Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Standard Landfill Site

Flintshire County Council Waste Management Services

Environmental Management 2025

Quarterly Monitoring Review July - September 2025

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DISCLAIMER

Quarterly Monitoring Review July - September 2025

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1.0 INTRODUCTION

1.1 Background

1.1.1 This report reviews environmental monitoring data collected during the third quarter (Q3) of 2025 (July–September) at the Standard Landfill Site in Buckley (hereafter referred to as 'the Site'). The review is undertaken in accordance with the requirements of Natural Resources Wales (NRW). All gas and groundwater level (dip) data considered in this report were collected between the 1st of July and the 30th of September 2025, in line with the Environmental Permit (EP) ref. EPR/BP3390VA and the Standard Landfill Closure Plan ref. 3031-CAU-XX-XX-RP-V-0304.

1.1.2 This report presents and discusses monitoring data for landfill gas, leachate, groundwater, and surface water at the Standard Landfill Site. Further information on the Site's location, surrounding land use, historical development, and environmental context can be found in the Standard Landfill Site Annual Monitoring Review 2024 (document ref. 6080-CAU-XX-XX-RP-V-0312), submitted separately to NRW by Caulmert Ltd on behalf of Flintshire County Council Waste Management Services.

2.0 LANDFILL GAS

2.1 Introduction

2.1.1 Routine landfill gas (LFG) monitoring was conducted monthly at 28 perimeter boreholes during the review period. Methane, carbon dioxide, oxygen, relative pressure, and atmospheric pressure were recorded at each borehole.

2.1.2 Borehole locations are shown on the attached drawing 'Site Survey' ref. 13863a. Detailed methane and carbon dioxide concentrations are highlighted in Appendix 1.

2.1.3 An active gas extraction system comprising a 235 KW Engine and Flare is operated at the Site.

2.2 Methane

2.2.1 Methane was only detected at BH22 with a maximum concentration of 0.30 %. No methane was detected at any other monitoring location. Concentrations remained comparable to those detected previously in Q2 2025.

2.2.2 An EP Compliance Assessment Report (CAR) ID 37073/0202764 issued by Natural Resources Wales (NRW) on the 27th of February 2014, proposed a methane EP Compliance Limit of 1.00 % for BH22. The EP Compliance Limit was not exceeded in Q3, and thus, methane concentrations on the Site are not considered a risk.

2.3 Carbon Dioxide

2.3.1 Carbon dioxide EP Compliance Limits were agreed with the NRW during Quarter 3 of 2011. Details of the limits and monitoring data are highlighted in Appendix 1.

2.2.3 Average carbon dioxide concentrations varied between 1.10 % (BH2.1, BH5.2, BH5.7, BH6.1 and BH22) to 1.67 % (BH4.1). No EP Compliance Limits were exceeded in this quarter. Thus, carbon dioxide concentrations at the Site are not considered a risk.

2.4 Carbon Monoxide and Hydrogen Sulphide

2.4.1 No carbon monoxide or hydrogen sulphide was detected at any of the monitoring locations throughout this quarter.

3.0 LEACHATE

3.1 Introduction

3.1.1 Leachate levels were recorded monthly at nine leachate monitoring locations, LC2.1(LC), LC3, LC4, LC7, S1, S2, S3, SSR5 (LS5) and SSR6 (LS6). As in the previous quarter, the nearest well to LC2 was sampled (LC2.1) as there was no access to LC2.

3.1.2 Well locations are shown on the enclosed Environmental Monitoring Location drawing 13863a.

3.2 Leachate Levels

3.2.1 Leachate levels were recorded monthly. A table of leachate levels, in metres below ground level (mBGL) and metres above Ordnance Datum (mAOD), is highlighted in Appendix 2.

3.2.2 Leachate levels remained below the EP Compliance Limit (2.00 m above the well base) throughout the review period at all locations, with the exception of monitoring location LS5. Leachate head levels at LS5 averaged at 5.21 m in Q3 2025, similar to the previously recorded average of 5.23m in Q2 2025. Average leachate head levels at the remaining monitoring locations ranged from 0.99 m (LC3) to 1.10 m (S1). The base levels, however, are unconfirmed, and the accuracy of these leachate 'head' figures cannot be verified. The minimum, maximum, and average leachate head levels in metres above the well base are indicated in Table 1~~Table 1~~.

Table 1 Leachate Head Levels (in metres above well base)

Leachate Head (m)	LC2.1 (LC)	LC3	LC4	LC7	LS5	LS6	S1	S2	S3
Min	0.99	0.98	-17.56	1.76	5.20	1.16	1.09	1.54	-4.80
Max	1.04	1.00	1.30	1.79	5.22	1.19	1.12	1.60	-4.75
Average	1.01	0.99	-4.99	1.77	5.21	1.17	1.10	1.57	-4.77

3.3 Leachate Quality

3.3.1 A summary of the leachate quality is shown in **Appendix 2**. The quarterly parameters were sampled once on the 1st of October 2025.

