Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

Ōtaki Wastewater Treatment Plant

Resource Consent Annual Compliance Report 2025-26

FINAL FOR ISSUE TO GWRC

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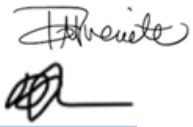
Prepared by	Tess Drewitt, Compliance Consultant Ben Thompson, Water Conservation & Trade Waste Officer		10/09/2026
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Executive Summary

This report has been compiled in accordance with the reporting requirements in Condition 43 of resource consent WGN160002 that authorises discharges to land and air from the Ōtaki Wastewater Treatment Plant (WWTP) at Riverbank Road in Ōtaki. The Council must provide an Annual Report to Greater Wellington Regional Council (GWRC) for the previous financial year by 30 September each year.

The following table summarises compliance with consent conditions for 2025/26.

Resource consent condition	No.	Compliance
General conditions	1 & 2	🟢
Land Discharge & Treatment Area (LDTA) optimisation study and report	3, 4 & 5	🟢
Operations and maintenance manual	6, 7 & 8	🟢
Maximum discharge rate	9 & 10	🔴
Wet weather storage capacity	11	🟢
Wastewater volume measurement	12 & 13	🟢
Monitoring wastewater flows	14	🟢
Monitoring pond effluent quality	15 & 16	🟢
Treated effluent standards:		
• ScBOD5	17(a)	🟢
• TSS	17(b)	🟢
• E. coli	17(c)	🟢
• NH_4-N	17(d)	🔴
• DRP	17(e)	🟢
Monitoring groundwater and spring water	18, 19 & 20	🟢
Attenuation equilibrium	21	🟢
Inspection records and operational logs	22	🟢
Monitoring requirements	23	🟢
Performance and maintenance of the distribution system:		
• Maintenance of infiltration discharge area	24	🟠
• Perimeter bunding and setback distances	25 & 26	🟢
Reserve area for effluent discharge	27	🟢
Inflow and infiltration investigations, works and report	28	🟢
Odour management	29, 30, 31 & 32	🟢
Planting within the LDTA	33, 34 & 35	🟢
Perimeter planting	36	🟢
Fencing and signage	37	🟢
Iwi consultation	38 & 39	🟢
Community Liaison Group (CLG)	40	🟢

Resource consent condition	No.	Compliance
Complaints	41	●
Incident notification	42	●
Annual Report	43	●

The Council is largely compliant with the consent conditions, except for:

- **Condition 9 – Maximum discharge rate:** Council exceeded the maximum discharge rate in July 2025 due to a meter reporting error, which was notified to GWRC in a September incident report (**Appendix C**). Council has since rectified the issue and complied with the maximum discharge limits for the remaining of 2025/26. Council has not identified any adverse effects resulting from the exceedance.

- **Condition 17(d) – Discharge limit for ammoniacal nitrogen:** For the 12-month reporting period Council complied with both limits for NH_4-N. However, Council exceeded Limit 2 three out of 12 times in the 12-month period from October 2024 – September 2025, making Council non-compliant with these limits (see **Appendix C** incident report). Council is upgrading the aerators in 2026/27, which will ensure ongoing compliance with the limits.

- **Condition 24 –** Performance and maintenance of the distribution system: Council continues to be non-compliant with Condition 24, specifically the requirement to apply effluent to no less than 75%. This is an ongoing issue that Council will address through the proposed sprinkler upgrades in 2026/27, subject to GWRC resource consent.

1. Introduction

1.1 Background

The Kāpiti Coast District Council (Council) holds a resource consent from Greater Wellington Regional Council (GWRC) to discharge treated effluent to land and contaminants to air from the operation of the Ōtaki Wastewater Treatment Plant (WWTP) (WGN160002). As part of this consent, the Council must provide a compliance report on the performance of the plant against the parameters presented in the permit.

1.2 Annual Report requirements

Condition 43 of the consent requires the Council to provide the compliance report for the previous financial year, and present it to the Manager, Environmental Regulation, GWRC by 30 September. The Annual Report must include the following information at a minimum:

(a) A summary of all monitoring undertaken in accordance with the conditions of this consent, and an analysis of the information in terms of compliance.

(b) A discussion of the results of pond effluent quality and groundwater and spring water quality monitoring throughout the year, including a trend analysis of the data to identify any ongoing changes over time. Included shall be a discussion of any identified trends, and actions taken to maintain compliance (if required).

(c) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this consent.

(d) Any measures that have been taken or are proposed to be undertaken in the upcoming 12 months, to improve the environmental performance of the wastewater treatment and discharge system.

(e) Any recommendations on alterations/additions to the monitoring programmes.

(f) A schedule of any complaints recorded during the year, and any follow up actions undertaken.

(g) A discussion of wastewater inflow volumes and whether these are consistent with predicted inflow volumes (as detailed in the resource consent application), including the extent as to which the storage volume was used within the year.

(h) A summary of the review of the Operations and Maintenance Manual and recommended changes including a copy of the updated manual (**required for 2024/25**).

(i) Details of infiltration and inflow investigations and work (**required for 2024/25**).

1.3 Purpose

This report provides an assessment of the Council's compliance with resource consent WGN160002 in 2025/26. The period covered in this report is 1 July 2025 to 30 June 2026.

2. Monitoring & Analysis

This section covers Conditions 9-21 of the resource consent related to flow and treated effluent / bore quality monitoring and compliance. **Appendix A** includes all the monitoring data collected over the year and should be referred to for more information.

2.1 Maximum discharge rate

Condition 9 and 10 authorise the discharge of treated wastewater from the Ōtaki wastewater treatment plant into the Land Discharge and Treatment Area (LDTA), at a maximum rate of 2,820m³/day and the hydraulic application rate shall not exceed a maximum effluent depth of 155mm/day.

Figure 1 shows influent and effluent rates throughout 2025/26. In September 2025, Council notified GWRC of a meter reporting issue identified during preparation of the 2024/25 Annual Report (**Appendix C**). The issue meant that the discharge system did not switch off when flows exceeded the limit of 2,820 m³/day. As shown in **Figure 1**, discharge to the LDTA exceeded this limit in July 2025 (grey line). The issue has since been resolved, and discharge rates stayed within the limit for the remainder of 2025/26.

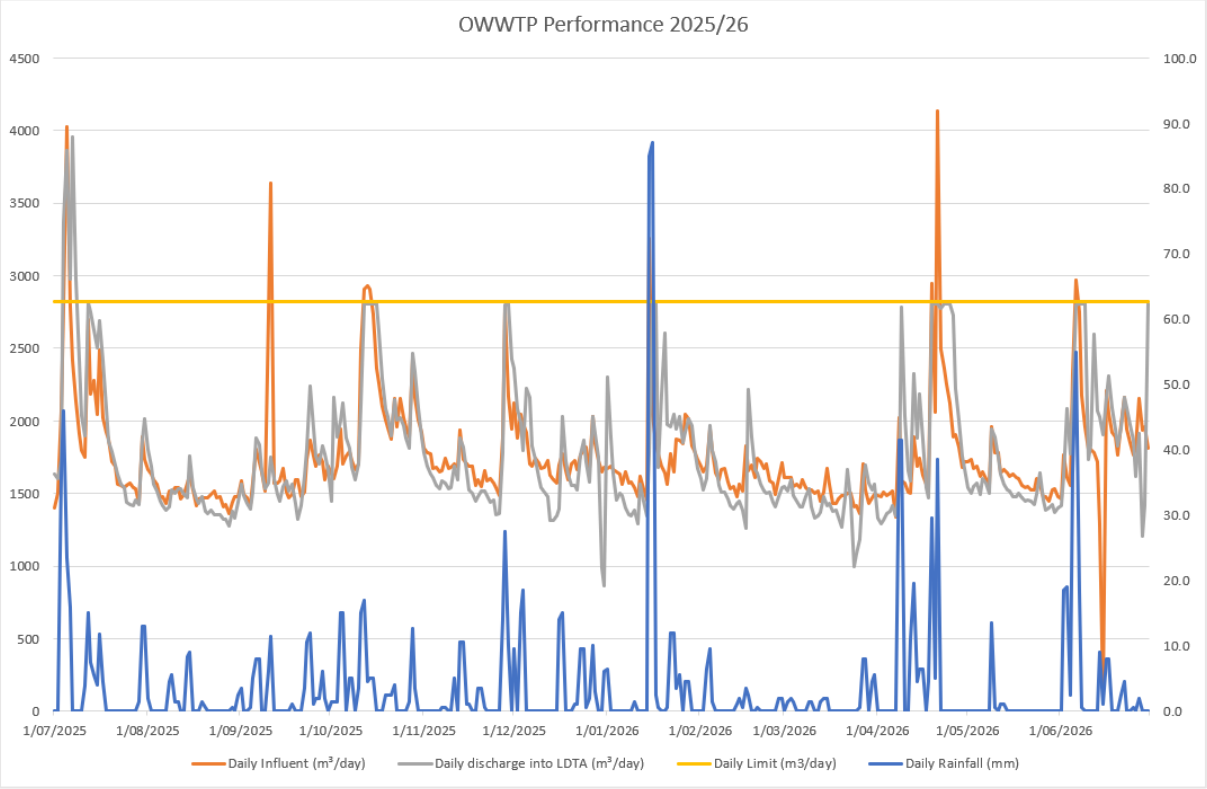

Figure 1: OWWTP discharges to LDTA over 2025/26

Table 1 and 2 show the maximum and average influent and effluent discharged to the LDTA in 2025/26, compared to previous years. As with last year, the maximum daily influent and effluent as lower than predicted in the 2019 resource consent application, which is largely attributed to Council's water conservation programme, including increased leak detection efforts. Maximum rainfall was also particularly high in 2025/26, compared to previous years.

Table 1: Maximum influent and effluent flows for the Ōtaki WWTP

Year	Max Daily Influent (m^3/day)	Max Daily discharge to LTDA (m^3/day)	Max Daily Rainfall (mm)
2019/2020	3,332.8	3,316.2	45.0
2020/2021	4,906.5	3,490.4	52.5
2021/2022	6,447.3	3,698.4	63.5
2022/2023	5,492.1	3,535.2	51.0
2023/2024	2,290.0	2,600.6	40.5
2024/2025	4,321.0	2,632.0	37.0
2025/2026	4,132.3	3,957.4*	87.0

**The maximum reported value was in July 2025; when adjusted to account for the meter reporting error, the maximum was 2,803.0.*

Table 2: Average influent and effluent flows for the Ōtaki WWTP

Year	Ave Daily Influent (m^3/day)	Ave Discharge to LTDA (m^3/day)	Ave Daily Rainfall (mm)
2019/2020	1,621.5	1,590.1	2.2
2020/2021	1,767.7	1,728.9	2.5
2021/2022	1,873.4	1,812.1	3.2
2022/2023	2,138.8	2,019.1	3.1
2023/2024	1,529.1	1,417.3	1.6
2024/2025	1,595.0	1,064.0	2.3
2025/2026	1,753.7	1,765.7*	3.7

**When adjusted to account for the meter reporting error in July, the average was 1,727.4.*

2.2 Wet weather storage

Condition 11 requires 5,000m^3 of wet weather storage capacity at the WWTP, and an assessment of predicted inflow volumes and population.

Figure 2 shows rainfall and storm storage pond capacity of 2025/26. Wet weather capacity remained above 5,000m^3 throughout the year, except for a couple of instances where capacity was reduced due to rainfall. The maximum daily influent predicted in the resource consent application for 2025 was approximately 6,535m^3/day. The Council is tracking significantly less than this with a maximum of 4,132m^3/day in 2025/26. The Council therefore continues to have sufficient storage capacity at the WWTP.

