

Annual FID Survey Report

Pwllfawatkin Landfill Site

July 2022

Approval Sheet

Customer: FCC Environment

Site: Pwllfawatkin Landfill Site

Project title: Annual FID Survey

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			Approved By	Signature	Date
			C Keightley	C Keightley	19/08/2022

Foreword

Enitial has used its best endeavours, experience and expertise to provide a meaningful, accurate and relevant representation of the works carried out. The works were based on a defined programme and scope of works and terms and conditions agreed with the Client.

The findings discussed in this document relating to information provided by the Client relate only to those to which we have had access. No attempt has been made to validate any data or information provided. It is acknowledged that certain aspects may be superseded or rendered irrelevant by information in documentation to which we have not accessed.

Enitial cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered outside the agreed scope of works.

This report is issued solely to the Client. Enitial does not accept any responsibility to any third parties to whom this report may be circulated, in part or in full, and any such parties rely on the contents at their own risk.

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1.0 Introduction

1.1 Brief

Enitial were commissioned by FCC Environment (FCC) to undertake a Surface Emissions Phase 1 (Annual FID Walkover) Survey at their Pwllfawatkin Landfill Site in July 2022. Pwllfawatkin Landfill Site is situated off Rhyd-y-Fro, near the town of Pontardawe, in West Glamorgan at NGR SN698088. The site is currently operational and accepting waste inputs, some areas of the site have been permanently or temporarily capped.

1.2 Desk Study

A desktop study was undertaken prior to the Annual FID Survey by collecting information supplied by FCC in the form of drawings of capping areas and up to date topography. Four zones were identified as requiring Annual FID Surveying: Zones 1 and 2 comprising of permanent welded geomembrane capping and Zones 3 and 4 comprising of temporary capping.

2.0 Survey Summary

2.1 Annual FID Survey

The Annual FID Survey was undertaken on 27, 28 and 29 July 2022 and included the capped and restored areas of the landfill site as indicated on the plan contained in Appendix B. A Gas-Tec Flame Ionisation Detector device was used to undertake the survey which measures hydrocarbons in parts per million by volume (ppm) on a scale of 0 to 10,000.

The capped areas of the landfill site were surveyed on lines at 50m intervals for permanent capping and at 25m intervals for temporary capping as detailed in the Environment Agency Guidance on Monitoring Landfill Gas Surface Emissions LFTGN 07 (EA Guidance) and at a distance of not exceeding 5cm from the surface where possible. In addition, all known infrastructure was surveyed which included all gas extraction and leachate wells and associated installations. Any distinctive features were also surveyed which generally include surface fissures, stressed vegetation, interfaces between caps, edges and side-slopes.

3.0 Results Summary

3.1 Annual FID Survey Results

A full set of Annual FID Survey results are presented in Appendix A along with plans showing the location of all survey transects and infrastructure in Appendix B.

The table below summarises infrastructure and features where a significant elevated hydrocarbon reading was recorded (100ppm for a surface emission and 1,000ppm for emissions from infrastructure) along with details of the point of emission.

Zone	Reference	Concentration in ppm	Comments
Z1	L00B1	5,000	Bentonite at base of well
Z1	PWLMW2A	10,000	Between base of well and geomembrane boot
Z1	W1310	5,000	Base of well
Z1	W1406	2,000	Bentonite at base of well

4.0 Field Log

4.1 Weather Conditions and Meteorological Data

Meteorological data was recorded from on site observations and local weather station data.

The table below details conditions and observations made during the survey.

Date / Time Period	Weather Conditions	Ground Conditions	Temperature (°C)	Atmospheric Pressure (mbar)	Wind Direction / Speed (mph)
27/07/2022 10:40	Sunny	Wet	16	1020	S / 1
27/07/2022 16:20	Sunny	Wet	16	1020	S / 1
28/07/2022 10:15	Overcast	Wet	16	1016	ESE / 3
28/07/2022 16:00	Overcast	Wet	18	1018	ESE / 5
29/07/2022 09:45	Sunny intervals	Wet	20	1019	S / 7
29/07/2022 12:00	Sunny intervals	Wet	21	1020	S / 4

4.2 Site Personnel and Equipment

The table below details the personnel on site during the survey and the equipment type used including serial number and calibration expiry details.

