8 August 2022

City of Monash
390 Ferntree Gully Road
Notting Hill, VIC 3168

**Subject: Talbot Park Landfill Gas and Playgrounds Risk Assessment_Rev2**

# 1 Introduction

City of Monash engaged EHS Support to complete landfill gas monitoring and hand auger investigations in May and August 2022 to assess potential landfill gas risk at proposed playground locations at Talbot Park, Oakleigh South, Victoria.

Monitoring at Talbot Park involved the following elements (as per **Table 1**).

**Table 1 – Monitoring Elements and Requirements**

| Element | Location | Parameters | Completed |
|---|---|---|---|
| Landfill Gas | LFG Bores (LFG01A, LFG02 – LFG06 and GB31) | $CH_4$, $CO_2$, $O_2$, Balance, CO, $H_2S$, Flow, Relative Pressure. | 4th May 2022 |
| | Cap Surface Monitoring (25m grid) | $CH_4$ | 4th May 2022 |
| | Subsurface Services | $CH_4$ | |
| | Buildings/ Structures | $CH_4$ | |
| Soil Bores | Various – **Figure 4** | $CH_4$, $CO_2$, $O_2$, Balance, CO, $H_2S$, presence of waste/lithology. | 4th May 2022<br>5th August 2022 |

# 2 Landfill Gas Monitoring

## 2.1 Methodology and Weather

Landfill Gas emissions monitoring was undertaken in accordance with methods provided in EPAV Publication 1684 (EPA Victoria, 2018). A low concentration methane detector (Inspectra Laser TDL 500) was used to monitor methane emissions across the site and in buildings/structures and services (BSS). An extractive landfill gas analyser (GA5000) was used to monitor landfill gas bores and BSS; and an anemometer (TSI VelociCalc) was used to monitor windspeed during the emissions monitoring.

The low concentration methane detector (Inspectra Laser TDL) and extractive landfill gas analyser (GA5000) were used to monitor landfill gas within the soil bores.

Weather data reported for the May monitoring event from the nearest Bureau of Meteorology station (Moorabbin Airport – Station ID 086077) is provided below in **Figure 1**.

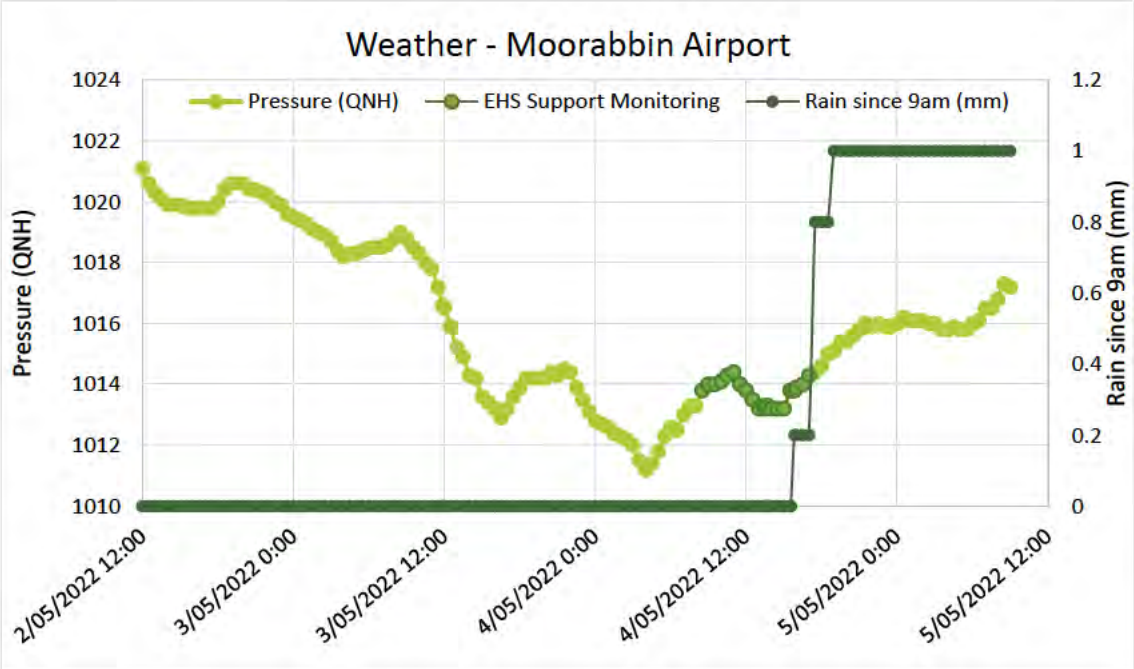


**Figure 1 - Weather Moorabbin Airport (Station ID: 086077)**

Based on the chart above, the LFG emissions monitoring was preceded by a period of rising barometric pressure, with fluctuating pressure occurring during the monitoring event. Falling barometric pressure promotes the release of landfill gas.

No rainfall was noted in the days preceding the monitoring event, however on the day of monitoring there was 1 mm of rain. The cap surface was observed to be mostly dry during the emissions walkover thus not limiting potential vertical LFG emissions.

During the monitoring event, low wind speeds were noted to occur, with recordings up to 1.55 km/hr (0.43 m/s) on site, which is below the EPAV recommended wind speed of 10 km/hr. Except for the rising barometric pressure and light rain, the weather conditions were considered favourable for the landfill gas emissions walkover and subsurface service monitoring.

## 2.2 LFG Action Levels

The landfill gas monitoring results have been compared against the action levels defined in the EPA Best Practice Siting, design, operation and rehabilitation of landfills (BPEM, Pub 788.3). The relevant action levels are:

| Location | Parameter(s) | Action Level |
|---|---|---|
| Landfill surface final cap | Methane concentration in air | 100 ppm |
| Within 50mm of penetrations through the final cap | Methane concentration in air | 100 ppm |

| Location | Parameter(s) | Action Level |
|---|---|---|
| Subsurface services on an adjacent to the landfill site | Methane concentration | 10,000 ppm |
| Buildings/structures on an adjacent to the landfill site | Methane concentration in air | 5,000 ppm |
| Subsurface geology at the landfill boundary | Methane and carbon dioxide concentrations | 1% v/v Methane<br><br>1.5% v/v Carbon Dioxide above background |

## 2.3 Surface Emissions Results

The surface emissions monitoring locations and ranges of recorded methane concentrations are presented in **Figure 3**. Tabulated results are presented in **Attachment A**. Field notes and calibration of the equipment used are presented in **Attachment B.**

The emissions walkover covered a 25m grid across the site, and targeted areas within the site boundary. All locations monitored remained below 2.5 ppmv methane except for Point ID 30, along the northern fence line, which was 10.4 ppmv. The majority of readings were similar to ambient conditions and all fall below the EPAV Landfill gas action levels (100 ppm) for landfill surface final cap levels.

Readings around the vicinity of the current playground and proposed playground extension area (locations 2 – 4 and 11 – 14) remained similar to ambient.

## 2.4 Monitoring of Buildings, Structures and Subsurface Services Results

The surface emissions monitoring locations and ranges of recorded methane concentrations are presented in **Figure 2**. Tabulated results are presented in **Attachment A**. Field notes and calibration of the equipment used are presented in **Attachment B.**

Monitoring of buildings, structures and subsurface services included the following:

- Subsurface Services: a number of onsite stormwater drains and services, and offsite services along Centre Road (to the south).
- Buildings/Structures for LFG monitoring include an onsite playground, toilet block, and barbecue area

All locations monitored were reported below the EPAV Landfill action levels for subsurface services on and adjacent to the landfill site (10,000 ppm or 1% v/v methane) and buildings/structures (5,000 ppm or 0.5% v/v methane). All locations remained similar to ambient conditions except for IDs 7 and 11. These stormwater drains had elevated methane readings at 76.5 and 103 ppmv respectively.

Based on these results, it is not anticipated that landfill gas will occur at elevated concentrations within buildings, structures or services associated with the upgrade of the onsite playground.

## 2.5 LFG Bore Results

All landfill gas bores to monitor sub-surface landfill gas emissions are shown in **Figure 1**. These were monitored using the GA5000 and results are presented in **Table 2** (below), with exceedances of BPEM action levels indicated in **bold**. Site infrastructure consists of six perimeter landfill gas bores (LFG01a, LFG02 – LFG06 all installed to 6 metres below ground level) and one in waste bore (GB31). Historical results were obtained from previous monitoring events, these are presented along with the May 2022 results in **Attachment A**.

Field notes and equipment calibration is presented in **Attachment B**.