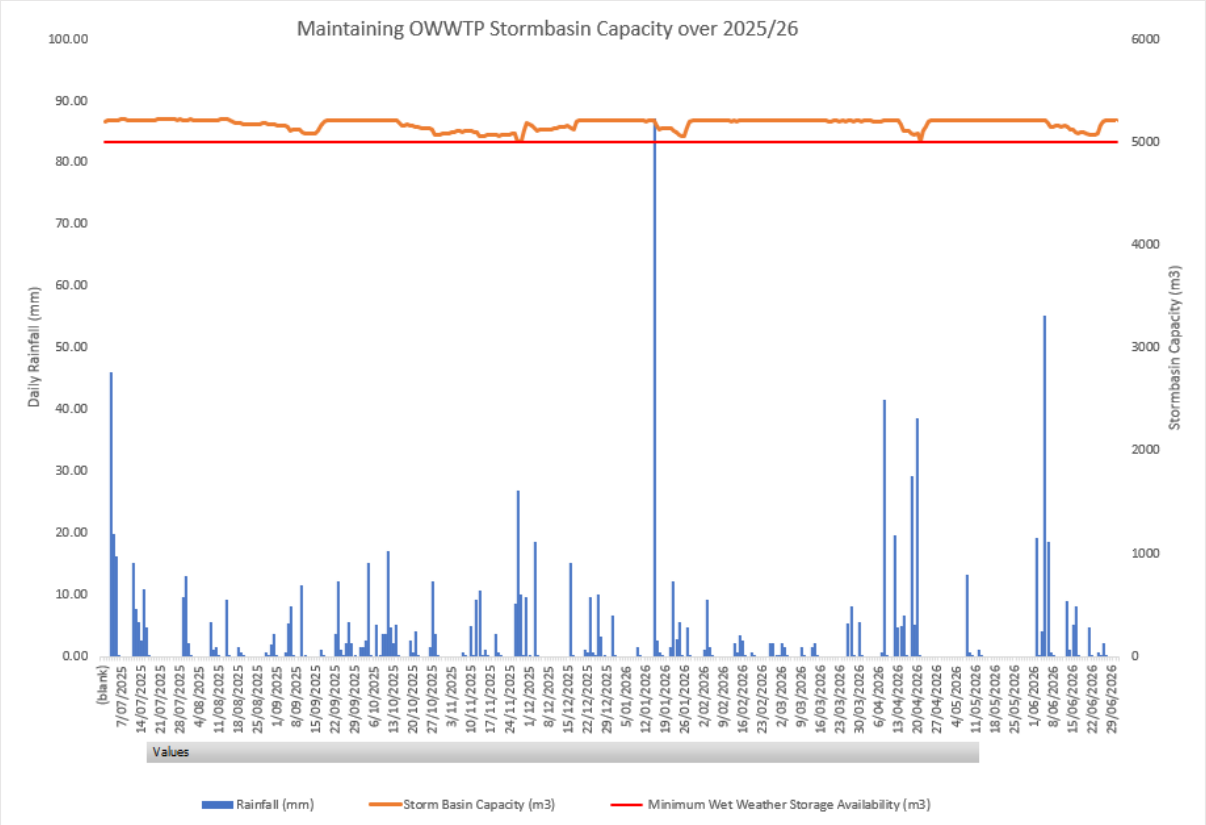

Figure 2: Wet weather storage capacity - 2025/26

2.3 Wastewater volume measurement

Condition 12 and 13 require the Council to maintain flow meters on the inlet to the WWTP and the outlet to the LDTA. The Council is required to verify the accuracy of these devices on a 5-yearly basis. These meters were last verified in June 2023. The verification reports are included in **Appendix B**.

2.4 Wastewater flows

Condition 14 requires the Council to maintain daily records of influent wastewater flow, the treated effluent volume discharged to the LDTA, and which zones were irrigated, and provide these as part of the Annual Report. The Council monitors and records wastewater flows through Water Outlook, and these reports are available to GWRC through Water Outlook. The Water Outlook reports for 2025-26 are provided in **Appendix A**.

2.5 Pond effluent monitoring

Condition 15 requires the Council to maintain weekly records of dissolved oxygen, weather conditions (temperature), pond appearance, and odour. The Council records this information through the Water Outlook report, as provided in **Appendix A**. Condition 16 requires the Council to monitor the pond effluent quality for the following parameters monthly:

- BOD5 (mg/L)
- Non-filterable residue (suspended solids) (mg/L)
- E. coli (MPN/100mL)
- Faecal coliforms (MPN/100mL)

- Ammonia (mg/L)
- Nitrate (mg/L)
- Nitrite (mg/L)
- Total Nitrogen (mg/L)
- Total Phosphorus (mg/L)
- Dissolved Reactive Phosphorus (DRP) (mg/L)
- pH

The Council monitors and records this information through Water Outlook. Refer to the Water Outlook Report for 2025-26 in **Appendix A**.

2.6 Pond effluent standards

2.6.1 Standards

Condition 17 of the resource consent requires that the treated effluent meet the standards set out in **Table 3** prior to discharge to the LDTA.

Table 3: Pond effluent standards

Parameter	Acronym	Units	33rd Percentile Limit (Limit 1)*	83rd Percentile Limit (Limit 2)**
Soluble Carbonaceous Biochemical Oxygen Demand	scBOD	mg/L	33	45
Total Suspended Solids	TSS	mg/L	100	150
Faecal Coliforms	-	cfu/100mL	50,000	120,000
Ammoniacal Nitrogen	NH_4-N	mg/L	23	30
Dissolved Reactive Phosphorus	DRP	Mg/L	5	11

* 8 out of 12 (33.3%) consecutive samples must not exceed the 33rd Percentile.

** 2 out of 12 (83.3%) consecutive samples must not exceed the 83rd Percentile.

The following sections graphically demonstrate the compliance of the treated effluent standards for scBOD, TSS, faecal coliforms, ammoniacal nitrogen and DRP, prior to discharge to the Land Discharge and Treatment Area, as specified in Condition 17.

2.6.2 Soluble Carbonaceous Biochemical Oxygen Demand (scBOD)

Condition 17(a) requires the concentration of scBOD in pond effluent not to exceed 35 g/m^3 in more than 8 out of 12 consecutive samples (Limit 1), or 45 g/m^3 in more than 2 out of 12 consecutive samples (Limit 2). **Figure 3** demonstrates full compliance in terms of scBOD against consent limits for the combined effluent from Ponds A and B.

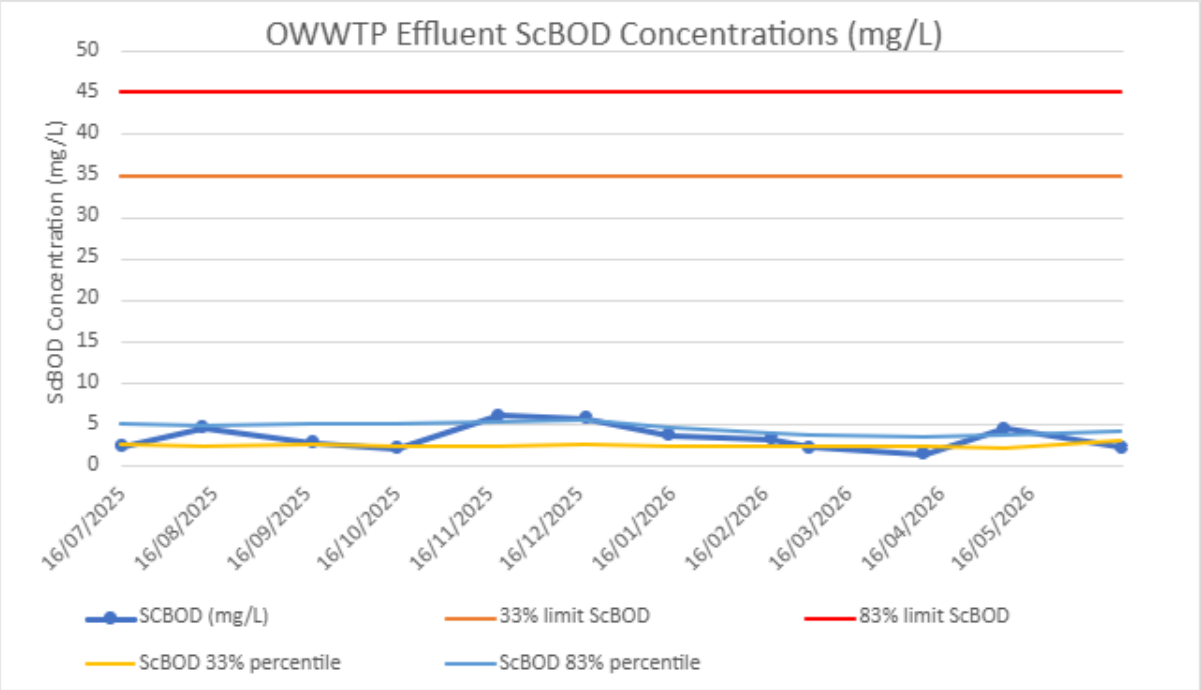

Figure 3: Treated effluent scBOD concentration in combined pond effluent (mg/L) – 2025/26

2.6.3 Total Suspended Solids (TSS)

Condition 17(b) requires the concentration of TSS in pond effluent not to exceed 100 g/m^3 for more than 8 out of 12 consecutive samples (Limit 1), or 150 g/m^3 in more than 2 out of 12 samples (Limit 2). **Figure 4** demonstrates full compliance in terms of TSS against consent limits for the combined effluent from Ponds A and B.

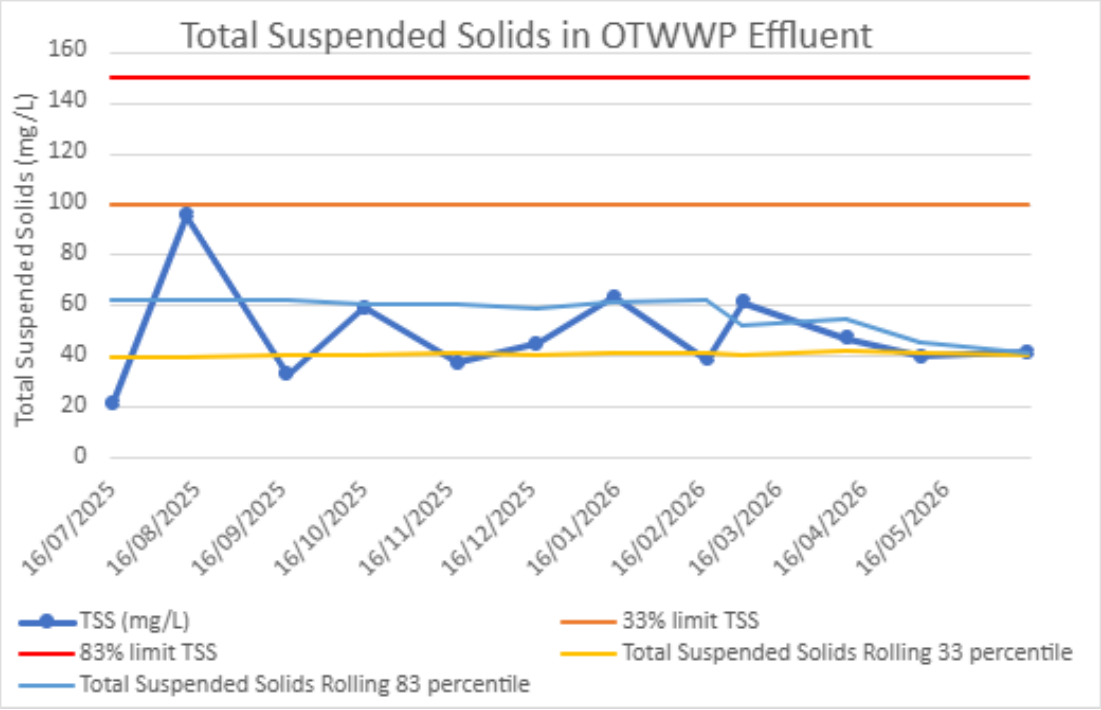

Figure 4: Treated effluent TSS concentration in combined pond effluent (mg/L) - 2025/26

2.6.4 Faecal Coliforms

Condition 17(c) requires the concentration of faecal coliforms in pond effluent not to exceed 50,000 cfu/100 mL for more than 8 out of 12 consecutive samples (Limit 1), or 120,000 cfu/100 mL in more than 2 out of 12 consecutive samples (Limit 2). **Figure 5** and **Figure 6** demonstrate overall compliance in terms of faecal coliform against consent limits for the combined effluent from Ponds A and B. Faecal coliform Limit 1 was exceeded twice in the past 12 months. The exceedances were likely due to organic matter within the sample taken at the time and are unlikely to represent overall discharge quality. Limit 1 was not exceeded.