Date	Personnel	Instrument Type	Instrument Serial Number	Calibration Due
27/07/2022	M Credali	Gas-Tec FID	5071021	10/08/2022
28/07/2022	M Credali	Gas-Tec FID	5071021	10/08/2022
29/07/2022	M Credali	Gas-Tec FID	5071021	10/08/2022

Appendix A

Annual FID Survey Results

Pwllfawatkin Landfill Site
Surface Emissions Survey - July 2022
FID Survey - Transects

Zone	Transect Ref	Date	Location			Concentration in ppm	Comments
			Start - End	Easting	Northing		
Z1	Transect 1	28/07/2022	North	269750	209121	0	
			South	269750	208982		
Z1	Transect 2	28/07/2022	North	269750	208890	0	
			South	269750	208877		
Z1	Transect 3	28/07/2022	North	269800	209267	0	
			South	269800	209082		
Z1	Transect 4	28/07/2022	North	269800	208937	0	
			South	269800	208873		
Z1	Transect 5	28/07/2022	North	269850	209264	0	
			South	269850	209105		
Z1	Transect 6	28/07/2022	North	269850	208933	0	
			South	269850	208875		
Z1	Transect 7	28/07/2022	North	269900	209262	0	
			South	269900	208879		
Z1	Transect 8	28/07/2022	North	269950	209220	0	
			South	269950	208905		
Z1	Cap Edge	28/07/2022	North	See Plan		0	
			South				
Z2	Transect 1	27/07/2022	North	269650	208703	0	
			South	269650	208341		
Z2	Transect 2	27/07/2022	North	269700	208728	0	
			South	269700	208340		
Z2	Transect 3	27/07/2022	North	269750	208727	0	
			South	269750	208373		
Z2	Transect 4	27/07/2022	North	269800	208717	0	
			South	269800	208398		
Z2	Transect 5	27/07/2022	North	269850	208707	0	
			South	269850	208409		
Z2	Transect 6	27/07/2022	North	269900	208700	0	
			South	269900	208609		
Z2	Cap Edge	27/07/2022	North	See Plan		0	
			South				
Z3	Transect 1	29/07/2022	West	269827	209100	0	
			East	269871	209100		
Z3	Transect 2	29/07/2022	West	269795	209075	20	Ambient levels
			East	269854	209075		
Z4	Transect 1	29/07/2022	North	269750	208921	10	Ambient levels
			South	269750	208877		
Z4	Transect 2	29/07/2022	North	269775	209004	0	
			South	269775	208909		
Z4	Transect 3	29/07/2022	North	269800	208961	40	Ambient levels from active tipping area
			South	269800	208946		

Pwllfawatkin Landfill Site
Surface Emissions Survey - July 2022
FID Survey - Infrastructure

Zone	Feature Ref	Date	Location		Concentration in ppm	Valve Position	Comments
			Easting	Northing			
Z1	H0004	28/07/2022	269774	209017	0	5	
Z1	L000A	28/07/2022	269957	209196	20	10	Ambient levels
Z1	L000B	28/07/2022	269958	209194	20	10	Ambient levels
Z1	L002B	28/07/2022	269860	209108	0	5	
Z1	L004A	28/07/2022	269865	208957	0	5	
Z1	L00B1	28/07/2022	269860	209174	5,000	10	Bentonite at base of well
Z1	LCS	28/07/2022	269966	209106	0	-	
Z1	LR1	28/07/2022	269964	208989	0	15	
Z1	NOID5	28/07/2022	269960	209151	0	15	
Z1	P0016	28/07/2022	269941	209137	0	10	
Z1	P2105	28/07/2022	269796	208907	0	0	
Z1	PIN01	28/07/2022	269871	209105	0	10	
Z1	PIN02	28/07/2022	269870	209119	0	10	
Z1	PIN03	28/07/2022	269864	209111	0	10	
Z1	PIN04	28/07/2022	269861	209119	0	15	
Z1	PIN05	28/07/2022	269854	209114	0	15	
Z1	PIN06	28/07/2022	269842	209116	0	5	
Z1	PIN07	28/07/2022	269828	209110	0	10	
Z1	PIN08	28/07/2022	269832	209119	0	5	
Z1	PIN09	28/07/2022	269826	209120	0	15	
Z1	PIN10	28/07/2022	269823	209112	0	10	
Z1	PWLMW1A	28/07/2022	269907	209202	200	10	Between base of well and concrete ring
Z1	PWLMW2A	28/07/2022	269900	209130	10,000	10	Between base of well and geomembrane boot
Z1	PWLSW001	28/07/2022	269966	209106	10	-	Base of well
Z1	PWLSW003	28/07/2022	269964	209038	90	-	Base of well and surrounding surface
Z1	PWLSW005	28/07/2022	269965	208990	60	-	Base of well
Z1	PWLSW007	28/07/2022	269962	208943	500	-	Base of well
Z1	PWLW2101	28/07/2022	269901	209219	0	10	
Z1	PWLW2102	28/07/2022	269869	209225	0	15	
Z1	PWLW2103	28/07/2022	269834	209228	0	20	
Z1	PWLW2104	28/07/2022	269809	209223	0	5	
Z1	PWLW2205	28/07/2022	269924	209190	0	5	
Z1	PWLWS002	28/07/2022	269941	209107	0	10	
Z1	R2201	28/07/2022	269898	209178	0	0	
Z1	R2203	28/07/2022	269837	209187	0	0	
Z1	R2301	28/07/2022	269900	209162	0	10	
Z1	R2303	28/07/2022	269836	209162	0	5	
Z1	UNKNOWN	28/07/2022	269941	209020	500	0	Base of well
Z1	W1304	28/07/2022	269901	209063	0	5	
Z1	W1306	28/07/2022	269904	209092	0	10	
Z1	W1307	28/07/2022	269807	209131	0	0	
Z1	W1308	28/07/2022	269795	209097	0	10	
Z1	W1310	28/07/2022	269825	209108	5,000	5	Base of well
Z1	W1311	28/07/2022	269841	209132	30	0	Base of well

