



memorandum



TO Christchurch City Council

FROM



DATE

4 December 2025

RE Living Earth Odour Monitoring: 1st November to 30th November 2025 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 November 2025 and 30th November 2025. The stockpiles of the outdoor material, namely the unscreened compost, oversize 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 November 2025;
- ✧ 11th November 2025;
- ✧ 12th November 2025;
- ✧ 18th November 2025; and
- ✧ 26th November 2025.

3.1 5th November 2025

██████████ were the PDP odour scouts. The scouts were present for approximately 1 hour. The scouts started near Site D, and then walked along the boundary of the industrial area towards Site M, before 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 2**.



Figure 2: 5th November 2025 - 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 November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|----------|-------|--|
| D | 9:43 | Continuous weak (2) solvent odour detected. |
| E | 9:47 | No odour (0) to intermittent very weak (1) odour of an indeterminate character detected. |
| F | 9:51 | Very weak (1) odour of an indeterminate character detected. |
| G | 9:55 | Weak (2) compost odour detected. |
| G to H | | Distinct (3) compost odour detected. |
| H | 9:57 | Weak (2) compost and intermittent weak (2) rubbish odour detected. |
| M | 10:02 | Weak (2) cut grass odour detected. |
| Mr Boats | | Weak (2) compost odour detected. |
| H | 10:09 | No odour (0) detected. |

Table 1: 5th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|----------|-------|---|
| Mr Boats | 10:13 | FIDOL assessment completed. No odour (0) was detected 2% of the time. Very weak (1) odours of an indeterminate character were detected 45% of the time. Weak (2) compost odour was detected 28% of the time. Weak (2) rubbish odour was detected 20% of the time. Weak (2) vehicle odour was detected 5% of the time. The odour was determined to be neither offensive nor objectionable. |
| H | 10:38 | No odour (0) detected. |
| G | 10:40 | Very weak (1) odour detected. |
| F | 10:43 | No odour (0) detected. |
| E | 10:46 | No odour (0) detected. |
| D | 10:49 | Weak (2) solvent odour detected. |
| O | 10:52 | Very intermittent, weak (2) compost odour detected. |
| Q | 10:56 | Very intermittent, weak (2) compost odour detected. |
| O | 11:00 | FIDOL assessment completed. |

Weak (2) compost odour was detected in the residential area, at sites O and Q, and in the industrial area near sites G and H. Distinct (3) compost odour was also detected between sites G and H.

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 not determined to be offensive or objectionable.

3.2 11th November 2025

██████████ were the PDP odour scouts. The scouts were present for approximately 1 hour. The scouts started near Site D, and then walked along the boundary of the industrial area towards Site M, before walking through the industrial area and finishing near Site O. 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: 11th November 2025 - 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: 11th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|--------|-------|---|
| D | 13:36 | Intermittent very weak (1) odours of an indeterminate character detected. |
| E | 13:40 | Continuous weak (2) cut grass odour detected. |
| F | 13:44 | Continuous very weak (1) odours of an indeterminate character detected. |
| G | 13:47 | Intermittent weak (2) to distinct (3) compost odour detected. |
| G to H | | Intermittent distinct (3) compost odour detected. |
| H | 13:49 | Intermittent weak (2) compost, pine needle, and vehicle odour detected. |
| H to M | | Weak (2) compost and intermittent weak (2) rubbish odour detected near Mr Boats. No odour (0) detected past Mr Boats |
| M | 13:55 | Very weak (1) odour of an indeterminate character detected. |
| H | 14:00 | No odour (0) detected. |
| H to I | | Very weak (1) odours of an indeterminate character to intermittent weak (2) compost odour detected. |

Table 2: 11th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|--------|-------|--|
| I | 14:02 | No odour (0) detected. |
| N | | Weak (2) to intermittent distinct (3) solvent odour detected. |
| J | 14:11 | Very weak (1) odour of an indeterminate character detected. |
| J to K | | Weak (2) rubbish odour detected. |
| K | 14:15 | No odour (0) detected. |
| K to L | | Weak (2) rubbish odour detected. |
| D | 14:22 | No odour (0) detected. |
| O | 14:24 | Very weak (1) odours (0) of an indeterminate character detected. |
| Q | 14:27 | No odour (0) detected. |
| O | 14:30 | No odour (0) detected. |

Distinct (3) compost odour was also detected between sites G and M in the industrial area. No compost odour was detected in the residential area.