**Table 2 – LFG Bore Monitoring Results**

| ID | $CH_4$ % v/v | $CO_2$ % v/v | $O_2$ % v/v | Balance % v/v | $H_2S$ ppmv | CO ppmv | Barometric Pressure (mb) | Relative Pressure | Flow (L/hr) |
|---|---|---|---|---|---|---|---|---|---|
| LFG01A | 0.0 | **1.5** | 19.7 | 78.8 | 0.0 | 0.0 | 1007 | -0.05 | 0.0 |
| LFG02 | 0.0 | **2.3** | 18.8 | 78.9 | 0.0 | 0.0 | 1008 | 0.10 | 0.0 |
| LFG03 | 0.0 | 0.7 | 20.6 | 78.7 | 0.0 | 0.0 | 1008 | 0.03 | 0.0 |
| LFG04 | 0.0 | **1.7** | 20.1 | 78.1 | 0.0 | 0.0 | 1008 | -0.02 | 0.0 |
| LFG05 | 0.0 | **2.1** | 19.6 | 78.3 | 0.0 | 0.0 | 1008 | 0.02 | 0.0 |
| LFG06 | 0.0 | **1.6** | 20.0 | 78.4 | 0.0 | 1.0 | 1008 | -0.02 | 0.0 |
| GB31 | 0.0 | **10.9** | 2.0 | 87.1 | 0.0 | 2.0 | 1008 | -0.14 | 0.0 |

The following is noted:

- Methane was recorded below the current BPEM action level of 1% v/v at all locations.
- Carbon dioxide was recorded above the current BPEM action level of 1.5% v/v at all locations except for LFG03.
- The flow rate of landfill gas was noted to be negligible in all of the monitoring bores.

Historically

- Concentrations from May 2022 were compared to historical results and were noted to remain within historical ranges. Historically elevated methane concentrations have been reported in GB31, within the waste mass - up to 81.8% in August 2009, suggesting that the waste mass was continuing to generate landfill gas at that time. However, monitoring results since 2009 have indicated relatively depleted methane with 0.0% methane recorded during this event.

Based on landfill gas bore results – subsurface landfill gas appears to be generally depleted across the site. Flow rates are negligible and there is evidence that oxidation of methane to carbon dioxide is occurring.

# 3 Hand Auger Investigation

## 3.1 Soil Bore Details

An initial six (6) soil bores were hand augered across the site to assess the proposed playground locations on 4 May 2022.

Following the initial investigation Council requested additional locations to be undertaken with a deeper (2 metres below ground level) target depth. This was due to an updated proposed stormwater line (to be installed up to approximately 2 m deep).

Soil bore logs are presented in **Attachment C**, and the location of the bores can be seen in **Figure 4** (attached).

Initial soil bore locations (HA01 – HA06) targeted proposed playground infrastructure. A depth of 1.0 m below ground level for the soil bores was targeted as it was anticipated that playground infrastructure footings may range up to 1.0m.

The follow up bore locations (HA07 – HA08) targeted the proposed stormwater line at its deepest section, which was up to 2.0 m below ground level.

The details for each of the bores are presented below in **Table 3.**

**Table 3 Soil Bore Details**

| ID | UTM Zone 55 | | Total depth (m) | Targeted Infrastructure | Lithology |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| HA01 | 333435 | 5800653 | 1 | Current Playground Extension/ New Drainage Pits | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 1.0 m Fill (Capping) material: sandy clays, brown, orange and pale grey, low plasticity, firm moist with fine to coarse sands. Trace gravels up to 25mm diameter |
| HA02 | 333422 | 5800653 | 0.85 | Current Playground Extension/ New Drainage Pits | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 0.85 m Fill (Capping) material: sandy clays, brown, orange, grey and red, low plasticity, firm, with fine to coarse sands. Trace gravels up to 15mm diameter. |
| HA03 | 333423 | 5800674 | 0.9 | Current Playground Extension | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 0.8 m Fill (Capping) material: sandy clays, brown, orange, pale grey and red, low plasticity, firm to very stiff, with fine to coarse sands. Trace gravels up to 20mm<br>0.8 – 0.9 Fill (Capping) material: clayey sands: pale grey and yellow, dry to moist, fine grained, with gravels up to 20mm diameter |
| HA04 | 333416 | 5800689 | 1 | Adult Fitness Equipment | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 1.0 m Fill (Capping) material: silty clays, brown, orange and red, low plasticity, stiff. Trace gravels up to 35 mm diameter<br>0.85 – 1.0 Fill (Capping) material: sandy silt: brown, grey, soft, dry |
| HA05 | 333393 | 5800657 | 1 | Active Play Area | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 1.0 m Fill (Capping) material: sandy clays, brown, orange, red and yellow, medium plasticity, firm, with fine grained sands. Trace gravels up to 20mm |
| HA06 | 334435 | 5800683 | 1 | Current Playground Extension/ Nature Play | 0.0 – 0.15 m Topsoil: Silt<br>0.15 – 1.0 m Fill (Capping) material: clays, brown, orange, pale grey, high plasticity, firm, with trace coarse grained sands and gravels |
| HA07A | 333453 | 5800661 | 1.5 | Stormwater Line | 0.0 – 0.20 m Topsoil: Silty Sand<br>0.20 – 0.7 m Fill (Capping) material: clays, orange, red, pale grey, medium to high plasticity, firm, moist, with ~10% gravels<br>0.7-0.5 m Fill (Capping) material: brown, no plasticity, dry to moist with some trace gravel and some clays |
| HA07B | 333451 | 5800660 | 0.8 | | |
| HA07C | 333450 | 5800662 | 1.0 | | |
| HA08A | 333427 | 5800655 | 1.3 | | 0.0 – 0.15 m Topsoil: Silty Sand<br>0.20 – 1.3 m Fill (Capping) material: clays, orange, red, brown, trace pale grey, medium to high plasticity, firm, moist, with ~10% gravels and some sands from 0.5m |
| HA08B | 333433 | 5800655 | 1.2 | | As per HA08A, with brick fragments and a metal peg at 1.2 m |

No waste material was encountered during the investigation with the exception of minor waste (trace brick fragments and a metal peg) at 1.2 m within HA08B.

Target depths were generally achieved for locations HA01-HA06 within a competent cap material generally consisting of clays with minor sands and silts.

Locations targeting the deeper stormwater line (HA07 – HA08) were unable to be augered to the target depth of 2.0 m with refusal occurring on hard concrete or large diameter graves. Additional locations were attempted in proximity to the original location to assess whether the hard material causing refusal was localized. However, the harder material was consistent along the proposed stormwater alignment. It is understood that old infrastructure (i.e., former stormwater drain) may be present along this proposed stormwater line which was causing the refusal.

Based on this information and the likelihood that playground infrastructure footings would not extend beyond 1.0 m and stormwater drain beyond 2.0 m, it is anticipated that waste would not be intercepted during the playground and associated infrastructure upgrade and that a preferential pathway for landfill gas through the cap would not be established.

## 3.2 Soil Bore Monitoring Results

Landfill gas emissions were measured within each soil bore. These results are presented below in **Table 4.**

**Table 4 Soil Bore LFG Monitoring Results**

| Bore ID | Stabilised Reading | | | | | | |
|---|---|---|---|---|---|---|---|
| | $CH_4$ | | $CO_2$ | $O_2$ | Balance | $H_2S$ | CO |
| | ppmv | % v/v | % v/v | % v/v | % v/v | ppmv | ppmv |
| **HA01** | 11.4 | 0.0 | 0.6 | 20.8 | 78.6 | 0 | 0 |
| **HA02** | 4 | 0.0 | 0.9 | 20.2 | 78.9 | 0 | 5 |
| **HA03** | 6.4 | 0.0 | 0.1 | 20.9 | 78.9 | 0 | 2 |
| **HA04** | 2.0 | 0.0 | 0.1 | 21.1 | 78.9 | 0 | 2 |
| **HA05** | 6.5 | 0.0 | 0.9 | 20.6 | 78.6 | 0 | 4 |
| **HA06** | 1.6 | 0.0 | 0.1 | 20.8 | 78.8 | 0 | 0 |
| **HA07A** | 1.8 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| **HA07B** | 1.9 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| **HA07C** | 11.1 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| **HA08A** | 2.3 | 0.0 | 0.7 | 20.4 | 78.8 | 0 | 0 |
| **HA08B** | 4.3 | 0.0 | 1.6 | 19.9 | 78.6 | 0 | 1 |

All readings remained below action levels for all monitored values. HA03, HA04 and HA06 were similar to ambient conditions, while HA01, HA02, HA05, HA07A-C and HA08A-B had slightly elevated methane, carbon dioxide and carbon monoxide levels. Methane levels remained below EPAV Landfill

gas action levels (100 ppm) for landfill surface final cap and significantly below the lower explosive limit (50,000 ppm or 5% v/v).

Given the relatively low landfill gas concentrations, the construction of the playground and stormwater line is not anticipated to expose significant concentrations of landfill gas that could pose a risk to human health or the environment. However, it is recommended that construction workers be instructed to use appropriate monitoring devices (i.e., LEL monitor) to monitor levels of landfill gas when working within excavations through the cap material.