Pwllfawarkin Landfill Site
Surface Emissions Survey - July 2022
FID Survey - Infrastructure

Zone	Feature Ref	Date	Location		Concentration in ppm	Valve Position	Comments
			Easting	Northing			
Z1	W1312	28/07/2022	269873	209139	400	10	Base of well
Z1	W1313	28/07/2022	269856	209111	0	10	
Z1	W1314	28/07/2022	269883	209110	0	0	
Z1	W1315	28/07/2022	269778	209083	0	5	
Z1	W1406	28/07/2022	269933	208972	2,000	0	Bentonite at base of well
Z1	W1407	28/07/2022	269936	208999	700	5	Bentonite at base of well
Z1	W1704	28/07/2022	269769	209005	20	10	Ambient levels
Z1	W1807	28/07/2022	269936	208936	10	10	Bentonite at base of well
Z1	W1901	28/07/2022	269887	208988	0	10	
Z1	W1902	28/07/2022	269886	208961	0	15	
Z1	W21A1	28/07/2022	269792	208881	0	10	
Z1	W21A2	28/07/2022	269806	208893	0	15	
Z1	W21A3	28/07/2022	269837	208896	0	15	
Z1	W21A4	28/07/2022	269863	208913	0	10	
Z1	W21A5	28/07/2022	269890	208924	0	5	
Z1	W21A6	28/07/2022	269885	208941	0	5	
Z1	W21A7	28/07/2022	269816	208920	0	10	
Z1	W2202	28/07/2022	269872	209196	0	0	
Z1	W2204	28/07/2022	269808	209188	5	5	Base of well
Z1	W2302	28/07/2022	269863	209162	0	0	
Z1	W2304	28/07/2022	269807	209164	0	5	Extraction line bent and creased
Z1	W2305	28/07/2022	269938	209164	0	10	
Z1	W2401	28/07/2022	269917	209127	0	10	
Z1	W2402	28/07/2022	269882	209132	0	5	
Z1	W2404	28/07/2022	269800	209138	0	15	
Z1	W2501	28/07/2022	269926	209104	0	10	
Z1	W2601	28/07/2022	269925	209078	80	0	Bentonite at base of well
Z1	Z00A5	28/07/2022	269912	209257	500	0	Base of well
Z1	Z00B2	28/07/2022	269956	209118	30	5	Base of well
Z2	NP10	27/07/2022	269844	208422	0	-	
Z2	PWLW0041	27/07/2022	269875	208645	0	0	
Z2	PWLW0051	27/07/2022	269856	208610	0	5	
Z2	PWLW0074	27/07/2022	269833	208539	0	15	
Z2	PWLW0082	27/07/2022	269829	208487	0	10	
Z2	PWLW0091	27/07/2022	269804	208449	0	5	
Z2	PWLW0101	27/07/2022	269767	208436	0	10	
Z2	PWLW0141	27/07/2022	269622	208484	0	20	
Z2	PZC1C-1	27/07/2022	269836	208598	0	10	
Z2	PZC1C-2	27/07/2022	269862	208643	0	5	
Z2	PZC2A-1	27/07/2022	269829	208500	0	20	
Z2	PZC2A-2	27/07/2022	269828	208528	0	10	
Z2	PZC3A-1	27/07/2022	269744	208437	0	5	
Z2	PZC3A-2	27/07/2022	269792	208460	0	0	
Z2	R0085	27/07/2022	269689	208553	0	5	