3.3.2 Ammonia (as N) concentrations within leachate at the Site were higher on some occasions during Q3 compared to the previous review period across the monitoring locations. The maximum concentration recorded was 901 mg/L at location SSR51 (which is considerably lower than Q2's 1,600 mg/L at S1). Elevated concentrations were also observed at HT (778 mg/L), LC2 (817 mg/L), LC3 (803 mg/L), S3 (795 mg/L), and SSR6 (542 mg/L). For comparison, concentrations during Q2 ranged from 214 mg/L at S3 to 1,600 mg/L at S1. The mean ammonia concentration across all leachate wells decreased from 574 mg/L in Q2 to 515 mg/L in Q3, which remains broadly comparable to the Q4 2024 mean concentration of 411 mg/L.

3.3.3 The highest chloride concentration recorded during Q3 was 1,706 mg/L at location S3. This represents a noticeable decrease from the previous maximum of 2,100 mg/L (Q2), which remains lower than the peak value observed in Q4 2024 (2,448 mg/L). The mean chloride concentration for Q3 was 1,309 mg/L, compared with 1,244 mg/L in the preceding quarter.

3.3.4 Chemical Oxygen Demand (COD) concentrations during Q3 varied between 120 mg/L at location HT to 2,160 mg/L at location SSR5. The mean COD concentration for the quarter was 1,054 mg/L, representing a decrease from the Q2 mean of 1,269 mg/L and continuing the upward trend observed since Q4 2024, when the mean concentration was 683 mg/L.

3.3.5 Leachate pH during Q3 was generally more alkaline across all monitoring locations, with a site-wide mean of 7.98, a slight increase from the previous mean of 7.83. Dissolved metal concentrations decreased during Q3, with average concentrations rising from 104 mg/L to 90.1 mg/L for magnesium, from 408 mg/L to 326 mg/L for potassium, and from 1,010 mg/L to 776 mg/L for sodium.

3.3.6 Monitoring undertaken during Q3 2025 indicates a general downward trend in several key leachate quality parameters across the Site. Ammonia, chloride, COD, and dissolved metal concentrations all decreased compared with the previous quarter.

4.0 GROUNDWATER

4.1 Introduction

4.1.1 During the review period, groundwater levels were recorded monthly at eight groundwater monitoring boreholes, GW1, GW2, GW2R, GW3, GW4R, GW5, GW6 and GW7R. Location GW2R was installed in October 2016 to replace GW2. Samples collected at these locations were analysed for the quarterly suite of substances on the 1st October 2025.

4.2 Groundwater Levels

4.2.1 Groundwater level data were recorded monthly in metres below ground level (mBGL) on the 23rd of July, 20th of August, and 30th of September 2025. Where borehole cover levels in Ordnance Datum are available, this was used to calculate the groundwater level in metres Above Ordnance Datum (mAOD).

4.2.2 Groundwater levels across the monitoring boreholes varied throughout Q3 2025. The highest groundwater levels were consistently recorded at ST GW 5 (ranging from 131.87 mAOD to 130.87 mAOD). In contrast, the lowest levels were measured at ST GW 3 (decreasing from 73.60 mAOD in September to 72.37 mAOD in August). Noticeable decreases observed in this quarter were at ST GW 1 (which varied from 86.83 mAOD in September to 82.53 mAOD in July), and ST GW 7R (ranging from 94.11 mAOD in September to 87.01 mAOD in July). Levels at ST GW 2 remained stable at 108.11 mAOD throughout the monitoring period. Groundwater dip levels (mBGL) followed a similar pattern, with ST GW 7R recording the deepest water table (between 47.89 and 54.99 mBGL), and ST GW 5 the shallowest (between 2.99 and 3.99 mBGL). A complete summary of groundwater levels, expressed in both mBGL and mAOD, is provided in Appendix 3.

4.3 Groundwater Quality

4.3.1 Detailed groundwater quality data is highlighted in **Appendix 3**. The quarterly parameters were tested on the 1st of October 2025.

4.3.2 Ammonia concentrations in groundwater remained consistently low throughout Q3 2025, with the exception of GW3 having a concentration of 1.8 mg/L being recorded. At all other monitoring locations, concentrations ranged from 0.11 mg/L at GW2 to a maximum of 0.45 mg/L at GW4R.