The compost odour in the industrial area was determined to be neither offensive nor objectionable.

3.3 12th November 2025

██████████ were the PDP odour scouts. The scouts were present for approximately two and a half hours. The scouts 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. Following this, the scouts split up and conducted separated FIDOL assessments at Site L and Site H, before driving to the LE site, and conducting a site walkover along with a FIDOL assessment at the site boundary. 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: 12th November 2025 - 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: 12th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|--------|-------|---|
| D | 10:25 | Very weak (1) intermittent odours of an indeterminate character detected. |
| D to E | | Weak (2) intermittent compost odour detected. |
| E | 10:30 | No odour (0) to intermittent very weak (1) odours of an indeterminate character detected. |
| E to F | | Weak (2) compost to intermittent distinct (3) compost odour detected. |
| F | 10:33 | Very weak (1) odours of an indeterminate character detected. |
| F to G | | Continuous distinct (3) compost odour detected. |
| H | 10:38 | Continuous distinct (3) compost odour detected. |
| I | 10:42 | No odour (0) detected. |
| J | 10:46 | No odour (0) detected. |

Table 3: 12th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|-------------|-------|---|
| J to K | | Weak (2) to distinct (3) rubbish odour near Intergroup site. |
| K | 10:51 | Very weak (1) odour of an indeterminate character detected. |
| K to L | | Intermittent distinct (3) compost odour detected. |
| K | 10:55 | No odour (0) to intermittent very weak (1) odours of an indeterminate character detected. |
| K to D | | Intermittent weak (2) compost odour detected on Maces Road. |
| D | 10:59 | FIDOL assessment completed. No odour (0) was detected 49% of the time. Very weak (1) odours of an indeterminate character were detected 40% of the time. Weak (2) compost odour was detected 11% of the time. Weak (2) fragrant odour was detected 1% of the time. The odour was determined to be neither offensive nor objectionable. Scouts then split up and conducted separate FIDOL assessments in the industrial area, approximately downwind of the odour plume from the LE site. |
| L to K | 11:36 | FIDOL assessment completed. No odour (0) was detected 52% of the time. Very weak (1) odours of an indeterminate character were detected 30% of the time. Weak (2) compost odour was detected 15% of the time. Weak (2) solvent odours were detected 3% of the time. The odour was assessed to be neither offensive nor objectionable. |
| H | 11:38 | FIDOL assessment completed. No odour (0) was detected 15% of the time. Very weak (1) odours of an indeterminate character were detected 22% of the time. Weak (2) compost odour was detected 48% of the time. Distinct (3) compost odour was detected 15% of the time. The odour was assessed to be neither offensive nor objectionable. The scouts then drove to the Living Earth site and conducted a site walkover, along with a FIDOL assessment at the site boundary. |
| LE Boundary | 12:45 | FIDOL assessment completed. No odour (0) was detected 9% of the time. Very weak (1) odours of an indeterminate character were detected 35% of the time. Weak (2) compost odour was detected 35% of the time. Distinct (3) compost odour was detected 10% of the time. The odour was assessed to be neither offensive nor objectionable. |

Weak (2) compost odour was also detected near along Maces Road in the residential area. Due to the intermittent nature of the compost odour, it was determined to be neither offensive nor objectionable.

The odour was tracked from the residential area to the industrial area where distinct (3) compost odour was detected. The scouts also visited the LE site and took observations, noting that the odour was only detectable at the site boundary when material was being moved from the building into waiting trucks. This accounts for the intermittent nature of the odours observed offsite.