# 4 Conclusion and Recommendations

Based on the landfill gas monitoring and intrusive hand auger investigations undertaken at Talbot Park, and considering historical landfill gas data at the site the following conclusions are made:

- Landfill gas monitoring (Surface Emissions and monitoring of buildings, structures and services) on 4 May 2022 was conducted in suitable weather conditions;
- Landfill gas cap emissions monitoring recorded all locations below that of the EPA Victoria BPEM action level of (100ppm) with readings in the vicinity of playground and proposed playground extension area similar to ambient.
- Monitoring of on-site buildings, structures and services reported landfill gas concentrations similar to ambient with the exception of slightly elevated readings (up to 103 ppmv) at perimeter stormwater drains. It is not anticipated that landfill gas will occur at elevated concentrations within buildings, structures or services associated with the upgrade of the onsite playground
- Monitoring of landfill gas bores (subsurface conditions) noted methane was below the level of detection (0.0%) at all locations including the in-waste bore (GB31) which has historically reported elevated methane up to >80%. Carbon dioxide was reported up to 10.9% (GB31) and was significantly lower at perimeter bore locations suggesting that oxidation of methane was occurring at the landfill gas perimeter (east and south). Based on landfill gas bore results – subsurface landfill gas appears to be generally depleted across the site.
- The intrusive hand auger investigations, targeting areas proposed for the playground upgrade, intercepted a competent clay material with some sands and gravels throughout.
    - Target depths for playground footings (of 1.0 m) were generally achieved with no waste encountered.
    - Target depths for the deepest section of the stormwater line (2.0 m) were unable to be achieved with refusal on concrete or large diameter gravels occurring from 0.8 to 1.5 m.
    - Soil bores were monitored for landfill gas noting relatively low landfill gas concentrations (methane up to 11ppm, carbon dioxide up to 1.6% and carbon monoxide up to 4ppm).

Given the results above, landfill gas may continue to be generated within the waste mass at Talbot Park, however at relatively low levels.

The construction of the proposed upgraded playground and infrastructure at Talbot Park does not appear to pose an elevated risk to health or the environment, however the following is recommended:

- Construction workers should adhere to confined space entry requirements when working within the landfill cap area, including but not limited to the use of an LEL monitor to detect methane and carbon monoxide;
- The clay cap should be reinstated where possible with a low permeability material (similar to that currently insitu) and surfaces graded to promote surface runoff.
- Once playground upgrade works are complete, it is recommended to conduct a follow up landfill gas monitoring event to ensure infrastructure has not created a preferential pathway through the cap for landfill gas migration.

Should you have any questions or require additional information, please feel free to contact EHS Support.

Sincerely,

Environmental Scientist
ehs-support.com

Senior Principal Hydrogeologist
ehs-support.com

**Attachments**

Figures

Attachment A – Tabulated LFG Results

Attachment B – LFG Scanned Field Notes and Equipment Calibration

Attachment C – Hand Auger Logs

# Figures


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# Site Layout

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TALBOT PARK
CITY OF MONASH

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**Figure 1**

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|---|---|
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# Buildings, Structures and Services Monitoring - May 2022

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TALBOT PARK
CITY OF MONASH

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**Figure 2**

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# Cap Emissions Walkover - May 2022

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TALBOT PARK
CITY OF MONASH

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**Figure 3**

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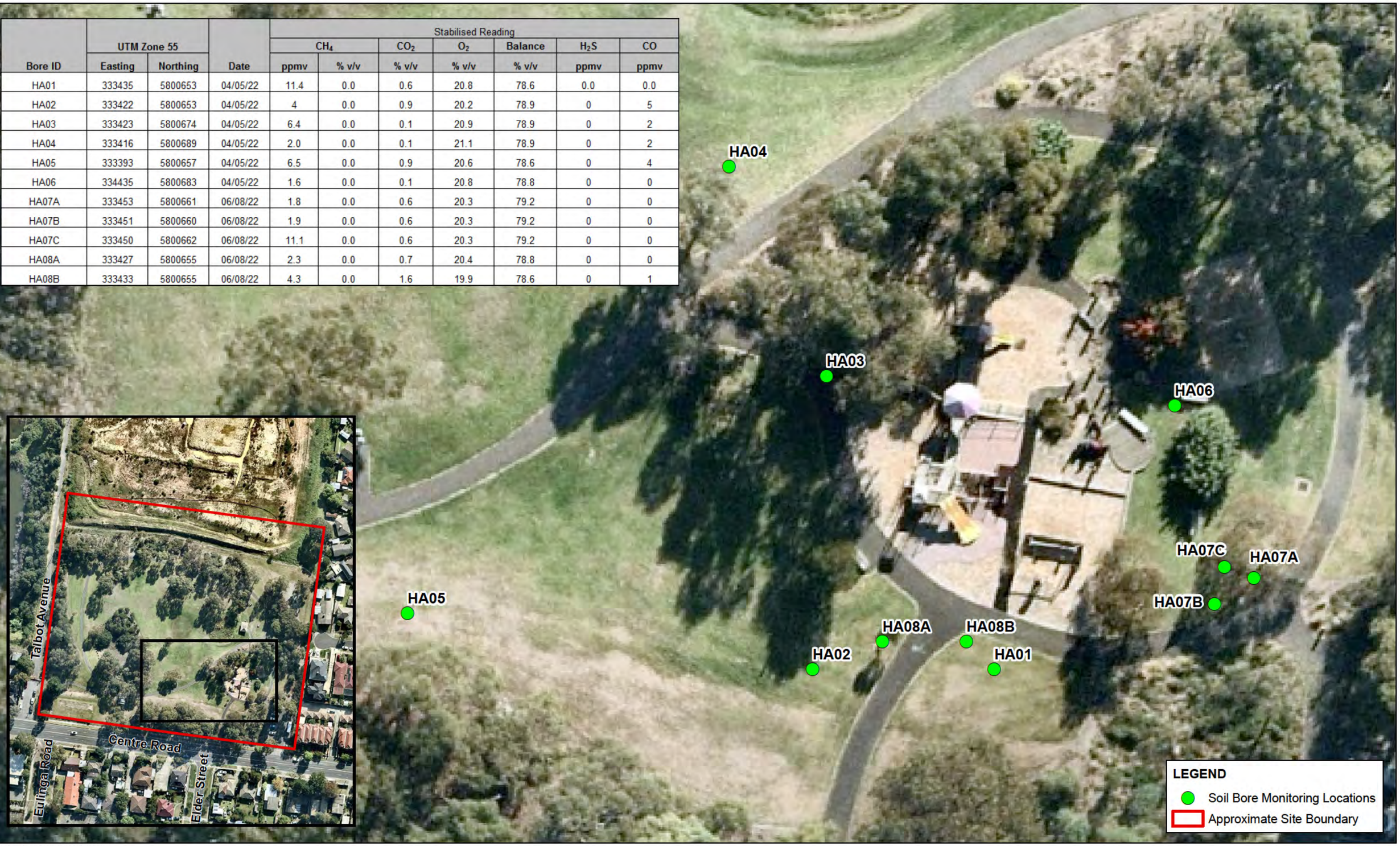
| GRID/DATUM: | GDA 1994 MGA Zone 55 |
| SCALE: | 1:1,000 |
| AERIAL IMAGE SOURCE: | VICMAP IMAGERY BASEMAP |

| Bore ID | UTM Zone 55 Easting | UTM Zone 55 Northing | Date | Stabilised Reading $CH_4$ ppmv | $CH_4$ % v/v | $CO_2$ % v/v | $O_2$ % v/v | Balance % v/v | $H_2S$ ppmv | CO ppmv |
|---|---|---|---|---|---|---|---|---|---|---|
| HA01 | 333435 | 5800653 | 04/05/22 | 11.4 | 0.0 | 0.6 | 20.8 | 78.6 | 0.0 | 0.0 |
| HA02 | 333422 | 5800653 | 04/05/22 | 4 | 0.0 | 0.9 | 20.2 | 78.9 | 0 | 5 |
| HA03 | 333423 | 5800674 | 04/05/22 | 6.4 | 0.0 | 0.1 | 20.9 | 78.9 | 0 | 2 |
| HA04 | 333416 | 5800689 | 04/05/22 | 2.0 | 0.0 | 0.1 | 21.1 | 78.9 | 0 | 2 |
| HA05 | 333393 | 5800657 | 04/05/22 | 6.5 | 0.0 | 0.9 | 20.6 | 78.6 | 0 | 4 |
| HA06 | 334435 | 5800683 | 04/05/22 | 1.6 | 0.0 | 0.1 | 20.8 | 78.8 | 0 | 0 |
| HA07A | 333453 | 5800661 | 06/08/22 | 1.8 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA07B | 333451 | 5800660 | 06/08/22 | 1.9 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA07C | 333450 | 5800662 | 06/08/22 | 11.1 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA08A | 333427 | 5800655 | 06/08/22 | 2.3 | 0.0 | 0.7 | 20.4 | 78.8 | 0 | 0 |
| HA08B | 333433 | 5800655 | 06/08/22 | 4.3 | 0.0 | 1.6 | 19.9 | 78.6 | 0 | 1 |

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# Playground Investigation Soil Bores - May and August 2022

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MONASH CLOSED LANDFILL
CITY OF MONASH

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**Figure 4**

| | |
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# Attachment A – Tabulated LFG Results

Table B1 - Landfill Gas Cap Emissions

**Client: City of Monash**
**Site: Talbot Park, Oakleigh South**
**Project Number: AUS_C03822**
**Instrument: Inspectra Laser**

