



23 January 2023

██████████
Manager Resource Recovery, Transport and Waste
Christchurch City Council
PO Box 73011
CHRISTCHURCH

Dear ██████████

LIVING EARTH ODOUR MONITORING: 20th JANUARY WALKOVER SUMMARY

1.0 Background

Living Earth Limited (Living Earth) operates an organics processing plant and green waste composting facility located at 40 Metro Place, Bromley, Christchurch (shown in Figure 1) (the 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 of 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) have 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.

This letter provides as summary of PDP's observations of off-site odour scouting on the 20th January 2023.

2.0 Key Personal Details

This odour scouting was undertaken by ██████████. ██████████ has a 'calibrated' nose for the purposes of assessing odour having been tested to, and meeting, the requirements of AS/NZS 4323.3:2001 Section 9.7.2.

██████████ was accompanied by ██████████ (CCC) and ██████████ (CCC) for the purposes of parallel odour assessment and odour scout training.

3.0 Scouting Methodology

The weather was clear, with temperatures in the mid 20's and a north-easterly breeze. The odour scouting route and key scouting locations are shown in Figure 1.

The scouts walked at a leisurely pace along the scouting route. During the walk, observations on odours present were made. At each observation point, scouts halted and took more detailed observations. In key

areas where odour was detected, or at known sensitive areas, a full 10-minute odour observation was taken. During this scout, 10-minute observations were taken at locations C and H.

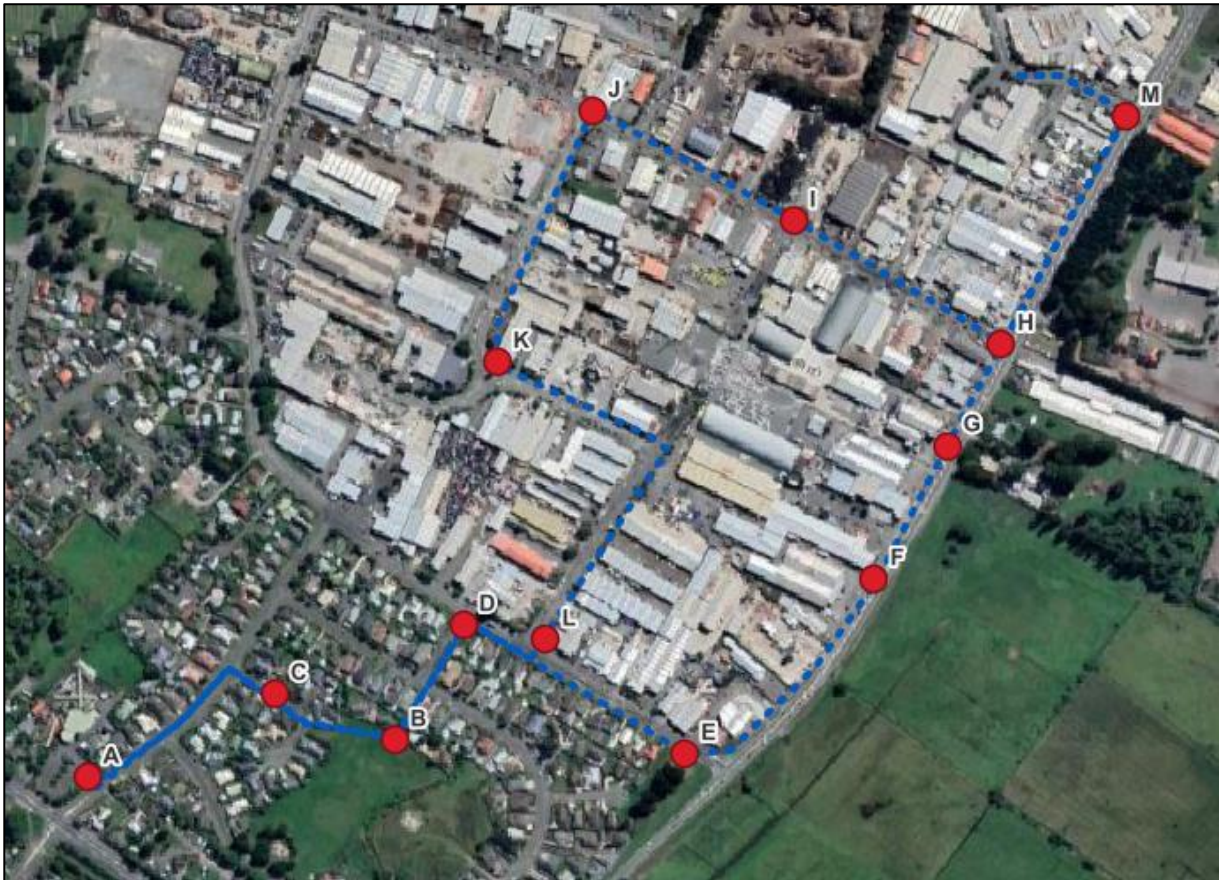


Figure 1: Living Earth Odour Observation Route

3.1 Results

Results from the odour scout are shown below. Odour intensity is reported on a scale of (0-6) as per the Ministry for the Environment’s (MfE) Good Practice Guide for Assessing and Managing Odour. As a short summary, PDP applies the following descriptions of each odour intensity:

- 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; observer can remain in area but will consider leaving/altering breathing patterns.
- 6. Extremely Strong: The odour caused an observer to feel nauseous or required to leave the area.