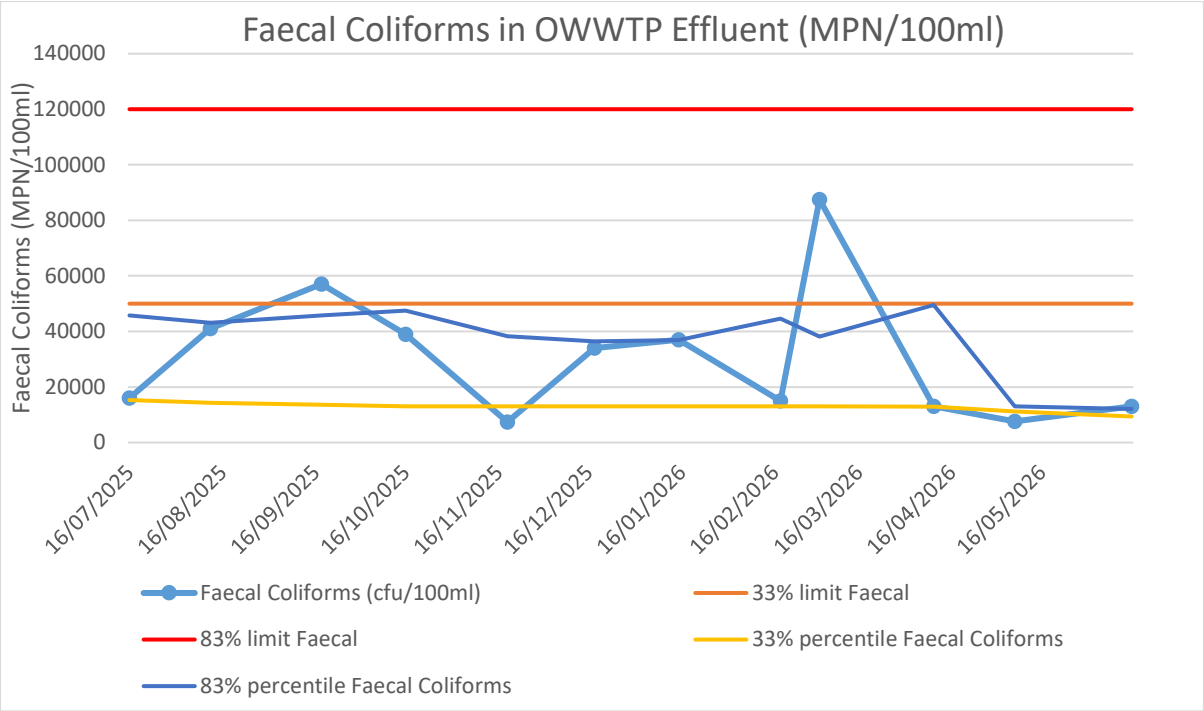

Figure 5: Treated effluent faecal coliforms in combined pond effluent (cfu/100mL) – 2025/26

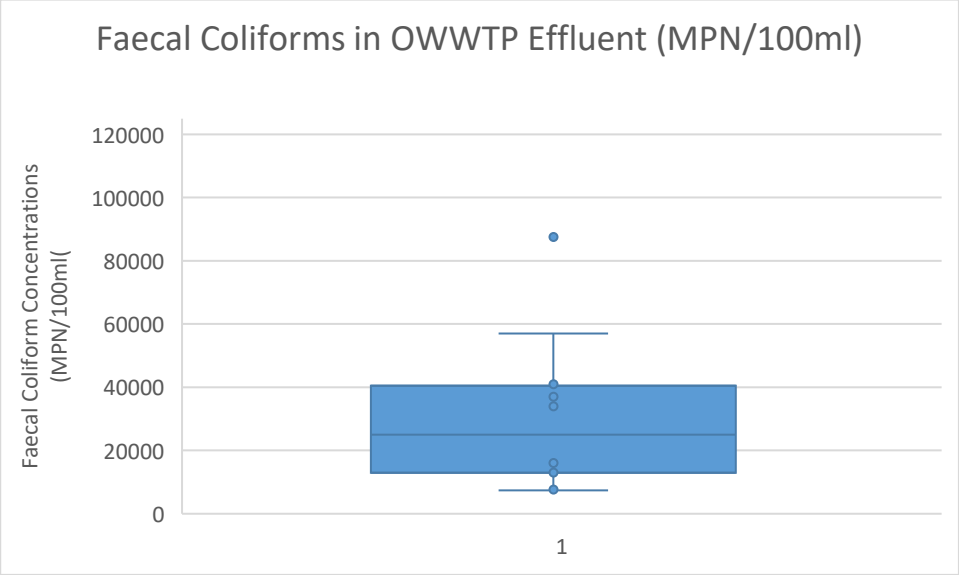

Figure 6: Box plot of treated effluent faecal coliforms in combined pond effluent (cfu/100mL)

2.6.5 Ammoniacal Nitrogen

Condition 17(d) requires the concentration of NH_4-N in pond effluent not to exceed 23 g/m^3 for more than 8 out of 12 consecutive samples (Limit 1) or 30 g/m^3 in more than 2 out of 12 consecutive samples (Limit 2).

Figure 7 and **Figure 8** show NH_4-N monitoring results for the 2025/26 reporting period. During 2025/26, Limit 1 was exceeded on six occasions, which is within the allowable threshold under the resource consent. Limit 2 was exceeded on two occasions, which is the maximum permitted. Based on the samples collected during the 2025/26 reporting period alone, the discharge was therefore within these thresholds.

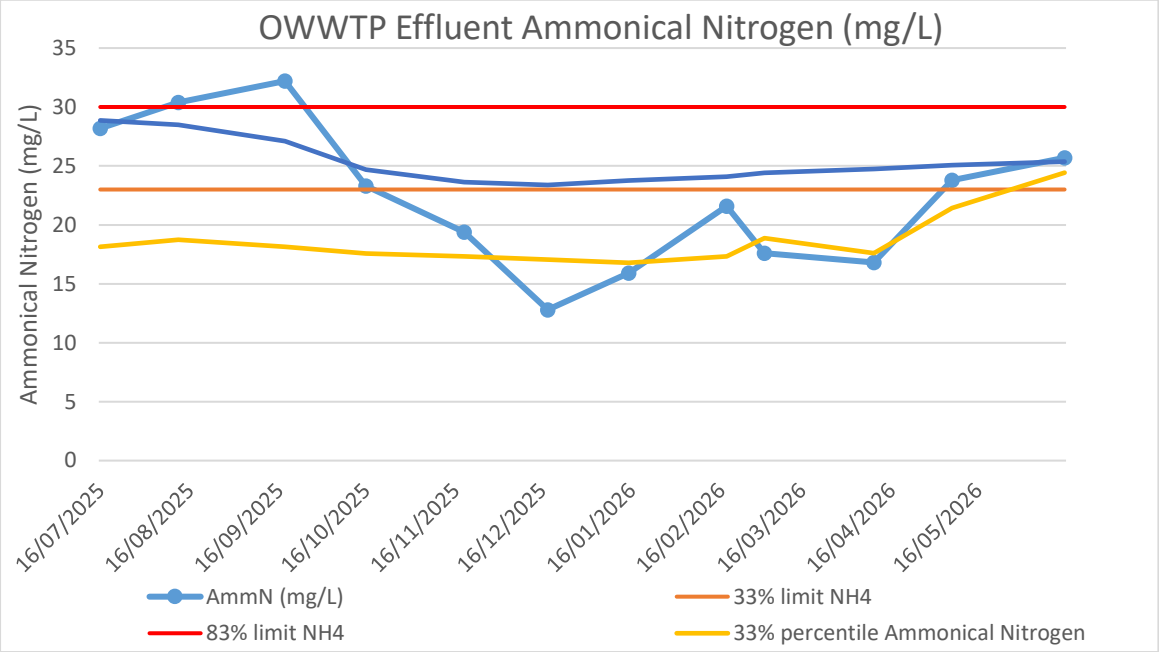

Figure 7: Treated effluent NH4-N in combined pond effluent (mg/L) – 2025/26

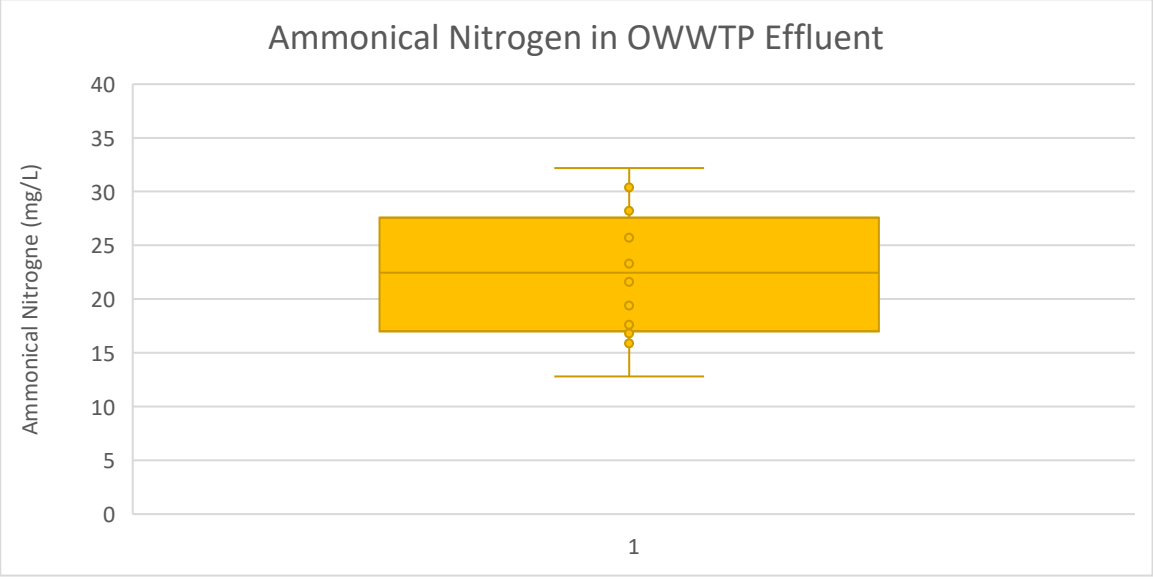

Figure 8: Box plot for treated effluent NH4-N in combined pond effluent (mg/L) – 2025/26

Compliance with Condition 17(d), however, is assessed against 12 consecutive samples rather than the annual reporting period. On 19 September 2025, Council reported to GWRC that Limit 2 had been exceeded on three occasions within the 12 consecutive samples collected between October 2024 and September 2025. This exceeded the maximum of two exceedances permitted under Condition 17(d) and therefore constituted non-compliance with the NH_4-N limit for that 12-month period. The incident notification in **Appendix A** describes the reasons for the exceedance.

NH_4-N concentrations subsequently decreased, with monitoring results returning to within the allowable limits during the latter half of 2025/26.

2.6.6 Dissolved Reactive Phosphorus

Condition 17(e) requires the concentration of DRP in pond effluent not to exceed 5g/m^3 for more than 8 out of 12 consecutive samples, or 11g/m^3 in more than 2 out of 12 consecutive samples. **Figure 10** demonstrates full compliance in terms of DRP against consent limits for the combined effluent from Ponds A and B.

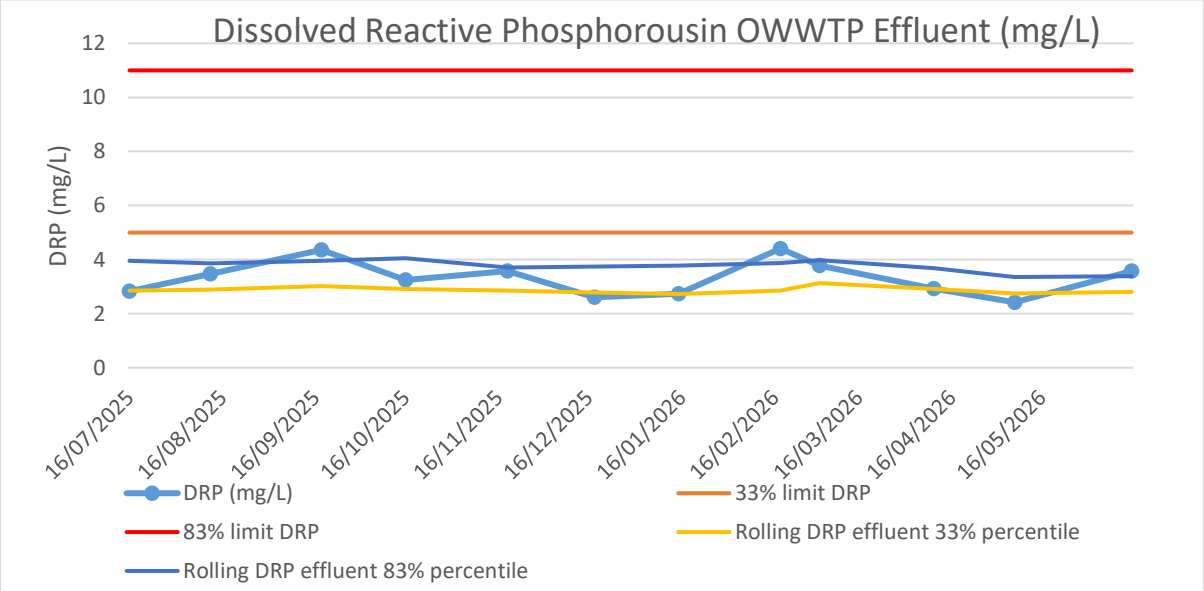

Figure 9: Treated effluent DRP in combined pond effluent (mg/L) – 2024/25

2.7 Groundwater and Spring Water Quality

Condition 18 specifies monitoring of groundwater levels and water quality at bores 1, 2, 3, 4, 5, 6, 7 and water quality in the spring, for the following parameters:

- BOD5 (mg/L)
- Chloride (mg/L)
- E. coli (cfu/100mL)
- Ammonia (mg/L)
- Nitrate (mg/L)
- Dissolved Reactive Phosphorus (mg/L)
- Total Phosphorus (mg/L)
- Temperature (°C)

- pH
- Conductivity (µs/cm at 25°C)

Full bore monitoring records are provided in the Water Outlook Report in **Appendix B**. This section provides discussion on the monitoring results and assesses compliance against Conditions 18, 19 and 20.