EHS Support

| Point ID | Date | UTM Zone 55 | | $CH_4$ | Comments/ Features |
|---|---|---|---|---|---|
| | | Easting | Northing | ppmv | |
| AMBIENT | 4/05/2022 | | | 1 8 | Carpark |
| 1 | 4/05/2022 | 333465 | 5800634 | 1.7 | Asphalt |
| 2 | 4/05/2022 | 333438 | 5800638 | 1.7 | Mulch |
| 3 | 4/05/2022 | 333415 | 5800645 | 1 6 | Mulch |
| 4 | 4/05/2022 | 333389 | 5800649 | 1 6 | Mulch |
| 5 | 4/05/2022 | 333367 | 5800650 | 1 5 | Mulch |
| 6 | 4/05/2022 | 333337 | 5800653 | 1 5 | Grass |
| 7 | 4/05/2022 | 333309 | 5800658 | 1 5 | Grass |
| 8 | 4/05/2022 | 333310 | 5800691 | 1 5 | Grass |
| 9 | 4/05/2022 | 333339 | 5800695 | 1 6 | Garden bed |
| 10 | 4/05/2022 | 333370 | 5800687 | 1 6 | Grass |
| 11 | 4/05/2022 | 333398 | 5800682 | 1 6 | Grass |
| 12 | 4/05/2022 | 333421 | 5800672 | 1 5 | Grass |
| 13 | 4/05/2022 | 333447 | 5800663 | 1.4 | Grass |
| 14 | 4/05/2022 | 333475 | 5800669 | 1.4 | Mulch |
| 15 | 4/05/2022 | 333477 | 5800701 | 1.4 | Mulch |
| 16 | 4/05/2022 | 333450 | 5800711 | 2 2 | Grass |
| 17 | 4/05/2022 | 333411 | 5800713 | 1 2 | Grass |
| 18 | 4/05/2022 | 333379 | 5800723 | 1 2 | Grass |
| 19 | 4/05/2022 | 333341 | 5800731 | 1 2 | Grass |
| 20 | 4/05/2022 | 333315 | 5800733 | 1 2 | Grass |
| 21 | 4/05/2022 | 333316 | 5800762 | 1 2 | Mulch |
| 22 | 4/05/2022 | 333351 | 5800759 | 1.1 | Mulch |
| 23 | 4/05/2022 | 333385 | 580075 | 1.1 | Grass |
| 24 | 4/05/2022 | 333412 | 5800750 | 1.1 | Grass |
| 25 | 4/05/2022 | 333446 | 5800744 | 1 0 | Grass |
| 26 | 4/05/2022 | 333470 | 5800739 | 1 0 | Mulch |
| 27 | 4/05/2022 | 333476 | 5800757 | 1 0 | Grass |
| 28 | 4/05/2022 | 333448 | 5800765 | 1 2 | Grass |
| 29 | 4/05/2022 | 333424 | 5800771 | 1 6 | Grass |
| 30 | 4/05/2022 | 333391 | 5800781 | 10.4 | Mulch |
| 31 | 4/05/2022 | 333365 | 5800783 | 1.7 | Grass |
| 32 | 4/05/2022 | 333340 | 5800784 | 1 8 | Grass |
| 33 | 4/05/2022 | 333313 | 5800785 | 1 3 | Grass |

Table B2 - Landfill Gas Buildings, Structures and Services Emissions

**Client: City of Monash**
**Site: Talbot Park, Oakleigh South**
**Project Number: AUS_C03822**
**Instrument: Inspectra Laser**

EHS Support

| | | | | | | | Stabilised Reading | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | UTM Zone 55 | | | | $CH_4$ | | $CO_2$ | $O_2$ | Balance | $H_2S$ | CO | Pressure |
| Location ID | Type | Description | Easting | Northing | Date | Time | ppmv | % v/v | % v/v | % v/v | % v/v | ppmv | ppmv | Barometric (mb) |
| | Ambient | | | | 4/05/2022 | 10:37 | 1.8 | 0.0 | 0.1 | 21.3 | 78.6 | 0.0 | 0.0 | 1008 |
| 1 | Services | Stormwater Drain | 333460 | 5800670 | | 9:10 | 1.3 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 2 | Structure | Playground - under boat | 333444 | 5800671 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 3 | Structure | BBQ Area | 333443 | 5800706 | | | 1.3 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 4 | Services | Circular drain | 333353 | 5800659 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 5 | Building | Toilet - Womens | 333349 | 5800663 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 6 | Building | Toilet - Mens | 333349 | 5800663 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 7 | Services | Stormwater Drain | 333326 | 5800650 | | | 76.5 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 8 | Services | CFC Pit | 333290 | 5800644 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 9 | Services | Stormwater Drain | 333309 | 5800638 | | | 1.2 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 10 | Services | Stormwater Drain | 333326 | 5800637 | | | 1.3 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 11 | Services | Stormwater Drain - Grate at bus stop | 333384 | 5800627 | | | 103 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 12 | Services | Stormwater Drain and Telstra Pit | 333396 | 5800636 | | | 3.1 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 13 | Services | Telstra Pit | 333474 | 5800625 | | | 1.4 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |
| 14 | Services | Stormwater Drain | 333461 | 5800629 | | | 1.3 | 0.0 | 0.1 | 20.9 | 79.0 | 0.0 | 0.0 | 1007 |

Table B3 - Landfill Gas Bore Monitoring Results

**Client: City of Monash**
**Site: Talbot Park, Oakleigh South**
**Project Number: AUS_C03822**
**Instrument: Inspectra Laser/GA5000**

| | | | Stabilised Reading | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $CH_4$ | $CO_2$ | $O_2$ | Balance | $H_2S$ | CO | Pressure | | Pre-purge Flow |
| ID | Date | Time | % v/v | % v/v | % v/v | % v/v | ppmv | ppmv | Barometric (mb) | Relative (mb) | L/hr |
| LFG01A | 4/05/2022 | 10:10 | 0.0 | **1.5** | 19.7 | 78.8 | 0.0 | 0.0 | 1007 | -0.05 | 0.0 |
| LFG02 | 4/05/2022 | | 0.0 | **2.3** | 18.8 | 78.9 | 0.0 | 0.0 | 1008 | 0.10 | 0.0 |
| LFG03 | 4/05/2022 | | 0.0 | 0.7 | 20.6 | 78.7 | 0.0 | 0.0 | 1008 | 0.03 | 0.0 |
| LFG04 | 4/05/2022 | | 0.0 | **1.7** | 20.1 | 78.1 | 0.0 | 0.0 | 1008 | -0.02 | 0.0 |
| LFG05 | 4/05/2022 | | 0.0 | **2.1** | 19.6 | 78.3 | 0.0 | 0.0 | 1008 | 0.02 | 0.0 |
| LFG06 | 4/05/2022 | | 0.0 | **1.6** | 20.0 | 78.4 | 0.0 | 1.0 | 1008 | -0.02 | 0.0 |
| GB31 | 4/05/2022 | | 0.0 | **10.9** | 2.0 | 87.1 | 0.0 | 2.0 | 1008 | -0.14 | 0.0 |

**1- Exceeds EPA Action Level in Best Practice Environment Mangement- Siting, Design, Operation and Rehabilitation of Landfills, EPA Publication 788.1, 2010**