Pwllfawatkin Landfill Site
Surface Emissions Survey - July 2022
FID Survey - Infrastructure

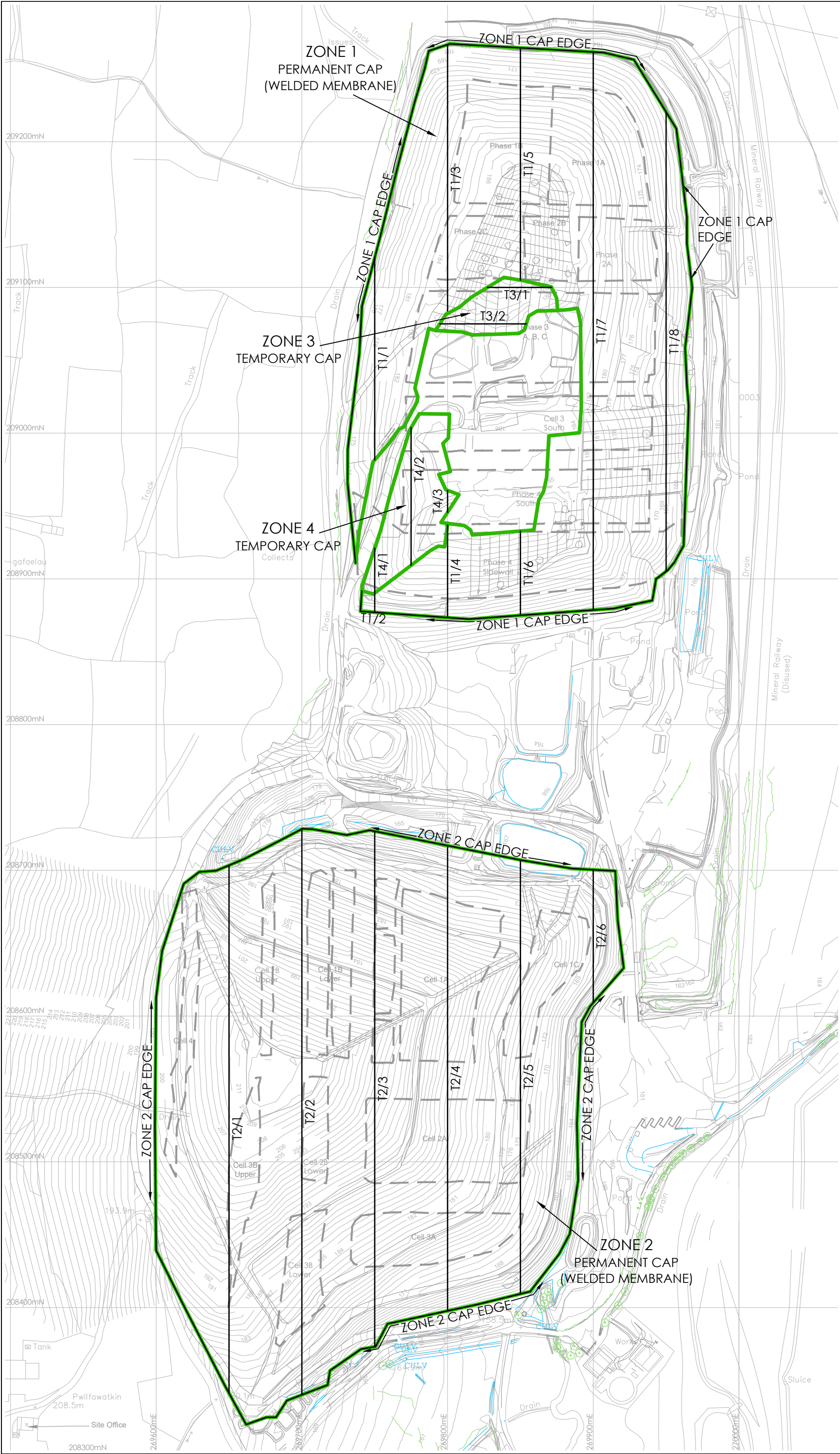
Zone	Feature Ref	Date	Location		Concentration in ppm	Valve Position	Comments
			Easting	Northing			
Z2	R0162	27/07/2022	269663	208574	0	10	
Z2	W0002	27/07/2022	269658	208659	0	10	
Z2	W0003	27/07/2022	269730	208690	0	10	
Z2	W0005	27/07/2022	269770	208676	0	5	
Z2	W0007	27/07/2022	269850	208663	0	0	
Z2	W0030	27/07/2022	269821	208444	0	10	
Z2	W0031	27/07/2022	269718	208639	0	0	
Z2	W0032	27/07/2022	269747	208622	0	0	
Z2	W0036	27/07/2022	269708	208517	0	0	
Z2	W0052	27/07/2022	269835	208583	0	10	
Z2	W0053	27/07/2022	269790	208613	0	5	
Z2	W0061	27/07/2022	269784	208572	0	0	
Z2	W0075	27/07/2022	269781	208539	0	0	
Z2	W0076	27/07/2022	269765	208551	0	0	
Z2	W0077	27/07/2022	269719	208571	0	0	
Z2	W0083	27/07/2022	269777	208508	0	5	
Z2	W0084	27/07/2022	269718	208545	0	10	
Z2	W0085	27/07/2022	269685	208553	0	0	
Z2	W0092	27/07/2022	269782	208469	0	0	
Z2	W0093	27/07/2022	269738	208493	0	5	
Z2	W0102	27/07/2022	269737	208457	0	5	
Z2	W0103	27/07/2022	269734	208428	0	5	
Z2	W0111	27/07/2022	269699	208398	0	0	
Z2	W0112	27/07/2022	269701	208445	0	10	
Z2	W0113	27/07/2022	269703	208479	0	15	
Z2	W0114	27/07/2022	269667	208523	0	10	
Z2	W0121	27/07/2022	269675	208367	0	0	
Z2	W0122	27/07/2022	269667	208434	0	10	
Z2	W0124	27/07/2022	269650	208403	0	10	