2.8 E. coli and Soluble Inorganic Nitrogen Content

Condition 19 specifies the following limits for water quality monitoring in bores 4 and 5 (from Condition 18):

- E. coli (100 MPN/100ml (100cfu/100mL))
- Soluble Inorganic Nitrogen (11.3mg/L as N)

Condition 20 requires the Council to notify GWRC of a breach of Condition 19, within 24 hours, and provide an investigation report within 10 working days.

Table 4 demonstrates that sampling of bores 4 and 5 were in full compliance with the limits stated by Condition 19. The Council's laboratory monitors E. coli levels using the Standard Method 9222D membrane filtration for faecal coliforms. If faecal coliforms are present, the filter is then transferred onto a media to determine if the faecal colonies are E. coli (Standard Methods 9222I). Where there is a dash (-) in the data, there were not faecal coliforms present, thus there was not transfer to the media to determine E. coli as no colonies were present. The Council did not need to notify GWRC of any breaches in 2025/26.

Table 4: Groundwater E. coli and Soluble Inorganic Nitrogen monitoring results

Date	Bore OT4		Bore OT5	
	E. Coli (cfu/100ml)	Soluble Inorganic Nitrogen (mg/L)	E. Coli (cfu/100ml)	Soluble Inorganic Nitrogen (mg/L)
8/07/2025	<1	2.39	4	4.63
1/08/2025	4	4.03	3	4.77
4/09/2025	<1	2.27	<1	4.56
7/10/2025	4	2.53	2	4.75
4/11/2025	<1	1.79	<1	5.70
11/12/2025	<1	1.36	<1	5.91
26/01/2026	15	1.54	22	2.84
24/02/2026	<1	1.44	1	2.66
5/03/2026	1	1.58	7	2.40
9/04/2026	29	1.59	47	1.57
18/05/2026	1	1.15	12	2.40
4/06/2026	1	2.03	6	2.58
Limit	**100**	**11.3**	**100**	**11.3**

2.9 Groundwater attenuation equilibrium

2.9.1 Standard

Condition 21 requires the Council to monitor, and report on water quality data from bores 4, 5 and surface water spring, against contaminant trigger levels. The Council must undertake an investigation into whether the attenuation equilibrium of the soil has been breached if three consecutive monitoring rounds reach the following limits:

- Total Nitrogen (11.3 mg/L)
- Dissolved Reactive Phosphorus (0.1 mg/L)
- E. coli (100 cfu/100mL)

2.9.2 Monitoring results

Table 5 shows the monitoring results for groundwater bores 4 and 5 and spring water quality in 2025/26. The following sub-sections discuss the compliance with the attenuation equilibrium in Bores 4 and 5, and the Spring for Total Nitrogen (TN), Dissolved Reactive Phosphorus (DRP), and E. coli, as specified in Condition 21. The following sections provide discussion on the monitoring results.

Table 5: Groundwater and spring water quality monitoring results – 2025/26

Date	Bore OT4			Bore 5			Spring		
	TotalN (mg/L)	DRP (mg/L)	<1	Total N (mg/L)	DRP (mg/L)	E. coli (cfu/ 100ml)	Total N (mg/L)	DRP (mg/L)	E. coli* (cfu/ 100ml)
8/07/2025	2.8	0.15	<1	5	0.10	4	-	-	-
16/07/2025	-	-	-	-	-	-	1.8	<0.05	1
1/08/2025	3.7	0.14	4	4.5	0.14	3	1.3	<0.05	1
4/09/2025	2.6	0.16	<1	5.1	0.09	<1	3.3	<0.05	290
7/10/2025	2.8	0.16	4	4.8	0.11	2	1.1	<0.05	2
4/11/2025	2.2	0.17	<1	6.6	0.07	<1	1.3	<0.05	11
11/12/2025	2.4	0.15	<1	6.7	0.09	<1	1.3	<0.05	200
15/12/2025	-	-	-	-	-	-	-	-	12
26/01/2026	1.6	0.19	15	2.9	0.12	22	0.8	<0.05	30
24/02/2026	1.6	0.18	<1	2.9	0.12	1	0.9	<0.05	8
5/03/2026	2.2	0.18	1	2.6	0.12	7	2.3	<0.05	3
9/04/2026	1.5	0.19	29	1.7	0.12	47	1.9	<0.05	3300
13/04/2026	-	-	-	-	-	-	-	-	180
15/04/2026	-	-	-	-	-	-	-	-	7
18/05/2026	1.7	0.17	1	2.8	0.11	12	0.9	0.06	180
4/06/2026	2.6	0.18	1	3.3	0.12	6	-	-	-
Limit	**11.3**	**0.1**	**100**	**11.3**	**0.1**	**100**	**11.3**	**0.1**	**100**

**E. coli in the Spring is resampled if results exceed 100 cfu/100 ml, which is why more sampling is undertaken for E. coli than other parameters.*

2.9.3 Total nitrogen

The monitoring results complied with the TN attenuation equilibrium limit for bore 4, bore 5, and the spring water quality for the July 2025 to June 2026 period. As such, no further actions were required, and the Council is compliant with Condition 21 for TN.

2.9.4 E. coli

Monitoring results for Bore 4, Bore 5, and the spring complied with the E. coli attenuation equilibrium limit over the July 2025 to June 2026 monitoring period. However, elevated E. coli concentrations were recorded in the spring during four monitoring rounds, including consecutive rounds in April and May 2026. These exceedances were identified and reported through the quarterly monitoring reports during the year. E. coli concentrations subsequently returned to normal levels in July and August 2026.

When a spring sample exceeds the applicable limit, the laboratory requests that field staff undertake resampling to confirm the result and better assess the spring's water quality. This approach reflects previous monitoring experience, which indicates that the spring's water quality can be strongly influenced by environmental and sampling conditions. Relevant factors include:

- The spring is highly intermittent and may be dry, shallow and stagnant, or flowing freely depending on conditions.
- Large numbers of birds are frequently present around the spring (including on overhanging trees) and downstream area, providing a potential source of faecal contamination.
- Vegetation around the spring can become overgrown. Accessing the spring for sampling may disturb sediments and associated bacteria, particularly when water levels are low.
- Ongoing urbanisation within the surrounding catchment is changing the runoff profile and may influence water entering the spring.
- The highest E. coli concentration recorded in the groundwater monitoring bores during the monitoring period was 39 cfu/100 mL.

There are understandable concerns about the potential for wastewater to adversely affect water quality in the spring, particularly given Council's direction that the spring be included as a monitoring location under the wider WGN16002 consent. However, the spring is subject to several environmental influences that can affect E. coli concentrations. Based on the available monitoring results, there is no indication that the elevated E. coli concentrations observed in the spring were caused by a wastewater plume in groundwater.

Under the consent requirements, Council is required to investigate E. coli concentrations in the spring where the attenuation equilibrium limit of 100 cfu/100 mL is exceeded for three consecutive monitoring rounds. This trigger was not reached during the 2025/26 monitoring period. Council is nevertheless considering whether additional monitoring would be appropriate to better understand the variability in spring water quality and the factors contributing to elevated E. coli results.

2.9.5 Dissolved Reactive Phosphorous

As with previous years, the DRP results in bores 4 and 5 continue to exceed the trigger limits in Condition 21. We have continued to track DRP over 2025/26 in the monitoring bores and spring. **Figure 11** shows the DRP trends over 2025/26.

The Council has investigated the trigger exceedances and reported the results of the investigation in the 2023/24 Annual Report. As such, the Council is compliant with Condition 21 for DRP.

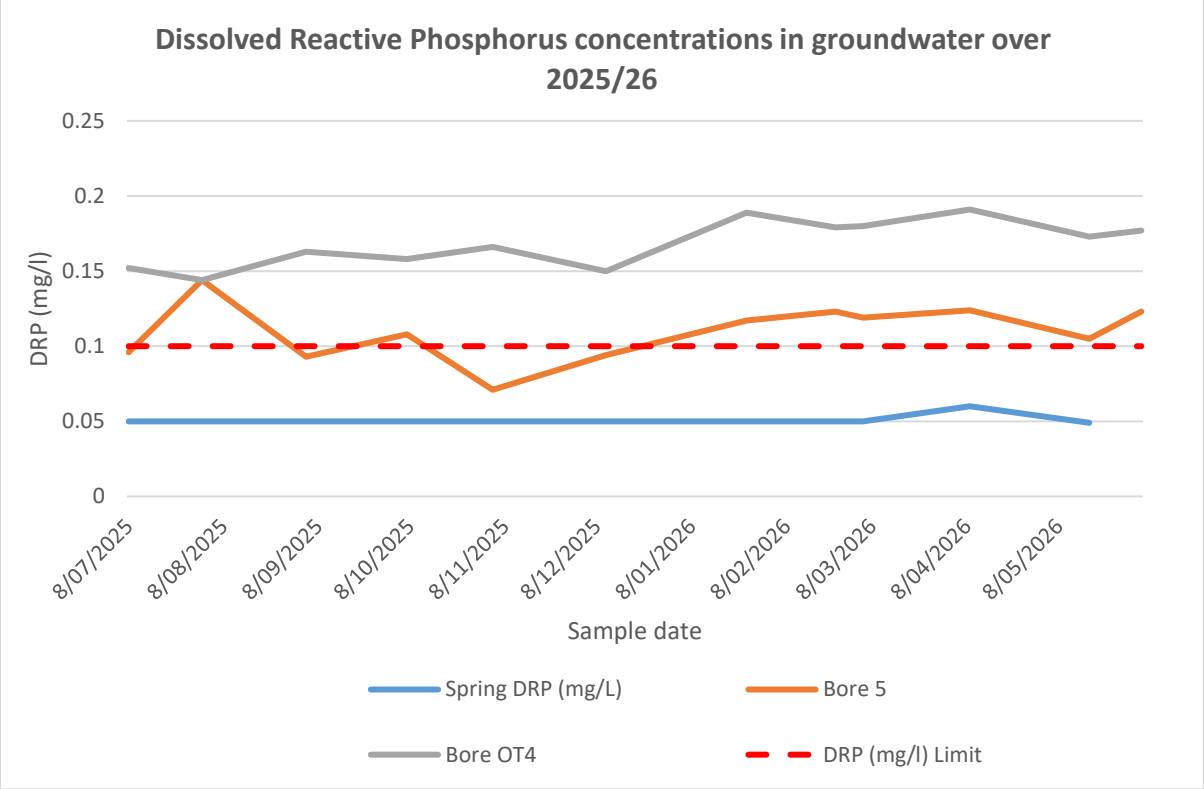

Figure 10: DRP in monitoring bores - 2025/26

Council is still working through an upgrade work programme for the LDTA, as advised in the 2024/25 Annual Report. Council has completed works to line the aeration lagoon and is about to commence works to install new aerators. Council is also in the final stages of obtaining resource consent from GWRC to upgrade the sprinklers on the LDTA. Once granted, works will be undertaken as soon as possible. The upgraded sprinklers will significantly increase discharge spread, which will improve treatment effectiveness on the LDTA.

We are also working with technical advisors to develop a better understanding of DRP causes/sources at the WWTP, on the LDTA and in the groundwater and develop a nutrient management plan to improve the effectiveness of the LDTA. As part of this, Council will identify additional improvements to the LDTA, which will likely include soil replenishment and improved planting. Any improvements will be subject to a further resource consent application to GWRC.

3. Other compliance matters

3.1 LDTA Optimisation Study and Report

Condition 3 and 4 required the Council to prepare an Optimisation Study and Report for the LDTA in collaboration with Nga Hapu o Ōtaki. The Optimisation Study was completed in February 2018, in collaboration with Nga Hapu o Ōtaki. The Optimisation Study and Report was approved by GWRC in 2019. Condition 5 required the Council to implement any changes set out in the approved Optimisation Report. The LDTA changes have been implemented and are operational. The Council has therefore complied with conditions 3-5.

3.2 Operations and Maintenance Manual

Conditions 6-8 refer to the Operations and Maintenance Manual (OMM) for the Ōtaki WWTP. The OMM needs to be updated once the LDTA Optimisation Report has been approved, or at least 3-yearly from 2019 onwards. The Council reviewed the OMM in 2024/25 and submitted the updated version to GWRC. A further update will be required following the LDTA upgrade works, now anticipated for 2026/27.

3.3 Performance and Maintenance of the Distribution System

3.3.1 Operation and maintenance of discharge system

Condition 24 refers to the operation and maintenance of the distribution system. The Council is required to operate and maintain the distribution system to ensure that infiltration of the discharge area is maintained by:

- Ensuring there is distribution uniformity across the discharge area by having no more than a 25% variance in application depth along the distribution pipes.
- Ensuring that effluent is applied to no less than 75% of the nominated discharge area, with variability between areas over a rolling 12-month period not exceeding 25%.
- Ensuring there is no ponding in a distribution zone prior to the next application.
- Ensuring that any ponding lasts for less than 24 hours under dry weather conditions.
- Ensuring there is no surface flow redistribution within the discharge area of more than 10 m under dry weather flow conditions.