4.3.3 Chloride concentrations in groundwater during Q3 2025 remained broadly comparable to those recorded in Q2 2025. The highest concentration was observed in GW6, at 65.90 mg/L, representing a decrease from 2025 Q2's maximum of 69.30 mg/L at GW7. At the remaining locations, concentrations varied between 18.5 mg/L (GW5) and 63.8 mg/L (GW7). The site-wide average chloride concentration for Q3 was 50.83 mg/L, a slight increase from the Q2 average of 49.2 mg/L.

4.3.4 All inorganic groundwater quality parameters (detailed in Appendix 3) remained broadly comparable to the previous review. COD concentrations during Q3 2025 ranged from below

the laboratory limit of detection (<2 mg/L) at GW3 and GW4R, to a maximum of 59 mg/L at GW5. BOD concentrations ranged from 5.6 mg/L at GW5 to 40.4 mg/L at GW3.

4.3.5 The average concentration of copper in groundwater depicts an increasing trend pattern from what was recorded during Q3 2024 as follows; 39.9 µg/L in Q3 2025, 22.6 µg/L in Q2 2025, 10.84 µg/L in Q1 2025, and 3.50 µg/L in Q3 2024, respectively. The same was also noticed in iron concentration averages: 15,419 µg/L in Q3 2025, 784 µg/L in Q2 2025, 228 µg/L in Q1 2025, and 2,704 µg/L in Q3 2024, respectively. Copper concentrations during Q3 2025 ranged from 34 µg/L at GW1 to 52.5 µg/L at GW5, with the majority of locations recording values below 42 µg/L. Iron concentrations ranged from 1,339 µg/L at GW5 to 31,179 µg/L at GW7.

4.3.6 Nickel was detected across all monitoring locations during Q3 2025, with concentrations ranging from 2.5 µg/L at GW3 to 51.3 µg/L at GW6. This maxima represents a considerable increase from what was recorded in Q2 of 2025 at 6 µg/L in GW2 and GW4R, respectively. Arsenic concentrations remained below the laboratory detection limits (<0.2 µg/L) at all locations. Lead concentrations in most of the locations were below the laboratory detection limits (<4.1 µg/L) with the exception of GW5, which had a value of 19.30 µg/L. This should be investigated further.

4.3.7 The concentrations of cadmium, calcium, magnesium, mercury, potassium, and sodium in Q3 were comparable to those previously recorded.

4.3.8 Groundwater pH was near neutral during Q3 2025, with a site-wide average of 6.57, compared to the previously reported average of 6.64 in Q2 2025.

5.0 SURFACE WATER

5.1 Introduction

5.1.1 Surface water samples were collected at 3 locations, SW4, SW5, and SW6 for the quarterly suite on the 1st of October 2025. The laboratory testing results can be found in **Appendix 4**.

5.2 Surface Water Quality

5.2.1 Ammonia (as N) concentrations in Q3 2025 were higher than those of Q2 review period, with recorded values as follows: 1.80 mg/L at SW4, 0.19 mg/L at SW5, and 0.40 mg/L at SW6 respectively. These concentrations are comparable with previous monitoring results, and remain below the Environmental Permit compliance limit of 1 mg/L (SW5 only).

5.2.2 Chloride concentrations during Q3 2025 remained below the Environmental Permit compliance limit of 105 mg/L. At the upstream monitoring location SW4, chloride was recorded at 76.1 mg/L, while levels in SW5 and SW6 were lower at 15.3 mg/L and 15.1 mg/L, respectively. These values are comparable to those observed during previous monitoring periods and do not indicate any exceedances of compliance thresholds.

5.2.3 COD concentrations during Q3 2025 ranged from 13 mg/L at SW5, to 20 mg/L at SW4.

5.2.4 Nitrate concentrations during Q3 2025 were below the laboratory limit of detection (<0.30 mg/L) at all the monitoring locations.

5.2.5 Sulphate concentrations during Q3 2025 were recorded as 96 mg/L at SW4, 224 mg/L at SW5 and 222 mg/L at SW6. These values are broadly higher than the previous monitoring results.

5.2.6 Iron concentrations during Q3 2025 were recorded as 327 µg/L at SW4, 677 µg/L at SW5, and 626 µg/L at SW6, respectively. These values represent an increase (especially for SW4) compared with the previous quarter, recorded as 397 µg/L at SW4 and 3,234 µg/L at SW6, respectively.

5.2.7 Magnesium concentrations during Q3 2025 was 18 mg/L at SW4 and 23 mg/L recorded at both SW5 and SW6 respectively. These values are comparable with the values recorded during the previous quarter (22 mg/L for SW4 and 31 mg/L for SW6, respectively).

5.2.8 Potassium and sodium concentrations in surface water locations showed no significant changes compared to the results observed in previous quarterly review periods.

5.2.9 pH levels at the surface water monitoring locations were near neutral, with values of 7.90 at SW4 and 8 recorded both at SW5and SW6.