Z2	W0131	27/07/2022	269636	208444	0	0	
Z2	W0151	27/07/2022	269616	208521	0	15	
Z2	W0161	27/07/2022	269622	208559	0	10	
Z2	W0162	27/07/2022	269660	208575	0	5	
Z2	W0163	27/07/2022	269623	208596	0	0	
Z2	W0171	27/07/2022	269642	208645	0	0	
Z2	W0172	27/07/2022	269650	208625	0	0	
Z2	W1107	27/07/2022	269680	208605	0	0	
Z2	W1134	27/07/2022	269722	208592	0	5	
Z2	W1194	27/07/2022	269719	208530	0	5	
Z3	W1604	29/07/2022	269840	209080	0	5	
Z3	W1605	29/07/2022	269811	209070	30	10	Base of well
Z4	PIN11	29/07/2022	269777	209004	600	10	Base of well
Z4	W1703	29/07/2022	269799	209002	500	10	Base of well
Z4	W1801	29/07/2022	269762	208905	0	5	

Pwllfawatkin Landfill Site
Surface Emissions Survey - July 2022
FID Survey - Infrastructure

Zone	Feature Ref	Date	Location		Concentration in ppm	Valve Position	Comments
			Easting	Northing			
Z4	W1802	29/07/2022	269763	208906	0	0	
Z4	W1906	29/07/2022	269790	208930	0	5	

Appendix B

Annual FID Survey Plans



LEGEND

- Indicative Extent of FID Walkover Survey
- FID Survey Lines (at 50m and 25m centres dependant on cap type)
- Feature Location and Reference

FCC Environment

PWLLFAWTKIN LANDFILL SITE

**ANNUAL FID SURVEY PLAN
TRANSECTS PLAN (1 of 2)
JULY 2022**

DRAWN BY	CK	DATE	19/08/2022
APPROVED BY		SCALE	A3 1:2500
DRAWING No	2022/PWL/01	STATUS	FINAL

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