| ID | Date | CH4 % v/v | CO2 % v/v | O2 % v/v | Bal % v/v | H2S ppmv | CO ppmv | Barometric | Relative | L/hour | Comments | Depth to Water (mbTOC) | Total Depth (mbTOC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GB31 | 10/08/2009 | **28.8** | **3.2** | 12.2 | 55.7 | | | | | | | | |
| GB31 | 21/08/2009 | **81.8** | **6.7** | 0.0 | 10.6 | | | | | | | | |
| GB31 | 26/06/2015 | 0.0 | **9.3** | 1.1 | 89.6 | 0 | 0 | 1025 | 0.09 | 0.4 | | | |
| GB31 | 28/12/2017 | 0.0 | 0.1 | 20.0 | 79.9 | 0 | 0 | 1004 | 0 | - | No gas cap | | |
| GB31 | 16/11/2018 | 0.0 | **11.5** | 5.2 | 83.3 | 0 | 0 | 1004 | 0 | 0.0 | | | |
| GB31 | 20/09/2019 | **3.4** | **6.6** | 0.0 | 90.0 | 36 | 0 | 1014 | 0.76 | 0.0 | Flush, Water in gatic | | |
| GB31 | 16/10/2020 | 0.6 | **9.9** | 0.0 | 89 5 | 8 | 10 | 1008 | 0.10 | -0 3 | | | |
| GB31 | 4/05/2022 | 0.0 | **10.9** | 2.0 | 87.1 | 0 | 2 | 1008 | -0.14 | 0.0 | | | |
| LFG01 | 10/08/2009 | 0.0 | **1.8** | 20.1 | 79.1 | | | | | | | | |
| LFG01 | 21/08/2009 | 0.0 | 1.1 | 20.7 | 79.1 | | | | | | | | |
| LFG01A | 22/05/2019 | 0.0 | 0.1 | 19.9 | 79.1 | 0 | 0 | 1019 | 0.13 | 0.0 | Dry at 5.91mbTOC | Dry | 5.91 |
| LFG01A | 20/09/2019 | 0.0 | **2.2** | 19.0 | 78.8 | 1 | 0 | 1012 | -0.09 | 0.0 | Flush | | |
| LFG01A | 15/10/2020 | 0.0 | **2.1** | 19.0 | 78 9 | 0 | 0 | 1004 | 0.0 | | | | |
| LFG01A | 4/05/2022 | 0.0 | **1.5** | 19.7 | 78.8 | 0 | 0 | 1007 | -0.05 | 0.0 | | | |
| LFG02 | 10/08/2009 | 0.0 | **1.5** | 19.7 | 78.7 | | | | | | | | |
| LFG02 | 21/08/2009 | 0.0 | 1.3 | 20.4 | 78.3 | | | | | | | | |
| LFG02 | 26/06/2015 | 0.0 | **1.6** | 19.3 | 79.1 | 0 | 0 | 1025 | 0.09 | 0.3 | | | |
| LFG02 | 11/04/2016 | 0.0 | **1.7** | 19 | 79.2 | 0 | 0 | 1013 | 0.03 | -0.1 | | | |
| LFG02 | 28/12/2017 | 0 | **2.5** | 17.6 | 80.0 | 0 | 0 | 1004 | 0 | - | No gas cap | | |
| LFG02 | 16/11/2018 | 0.0 | **2.0** | 19.0 | 79.1 | 0 | 0 | | | | Dry at 2.59mbTOC | Dry | 2.59 |
| LFG02 | 20/09/2019 | 0.0 | **3.6** | 17.1 | 79.2 | 0 | 0 | 1014 | 0 | 0.0 | Key (URS) | | |
| LFG02 | 15/10/2020 | 0.0 | **3.7** | 16.7 | 79 6 | 0 | 0 | 997 | -0.07 | 0 0 | | | |
| LFG02 | 4/05/2022 | 0.0 | **2.3** | 18.8 | 78.9 | 0 | 0 | 1008 | 0.1 | 0.0 | | | |
| LFG03 | 10/08/2009 | 0.1 | **1.5** | 20.5 | 80 | | | | | | | | |
| LFG03 | 21/08/2009 | 0.0 | 0.5 | 21.5 | 78 | | | | | | | | |
| LFG03 | 26/06/2015 | 0.0 | 0.6 | 20.3 | 79.1 | 0 | 0 | 1025 | 0.02 | 0.5 | | | |
| LFG03 | 11/04/2016 | 0.0 | 0.2 | 20.5 | 79.3 | 0 | 0 | 1017 | 0.05 | 0 | | | |
| LFG03 | 28/12/2017 | 0.0 | 0.6 | 19.5 | 79.9 | 0 | 0 | 1004 | 0 | - | No gas cap | | |
| LFG03 | 16/11/2018 | 0.0 | 0.0 | 20.4 | 79.0 | 0 | 0 | 1004 | 0 | 0.0 | Gap between cap and casing, dry at 4.74mbTOC | Dry | 4.74 |
| LFG03 | 20/09/2019 | 0.0 | 0.9 | 20.4 | 78.6 | 0 | 0 | 1014 | -0.75 | -0.1 | | | |
| LFG03 | 15/10/2020 | 0.0 | 0 8 | 20.0 | 79 2 | 0 | 0 | 1003 | 0.0 | 0 0 | | | |
| LFG03 | 4/05/2022 | 0.0 | 0.7 | 20.6 | 78.7 | 0 | 0 | 1008 | 0.03 | 0.0 | | | |
| LFG04 | 10/08/2009 | 0.2 | 0.2 | 20.8 | 79.9 | | | | | | | | |
| LFG04 | 21/08/2009 | 0.0 | 1.3 | 20.8 | 77.9 | | | | | | | | |
| LFG04 | 26/06/2015 | 0.0 | 0.6 | 20.4 | 79 | 0 | 0 | 1025 | 0.02 | 0.2 | | | |
| LFG04 | 11/04/2016 | 0.0 | 0.1 | 20.4 | 79.5 | 0 | 0 | 1015 | 0.29 | 0 | | | |
| LFG04 | 28/12/2017 | 0.0 | 0.9 | 19.1 | 80.0 | 0 | 0 | 1004 | 0 | | No gas cap | | |
| LFG04 | 16/11/2018 | 0.0 | 1.2 | 19.9 | 78.9 | 0 | 0 | 1004 | 0 | | Dry at 4.48mbTOC | Dry | 4.48 |
| LFG04 | 20/09/2019 | 0.0 | **2.9** | 18.5 | 78.6 | 0 | 0 | 1012 | -0.02 | 0.0 | Key (URS) | | |
| LFG04 | 15/10/2020 | 0.0 | **2.4** | 18.5 | 79.1 | 0 | 0 | 1003 | 0.02 | 0 0 | | | |
| LFG04 | 4/05/2022 | 0.0 | **1.7** | 20.1 | 78.1 | 0 | 0 | 1008 | -0.02 | 0.0 | | | |
| LFG05 | 10/08/2009 | 0.0 | 0.7 | 20.2 | 79 | | | | | | | | |
| LFG05 | 21/08/2009 | 0.0 | 0.9 | 21 | 78.3 | | | | | | | | |
| LFG05 | 26/06/2015 | 0.0 | 0.9 | 20 | 79.1 | 0 | 0 | 1024 | 0.05 | 0 | | | |
| LFG05 | 11/04/2016 | 0.0 | 0.4 | 20.3 | 79.3 | 0 | 0 | 1016 | 0.09 | 0 | | | |
| LFG05 | 28/12/2017 | 0.0 | 1.3 | 19.0 | 79.9 | 0 | 0 | 1004 | 0 | - | No gas cap | | |
| LFG05 | 16/11/2018 | 0.0 | 1.3 | 19.7 | 79.0 | 0 | 0 | 1004 | 0 | 0.0 | Dry at 4.47mbTOC | Dry | 4.47 |
| LFG05 | 20/09/2019 | 0.0 | **2.5** | 18.4 | 79.1 | 0 | 0 | 1014 | 0.21 | 0.0 | Key (URS) | | |
| LFG05 | 15/10/2020 | 0.0 | **2.3** | 18.7 | 79 0 | 0 | 0 | 1003 | -0.05 | 0 0 | | | |
| LFG05 | 4/05/2022 | 0.0 | **2.1** | 19.6 | 78.3 | 0 | 0 | 1008 | 0.02 | 0.0 | | | |
| LFG06 | 10/08/2009 | 0.0 | **1.5** | 19.2 | 79.9 | | | | | | | | |
| LFG06 | 21/08/2009 | 0.0 | **2.3** | 19.4 | 78.3 | | | | | | | | |
| LFG06 | 26/06/2015 | 0.0 | 0.9 | 20 | 79.1 | 0 | 0 | 1023 | 1.76 | 0 | | | |
| LFG06 | 11/04/2016 | 0.0 | 0.2 | 20.6 | 79.2 | 0 | 0 | 1017 | 0.24 | 0.1 | | | |
| LFG06 | 28/12/2017 | 0.0 | 0.8 | 19.1 | 80.1 | 0 | 0 | 1004 | 0 | - | No gas cap | | |
| LFG06 | 16/11/2018 | 0.0 | 1.0 | 20.1 | 78.9 | 0 | 0 | 1004 | 0 | 0.0 | Dry at 2.29mbTOC | Dry | 2.29 |
| LFG06 | 20/09/2019 | 0.0 | **1.5** | 19.6 | 78.8 | 0 | 0 | 1014 | 0 | 0.0 | Key (URS) | | |
| LFG06 | 15/10/2020 | 0.0 | **2.2** | 18.8 | 79 0 | 0 | 0 | 1003 | 0.24 | 0.1 | | | |
| LFG06 | 4/05/2022 | 0.0 | **1.6** | 20.0 | 78.4 | 0 | 1 | 1008 | -0.02 | 0.0 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

## Table B5 - Hand Auger Soil Bore Landfill Gas Monitoring Results

**Client: City of Monash**
**Site: Talbot Park, Oakleigh South**
**Project Number: AUS_C03822**
**Instrument: Inspectra Laser/GA5000**

| | | | | Stabilised Reading | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | UTM Zone 55 | | | $CH_4$ | | $CO_2$ | $O_2$ | Balance | $H_2S$ | CO |
| Bore ID | Easting | Northing | Date | ppmv | % v/v | % v/v | % v/v | % v/v | ppmv | ppmv |
| HA01 | 333435 | 5800653 | 4/05/2022 | 11.4 | 0.0 | 0.6 | 20.8 | 78.6 | 0.0 | 0.0 |
| HA02 | 333422 | 5800653 | 4/05/2022 | 4 | 0.0 | 0.9 | 20.2 | 78.9 | 0 | 5 |
| HA03 | 333423 | 5800674 | 4/05/2022 | 6.4 | 0.0 | 0.1 | 20.9 | 78.9 | 0 | 2 |
| HA04 | 333416 | 5800689 | 4/05/2022 | 2.0 | 0.0 | 0.1 | 21.1 | 78.9 | 0 | 2 |
| HA05 | 333393 | 5800657 | 4/05/2022 | 6.5 | 0.0 | 0.9 | 20.6 | 78.6 | 0 | 4 |
| HA06 | 334435 | 5800683 | 4/05/2022 | 1.6 | 0.0 | 0.1 | 20.8 | 78.8 | 0 | 0 |
| HA07A | 333453 | 5800661 | 6/08/2022 | 1.8 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA07B | 333451 | 5800660 | 6/08/2022 | 1.9 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA07C | 333450 | 5800662 | 6/08/2022 | 11.1 | 0.0 | 0.6 | 20.3 | 79.2 | 0 | 0 |
| HA08A | 333427 | 5800655 | 6/08/2022 | 2.3 | 0.0 | 0.7 | 20.4 | 78.8 | 0 | 0 |
| HA08B | 333433 | 5800655 | 6/08/2022 | 4.3 | 0.0 | 1.6 | 19.9 | 78.6 | 0 | 1 |