The compost odour in the industrial area was determined to be neither offensive nor objectionable.

3.4 18th November 2025

██████ was the PDP odour scout. The scout was present for approximately 45 minutes. 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 5**.



Figure 5: 12th November 2025 - 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 November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|----------|-------|--|
| D | 15:06 | Continuous weak (2) solvent odour detected. |
| E | 15:10 | Very weak (1) odours of an indeterminate character detected. |
| E to F | | Intermittent weak (2) compost odour detected. |
| F | 15:23 | No odour (0) detected. |
| G | 15:26 | Very weak (1) odours of an indeterminate character detected. |
| H | 15:28 | Continuous weak (2) rubbish odour detected. |
| Mr Boats | 15:30 | Very intermittent weak (2) compost odour detected. |
| M | 15:31 | Intermittent weak (2) sewage odour detected. |
| F | 15:39 | Very weak (1) odours of an indeterminate character detected. |
| F to E | | Distinct (3) solvent odour detected. |
| E | 15:44 | Weak (2) grass odour detected. |
| L | 15:47 | Very weak (1) odours of an indeterminate character detected. |
| D | 15:49 | Very weak (1) odours of an indeterminate character detected. |

Weak (2) compost odour was detected in the industrial area, near Mr Boats. No compost odour was detected in the residential area.

The compost odour in the industrial area was determined to be neither offensive nor objectionable.

3.5 26th November 2025

██████████ were the PDP odour scouts. The scouts were present for approximately 45 minutes. The scouts started near Site D, and then walked along the boundary of the industrial area towards Site H, before 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 6**.



Figure 6: 26th November 2025 - 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: 26th November 2025 - Odour Scouting Summary

| Site | Time | Observations |
|------|-------|---|
| D | 11:46 | Weak (2) asphalt odour detected. |
| E | 11:52 | Very weak (1) odours of an indeterminate character detected. |
| F | 11:56 | Very weak (1) odours of an indeterminate character detected. Wind was noticed to increase in speed, and shift towards a north-westerly direction. |
| G | 11:59 | Distinct (3) burning plastic odour detected. |
| H | 12:02 | Very weak (1) odours of an indeterminate character detected. |
| G | 12:05 | Distinct (3) burning plastic odour detected. |
| F | 12:07 | Very weak (1) odours of an indeterminate character detected. |
| E | 12:11 | Weak (2) to distinct (3) asphalt odour detected. |
| D | 12:15 | Weak (2) to distinct (3) asphalt odour detected. |

No compost odour was detected in either the industrial or residential area. Distinct (3) asphalt odour was detected along Maces Road, from Site D to E, due to recently laid chipseal, while distinct (3) burning plastic odour was detected along Dyers Road near Site G, due to the plastic welding at Dakins Group.

4.0 Summary

PDP undertook odour scouting on four occasions between the 1st of November 2025 and the 30th of November 2025.

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 November 2025

- ✧ Weak (2) compost odour was detected in the residential area, at Sites O and Q.

11th November 2025

- ✧ No compost odour was detected in the residential area.

12th November 2025

- ✧ Weak (2) compost odour was detected in the residential area, along Maces Road near Site D.

18th November 2025

- ✧ Weak (2) compost odour was detected in the industrial area, near Mr Boats.

26th November 2025

- ✧ No compost odour was detected in the residential or industrial area.

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.

PDP has noted that increased compost odour has been observed in the area this month, when compared to winter. During the site walkover on 12th November, LE staff members noted that the amount of green waste received from the site has significantly increased since winter. It was noticed during the onsite FIDOL assessment on 12th November, that observed weak (2) and distinct (3) compost odours appeared to be correlated with the onsite loading of compost onto trucks from the tunnels.

During the site walkover on 12th November, PDP did not note any compost stored outdoors. As such, PDP believes the increased compost odour is due to the increased volume of composting taking place onsite, resulting in an increased frequency of compost loadouts.

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.