The issue with distribution, ponding and erosion on the LDTA has been ongoing since the resource consent was granted. In 2018, the Council submitted the Optimisation study for the LDTA. The study identified several improvements to increase coverage on the LDTA, and the Council implemented these recommendations.

Council has commissioned further work over the past few years confirming that LDTA distribution is sub-optimal. Most recently, Pattle Delamore Partners Limited (PDP) prepared technical information to support the resource consent application to upgrade the LDTA. The assessment estimated that the current discharge area is approximately 25% of the cell size, excluding bunds (18,285 m^2 or the 72,990m^2 area available for discharge).[1]

Council has proposed upgrades to the LDTA discharge system, which will increase the distribution to approximately 76%, ensuring ongoing compliance with Condition 24. The proposed upgrades will also

[1] Pattle Delamore Partners Ltd, 2026. Letter to Council entitled: Response to s.92 request for further information. Dated 22 July 2026.

significantly improve ponding and erosion on the LDTA due to increased coverage and reduced hydraulic loading of wetted areas.

3.3.2 Bunds and setbacks

Condition 25 of the consent requires the Council to maintain bunding around the LDTA and ensure that there is no surface runoff leaving the discharge area. The LDTA is divided into 6 cells. Each cell is separated by bunding, with additional bunding running down the middle of each cell. There is also a western bund, which prevents any discharge entering the LDTA reserve area. The bunds are operating effectively and will be improved through the proposed bulk earthworks. The Council is therefore complying with Condition 25.

Condition 26 requires the Council to ensure that the discharge does not occur within 20m from any neighbouring boundary, surface water body or farm drain. The closest feature adjoining the LDTA is Riverbank Road, which is 25m from the LDTA. However, discharge is unlikely to reach the LDTA boundary. As such, the Council continues to comply with Condition 26.

3.4 Reserve Area for Effluent Discharge

Condition 27 requires the Council to maintain a 50% (5.45 hectares) reserve LDTA close to the LDTA for future disposal capacity. The Council continues to own the field adjacent to the LDTA with a total area of 7.8 hectares, which exceeds the consent requirement. The reserve area is currently not in use and is bunded between the current LDTA boundary and currently leased. The council therefore continues to comply with condition 27.

3.5 Inflow and Infiltration Investigations, Works and Reporting

Condition 28 requires the Council to continue to investigate and implement ways and means of minimising stormwater inflow and infiltration (I/I) into the sewerage system. Condition 43 (annual report) requires that every 3 years the Council provides the following:

- Details of and the status of I/I work for the previous 3 years.
- An assessment of the effectiveness of the infiltration and inflow works completed to date including whether I/I have reduced; and
- I/I work scheduled for the next 3 years in Ōtaki including specifying the sub-catchments where CCTV inspections and pressure testing (if applicable) and pipe renewal/rehabilitation that shall be carried out.

Council continues to investigate and implement ways to reduce I/I. Council provided details regarding current and proposed I/I activities in the previous Annual Report. The next I/I status update is required in the 2027/28 Annual Report.

3.6 Odour management

Conditions 29-32 refer to odour management at the site. There have been no odour complaints related to the Ōtaki WWTP during the compliance period. While some capital works were undertaken in 2025/26, these did not present any odour issues or result in any odour complaints from adjoining properties. Odour from sludge handling is treated as required by the consent. Screenings are managed as required by the consent. No odour issues were recorded at the annual Community Liaison Group meeting in November 2025. The Council therefore continues to comply with conditions 29-32.

3.7 Planting within the LDTA

Conditions 33-35 require:

- The vegetation within the LDTA shall cover a minimum of 80% of the area.
- Invasive weed species within the LDTA are minimised.
- Dead vegetation within the LDTA shall be replanted within 12 months.

The Council continues to maintain the LDTA grass area healthy and free of weeds. As part of the nutrient management plan, Council will prepare a planting plan for the LDTA that will be aimed at removing nutrient from soil and slowing down nutrient migration towards groundwater/ The Council is liaising with Ngā Hapu o Ōtaki regarding the proposed planting plan for the LDTA.

3.8 Perimeter Planting

Condition 36 requires suitable perimeter planting. The planting shall:

- Discourage public access to the site.
- Comprise of suitable native vegetation.
- Consider any shading or windrow effects on the treatment processes.
- Not impact on the infiltration capacity of the land discharge and treatment area.

The Council has maintained perimeter planting around the LDTA throughout 2025/26. As part of the proposed bulk earthworks on the LDTA, the Council will replant the cells with grasses and perimeter bunds with manuka/kanuka. The Council is liaising with Ngā Hapu o Ōtaki regarding the proposed planting plan for the LDTA.

3.9 Fencing and signage

Condition 37 requires perimeter fencing and signage. The site is fully fenced complete with signage installed on the visible perimeter fencing. The Council therefore continues to comply with condition 37.

3.10 Iwi Consultation

Condition 38 and 39 require the Council invite Ngā Hapu o Ōtaki to a yearly briefing, inform them of any anticipated changes to the consent, and invite them to participate in the development of changes and recommendations.

The Council meets with a representative from Ngā Hapu o Ōtaki regularly throughout the year. During 2025/26, the Council met with Ngā Hapu o Ōtaki representatives on 17 September 2025, 11 March 2026, and 10 June 2026. Matters discussed include quarterly compliance, any non-compliances identified and upgrades to the WWTP, including the LDTA.

The Council is therefore complying with conditions 38 and 39.

3.11 Community Liaison Group

Condition 40 requires the Council to establish a Community Liaison Group (CLG) for the WWTP. The Council established the CLG in 2022. The Council has held CLG meetings in November 2023, November 2024, and November 2025. The meeting for 2025/26 will again be scheduled for November as this aligns with GWRC’s compliance reporting.

The Council invited all adjoining landowners to join the CLG in 2023. This year, Council reached out to all adjoining landowners identified in the resource consent application documents using Council's rates database to tell them about the CLG and membership.

The Ōtaki Community Board, Regional Public Health and GWRC are also members of the CLG. Ngā Hapu o Ōtaki declined the invitation to join the CLG in favour of one-on-one meetings. The invitation remains open should they chose to join. The Council is therefore complying with condition 40.

3.12 Complaints

Condition 41 requires the Council to keep a permanent record of any complaints received regarding the operation of the WWTP. The Council did not receive any complaints in 2024/25.

3.13 Incident notification

Condition 42 requires the Council to keep a permanent record of any incidents related to the consents that results, or could result, in an adverse effect on the environment beyond the site boundary. The Council is also required to notify GWRC of any such incidents within 24 hours and forward an incident report to GWRC within 7 days. The Council notified GWRC of two incidents in September 2026, including relating to the meter reporting issue and the NH^4-N exceedances. No other notifications were submitted. All monitoring data is submitted to GWRC via SCADA and presented every three months in the quarterly reports. **Appendix C** includes both incident notifications.

4. Capital works and upgrades

4.1 Overview

This section provides a description of works undertaken at the WWTP over 2025/26 and works proposed for 2026/27.

4.2 Works undertaken in 2025/26

The Council progressed several workstreams at the WWTP in 2025/26, including:

- Procuring services for aerator upgrades in the aeration lagoon.
- Undertaking additional testing of the new sprinkler discharge system to further assess potential spray drift effects and progressing resource consent for the upgrades.
- Engaging technical specialists to prepare an improvement plan to increase the effectiveness of the LDTA, specifically in relation to nutrient management.
- Conducting a peer review of the wastewater model, which confirmed a high degree of confidence in the model, with only minor corrections required. The model will be utilised to inform and progress network upgrades over the next three years.
- Upgrading the switchboard and control panel and installing variable speed drives (VSDs) for the aerators.
- Completing procurement for the installation of a standby diesel generator, with installation still underway, and installing sludge control valves to enable sludge recycling from the clarifier to the aeration lagoon.

4.3 Works proposed for 2026/27

During 2026/27, the Council proposes to progress the following workstreams:

- Upgrading the aerators in the aeration lagoon (summer 2026/27).
- Upgrading the sprinkler system on the LDTA (summer 2026/27, subject to GWRC approval).
- Developing the next stage of improvements to the LDTA.
- Investigating the need for, and methodology of, further E. coli testing.
- Installing a sludge control valve downstream of the clarifier to recycle sludge back to the aeration lagoon and maintain healthy bacterial levels in the lagoon.
- Installing a standby diesel generator for plant operations.

Appendix A: Daily and Monthly Data – 2025/26

Appendix A.1 Daily influent and effluent flows entering and leaving the OWWTP.

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
1/07/2025	0.0	1403	1630
2/07/2025	0.0	1502	1605
3/07/2025	36.0	2057	1724
4/07/2025	46.0	2776	3368
5/07/2025	23.5	4022	3865
6/07/2025	16.0	2790	2975
7/07/2025	0.0	2419	3957
8/07/2025	0.0	2135	2986
9/07/2025	0.0	1916	2429
10/07/2025	0.0	1798	2038
11/07/2025	3.8	1752	1900
12/07/2025	15.0	2695	2814
13/07/2025	7.5	2187	2750
14/07/2025	5.5	2278	2626
15/07/2025	4.0	2047	2504
16/07/2025	11.8	2484	2691
17/07/2025	4.5	2021	2422
18/07/2025	0.0	1922	2095
19/07/2025	0.0	1878	1862
20/07/2025	0.0	1719	1785
21/07/2025	0.0	1685	1692
22/07/2025	0.0	1567	1635
23/07/2025	0.0	1555	1563
24/07/2025	0.0	1544	1540
25/07/2025	0.0	1554	1437
26/07/2025	0.0	1573	1424
27/07/2025	0.0	1540	1417
28/07/2025	0.0	1530	1458
29/07/2025	1.5	1430	1426
30/07/2025	13.0	1886	1865
31/07/2025	13.0	1732	2017
1/08/2025	2.0	1667	1805
2/08/2025	0.0	1633	1691
3/08/2025	0.0	1596	1561
4/08/2025	0.0	1561	1517

[2] Effluent numbers are understood to be underreported for 2024-25, as described in the incident report in Appendix A.

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
5/08/2025	0.0	1469	1448
6/08/2025	0.0	1477	1412
7/08/2025	0.0	1434	1385
8/08/2025	4.5	1515	1406
9/08/2025	5.5	1504	1521
10/08/2025	1.5	1544	1505
11/08/2025	1.5	1543	1536
12/08/2025	0.0	1464	1531
13/08/2025	0.0	1496	1490
14/08/2025	8.3	1569	1468
15/08/2025	9.0	1625	1758
16/08/2025	0.0	1522	1543
17/08/2025	0.0	1413	1460
18/08/2025	0.0	1461	1428
19/08/2025	1.5	1473	1476
20/08/2025	0.5	1473	1381
21/08/2025	0.0	1468	1358
22/08/2025	0.0	1495	1381
23/08/2025	0.0	1518	1352
24/08/2025	0.0	1472	1356
25/08/2025	0.0	1480	1353
26/08/2025	0.0	1407	1321
27/08/2025	0.0	1420	1323
28/08/2025	0.0	1364	1277
29/08/2025	0.5	1442	1376
30/08/2025	0.0	1480	1328
31/08/2025	2.5	1480	1437
1/09/2025	3.5	1584	1561
2/09/2025	0.0	1494	1485
3/09/2025	0.0	1470	1429
4/09/2025	0.5	1424	1392
5/09/2025	5.0	1569	1506
6/09/2025	8.0	1808	1884
7/09/2025	8.0	1709	1835
8/09/2025	0.0	1652	1656
9/09/2025	0.0	1519	1536
10/09/2025	6.0	2713	1572
11/09/2025	11.5	3639	1752
12/09/2025	0.0	1569	1605
13/09/2025	0.0	1572	1497
14/09/2025	0.0	1587	1445
15/09/2025	0.0	1670	1551
16/09/2025	0.0	1510	1585

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
17/09/2025	0.0	1473	1519
18/09/2025	1.0	1493	1564
19/09/2025	0.0	1598	1429
20/09/2025	0.0	1592	1322
21/09/2025	0.0	1476	1419
22/09/2025	3.5	1510	1620
23/09/2025	10.5	1731	1807
24/09/2025	12.0	1868	2241
25/09/2025	1.0	1757	1949
26/09/2025	2.0	1689	1757
27/09/2025	2.0	1763	1707
28/09/2025	6.0	1722	1830
29/09/2025	2.0	1594	1774
30/09/2025	0.0	1685	1664
1/10/2025	1.5	1636	1449
2/10/2025	1.5	1605	2161
3/10/2025	1.5	1690	1890
4/10/2025	15.0	1943	2000
5/10/2025	15.0	1706	2119
6/10/2025	0.0	1755	1882
7/10/2025	5.0	1788	1814
8/10/2025	5.0	1730	1682
9/10/2025	0.0	1664	1596
10/10/2025	3.5	1701	1702
11/10/2025	15.0	2491	2101
12/10/2025	17.0	2905	2802
13/10/2025	4.5	2930	2803
14/10/2025	5.0	2904	2803
15/10/2025	5.0	2736	2803
16/10/2025	0.0	2360	2803
17/10/2025	0.0	2261	2616
18/10/2025	0.0	2099	2295
19/10/2025	2.5	2003	2083
20/10/2025	2.5	1955	2033
21/10/2025	2.5	1872	1900
22/10/2025	4.0	2151	2146
23/10/2025	0.0	1962	2008
24/10/2025	0.0	2155	2020
25/10/2025	0.0	2021	1964
26/10/2025	0.0	1960	1884
27/10/2025	1.5	1887	1811
28/10/2025	12.6	2426	2467
29/10/2025	3.5	2161	2341