# Attachment B - LFG Scanned Field Notes and Equipment Calibration

# Equipment Calibration Form
# GA5000

**Enqip #:** 16584
**Company:** EHS Support Pty Ltd
**Consultant:**
**PO #:** AUS##C03748
**Certificate #:** 24550

## INSTRUMENT IDENTIFICATION

**Model Number:** GA5KA0F-100
**Serial Number:** GA500136
**Instrument Type:** GTI - GA5000

## INSPECTION RECORD

**Date & Time:** PASS
**Flow Rate:** 619 mL/min

## CALIBRATION DETAILS

| Sensor | Standard | Reading | Traceability Lot # |
|---|---|---|---|
| $CH_4$ | $N_2$ UHP | 0 % | 302-402234088-8 |
| | 2.5 % | 2.5 % | 302-402196958 |
| | 60 % | 60.0 % | 1485461 |
| $CO_2$ | 5 % | 5.0 % | 302-402231223-7 |
| | 40 % | 40.0 % | 1485461 |
| $O_2$ | $N_2$ UHP | 0 % | 302-402234088-8 |
| | 20.9 % | 20.9 % | N/A |
| CO | $N_2$ UHP | 0 ppm | 302-402234088-8 |
| | 100 ppm | 100 ppm | 302-402196958 |
| $H_2S$ | $N_2$ UHP | 0 ppm | 302-402234088-8 |
| | 25 ppm | 25 ppm | 1524829 |

**Calibration Successful:** YES

**Calibrated By:**

**Test Date:** 3/05/2022

enqip
116 Thistlethwaite St, South Melbourne 3205
P 1300 218 987
E info@enqip.com.au | W www.enqip.com.au

# Equipment Calibration Check
# Inspectra Laser

**Enqip #:** 16584
**Company:** EHS Support Pty Ltd
**Consultant:**
**PO #:** AUS##C03748
**Certificate #:** 24549

## UNIT IDENTIFICATION

**Model Number:** Inspectra Laser
**Serial Number:** CH48921215
**Unit Type:** Methane Analyser

## INSPECTION RECORD/CONDITION REPORT

**Flow Rate:** PASS
**Alarms:** PASS

## CALIBRATION DETAILS

| Gas | Reading | Traceability Lot # |
|---|---|---|
| Nitrogen UHP | 0.0 ppm | 302-402234088-8 |
| Methane 100 ppm | 95.3 ppm | 302-402247166-2 |
| Methane 2.5 % | 2.4 % | 1250671 |

**Calibration Successful:** YES

**Calibrated By:**

**Test Date:** 3/05/2022

enqip
423 City Road, South Melbourne 3205
P 1300 218 987
E info@enqip.com.au | W www.enqip.com.au

Client- City of Monash
Site: TALBOT PARK
Project:
Project Number:

10 15%

EHS Support

**LFG Monitoring Results**

| Bore ID | Date | Time | Purging Time | $CH_4$ | | $CO_2$ | | $O_2$ | | Balance | $H_2S$ | CO | Pressure | | Pre-purge Flow | Comments | Depth to Water |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | % v/v | Peak % v/v | % v/v | Peak % v/v | % v/v | Minimum % v/v | % v/v | ppmv | ppmv | Barometric (mb) | Relative (mb) | (L/hr) | | mbTOC |
| | | EPA Action Level [1] | | 1 | | 1.5 | | | | | | | | | | | |
| LFG1A | 3/5/22 | 10:10 | Ambient | 0.6 | | 0.1 | | 20.8 | | 79.1 | 0 | 0 | 1007 | -0.05 | 0.0 | GC FLUSH | |
| | | 10:12 | 1 min | 0.0 | | 1.4 | | 20.8 | | 78.7 | 0 | 0 | 1007 | | | | |
| | | 10:14 | 2 min | 0.0 | | 1.5 | | 19.7 | | 78.8 | 0 | 0 | | | | | |
| | | 10:15 | 3 min | 0.0 | | 1.5 | | 19.7 | | 78.8 | 0 | 0 | | | | | |
| | | | Stabilised Reading | 0.0 | | 1.5 | | 19.7 | | 78.8 | 0 | 0 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | 0.0 | | 0.1 | | 20.9 | | 79.0 | | | | | | | |
| LFG02 | | 10:18 | Ambient | 0.0 | | 0.1 | | 20.9 | | 79.0 | 0 | 0 | 1008 | 0.10 | 0.0 | GC STICK UP LOCK | |
| | | | 1 min | 0.0 | | 2.3 | | 18.8 | | 78.9 | 0 | 0 | | | | | |
| | | | 2 min | 0.0 | | 2.3 | | 18.8 | | 78.9 | 0 | 0 | | | | | |
| | | | 3 min | 0.0 | | 2.3 | | 18.8 | | 78.9 | 0 | 0 | | | | | |
| | | | Stabilised Reading | 0.0 | | 2.3 | | 18.8 | | 78.9 | 0 | 0 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| LFG3 | | 10:25 | Ambient | 0.0 | | 0.1 | | 21.1 | | 79.8 | 0 | 0 | 1008 | 0.03 | 0.0 | GC STICK UP LOCK | |
| | | | 1 min | 0.0 | | 0.7 | | 20.6 | | 78.7 | 0 | 0 | | | | | |
| | | | 2 min | 0.0 | | 0.7 | | 20.6 | | 78.7 | 0 | 0 | | | | | |
| | | | 3 min | 0.0 | | 0.7 | | 20.6 | | 78.7 | 0 | 0 | | | | | |
| | | | Stabilised Reading | 0.0 | | 0.7 | | 20.6 | | 78.7 | 0 | 0 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| GB31 | | 10:32 | Ambient | 0.0 | | 0.1 | | 21.1 | | 78.9 | 0 | 0 | 1009 | -0.14 | 0.0 | GC FLUSH WATER IN CATH | |
| | | | 1 min | 0.0 | | 10.9 | | 2.0 | | 87.1 | 0 | 2 | | | | | |
| | | | 2 min | 0.0 | | 10.9 | | 2.0 | | 87.1 | 0 | 2 | | | | | |
| | | | 3 min | 0.0 | | 10.9 | | 2.0 | | 87.1 | 0 | 2 | | | | | |
| | | | Stabilised Reading | 0.0 | | 10.9 | | 2.0 | | 87.1 | 0 | 2 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |

1/1

TALBOT PARK Pg 2

| Bore ID | Date | Time | Purging Time | $CH_4$ | | $CO_2$ | | $O_2$ | | Balance | $H_2S$ | CO | Pressure | | Pre-purge Flow | Comments | Depth to Water |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | % v/v | Peak % v/v | % v/v | Peak % v/v | % v/v | Minimum % v/v | % v/v | ppmv | ppmv | Barometric (mb) | Relative (mb) | (L/hr) | | mbTOC |
| LF606 | 3/5/22 | 10:37 | Ambient | 0.0 | | 0.1 | | 21.3 | | 78.6 | 0 | | 10.08 | -0.02 | 0.0 | | |
| | | | 1 min | 0.0 | | 1.6 | | 20.0 | | 78.4 | 0 | 1 | | | | GC | |
| | | | 2 min | 0.0 | | 1.6 | | 20.0 | | 78.4 | 0 | 1 | | | | Lock | |
| | | | 3 min | 0.0 | | 1.6 | | 20.0 | | 78.4 | 0 | 1 | | | | | |
| | | | Stabilised Reading | 0.0 | | 1.6 | | 20.0 | | 78.4 | 0 | 1 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| LF605 | | 10:43 | Ambient | 0.0 | | 0.1 | | 21.4 | | 78.6 | 0 | 1 | 1008 | 0.02 | 0.0 | GC | |
| | | | 1 min | 0.0 | | 2.2 | | 19.6 | | 78.3 | 0 | 0 | | | | Lock | |
| | | | 2 min | 0.0 | | 2.2 | | 19.6 | | 78.3 | 0 | 0 | | | | | |
| | | | 3 min | 0.0 | | 2.1 | | 19.6 | | 78.3 | 0 | 0 | | | | | |
| | | | Stabilised Reading | 0.0 | | 2.1 | | 19.6 | | 78.3 | 0 | 0 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| LF604 | | 10:49 | Ambient | 0.0 | | 0.2 | | 21.3 | | 78.5 | 0 | 0 | 1008 | -0.02 | 0.0 | GC | |
| | | | 1 min | 0.0 | | 1.7 | | 20.1 | | 78.1 | 0 | 0 | | | | Lock | |
| | | | 2 min | 0.0 | | 1.7 | | 20.1 | | 78.1 | 0 | 0 | | | | | |
| | | | 3 min | 0.0 | | 1.7 | | 20.1 | | 78.1 | 0 | 0 | | | | | |
| | | | Stabilised Reading | 0.0 | | 1.7 | | 20.1 | | 78.1 | 0 | 0 | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| | | | 1 min | | | | | | | | | | | | | | |
| | | | 2 min | | | | | | | | | | | | | | |
| | | | 3 min | | | | | | | | | | | | | | |
| | | | Stabilised Reading | | | | | | | | | | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |
| | | | 1 min | | | | | | | | | | | | | | |
| | | | 2 min | | | | | | | | | | | | | | |
| | | | 3 min | | | | | | | | | | | | | | |
| | | | Stabilised Reading | | | | | | | | | | | | | | |
| | | | If not STABLE- Fluctuation or direction & rate of change in 10 secs | | | | | | | | | | | | | | |
| | | | Ambient | | | | | | | | | | | | | | |