6.0 CONCLUSIONS

6.1 Landfill gas

6.1.1 As noted within previous reviews, methane was only detected in BH22 with a maximum concentration of 0.3 % recorded.

6.1.2 The EP Compliance Limits for methane and carbon dioxide were not exceeded throughout Q3.

6.1.3 No carbon monoxide or hydrogen sulphide was detected during Q3.

6.2 Leachate

6.2.1 Leachate levels remained within the EP Compliance Limit for the duration of Q1 at all locations, with the exception of LS5.

6.2.2 Overall, the Q3 2025 monitoring suggests a decrease in leachate quality parameters. These trends should be tracked closely in subsequent quarters to determine whether they represent seasonal variability or a longer-term shift in leachate composition.

6.3 Groundwater

6.3.1 Groundwater levels during Q3 2025 were highest in September and mostly lower during July. This trend is consistent with typical seasonal variations, likely influenced by reduced rainfall and recharge rates during late spring and early summer.

6.3.2 Inorganic parameters analysed in groundwater during Q3 2025 were generally consistent with established site trends; however, copper, iron and nickel exhibited elevated concentrations compared with Q2 2025. These represent an increasing trend pattern from the historically elevated levels recorded in 2024.

6.3.3 Groundwater pH during Q3 2025 exhibited a slight shift towards more neutral conditions relative to Q2; however, values remained within the expected range for the Site. Concentrations of cadmium, calcium, magnesium, potassium, and sodium demonstrated only minor variations and were broadly consistent with those observed during the previous monitoring period.