This memorandum has been prepared by PDP on the specific instructions of Christchurch City Council for the limited purposes described in the memorandum. PDP accepts no liability if the memorandum is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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Prepared by



Air Quality Scientist

Reviewed by



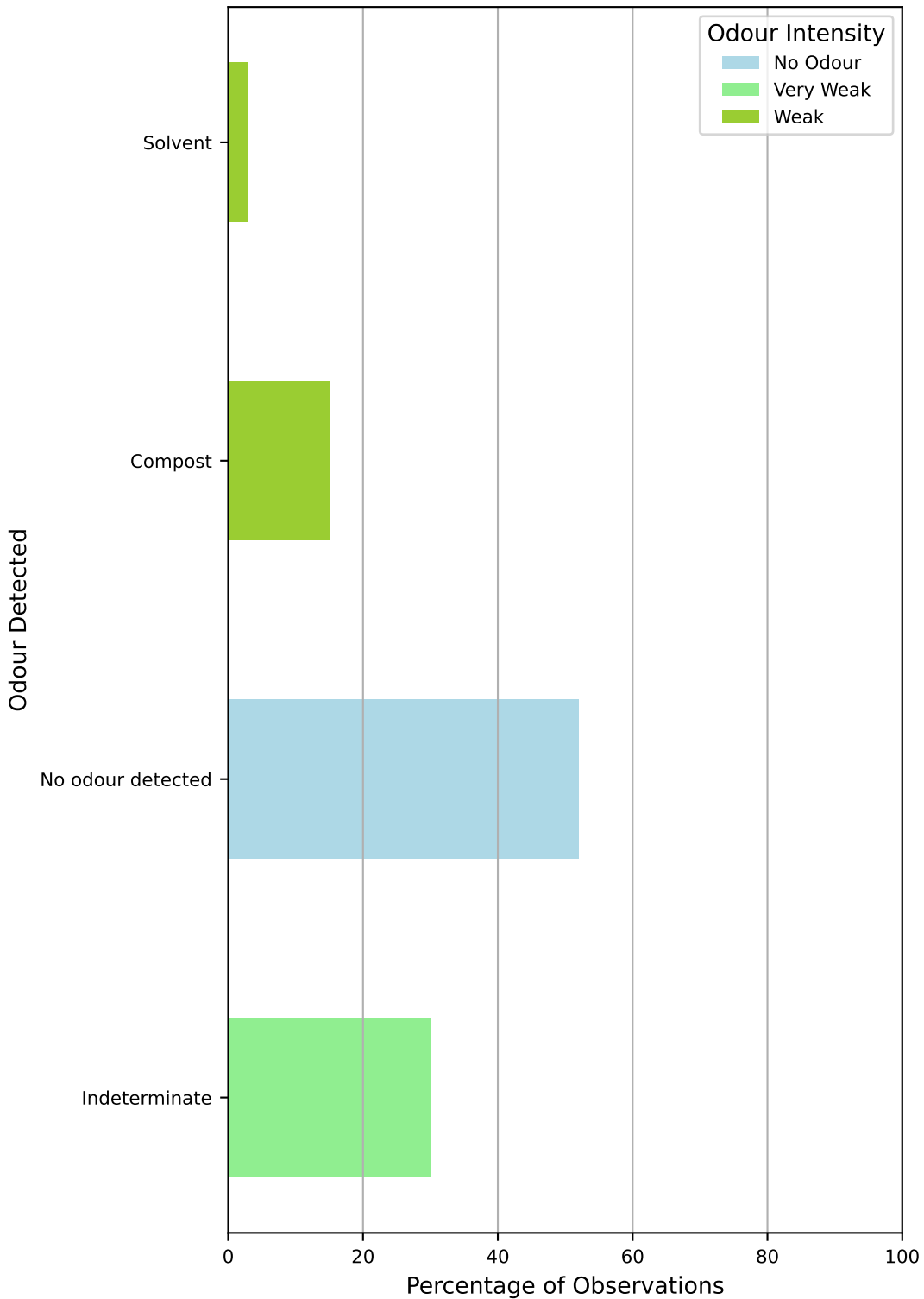
Service Leader- Air Quality

Approved by

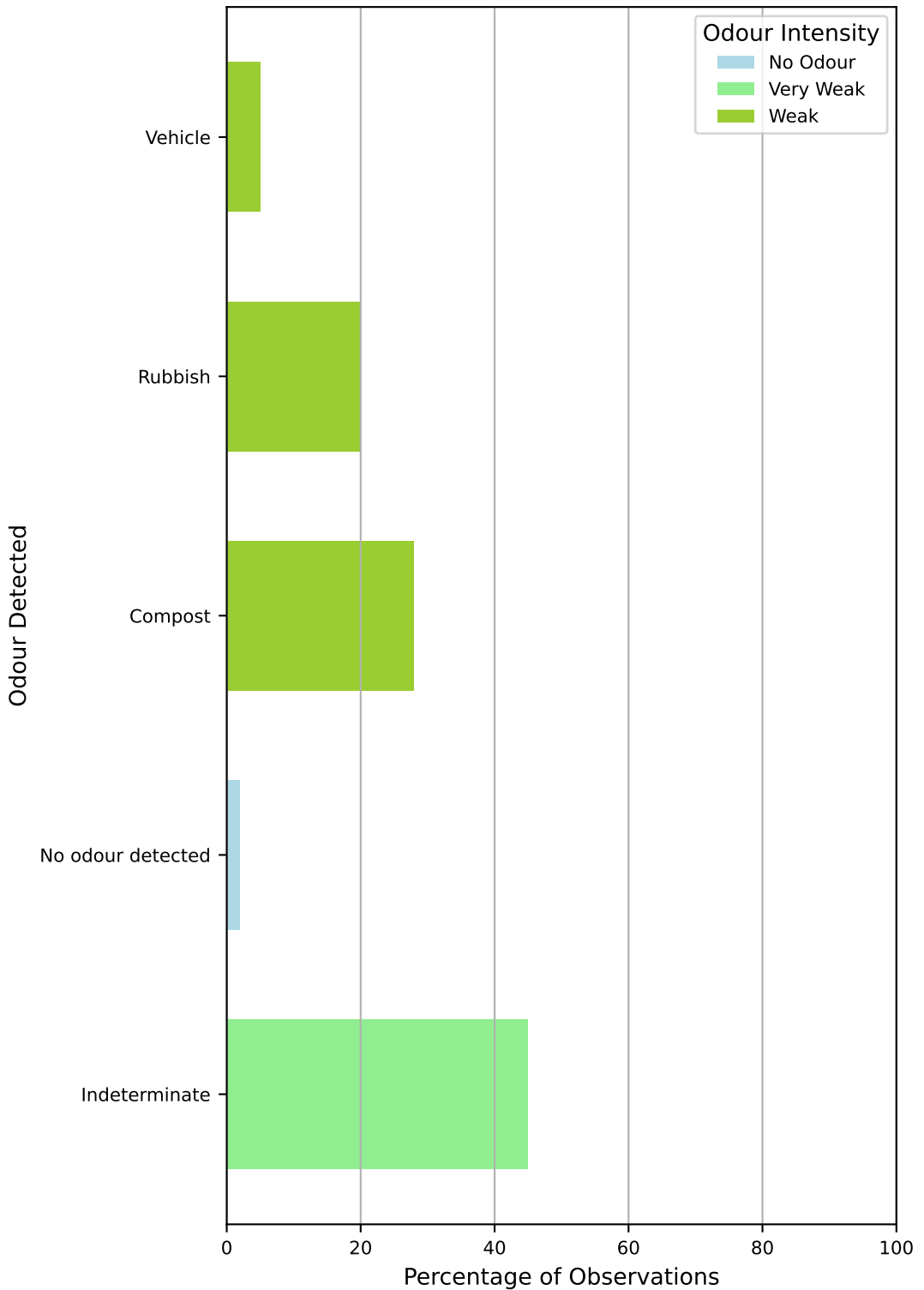


Group Director- Water Infrastructure