**Client:** City of Monash
**Site:** TALBOT PARK
**Project:**
**Project Number:**

EHS Support

| Location ID | Type | Description | UTM Zone 55 Easting | UTM Zone 55 Northing | Date | Time | Stabilised Reading $CH_4$ ppmv | $CH_4$ % v/v | $CO_2$ % v/v | $O_2$ % v/v | Balance % v/v | $H_2S$ ppmv | CO ppmv | Pressure Barometric (mb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ambient | SWD DRAIN | 333460 | 5800670 | 3/5/22 | 9:50 | 1.3 | 0.0 | 0.1 | 20.9 | 79.0 | 0 | 0 | 1007 |
| | | PLAYGROUND - BO AT | 444 | 871 | | | 1.2 | | | | | | | |
| | | DSR | 443 | 706 | | | 1.3 | | | | | | | |
| | | CIRCULAR DRAIN | 353 | 659 | | | 1.2 | | | | | | | |
| | | W TOILET | 349 | 663 | | | 1.2 | | | | | | | |
| | | M " | 349 | 663 | | | 1.2 | | | | | | | |
| | | SW DRAIN | 326 | 650 | | | 76.5 | | | | | | | |
| | | GFC PIT | 290 | 644 | | | 1.2 | | | | | | | |
| | | SWD | 309 | 639 | | | 1.2 | | | | | | | |
| | | SWD | 326 | 637 | | | 1.3 | | | | | | | |
| | | SWD CRATE (BUS STOP) | 384 | 627 | | | 103 | | | | | | | |
| | | SWD + TELSTRA | 396 | 636 | | | 3.1 | | | | | | | |
| | | TELSTRA | 474 | 625 | | | 1.4 | | | | | | | |
| | | SWD | 461 | 629 | | | 1.3 | | | | | | | |

1- Exceeds EPA Action Level in Best Practice Environment Mangement- Siting, Design, Operation and Rehabilitation of Landfills, EPA Publication 788.1, 2010

Client- City of Monash
Site:
Project Number: TALBOT + MIGVIEN PARK
Instrument:

EHS Support

| Point ID | Date | UTM Zone 55 Easting | UTM Zone 55 Northing | $CH_4$ ppmv | Comments/ Features |
|---|---|---|---|---|---|
| | 3/5/22 | | | 1.8 | AMBIENT - CARPARK |
| 1 | | 333465 | 5800634 | 1.7 | ASPHALT |
| | | 438 | 638 | 1.7 | GARDEN BED - MULCH |
| | | 415 | 645 | 1.6 | " |
| | | 389 | 649 | 1.6 | " |
| | | 367 | 650 | 1.5 | " |
| | | 337 | 653 | 1.5 | GRASS |
| | | 309 | 658 | 1.5 | " |
| | | 310 | 691 | 1.5 | " |
| | | 339 | 695 | 1.6 | GB - [illegible] |
| | | 370 | 687 | 1.6 | GRASS |
| | | 398 | 682 | 1.6 | " |
| | | 421 | 672 | 1.5 | " |
| | | 447 | 663 | 1.4 | " |
| | | 475 | 669 | 1.4 | GB-MULCH |
| | | 477 | 701 | 1.4 | " |
| | | 450 | 711 | 2.2 | GRASS |
| | | 411 | 713 | 1.2 | " |
| | | 379 | 723 | 1.2 | " |
| | | 341 | 731 | 1.2 | " |
| | | 317 | 733 | 1.2 | " |
| | | 316 | 762 | 1.2 | GB - MULCH |
| | | 351 | 759 | 1.1 | " |
| | | 385 | 756 | 1.1 | GRASS |
| | | 417 | 757 | 1.1 | " |
| | | 446 | 774 | 1.0 | " |
| | | 470 | 759 | 1.0 | GB-MULCH |
| | | 476 | 757 | 1.0 | GRASS |
| | | 448 | 765 | 1.2 | " |
| | | 424 | 771 | 1.6 | " |
| | | 391 | 781 | 10.4 | GB - MULCH |
| | | 365 | 785 | 1.8 | " |
| | | 340 | 784 | 1.6 | GRASS |
| | | 313 | 765 | 1.3 | " |

# Equipment Calibration Form
# GA5000

**Enqip #:** 17381
**Company:** EHS Support Pty Ltd
**Consultant:**
**PO #:** AUS_C03822 Task 5
**Certificate #:** 25565

## INSTRUMENT IDENTIFICATION

**Model Number:** GA5KA0F-100
**Serial Number:** GA500852
**Instrument Type:** GTI - GA5000

## INSPECTION RECORD

**Date & Time:** PASS
**Flow Rate:** 690 mL/min

## CALIBRATION DETAILS

| Sensor | Standard | Reading | Traceability Lot # |
|---|---|---|---|
| $CH_4$ | $N_2$ UHP | 0 % | 302-402258046-26 |
| | 2.5 % | 2.5 % | 302-402196958 |
| | 60 % | 60.0 % | 302-402360810-29 |
| $CO_2$ | 5 % | 5.0 % | 302-402331223-9 |
| | 40 % | 40.0 % | 302-402360810-29 |
| $O_2$ | $N_2$ UHP | 0 % | 302-402258046-26 |
| | 20.9 % | 20.9 % | N/A |
| CO | $N_2$ UHP | 0 ppm | 302-402258046-26 |
| | 100 ppm | 100 ppm | 302-402196958 |
| $H_2S$ | $N_2$ UHP | 0 ppm | 302-402258046-26 |
| | 25 ppm | 25 ppm | 302-402251916-76 |

**Calibration Successful:** YES

**Calibrated By:**

**Test Date:** 4/08/2022

enqip
116 Thistlethwaite St, South Melbourne 3205
P 1300 218 987
E info@enqip.com.au | W www.enqip.com.au

# Equipment Calibration Check
# Inspectra Laser

**Enqip #:** 17381
**Company:** EHS Support Pty Ltd
**Consultant:**
**PO #:** AUS_C03822 Task 5
**Certificate #:** 25566

## UNIT IDENTIFICATION

**Model Number:** Inspectra Laser
**Serial Number:** CH48921215
**Unit Type:** Methane Analyser

## INSPECTION RECORD/CONDITION REPORT

**Flow Rate:** PASS
**Alarms:** PASS

## CALIBRATION DETAILS

| Gas | Reading | Traceability Lot # |
|---|---|---|
| Nitrogen UHP | 0.0 ppm | 302-402258046-26 |
| Methane 100 ppm | 93.6 ppm | 1455882 |
| Methane 2.5 % | 2.4 % | 1465439 |

**Calibration Successful:** YES

**Calibrated By:**

**Test Date:** 4/08/2022

enqip
423 City Road, South Melbourne 3205
P 1300 218 987
E info@enqip.com.au | W www.enqip.com.au

# Attachment C – Hand Auger Logs

EHS Support

# Drilling Log
## ID: HA01



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 1.00 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333435.0 | Northing (m): 5800653.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SM | TOPSOIL: SILT; brown and light brown; soft; dry; with rootlets. |
| | | | | | | CL | FILL: SANDY CLAY: brown and orange; low plasticity; moist; firm; fine to coarse grained sand; with 10% basalt gravels to 25 mm. |
| 0.2 | | | | | | | |
| 0.4 | | | | | | | At 0.5m becomes orange; quartz sand; wi h 10% gravels to 25 mm. |
| 0.6 | | | | | | | |
| 0.8 | | | | | | | At 0.8m becomes orange and pale grey with trace dark brown; coarse grained sand. |
| 1.0 | | | | | | | Hole Terminated at 1 00 m<br>Target depth reached |
| 1.2 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA02



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 0.85 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333422.0 | Northing (m): 5800653.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SM | TOPSOIL: SILT; brown and light brown; soft; moist. |
| | | | | | | CL | FILL: SANDY CLAY: brown and orange; low plasticity; moist; firm; fine to coarse grained sand; with 5% gravels to 5 mm from 0 5 m. |
| 0.2 | | | | | | | |
| 0.4 | | | | | | | |
| 0.6 | | | | | | | At 0.6m becomes brown and trace grey with red and orange mottling |
| 0.8 | | | | | | | At 0.8m with 10% basalt gravels to 15 mm. |
| | | | | | | | Hole Terminated at 0 85 m<br>Refusal |
| 1.0 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA03