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
30/10/2025	0.0	2009	2090
31/10/2025	0.0	1921	1891
1/11/2025	0.0	1811	1778
2/11/2025	0.0	1782	1686
3/11/2025	0.0	1774	1632
4/11/2025	0.0	1674	1613
5/11/2025	0.0	1681	1553
6/11/2025	0.0	1649	1535
7/11/2025	0.5	1654	1584
8/11/2025	0.5	1742	1572
9/11/2025	0.0	1673	1534
10/11/2025	0.0	1681	1538
11/11/2025	5.0	1707	1687
12/11/2025	0.0	1678	1597
13/11/2025	10.5	1939	1883
14/11/2025	10.5	1732	1822
15/11/2025	1.0	1707	1651
16/11/2025	1.0	1686	1526
17/11/2025	0.0	1691	1500
18/11/2025	0.0	1552	1445
19/11/2025	3.5	1591	1479
20/11/2025	3.5	1546	1519
21/11/2025	0.5	1654	1518
22/11/2025	0.0	1589	1487
23/11/2025	0.0	1600	1440
24/11/2025	0.0	1571	1458
25/11/2025	0.0	1540	1355
26/11/2025	0.0	1487	1363
27/11/2025	14.0	1879	1784
28/11/2025	27.5	2776	2802
29/11/2025	10.0	2168	2802
30/11/2025	0.0	1943	2426
1/12/2025	9.5	2125	2362
2/12/2025	0.0	1880	2083
3/12/2025	15.0	2042	1989
4/12/2025	18.5	1982	1800
5/12/2025	0.0	1918	2225
6/12/2025	0.0	1706	2162
7/12/2025	0.0	1686	1830
8/12/2025	0.0	1739	1737
9/12/2025	0.0	1711	1613
10/12/2025	0.0	1675	1544
11/12/2025	0.0	1676	1506

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
12/12/2025	0.0	1729	1475
13/12/2025	0.0	1625	1313
14/12/2025	0.0	1596	1311
15/12/2025	0.0	1571	1350
16/12/2025	14.0	1693	1389
17/12/2025	15.0	1770	2032
18/12/2025	0.0	1655	1726
19/12/2025	0.0	1598	1636
20/12/2025	0.0	1701	1554
21/12/2025	1.0	1727	1556
22/12/2025	1.0	1666	1523
23/12/2025	9.5	1764	1763
24/12/2025	9.5	1799	1870
25/12/2025	0.5	1819	1721
26/12/2025	2.0	1673	1577
27/12/2025	10.0	2028	2032
28/12/2025	3.0	1844	1917
29/12/2025	0.0	1725	1753
30/12/2025	0.0	1646	992
31/12/2025	6.0	1681	864
1/01/2026	6.5	1669	2298
2/01/2026	0.0	1686	1892
3/01/2026	0.0	1666	1641
4/01/2026	0.0	1648	1458
5/01/2026	0.0	1637	1500
6/01/2026	0.0	1566	1483
7/01/2026	0.0	1646	1402
8/01/2026	0.0	1572	1350
9/01/2026	0.0	1575	1349
10/01/2026	1.5	1537	1383
11/01/2026	0.0	1480	1295
12/01/2026	0.0	1619	1561
13/01/2026	0.0	1534	1449
14/01/2026	0.0	1456	1348
15/01/2026	85.0	3258	1776
16/01/2026	87.0	2044	2803
17/01/2026	2.5	1841	2802
18/01/2026	0.5	1771	1679
19/01/2026	0.0	1685	2174
20/01/2026	0.0	1644	2603
21/01/2026	0.5	1562	1973
22/01/2026	12.0	1773	1956
23/01/2026	12.0	1648	2045

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
24/01/2026	3.5	1876	1946
25/01/2026	5.5	1867	2026
26/01/2026	0.0	1842	1850
27/01/2026	4.5	2046	1917
28/01/2026	4.5	2016	2017
29/01/2026	0.0	1829	1968
30/01/2026	0.0	1798	1821
31/01/2026	0.0	1737	1674
1/02/2026	0.0	1685	1600
2/02/2026	0.0	1645	1522
3/02/2026	6.5	1687	1603
4/02/2026	9.5	1948	1967
5/02/2026	1.5	1795	1797
6/02/2026	0.0	1642	1716
7/02/2026	0.0	1598	1555
8/02/2026	0.0	1662	1511
9/02/2026	0.0	1671	1509
10/02/2026	0.0	1578	1459
11/02/2026	0.0	1534	1418
12/02/2026	0.0	1551	1390
13/02/2026	1.0	1481	1432
14/02/2026	2.0	1565	1448
15/02/2026	0.5	1516	1384
16/02/2026	3.5	1829	1260
17/02/2026	2.5	1659	2212
18/02/2026	0.0	1692	1892
19/02/2026	0.0	1611	1666
20/02/2026	0.5	1743	1642
21/02/2026	0.0	1719	1563
22/02/2026	0.0	1669	1514
23/02/2026	0.0	1703	1498
24/02/2026	0.0	1584	1506
25/02/2026	0.0	1567	1441
26/02/2026	0.0	1495	1407
27/02/2026	2.0	1605	1478
28/02/2026	2.0	1710	1542
1/03/2026	0.0	1610	1547
2/03/2026	1.5	1610	1517
3/03/2026	2.0	1609	1592
4/03/2026	1.5	1545	1486
5/03/2026	0.0	1561	1443
6/03/2026	0.0	1543	1410
7/03/2026	0.0	1595	1405

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
8/03/2026	0.0	1540	1476
9/03/2026	1.5	1520	1534
10/03/2026	1.5	1525	1404
11/03/2026	0.0	1501	1327
12/03/2026	0.0	1520	1349
13/03/2026	1.5	1445	1371
14/03/2026	2.0	1506	1479
15/03/2026	2.0	1670	1419
16/03/2026	0.0	1562	1429
17/03/2026	0.0	1434	1378
18/03/2026	0.0	1435	1384
19/03/2026	0.0	1461	1339
20/03/2026	0.0	1484	1266
21/03/2026	0.0	1483	1473
22/03/2026	0.0	1503	1666
23/03/2026	0.0	1503	1455
24/03/2026	0.0	1408	996
25/03/2026	0.0	1413	1085
26/03/2026	0.5	1364	1181
27/03/2026	8.0	1707	1584
28/03/2026	8.0	1523	1693
29/03/2026	0.0	1428	1572
30/03/2026	4.5	1469	1525
31/03/2026	5.5	1491	1561
1/04/2026	0.0	1487	1329
2/04/2026	0.0	1482	1288
3/04/2026	0.0	1506	1312
4/04/2026	0.0	1488	1364
5/04/2026	0.0	1499	1379
6/04/2026	0.0	1516	1413
7/04/2026	0.0	1341	1348
8/04/2026	41.5	2024	1523
9/04/2026	41.5	1585	2784
10/04/2026	0.0	1569	2036
11/04/2026	0.0	1505	1654
12/04/2026	11.0	1501	1588
13/04/2026	19.5	1892	2325
14/04/2026	4.5	1691	1884
15/04/2026	6.5	1739	2186
16/04/2026	6.5	1623	1878
17/04/2026	0.0	1560	1539
18/04/2026	4.5	1516	1473
19/04/2026	29.5	2945	2802

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
20/04/2026	5.0	2057	2803
21/04/2026	38.5	4132	2803
22/04/2026	0.0	2493	2772
23/04/2026	0.0	2360	2803
24/04/2026	0.0	2257	2803
25/04/2026	0.0	2119	2803
26/04/2026	0.0	1887	2725
27/04/2026	0.0	1907	2226
28/04/2026	0.0	1818	2005
29/04/2026	0.0	1681	1759
30/04/2026	0.0	1722	1675
1/05/2026	0.0	1722	1539
2/05/2026	0.0	1736	1500
3/05/2026	0.0	1674	1550
4/05/2026	0.0	1687	1570
5/05/2026	0.0	1615	1495
6/05/2026	0.0	1649	1600
7/05/2026	0.0	1603	1572
8/05/2026	0.0	1554	1502
9/05/2026	13.5	1959	1944
10/05/2026	0.5	1782	1889
11/05/2026	0.0	1782	1751
12/05/2026	1.0	1642	1634
13/05/2026	1.0	1661	1565
14/05/2026	0.0	1642	1524
15/05/2026	0.0	1621	1515
16/05/2026	0.0	1632	1478
17/05/2026	0.0	1609	1479
18/05/2026	0.0	1599	1499
19/05/2026	0.0	1558	1472
20/05/2026	0.0	1540	1447
21/05/2026	0.0	1550	1455
22/05/2026	0.0	1526	1450
23/05/2026	0.0	1521	1427
24/05/2026	0.0	1602	1495
25/05/2026	0.0	1565	1641
26/05/2026	0.0	1471	1456
27/05/2026	0.0	1479	1381
28/05/2026	0.0	1450	1398
29/05/2026	0.0	1525	1425
30/05/2026	0.0	1530	1369
31/05/2026	0.0	1480	1397
1/06/2026	0.0	1464	1414

Date	Rainfall (mm/day)	Daily OWWTP Influent (m3/day)	OWWTP Discharge into LTDA (m3day)[2]
2/06/2026	18.5	1762	1621
3/06/2026	19.0	1614	2084
4/06/2026	2.5	1554	1773
5/06/2026	36.5	2326	2113
6/06/2026	55.0	2971	2802
7/06/2026	18.5	2749	2803
8/06/2026	0.5	2181	2803
9/06/2026	0.0	1962	2803
10/06/2026	0.0	1800	1737
11/06/2026	0.0	1808	1831
12/06/2026	0.0	1780	2600
13/06/2026	0.0	1715	2070
14/06/2026	9.0	1292	2027
15/06/2026	1.0	93	1908
16/06/2026	8.0	2206	2164
17/06/2026	8.0	2050	2309
18/06/2026	0.0	1924	2094
19/06/2026	0.0	1890	1940
20/06/2026	0.0	1766	1827
21/06/2026	2.5	1971	1950
22/06/2026	4.5	2165	2160
23/06/2026	0.0	1941	2094
24/06/2026	0.0	1848	1975
25/06/2026	0.5	1766	1868
26/06/2026	0.0	1814	1621
27/06/2026	2.0	2155	1915
28/06/2026	0.0	1940	1208
29/06/2026	0.0	1959	1417
30/06/2026	0.0	1815	2803
1/07/2025	0.0	1403	1630

Appendix A.2 Pond Effluent Quality Discharged into the LTDA

Sample Date	Sample ID	pH	DO (mg/L)	TSS (mg/L)	BOD (mg/L)	SBOD (mg/L)	SCBOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	DRP (mg/L)	Total P(mg/L)	Total N (mg/L)	Faecal Coliforms (cfu/100ml)	E. Coli (cfu/100ml)
16/07/2025	KAPITI-10468	7.9	10.1	21.4	20.9	6.3	2.4	28.2	0.331	0.039	2.83	3.55	34	16000	14000
12/08/2025	KAPITI-10710	8.1	11.9	95.6	84.7	11.4	4.7	30.4	0.762	0.129	3.47	4.82	39	41000	32000
18/09/2025	KAPITI-11098	7.4	10	33	33.9	9.4	2.8	32.2	0.587	0.134	4.36	5.2	41	57000	42000
16/10/2025	KAPITI-11356	7.4	9.15	59.2	70.8	5.5	2.2	23.3	0.648	0.479	3.24	4.14	29	39000	28000
19/11/2025	KAPITI-11678	8.3	8.6	37.6	33.9	10.7	6.1	19.4	0.596	0.321	3.58	4.27	24	7400	6400
18/12/2025	KAPITI-12001	8.1	8.8	45.2	44.3	14.4	5.8	12.8	0.549	0.624	2.6	3.7	22	34000	26000
15/01/2026	KAPITI-12219	7.6	6.8	63.6	48.3	7.2	3.8	15.9	0.532	0.127	2.73	3.94	28	37000	26000
18/02/2026	KAPITI-12538	7.6	7.7	39	31.2	7.2	3.3	21.6	0.796	0.484	4.41	4.64	28	15000	6000
3/03/2026	KAPITI-12656	7.9	7.5	61.4	51.4	5.7	2.3	17.6	0.802	0.527	3.78	4.89	31	87500	69000
10/04/2026	KAPITI-13013	7.6	7.5	47.2	>87.9	22.5	1.5	16.8	0.79	0.533	2.92	4.55	28	13000	9000
7/05/2026	KAPITI-13270	7.6	8.1	40	22.9	8.3	4.5	23.8	0.509	0.076	2.42	3.67	33	7600	5800
15/06/2026	KAPITI-13644	7.7	6.2	41.6	60.9	7.5	2.3	25.7	0.513	0.21	3.58	4.37	33	13000	6000