Entries within Table 1 that are highlighted green denote locations within the higher sensitivity residential zone.

Table 1: Odour Scouting Results		
Location	Time	Observations
A	11:20	No odour detected, ENE winds.
C	11:25	Full 10-min observation taken. Odours detected: <ul style="list-style-type: none"> ∴ Weak (2) fragrant/flowers, 5% of the observation period. ∴ Very weak (1) odour, unrecognisable, 3% of the observation period. ∴ No odour (0), 92% of the observation period.
B	11:41	Odours detected: <ul style="list-style-type: none"> ∴ Weak to distinct (2-3) cut grass, consistent.
D	11:44	Odours detected:
L	11:47	∴ Weak (2) solvent, very intermittent.
E	11:50	Odours detected: <ul style="list-style-type: none"> ∴ Very weak (1) odour, unrecognisable.
F	11:57	Odours detected: <ul style="list-style-type: none"> ∴ Weak to distinct (2-3) compost, consistent.
G	12:00	Odours detected: <ul style="list-style-type: none"> ∴ Distinct (3) compost, consistent.
H	12:02	Full 10-min observation taken. Odours detected: <ul style="list-style-type: none"> ∴ Weak to distinct (2-3) compost. ∴ Weak to distinct (2-3) rubbish. ∴ Very weak (1) odour, unrecognisable. <p>The wind was swirling E to NE. Odour character changed with wind direction.</p>
M	12:20	On wind of site, no odour detected.
I	12:30	Odours detected:
J	12:35	∴ Very weak to weak (1-2) industrial odour, continuous.
K	12:40	Odours detected: <ul style="list-style-type: none"> ∴ Weak to distinct (2-3) organic/compost/stale green bin, continuous. ∴ Weak to distinct (2-3) rubbish, continuous. <p>The character of the organic smell was different to that usually recognisable as the LE compost odour. Potentially a different source responsible, or the character was affected by mixing with other industrial odours nearby.</p>
K to L		Odours detected: <ul style="list-style-type: none"> ∴ Weak (2) compost, intermittent.
L	12:45	Odours detected:

Table 1: Odour Scouting Results		
Location	Time	Observations
D		<ul style="list-style-type: none"> ∴ Weak (2) compost, intermittent. ∴ Weak (2) solvent, intermittent.
B		Odours detected: <ul style="list-style-type: none"> ∴ Weak to distinct (2-3) cut grass, consistent.
C	12:55	Odours detected: <ul style="list-style-type: none"> ∴ No odour (0) predominant. ∴ Weak (2) compost, short duration. While conversing with [REDACTED] a weak compost odour was detected for approx. 5 seconds. No odour was detected the remainder of the time in the street.
A	13:00	No odour detected, NE winds.

Scouts were present in the area for approximately an hour and a half. An ENE to NE wind shift occurred during the scout, this may account for the introduction of intermittent, weak compost odours to the residential area on the return leg of the odour scouting walk.

As per MfE guidance, odours were assessed against the FIDOL factors to determine if they are offensive or objectionable. The FIDOL factors are:

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

Typically, intermittent distinct (3) or continuous weak (2) odours of a negative hedonic tone (such as compost) would be considered offensive in a residential setting. As such, PDP do not consider the odours identified in the scout of the residential area to have been offensive or objectionable.

Within the industrial zone, there is a lower expectation of air quality (odour) than in a residential area. PDP do not consider the odours identified in the scouting of the industrial area to have been offensive or objectionable.

An H₂S monitor with 3 ppb detection precision was deployed by CCC staff along the course of the scout. No H₂S was detected, this is consistent with the observations of the odour scouts who detected no H₂S odours.

4.0 Summary

PDP undertook odour scouting on the 20th January 2023, targeting observations of compost odours from Living Earth’s composting operations.

Based on PDP’s observations:

- ∴ The odour observed in the residential areas during the odour scouting was not offensive or objectionable, but intermittent, weak odours were detected with the NE shift;

- ∴ The odour observed in the industrial areas during the scout was not offensive or objectionable. Compost odours were readily detectable along Dyers Road and decreased in intensity with distance downwind; and
- ∴ Odour levels at location K could be investigated further if the phenomenon is encountered again.

The character of the compost odour matched PDP's experience with the odour generated by the on-site stockpiles. The odour did not match PDP's experience with the odour from the organics processing plant (OPP) or associated biofilter.

5.0 Limitations

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

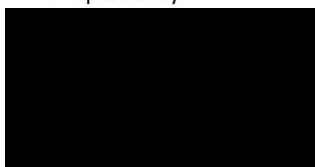
This report has been prepared by PDP on the specific instructions of CCC for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

Prepared by



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