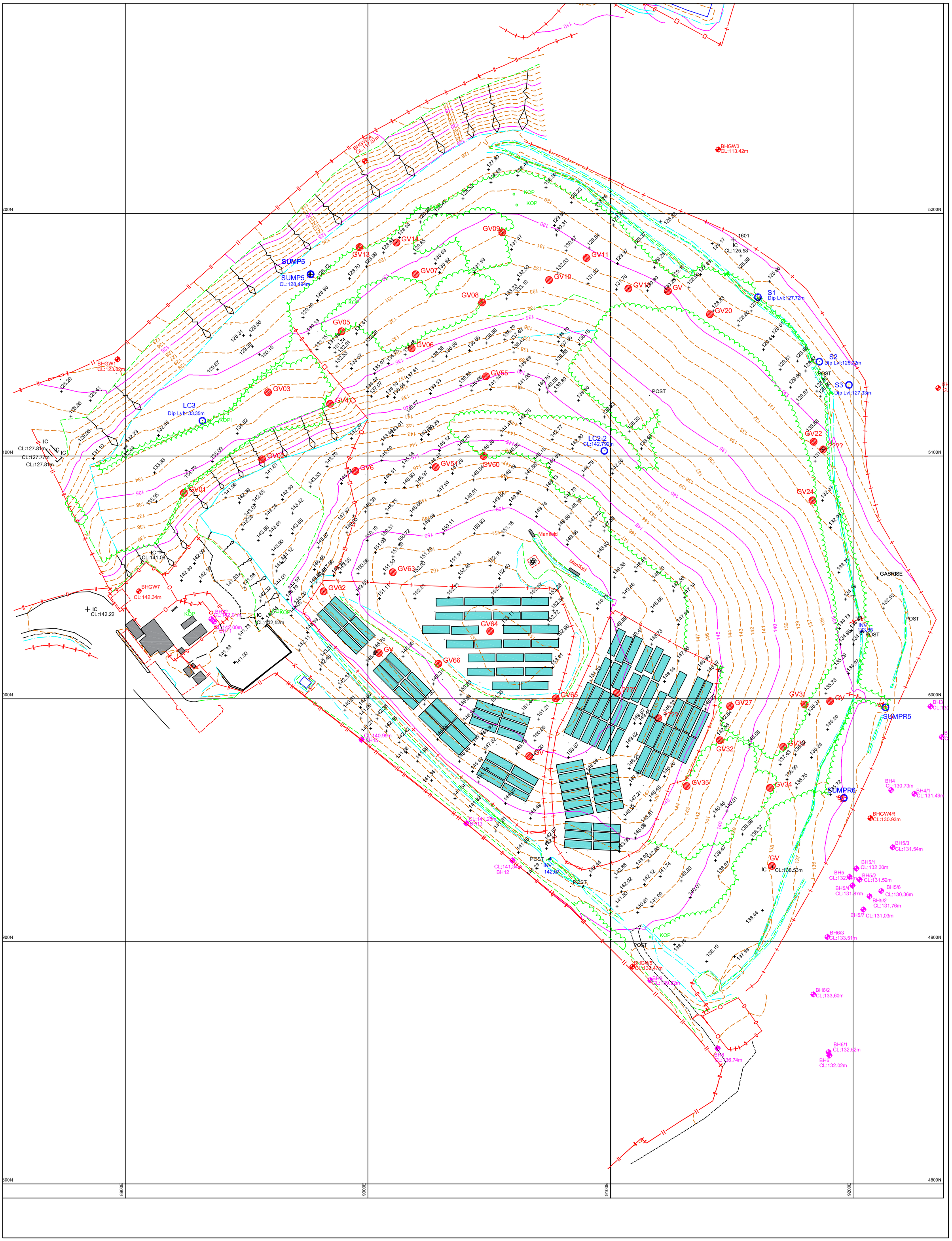
6.4 Surface Water

6.4.1 Inorganic surface water quality during Q3 2025 was generally comparable to previous results; however, elevated concentrations of iron was recorded at SW4 and SW5, relative to Q2 2025.

6.4.2 All concentrations remained below the EP compliance limits.

DRAWINGS

13071a Environmental Monitoring Locations



SITE Standard Landfill	SCALE 1:1000 @ A2 DATE 14/10/2024	CLIENT Cyngor Sir y Fflint Flintshire County Council	NOTES Groundwater Borehole Borehole	stafsurv Land Surveyors www.stafsurv.com Vernon Courtyard, Main Road, Sudbury, Derbyshire. DE6 5HS T 01283 584800 > F 01284 584844 > E info@stafsurv.com
PROJECT Site Survey	DRAWING No. 13863a - 0			

APPENDIX 1

Landfill Gas Summary

Table 1: Landfill Gas Summary

Parameter		BH1	BH1.1	BH2.0	BH2.1	BH2.2	BH3.0	BH3.1	BH4.0	BH4.1	BH4.2	BH5.0	BH5.1	BH5.2	BH5.3
Methane (% v/v)	EP Compliance Limit	1.00	1.00	1.00	10.00	1.00	15.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	11/07/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12/08/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	16/09/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Dioxide (% v/v)	EP Compliance Limit	5.40	5.40	7.80	10.60	7.10	19.40	5.80	9.60	6.00	16.00	17.10	7.10	5.40	5.40
	11/07/2025	1.10	1.20	1.60	1.20	1.50	1.40	1.20	1.30	1.80	1.70	1.40	1.40	1.00	1.30
	12/08/2025	1.20	1.10	1.40	1.20	1.40	1.30	1.10	1.20	1.60	1.60	1.50	1.60	1.10	1.40
	16/09/2025	1.10	1.30	1.20	0.90	1.00	1.10	1.20	1.30	1.60	1.20	1.20	1.50	1.20	1.30
	Average	1.13	1.20	1.40	1.10	1.30	1.27	1.17	1.27	1.67	1.50	1.37	1.50	1.10	1.33
Oxygen (% v/v)	11/07/2025	19.60	19.80	19.30	19.50	19.50	19.80	19.90	19.60	19.80	19.90	19.90	20.00	19.80	19.40
	12/08/2025	19.70	19.90	19.50	19.60	19.60	19.90	19.50	19.80	19.70	20.10	19.80	19.80	19.60	19.60
	16/09/2025	19.90	19.60	19.60	19.70	19.80	20.20	19.60	19.90	19.50	20.00	19.90	19.90	19.20	19.50
	Average	19.73	19.77	19.47	19.60	19.63	19.97	19.67	19.77	19.67	20.00	19.87	19.90	19.53	19.50

Parameter		BH5.4	BH5.5	BH5.7	BH6.0	BH6.1	BH6.2	BH6.3	BH7.0	BH7.1	BH12	BH13	BH15	BH16	BH22
Methane (% v/v)	EP Compliance Limit	1.00	1.00	1.60	1.00	1.00	1.00	1.00	10.00	10.00	1.00	1.00	1.00	1.00	1.00
	11/07/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	12/08/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	16/09/2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Carbon Dioxide (% v/v)	EP Compliance Limit	8.30	3.00	3.10	5.40	8.20	6.20	5.50	6.50	5.20	7.00	7.60	5.80	3.00	3.10
	11/07/2025	1.50	1.30	1.20	1.20	1.20	1.30	1.10	1.20	1.40	1.10	1.20	1.30	1.20	1.20
	12/08/2025	1.40	1.20	1.10	1.10	1.00	1.20	1.20	1.00	1.30	1.30	1.00	1.20	1.30	1.10
	16/09/2025	1.50	1.10	1.00	1.20	1.10	1.30	1.20	1.20	1.40	1.20	1.20	1.10	1.20	1.00
	Average	1.47	1.20	1.10	1.17	1.10	1.27	1.17	1.13	1.37	1.20	1.13	1.20	1.23	1.10
Oxygen (% v/v)	11/07/2025	19.90	19.80	19.40	19.60	19.90	19.80	19.60	19.20	19.80	19.50	19.60	19.80	19.30	19.80
	12/08/2025	20.20	19.60	19.60	19.70	20.10	19.60	19.50	19.40	19.90	19.60	19.90	19.50	19.40	19.90
	16/09/2025	20.00	19.80	19.70	19.80	20.00	19.80	19.70	19.60	19.50	19.70	19.80	19.60	19.60	19.80
	Average	20.03	19.73	19.57	19.70	20.00	19.73	19.60	19.40	19.73	19.60	19.77	19.63	19.43	19.83