Appendix A.3 Bore and Spring Water Quality

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
Bore 1	8/07/2025	KAPITI-10392	14.4	6.46	<1	<0.015	1.13	<0.015	1.1598	<0.005	<0.05	1.2	0	11.7	1	109.1
	1/08/2025	KAPITI-10617	14.8	6.9	<1	0.02	0.645	<0.015	0.6799	<0.05	<0.05	0.6	0	9.4	<1	90.21
	4/09/2025	KAPITI-10945	14.1	6.6	<1	<0.015	0.441	<0.015	0.4708	<0.05	<0.05	<0.5	0	10	<1	83.17
	7/10/2025	KAPITI-11235	13.1	6.6	<1	<0.015	0.411	<0.015	0.4408	<0.05	<0.05	0.6	0	8.1	<1	80.87
	4/11/2025	KAPITI-11525	11.9	6.3	<1	0.022	0.387	<0.015	0.4239	<0.05	<0.05	1.1	0	9.1	<1	88.86
	11/12/2025	KAPITI-11915	12.4	6.4	3.4	<0.015	0.429	<0.015	0.4588	<0.05	<0.05	1	0	9.59	<1	87.13
	26/01/2026	KAPITI-12306	10.5	6.44	<1	0.017	0.438	<0.015	0.4699	<0.05	<0.05	0.4	0	8.17	4	93.5
	24/02/2026	KAPITI-12593	12.1	7.32	<1	<0.015	0.364	<0.015	0.3938	<0.05	<0.05	0.5	0	6.35	<1	91.93
	5/03/2026	KAPITI-12680	11.4	6.37	<1	0.017	0.397	<0.015	0.4289	<0.05	<0.05	0.4	0	8.67	1	91.32
	9/04/2026	KAPITI-12996	12.1	6.5	1.1	0.022	0.342	<0.015	0.3789	<0.05	<0.05	<0.5	0	10.7	2	88.77
	18/05/2026	KAPITI-13356	12.8	6.27	<1	<0.015	0.362	<0.015	0.3918	0.017	<0.05	1	0	7.72	<1	89.2
	4/06/2026	KAPITI-13537	15.2	6.3	<1	0.016	0.321	<0.015	0.3519	0.006	<0.05	0.9	0	10.5	<1	79.75
Bore 2	8/07/2025	KAPITI-10393	14.7	6.26	<1	0.021	6.58	<0.015	6.6159	0.421	0.558	6.9	0	16.6	2	215.2

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	1/08/2025	KAPITI-10618	14.3	6	<1	0.028	5.28	<0.015	5.3229	0.445	0.486	4.9	0	14.9	1	191
	4/09/2025	KAPITI-10946	13.8	6.5	<1	<0.015	4.42	<0.015	4.4498	0.439	0.487	4.5	0	15.3	<1	178.2
	7/10/2025	KAPITI-11236	12.6	6.2	4.5	0.021	4.91	<0.015	4.9459	0.422	0.451	5.1	0	15.5	<1	195.6
	4/11/2025	KAPITI-11526	12.6	6.7	<1	0.018	4.22	<0.015	4.2529	0.439	0.5	5.4	0	16.8	1	196.5
	11/12/2025	KAPITI-11917	13.4	6.1	<1	0.015	2.9	<0.015	2.9299	0.448	0.505	3.6	0	16.1	<1	165.8
	26/01/2026	KAPITI-12307	11.8	6.15	<1	0.021	2.37	<0.015	2.4059	0.468	0.504	2.3	0	20.5	2	181
	24/02/2026	KAPITI-12594	13	6.33	<1	0.017	2.42	<0.015	2.4519	0.489	0.54	2.8	0	13.1	<1	172
	5/03/2026	KAPITI-12681	12.5	6.08	<1	0.015	2.48	<0.015	2.5099	0.535	0.564	2.9	0	18.3	1	176
	9/04/2026	KAPITI-12997	12.2	6.8	<1	<0.015	2.21	<0.015	2.2398	0.521	0.568	2.2	0	17.3	1	173.6
	18/05/2026	KAPITI-13357	12.9	6.15	<1	<0.015	2.34	<0.015	2.3698	0.521	0.56	2.8	0	13.2	1	153
	4/06/2026	KAPITI-13538	14.8	6.1	<1	<0.015	3.14	<0.015	3.1698	0.503	0.542	3.7	0	17.2	2	155.2
Bore 3	8/07/2025	KAPITI-10394	14.5	6.23	<1	<0.015	6.85	<0.015	6.8798	0.603	0.649	6.9	0	19.7	56	249.9
	1/08/2025	KAPITI-10619	13	6.05	<1	0.02	3.85	<0.015	0	0.641	0.702	3.7	0	16	5	196.5
	4/09/2025	KAPITI-10947	11.7	6.6	<1	<0.015	2.2	<0.015	0	0.441	0.574	2.6	0	17	1	173
	7/10/2025	KAPITI-11237	11.2	6.3	<1	0.016	1.8	<0.015	0	0.617	0.684	2.2	0	16.5	1	186.2
	4/11/2025	KAPITI-11527	11.4	6.2	<1	0.023	1.7	<0.015	0	0.67	0.719	2.2	0	16.9	3	174

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	11/12/2025	KAPITI-11918	12.4	6.3	<1	<0.015	1.05	<0.015	0	0.711	0.762	1.6	0	16.1	4	164
	26/01/2026	KAPITI-12308	12.7	6.24	<1	0.016	0.367	<0.015	0	0.678	0.727	0.6	0	15.8	115	175
	24/02/2026	KAPITI-12595	14.8	6.47	<1	<0.015	0.389	<0.015	0	0.724	0.742	0.8	0	11.2	3	136.5
	5/03/2026	KAPITI-12682	14.4	6.19	<1	<0.015	0.372	<0.015	0	0.689	0.825	2	0	13.8	12	135.9
	9/04/2026	KAPITI-12998	13.9	6.3	<1	0.02	0.378	<0.015	0	0.723	0.757	<0.5	0	19.1	23	154.4
	18/05/2026	KAPITI-13358	13.6	6.25	<1	<0.015	1.15	<0.015	0	0.618	0.666	1.9	0	13.3	3	144
	4/06/2026	KAPITI-13539	15.2	6.1	<1	0.017	1.33	<0.015	0	0.59	0.622	1.9	0	16.8	18	148
Bore 4	8/07/2025	KAPITI-10395	14.3	6.38	<1	<0.015	2.36	<0.015	2.3898	0.152	0.174	2.8	2.6	9.6	<1	122.8
	1/08/2025	KAPITI-10620	14.1	6.06	<1	0.023	3.99	<0.015	4.0279	0.144	0.173	3.7	3.6	12.5	4	156.3
	4/09/2025	KAPITI-10948	14.2	6.5	<1	0.017	2.24	<0.015	2.2719	0.163	0.171	2.6	2.4	13.2	<1	127.6
	7/10/2025	KAPITI-11245	13.8	5.9	<1	0.016	2.5	<0.015	2.5309	0.158	0.184	2.8	2.8	10.4	4	130
	4/11/2025	KAPITI-11529	13.4	6.2	<1	0.024	1.75	<0.015	1.7889	0.166	0.191	2.2	2	11.6	<1	116.6
	11/12/2025	KAPITI-11919	13.5	6.3	<1	<0.015	1.33	<0.015	1.3598	0.15	0.179	2.4	1.7	10.7	<1	107.1
	26/01/2026	KAPITI-12309	11.5	6.26	<1	0.02	1.51	<0.015	1.5449	0.189	0.201	1.6	1.6	12.7	15	127
	24/02/2026	KAPITI-12596	12.7	6.56	<1	0.021	1.4	<0.015	1.4359	0.179	0.209	1.6	1.6	7.94	<1	115.3
	5/03/2026	KAPITI-12683	12.1	6.18	1	0.025	1.54	<0.015	1.5799	0.18	0.218	2.2	2.2	13.6	1	122.1

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	9/04/2026	KAPITI-12999	11.9	6.4	<1	<0.015	1.56	<0.015	1.5898	0.191	0.193	1.5	0.9	13.1	29	127.2
	18/05/2026	KAPITI-13359	12.1	6.17	<1	<0.015	1.12	<0.015	1.1498	0.173	0.178	1.7	1.7	9.35	1	108
	4/06/2026	KAPITI-13541	14.3	6.2	<1	<0.015	2	<0.015	2.0298	0.177	0.197	2.6	2.4	13.7	1	117.9
Bore 4a	8/07/2025	KAPITI-10396	13.6	6.5	<1	<0.015	0.947	<0.015	0.9768	0.036	<0.05	1.8	0	8	<1	99.9
	1/08/2025	KAPITI-10621	13.8	6.25	<1	0.018	1.24	<0.015	1.2729	<0.05	<0.05	0.9	0	9.1	1	104.1
	4/09/2025	KAPITI-10949	13.9	6.6	<1	0.017	1.03	<0.015	1.0619	<0.05	<0.05	1.2	0	10.9	<1	101.2
	7/10/2025	KAPITI-11239	14	5.9	<1	0.018	0.906	<0.015	0.9389	<0.05	<0.05	1.1	0	8.6	<1	99.85
	4/11/2025	KAPITI-11530	12.7	6.3	<1	0.027	0.887	<0.015	0.9289	<0.05	<0.05	2.1	0	10.5	<1	99.01
	11/12/2025	KAPITI-11920	14.4	6.4	<1	<0.015	0.722	<0.015	0.7518	<0.05	<0.05	1.2	0	9.16	<1	96.32
	26/01/2026	KAPITI-12310	12	6.37	<1	0.021	0.939	<0.015	0.9749	<0.05	<0.05	0.8	0	9.49	1	103
	24/02/2026	KAPITI-12597	12.5	6.74	<1	<0.015	0.733	<0.015	0.7628	<0.05	<0.05	1.1	0	7.47	<1	102.8
	5/03/2026	KAPITI-12684	11.9	6.24	<1	<0.015	0.702	<0.015	0.7318	<0.05	0.105	0.8	0	12.2	3	105.3
	9/04/2026	KAPITI-13000	11	6.5	<1	0.018	0.593	<0.015	0.6259	<0.05	<0.05	0.6	0	11.3	<1	106.3
	18/05/2026	KAPITI-13360	11.3	6.26	<1	<0.015	0.683	<0.015	0.7128	0.053	<0.05	0.9	0	8.99	<1	102
	4/06/2026	KAPITI-13542	13.4	6.3	<1	0.022	0.631	<0.015	0.6679	0.0295	<0.05	0.9	0	11.3	<1	97.16

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
Bore 5	8/07/2025	KAPITI-10397	13.8	6.26	<1	0.023	4.59	<0.015	4.6279	0.096	0.12	5	4.7	27.4	4	274.3
	1/08/2025	KAPITI-10622	13.8	6.08	<1	0.023	4.73	<0.015	4.7679	0.144	0.181	4.5	4.3	24.4	3	272.4
	4/09/2025	KAPITI-10950	13.3	6.6	1.2	0.031	4.51	0.019	4.56	0.093	0.103	5.1	5	26.2	<1	277.6
	7/10/2025	KAPITI-11240	13.6	5.8	<1	0.018	4.71	0.021	4.749	0.108	0.18	4.8	4.7	20.6	2	251.3
	4/11/2025	KAPITI-11531	13.5	6.8	<1	0.026	5.65	0.02	5.696	0.071	0.105	6.6	6.4	23.4	<1	273.3
	11/12/2025	KAPITI-11921	15.3	6.1	1.4	0.016	5.88	0.018	5.914	0.094	0.157	6.7	6.5	25.5	<1	284
	26/01/2026	KAPITI-12311	13.6	6.12	<1	0.026	2.8	0.017	2.843	0.117	0.143	2.9	2.9	22.1	22	235
	24/02/2026	KAPITI-12598	14.8	6.38	<1	0.023	2.62	0.019	2.662	0.123	0.178	2.9	2.3	21.4	1	249.8
	5/03/2026	KAPITI-12685	14.1	6.04	<1	0.021	2.36	0.02	2.401	0.119	0.141	2.6	2.6	24.7	7	257
	9/04/2026	KAPITI-13001	21.3	6.8	1.3	0.019	1.53	0.02	1.569	0.124	0.15	1.7	1.3	26.2	47	389.4
	18/05/2026	KAPITI-13361	13.3	6.02	1.4	<0.015	2.37	0.02	2.4049	0.105	0.161	2.8	2.6	24.6	12	250
	4/06/2026	KAPITI-13543	16.1	6.5	<1	<0.015	2.54	0.022	2.5769	0.123	0.189	3.3	2.8	27.1	6	237.8
Bore 6	8/07/2025	KAPITI-10398	11.5	6.95	<1	<0.015	0.247	<0.015	0.2768	<0.005	<0.05	0.5	0	7.9	1	72.73
	1/08/2025	KAPITI-10623	10.4	6.63	<1	0.016	0.26	<0.015	0.2909	<0.05	<0.05	0.2	0	7.1	7	70.61
	4/09/2025	KAPITI-10951	8	6.4	1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	<0.5	0	9.8	<1	65.91
	7/10/2025	KAPITI-11242	11.7	6.9	<1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	<0.5	0	6.3	<1	87.1