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 0.90 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333423.0 | Northing (m): 5800674.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark grey; soft; dry; well graded. |
| | | | | | | CL | FILL: SANDY CLAY: brown and orange; low plasticity; dry to moist; firm; fine to medium grained sand. |
| 0.2 | | | | | | | |
| | | | | | | | At 0.35m becomes brown and orange with red and pale grey mot ling; very stiff; with 10% gravels to 20 mm. |
| 0.4 | | | | | | | |
| 0.6 | | | | | | | At 0.6m become mottled brown, grey, yellow, red and white; with trace white fine grained sand. |
| 0.8 | | | | | | SC | FILL: CLAYEY SAND: pale grey and yellow; dry to moist; fine grained sand; with 10% gravels to 20 mm. |
| | | | | | | | Hole Terminated at 0 90 m<br>Target depth reached |
| 1.0 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA04



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 1.00 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333416.0 | Northing (m): 5800689.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILT; brown and light brown; soft; moist. |
| 0.2 | | | | | | CL | FILL: SILTY CLAY: brown with orange and red mottling; low plasticity; sligh ly moist; stiff; with 10% basalt gravels to 35 mm. |
| 0.4 | | | | | | | At 0.5 with 5% white fine grained sand. |
| 0.6 | | | | | | | |
| 0.8 | | | | | | CL | FILL: SANDY SILT: brown and grey; soft; dry; rootlets. Similar to topsoil material. |
| 1.0 | | | | | | | Hole Terminated at 1 00 m<br>Target depth reached |
| 1.2 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA05



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 1.00 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333393.0 | Northing (m): 5800657.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILT; brown and light brown; soft; moist. |
| | | | | | | CL | FILL: SANDY CLAY: brown; medium plasticity; dry to moist; firm; fine grained sand; with 5% gravels to 20 mm. |
| 0.2 | | | | | | | |
| 0.4 | | | | | | | At 0.4m becomes orange |
| 0.6 | | | | | | | At 0.6m becomes brown, orange and red; medium plasticity; moist; soft; coarse grained sand; with 5% gravels to 20 mm; with trace white fine grained sand |
| 0.8 | | | | | | | At 0.85m becomes mottled brown, grey, yellow, red and white; medium plasticity; slightly moist; firm; fine to coarse grained quartz sand. |
| 1.0 | | | | | | | Hole Terminated at 1.00 m<br>Target depth reached |
| 1.2 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA06



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 04-May-22 | Date Finished: 04-May-22 | Total Depth (mbgs): 1.00 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 334435.0 | Northing (m): 5800683.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: CH/WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; soft; dry. |
| 0.2 | | | | | | CH | FILL: CLAY: brown and orange; high plasticity; moist; firm. |
| | | | | | | | At 0.3m with 10% basalt gravels to 25 mm |
| 0.4 | | | | | | | At 0.4m with pale grey mottling and ~20% coarse sand |
| | | | | | | | At 0.5m becomes orange and pale grey; very stiff; with ~20% fine grained sand. |
| 0.6 | | | | | | | |
| 0.8 | | | | | | | At 1.0m becomes firm; mottled red, orange and pale grey; with trace dark brown and trace gravels. |
| 1.0 | | | | | | | Hole Terminated at 1.00 m<br>Target depth reached |
| 1.2 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA07A



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 05-Aug-22 | Date Finished: 05-Aug-22 | Total Depth (mbgs): 1.50 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333453.0 | Northing (m): 5800661.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; fine to medium grained; dry. |
| 0.2 | | | | | | CH | FILL: CLAY: orange, red, grey, pale grey; medium to high plas icity; moist; firm. With ~10% siltstone fragments up to 20mm |
| 0.4 | | | | | | | |
| 0.6 | | | | | | | |
| 0.8 | | | | | | MLS | FILL: Sandy SILT: brown, dry to moist, no plasticity<br>At 0.9m, 5% siltstone fragments up to 40mm diameter<br>At 1.1m, ~20% clay as per 0.2-0.7m |
| 1.0 | | | | | | | |
| 1.2 | | | | | | | |
| 1.4 | | | | | | | |
| 1.6 | | | | | | | Refusal at 1.5m on hard rock or concrete - no waste observed.<br>Attempted two additional locations 0.5 m north HA07A (refusal at 0.8m) and 0.5m to the west HA07B (refusal at 1 0m)<br>Hole Terminated at 1 50 m<br>Refusal |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA07B



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 05-Aug-22 | Date Finished: 05-Aug-22 | Total Depth (mbgs): 0.80 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333451.0 | Northing (m): 5800660.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; fine to medium grained; dry. |
| 0.2 | | | | | | CH | FILL: CLAY: orange, red, grey, pale grey; medium to high plas icity; moist; firm. With ~10% siltstone fragments up to 20mm |
| 0.4 | | | | | | | |
| 0.6 | | | | | | | |
| 0.8 | | | | | | SM | FILL: Sandy SILT: brown, dry to moist, no plasticity |
| 1.0 | | | | | | | Refusal at 0.8m on hard rock or concrete - no waste observed.<br>Hole Terminated at 0 80 m<br>Refusal |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA07C



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 05-Aug-22 | Date Finished: 05-Aug-22 | Total Depth (mbgs): 1.00 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333450.0 | Northing (m): 5800662.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; fine to medium grained; dry. |
| 0.2 | | | | | | CH | FILL: CLAY: orange, red, grey, pale grey; medium to high plas icity; moist; firm. With ~10% siltstone fragments up to 20mm |
| 0.4 | | | | | | | |
| 0.6 | | | | | | | |
| 0.8 | | | | | | SM | FILL: Sandy SILT: brown, dry to moist, no plasticity<br>At 0.9m, 5% siltstone fragments up to 40mm diameter |
| 1.0 | | | | | | | Refusal at 1.0m on hard rock or concrete - no waste observed.<br>Hole Terminated at 1 00 m<br>Refusal |
| 1.2 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA08A



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 05-Aug-22 | Date Finished: 05-Aug-22 | Total Depth (mbgs): 1.30 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333427.0 | Northing (m): 5800655.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; fine to medium grained; dry. |
| | | | | | | CH | FILL: Clay (reworked), orange, red, brown with trace pale grey, medium plasticity, firm, moist. With ~10% gravels (5mm-15mm) |
| 0.2 | | | | | | | |
| 0.4 | | | | | | | |
| | | | | | | | At 0.5m, 10-20% fine grained sand |
| 0.6 | | | | | | | |
| 0.8 | | | | | | | |
| 1.0 | | | | | | | |
| 1.2 | | | | | | | |
| | | | | | | | Refusal at 1.3m on hard rock or concrete<br>Hole Terminated at 1 30 m<br>Refusal |
| 1.4 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel

EHS Support

# Drilling Log
## ID: HA08B



Comments

| | | | |
|---|---|---|---|
| Project: Talbot Park Landfill Gas Assessment | Client: City of Monash | | |
| Location: Talbot Park, Centre Road, Oakleigh South | | Project No.: C03822 | |
| Date Started: 05-Aug-22 | Date Finished: 05-Aug-22 | Total Depth (mbgs): 1.20 | |
| Ground Surface (m AHD): N/A | Top Casing (m AHD): N/A | Easting (m): 333433.0 | Northing (m): 5800655.0 |
| Hole Dia. (mm): 50 | Water Level Initial (mbgs): N/A | Water Level Static (mbgs): N/A | Coord. System: MGA94 Zone 55 |
| Concrete Coring (Y/N): N | NDD (mbgs): N/A | Headworks: N/A | Headworks height (mm): N/A |
| Screen Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Casing Dia. (mm): N/A | Length (m): N/A | Type/Size (mm): N/A | |
| Drilling Co.: EHS Support | Drill Rig: | Method: Hand Auger | Bore Permit #: N/A |
| Drilled By: | Driller's License: N/A | Logged By: WD | Checked By: WD |

| Depth (m) | Well Completion | PID (ppm) | Sample Collected | % Recovery | Graphic Log | USCS Classification | Material Description |
|---|---|---|---|---|---|---|---|
| | | | | | | SW-SM | TOPSOIL: SILTY SAND: dark brown/grey; fine to medium grained; dry. |
| | | | | | | CH | FILL: Clay (reworked), orange, red, brown with trace pale grey, medium plasticity, firm, moist. With ~10% gravels (5mm-15mm) |
| 0.2 | | | | | | | |
| 0.4 | | | | | | | |
| | | | | | | | At 0.5m, 10-20% fine grained sand |
| 0.6 | | | | | | | |
| 0.8 | | | | | | | |
| 1.0 | | | | | | | |
| | | | | | | | At 1.2m, brick fragments and metal peg |
| 1.2 | | | | | | | Refusal at 1.2m on hard rock or concrete - minor waste observed (brick/metal peg)<br>Hole Terminated at 1 20 m<br>Refusal |
| 1.4 | | | | | | | |

Concrete | Cuttings | Grout | Bentonite | Sand | Gravel