APPENDIX 2

Leachate Summary

Table 1: Leachate levels

Parameter		LC2.1 (LC)	LC3	LC4	LC7	LS5	LS6	S1	S2	S3
Well height (mAOD)		**141.05**	**133.96**	**148.65**	**151.29**	**133.31**	**134.86**	**127.98**	**128.86**	**128.50**
Dip to Base		**31.00**	**4.84**	**19.00**	**20.31**	**32.00**	**33.00**	**4.43**	**3.35**	**5.09**
Dip to Liquid (m)	**22/07/2025**	29.96	3.86	17.70	18.55	18.91	30.09	3.34	1.75	9.89
	19/08/2025	29.99	3.84	17.72	18.55	18.94	30.05	3.31	1.79	9.85
	30/09/2025	30.01	3.86	17.75	18.52	18.96	30.03	3.33	1.81	9.84
Leachate Head (m)	**22/07/2025**	1.04	0.98	1.30	1.76	5.22	1.16	1.09	1.60	-4.80
	19/08/2025	1.01	1.00	1.28	1.76	5.21	1.18	1.12	1.56	-4.76
	30/09/2025	0.99	0.98	-17.56	1.79	5.20	1.19	1.10	1.54	-4.75
Leachate Level (mAOD)	**22/07/2025**	111.09	130.10	130.95	132.74	114.40	104.77	124.64	127.11	118.61
	19/08/2025	111.06	130.12	130.93	132.74	114.37	104.81	124.67	127.07	118.65
	30/09/2025	111.04	130.10	130.90	132.77	114.35	104.83	124.65	127.05	118.66