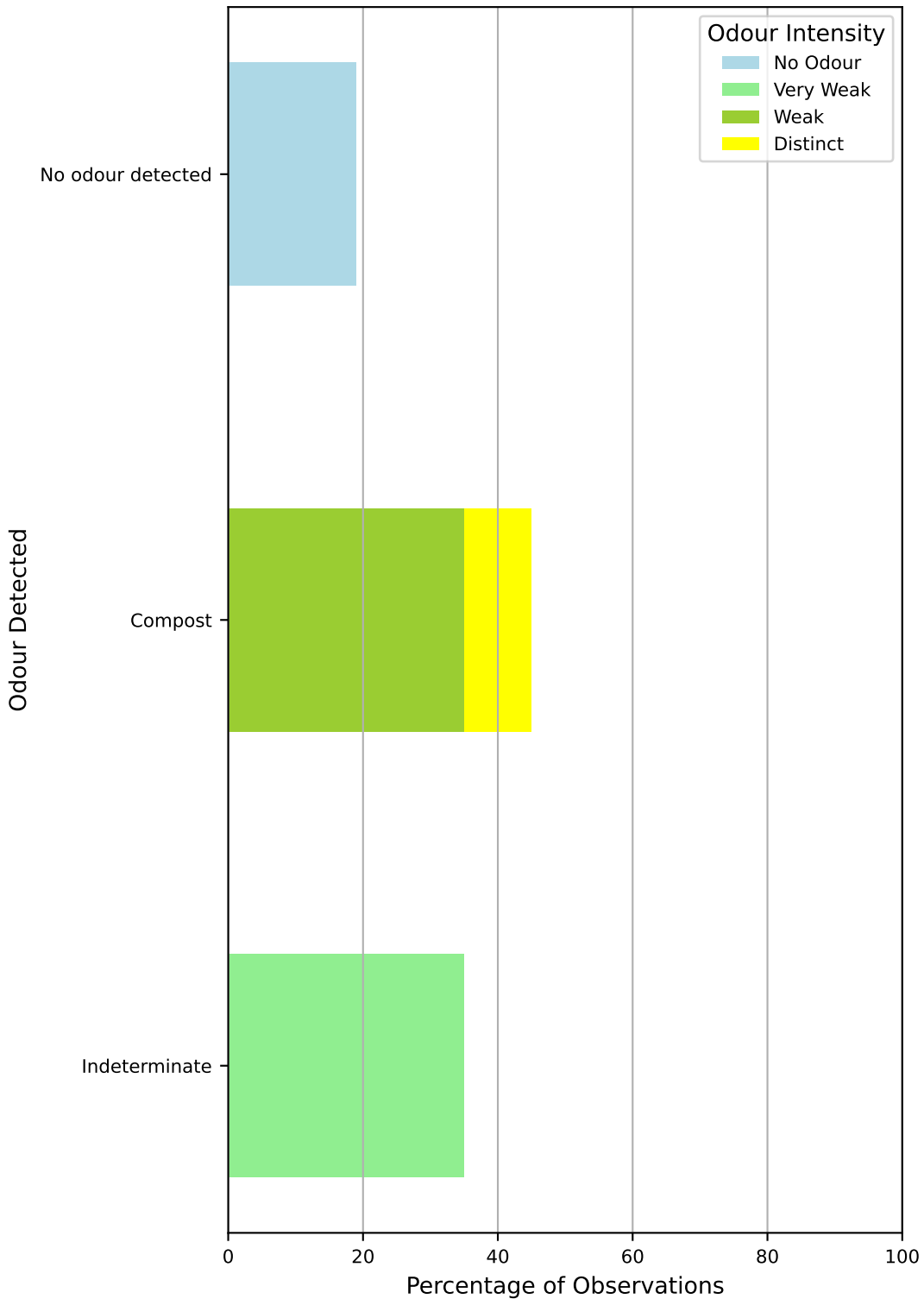
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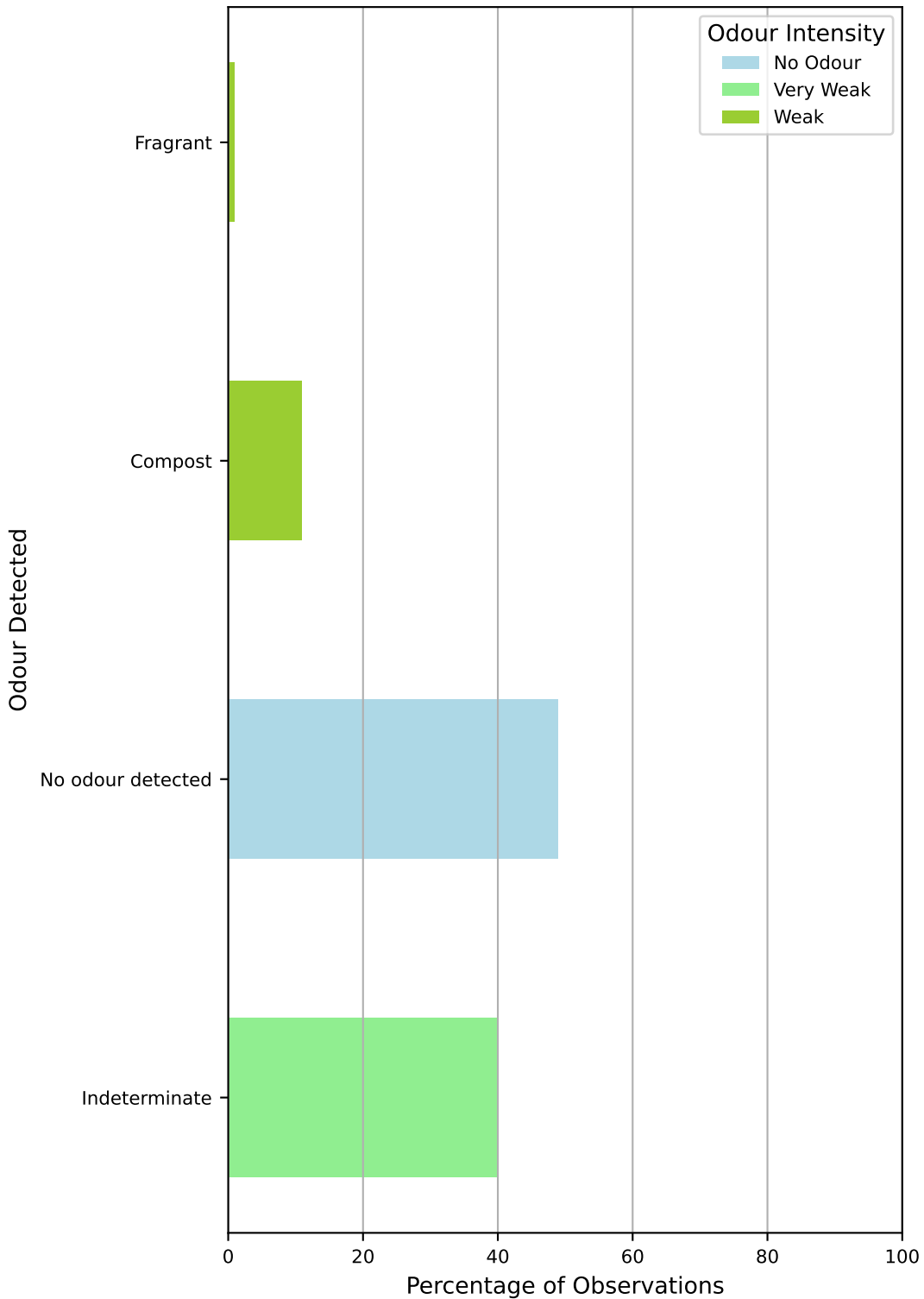
Mr Boats



Site Boundary



Site D



Site H

