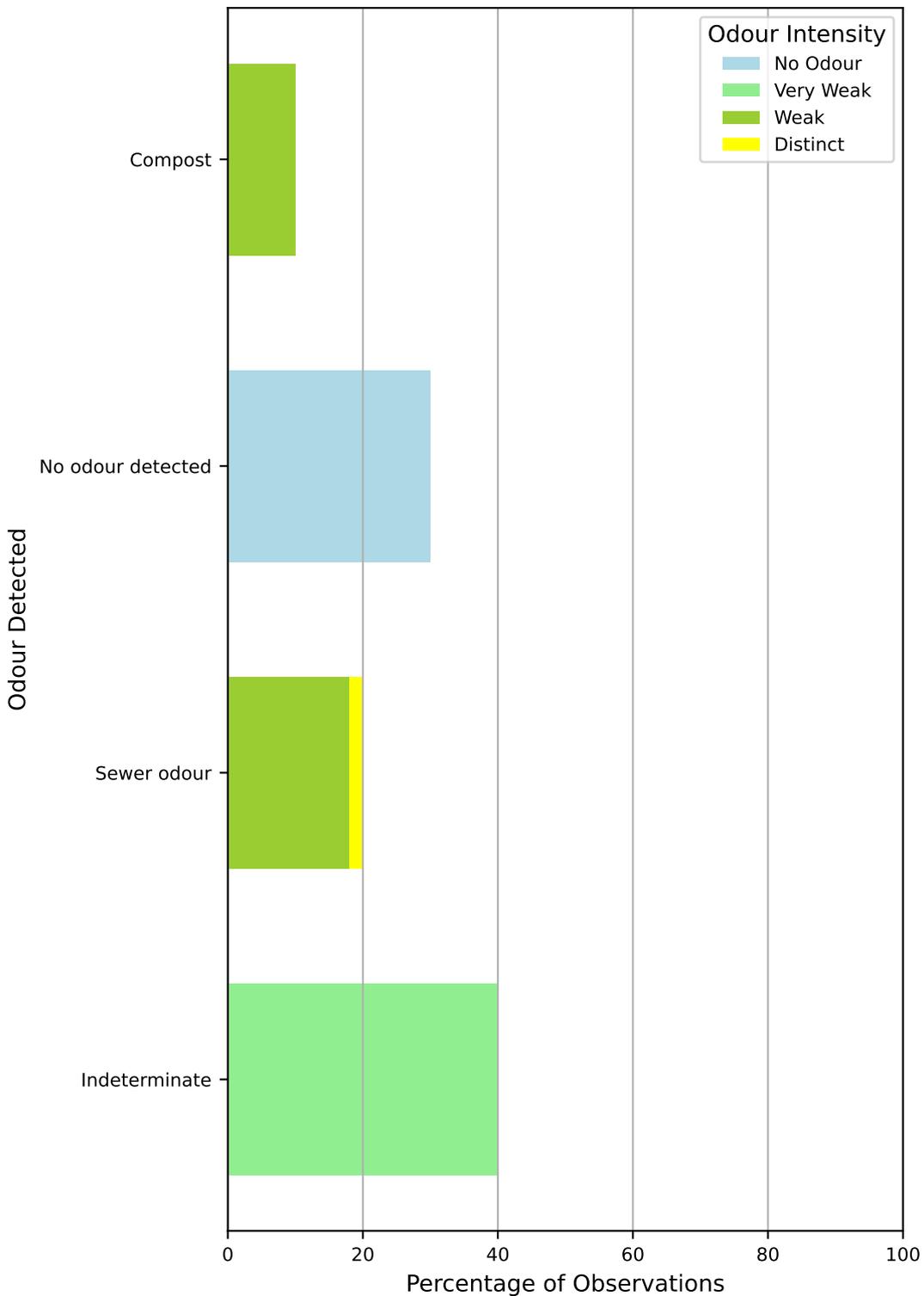
Air Quality Scientist

Approved by



Group Director- Water Infrastructure

Mr Boats



Site H