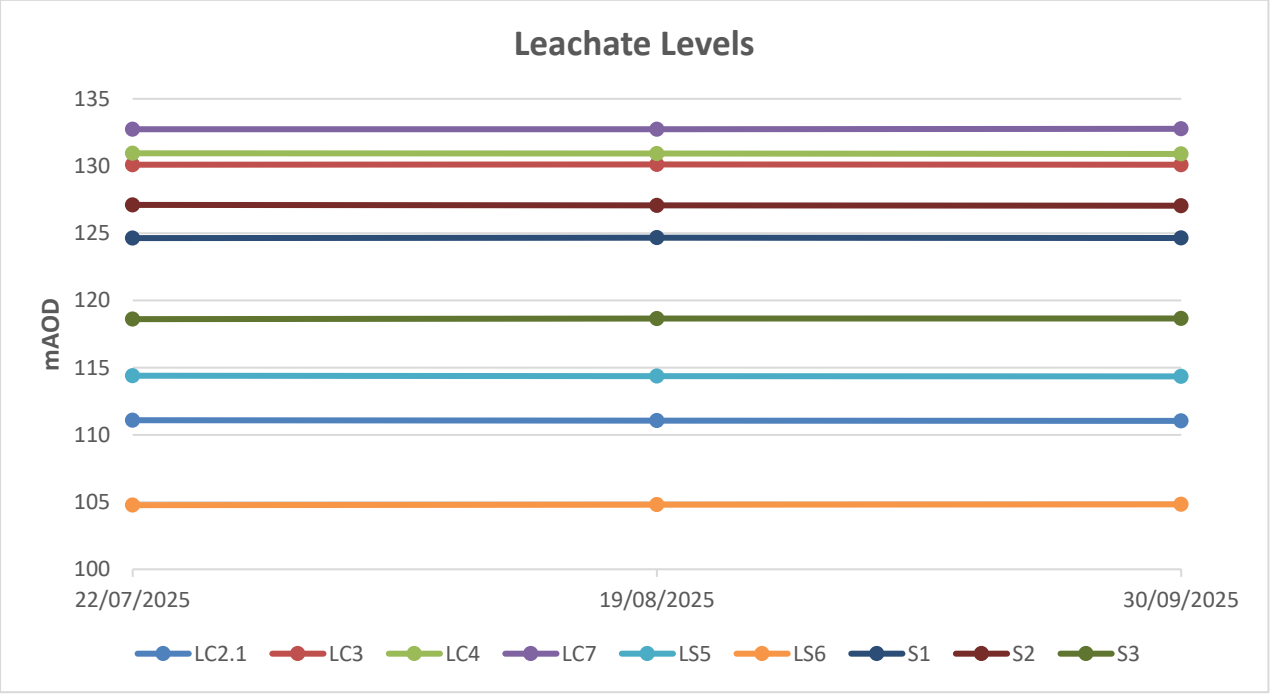


Table 2: Leachate quality data summary

Parameter	Unit	HT	LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Inorganics											
Alkalinity, Total as CaCO3	mg/L	5062	5166	5303	3875	3436	3491	5049	5024	5731	3806
Ammonia as N	mg/L	778	817.00	803.00	0.11	0.57	0.67	<0.01	795	901	542
BOD	mg/L	138	252	594	167	281	110	138	509	195	224
Chloride	mg/L	1453	1439	1694	1000	747	733	1405	1706	1690	1218
Chlorine, Total (Residual)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
COD	mg/L	120	1230	1320	1870	240	330	880	1510	2160	880
Conductivity	uS/cm	11873	11858	12386	9169	7826	7645	11979	12604	13649	9494
pH	pH Units	8.30	8.40	8.10	7.60	7.50	7.50	8.30	8.10	8.00	8.00
Total Oxidised Nitrogen as N	mg/L	0.18	0.11	0.29	0.12	0.18	0.10	0.11	0.72	1.30	0.09
Filtered (Dissolved) Metals											
Magnesium (Dis.Filt)	mg/L	80.1	83.6	98.3	100.0	96.7	89.9	76.0	97.4	85.2	93.5
Potassium (Dis.Filt)	mg/L	363	384	414	311	206	184	346	395	401	259
Sodium (Dis.Filt)	mg/L	847	891.00	933.00	631	543	532.00	862	891	942	696

APPENDIX 3

Groundwater Summary

Table 1: Groundwater levels

Parameter	Date	ST GW 1	ST GW 2	ST GW 2R	ST GW 3	ST GW 4R	ST GW 5	ST GW 6	ST GW 7R
Dip Level (mBGL)	23/07/2025	41.55	9.10	39.01	40.61	37.88	3.99	31.23	54.99
	20/08/2025	39.90	9.10	38.12	41.05	38.05	3.41	31.11	50.25
	30/09/2025	37.25	9.10	36.51	39.82	35.01	2.99	29.95	47.89
Groundwater Level (mAOD)	23/07/2025	82.53	108.11	78.20	72.81	93.12	130.87	92.34	87.01
	20/08/2025	84.18	108.11	79.09	72.37	92.95	131.45	92.46	91.75
	30/09/2025	86.83	108.11	80.70	73.60	95.99	131.87	93.62	94.11

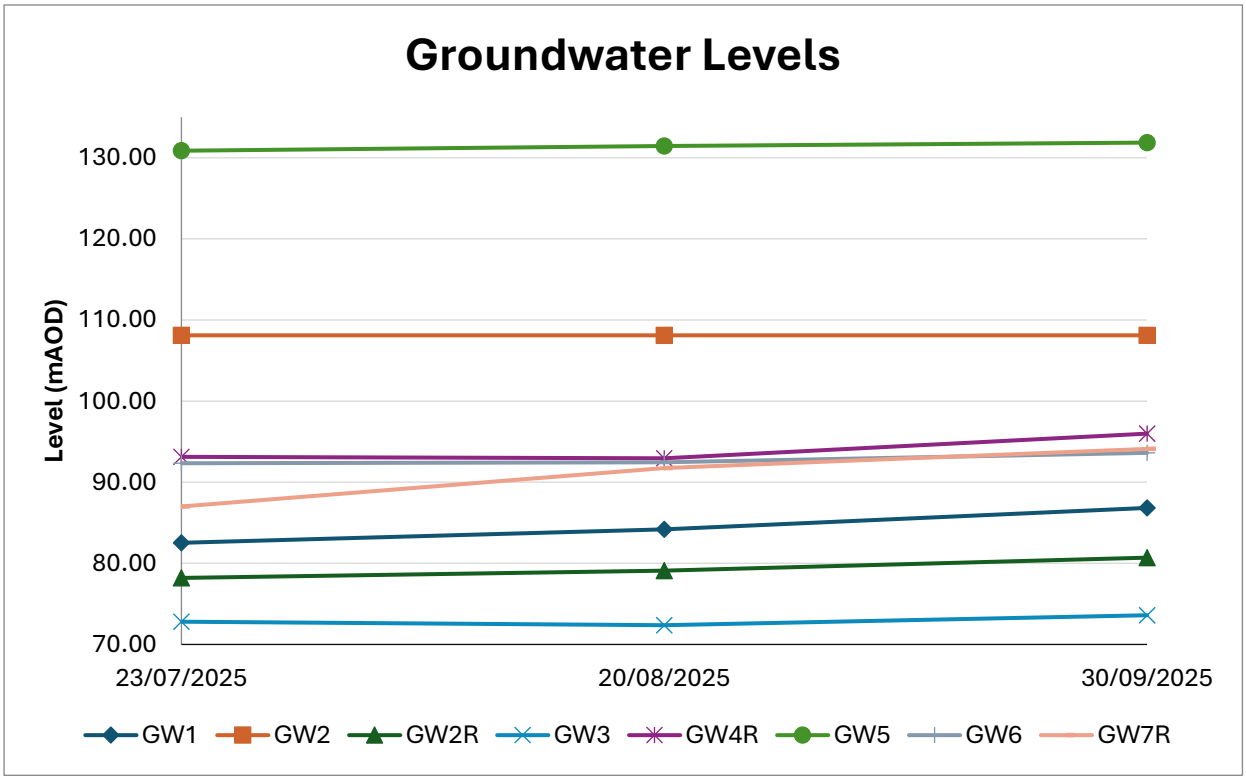


Table 2: Groundwater quality data summary

Parameter	Units	GW1	GW2	GW3	GW4R	GW5	GW6	GW7
Carbon								
Organic Carbon, Total	mg/L	50.80	41.00	56.90	69.10	47.60	34.50	36.40
Inorganics								
Alkalinity, Total as CaCO3	mg/L	43.3	40.9	195	163	112	164	69.4
Ammonia as N	mg/L	0.21	0.11	1.80	0.45	0.22	0.36	0.14
BOD, unfiltered	mg/L	23.90	23.90	40.40	10.20	5.60	8.50	29.60
Chloride	mg/L	54.30	54.00	36.60	62.70	18.50	65.90	63.80
Chlorine, Total (Residual)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
COD	mg/L	18.00	16	<2	<2	59.00	6	15
Nitrate as NO3	mg/L	3.10	3.10	<0.3	1.90	<0.3	1.90	2.40
pH	pH Units	6.00	6.20	6.90	6.60	6.90	6.70	6.70
Sulphate	mg/L	173.0	175.0	152.0	201.0	40.9	203.0	144.0
Total Oxidised Nitrogen as NO3	mg/L	0.70	0.70	0.26	0.44	0.25	0.44	0.54
Filtered (Dissolved) Metals								
Arsenic	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Calcium	mg/L	55.60	56.20	84.10	102.00	55.00	102.00	62.90
Copper	µg/L	34.00	40.20	35.80	37.80	52.50	36.80	42.00
Iron	µg/L	6156	8440	30989	13992	1339	15837	31179
Lead	µg/L	<4.1	<4.1	<4.1	<4.1	19.30	<4.1	<4.1
Magnesium	mg/L	22.80	23.10	30.20	32.10	5.60	31.40	20.30
Mercury	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	3.70	3.00	2.50	49.60	2.60	51.30	3.20
Potassium	mg/L	10.30	10.30	12.60	7.10	2.70	6.90	7.90
Sodium	mg/L	31.90	31.30	27.40	33.20	12.60	32.50	33.30

APPENDIX 4

Surface Water Summary

Table 1: Surface Water Quality.

Parameter	Units	EP Limit (SW5)	SW4	SW5	SW6
Inorganics					
Alkalinity, Total as CaCO3	**mg/l**	-	134	102	103
Ammonia as N	**mg/l**	1	1.80	0.19	0.40
BOD (as O2)	**mg/l**	-	2.40	1.50	3.10
Chloride	**mg/l**	105	76.1	15.3	15.1
Chlorine, Total (Residual)	**mg/l**	-	<0.10	<0.10	<0.10
COD (as O2)	**mg/l**	-	20.00	13.00	19.00
Conductivity @ 20 deg.C	**mS/cm**	-	669.00	645.00	648.00
Nitrate as NO3	**mg/l**	-	<0.3	<0.3	<0.3
pH	**pH Units**	-	7.90	8.00	8.00
Sulphate	**mg/l**	-	96.0	224.0	222.0
Total Oxidised Nitrogen as N	**mg/l**	-	<0.07	<0.07	0.11
Filtered (Dissolved) Metals					
Iron (Dis.Filt)	**ug/l**	-	327.00	677.00	626
Magnesium (Dis.Filt)	**mg/l**	-	18	23	23
Potassium (Dis.Filt)	**mg/l**	-	6.40	0.80	1.40
Sodium (Dis.Filt)	**mg/l**	-	47.00	14.30	14.40
Unfiltered (Total) Metals					
Calcium (Tot. Unfilt.)	**mg/l**	-	75.1	97.3	97.7

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