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	4/11/2025	KAPITI-11532	10.6	6.9	<1	0.019	<0.23	<0.015	0.0339	<0.05	<0.05	0.8	0	8	7	64.48
	11/12/2025	KAPITI-11923	12.9	6.7	<1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	0.8	0	10	<1	68.69
	26/01/2026	KAPITI-12312	12.9	6.76	<1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	<0.5	0	7.24	<1	72.6
	24/02/2026	KAPITI-12599	14.8	6.96	<1	0.021	<0.23	<0.015	0.0359	<0.05	<0.05	0.4	0	5.3	<1	72.26
	5/03/2026	KAPITI-12686	14.3	6.59	<1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	0.6	0	9.75	<1	72.96
	9/04/2026	KAPITI-13002	13	6.6	<1	0.017	<0.23	<0.015	0.0319	<0.05	<0.05	<0.5	0	11.5	22	76.6
	18/05/2026	KAPITI-13362	12.8	6.58	<1	<0.015	<0.23	<0.015	0.0298	0.018	<0.05	<0.5	0	6.71	<1	71.3
	4/06/2026	KAPITI-13544	13.6	6.5	<1	0.015	<0.23	<0.015	0.0299	0.0065	<0.05	0.6	0	9.95	3	67.66
Bore 7	8/07/2025	KAPITI-10399	14.2	6.73	<1	<0.015	0.463	<0.015	0.4928	0.005	<0.05	0.7	0	8.4	1	84.53
	1/08/2025	KAPITI-10624	13.7	6.38	<1	0.023	0.479	<0.015	0.5169	<0.05	<0.05	0.2	0	8.3	1	81.64
	4/09/2025	KAPITI-10952	11.1	6.5	1	0.019	0.27	<0.015	0.3039	<0.05	<0.05	0.6	0	9.6	1	73.68
	7/10/2025	KAPITI-11243	10.4	6.8	<1	0.017	<0.23	<0.015	0.0319	<0.05	<0.05	<0.5	0	6.4	<1	65.32
	4/11/2025	KAPITI-11533	10.5	6.9	<1	0.018	<0.23	<0.015	0.0329	<0.05	<0.05	0.6	0	7.8	1	66.41
	11/12/2025	KAPITI-11924	12.3	6.7	<1	0.021	<0.23	<0.015	0.0359	<0.05	<0.05	0.4	0	7.62	<1	68.32
	26/01/2026	KAPITI-12313	12.9	6.77	<1	0.019	<0.23	<0.015	0.0339	<0.05	<0.05	<0.5	0	7.26	1	72.5
	24/02/2026	KAPITI-12600	14.8	6.92	<1	<0.015	<0.23	<0.015	0.0298	<0.05	<0.05	0.5	0	5.55	1	73.19

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	5/03/2026	KAPITI-12687	14.1	6.61	<1	0.023	<0.23	<0.015	0.0379	<0.05	<0.05	0.8	0	11.8	13	73.91
	9/04/2026	KAPITI-13003	13.4	6.5	<1	0.022	0.275	<0.015	0.3119	<0.05	<0.05	<0.5	0	11.1	73	76.96
	18/05/2026	KAPITI-13363	13.4	6.47	<1	0.018	<0.23	<0.015	0.0329	0.023	<0.05	0.5	0	6.82	1	72.3
	4/06/2026	KAPITI-13545	14.8	6.4	<1	<0.015	<0.23	<0.015	0.0298	0.0209	<0.05	0.8	0	9.75	2	68.64
Spring	16/07/2025	KAPITI-10523	13.9	6.52	2	0.029	1.55	<0.015	1.5939	<0.05	0.053	1.8	0	55	1	276.7
	1/08/2025	KAPITI-10625	10.5	6.42	<1	0.017	1.24	<0.015	1.2719	<0.05	<0.05	1.3	0	8.9	1	105.2
	4/09/2025	KAPITI-10953	11.1	6.5	2	0.024	0.692	<0.015	0.7309	<0.05	<0.05	3.3	0	10	310	98.74
	7/10/2025	KAPITI-11244	13.1	6.6	<1	0.015	0.871	<0.015	0.9009	<0.05	<0.05	1.1	0	7.9	4	97.17
	4/11/2025	KAPITI-11534	13.7	6.2	1.4	0.019	0.806	<0.015	0.8399	<0.05	<0.05	1.3	0	8.1	11	99.22
	11/12/2025	KAPITI-11925	15.1	6.3	<1	<0.015	0.876	<0.015	0.9058	<0.05	<0.05	1.3	0	8.61	220	98
	15/12/2025	KAPITI-12116	0	0	0	0	0	0	0	0	0	0	0	0	14	0
	26/01/2026	KAPITI-12314	13.6	6.69	1.4	<0.015	0.852	<0.015	0.8818	<0.05	<0.05	0.8	0	9.75	30	100.7
	24/02/2026	KAPITI-12601	15.4	7.3	1.6	0.021	0.626	<0.015	0.6619	<0.05	<0.05	0.9	0	6.88	22	101.2
	5/03/2026	KAPITI-12688	10.2	6.77	7.8	0.02	0.583	<0.015	0.6179	<0.05	0.21	2.3	0	11.8	3	103.4
	9/04/2026	KAPITI-13004	13.8	7.2	4.9	0.131	0.472	<0.015	0.6179	0.06	0.136	1.9	0	13.6	6700	226
	13/04/2026	KAPITI-13030	0	0	0	0	0	0	0	0	0	0	0	0	180	0

Sample Site	Date	Wateroutlook Sample ID	Temp °C	pH	BOD (mg/L)	AmmN (mg/L)	NitraN (mg/L)	NitriN (mg/L)	SolubleN (mg/L)	DRP (mg/L)	TotalP (mg/L)	Total N (mg/L)	Total N (0.45) (mg/L)	Faecal Coliforms (cfu100ml)	E. Coli (100cfu/100ml)	Cond (µS/cm)
	15/04/2026	KAPITI-13070	0	0	0	0	0	0	0	0	0	0	0	0	10	0
	18/05/2026	KAPITI-13364	8.7	7.29	1.5	0.027	0.682	<0.015	0.7239	0.047	<0.05	0.9	0	42.8	600	202

Appendix A.4 Daily observations of the two OWWTP Ponds

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
1/07/2025	7.5	0.9	11.1	Clear	1 - No Smell	7.5	2.6	11	Clear	1 - No Smell
2/07/2025	7.6	4	10.4	Green	1 - No Smell	7.6	3.3	10.3	Green	1 - No Smell
3/07/2025	7.6	3.8	10.5	Green	1 - No Smell	7.6	3	10.3	Green	1 - No Smell
4/07/2025	7.6	2.1	11.6	Yellow	1 - No Smell	7.5	3.1	11.3	Yellow	1 - No Smell
5/07/2025										
6/07/2025										
7/07/2025	7.5	1.6	10.5	Yellow	1 - No Smell	7.6	2.7	10.3	Yellow	1 - No Smell
8/07/2025	7.5	3.2	11.2	Yellow	1 - No Smell	7.6	4.5	10.6	Yellow	1 - No Smell
9/07/2025	7.3	1.4	9.8	Brown	1 - No Smell	7.5	3.3	9.3	Brown	1 - No Smell
10/07/2025	6.5	3.1	14.6	Brown	1 - No Smell	7.2	3.1	10	Brown	1 - No Smell
11/07/2025	7.3	1.3	11.2	Brown	1 - No Smell	7.2	3.3	11.1	Brown	1 - No Smell
12/07/2025										
13/07/2025										
14/07/2025	6.6	5.5	14.8	Brown	1 - No Smell	6.9	1.9	14.8	Brown	1 - No Smell
15/07/2025	7.3	4.5	12.2	Brown	1 - No Smell	7.4	6.5	12.3	Brown	1 - No Smell
16/07/2025	7.7	7.2	12.2	Clear	1 - No Smell	7.8	5.8	12.2	Clear	1 - No Smell
17/07/2025	7.7	5.3	12.6	Clear	1 - No Smell	7.8	4.2	12.1	Clear	1 - No Smell
18/07/2025	7.8	6.1	12.8	Clear	1 - No Smell	7.9	3.9	11.6	Clear	1 - No Smell
19/07/2025										
20/07/2025										
21/07/2025	7.5	10.9	10.3	Brown	1 - No Smell	8.2	13.7	10.2	Brown	1 - No Smell
22/07/2025	7.7	8.4	9.5	Clear	1 - No Smell	8	10.6	9.4	Clear	1 - No Smell
23/07/2025	7.9	10.61	7.8	Clear	1 - No Smell	8.2	13.4	7.9	Clear	1 - No Smell
24/07/2025	7.9	8	7.7	Clear	1 - No Smell	8.2	13.2	7.6	Clear	1 - No Smell
25/07/2025	7.8	10.7	7.8	Green	1 - No Smell	8.1	13.8	7.4	Green	1 - No Smell
26/07/2025										
27/07/2025										

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
28/07/2025	7.8	10.8	9.1	Green	1 - No Smell	8.4	15.2	9.4	Green	1 - No Smell
29/07/2025	7.6	9.5	9.9	Green	1 - No Smell	8.1	12.9	9.5	Green	1 - No Smell
30/07/2025	7.7	11.2	9.8	Green	1 - No Smell	8.1	11.6	9.4	Green	1 - No Smell
31/07/2025	8	8.4	10	Green	1 - No Smell	8.2	11.8	10.4	Green	1 - No Smell
1/08/2025	8.1	11.2	10.7	Green	1 - No Smell	8.5	14.8	11.2	Green	1 - No Smell
2/08/2025										
3/08/2025										
4/08/2025	8.4	12.8	9.5	Green	1 - No Smell	8.3	14.2	11.4	Green	1 - No Smell
5/08/2025	8.5	15.8	9.8	Green	1 - No Smell	8.6	17.6	10.4	Green	1 - No Smell
6/08/2025	8.2	14.8	8.5	Green	1 - No Smell	8.6	3.9	8.6	Green	1 - No Smell
7/08/2025	8.5	14.3	8.6	Green	1 - No Smell	8.7	10.6	11.53	Green	1 - No Smell
8/08/2025	7.7	11.2	10.5	Green	1 - No Smell	6.7	12.5	10.4	Green	1 - No Smell
9/08/2025										
10/08/2025										
11/08/2025	8.6	14.7	9.2	Green	1 - No Smell	8.2	12.3	9.2	Green	1 - No Smell
12/08/2025	8.6	14.7	9.2	Green	1 - No Smell	8.2	12.3	9.2	0	1 - No Smell
13/08/2025	8.8	19.3	10.7	Green	1 - No Smell	8.8	17.6	9.8	Green	1 - No Smell
14/08/2025	9	20	11.2	Green	1 - No Smell	9	20	11.1	Green	1 - No Smell
15/08/2025	8.8	17.7	10.1	Green	1 - No Smell	8.9	20	11.1	Green	1 - No Smell
16/08/2025										
17/08/2025										
18/08/2025	8.7	13.2	11.5	Green	1 - No Smell	8.8	18.6	11.4	Green	1 - No Smell
19/08/2025	8.5	13.1	11.4	Green	1 - No Smell	8.8	18.9	12.3	Green	1 - No Smell
20/08/2025	8.74	18.12	11.3	Green	1 - No Smell	8.9	18.79	11.1	Green	1 - No Smell
21/08/2025	8.5	13	10.1	Green	1 - No Smell	9	19.5	10.3	Green	1 - No Smell
22/08/2025	9	20	11.5	Green	1 - No Smell	9	20	12.4	Green	1 - No Smell
23/08/2025										
24/08/2025										
25/08/2025	8.6	14.6	10.2	Green	1 - No Smell	9	20.2	10.3	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
26/08/2025	8.4	12	10.5	Green	1 - No Smell	9	17.4	10.9	Green	1 - No Smell
27/08/2025	8.9	17.3	12.3	Green	1 - No Smell	8.9	18.9	11.4	Green	1 - No Smell
28/08/2025	9	20	12.5	Green	1 - No Smell	9	19.6	11.9	Green	1 - No Smell
29/08/2025	8.5	12.4	12.3	Green	1 - No Smell	8.8	13.8	12.2	0	1 - No Smell
30/08/2025										
31/08/2025										
1/09/2025	8.5	10.4	11.3	Green	1 - No Smell	8.6	12.1	11.7	Green	1 - No Smell
2/09/2025	8.6	14.5	12.9	Green	1 - No Smell	8.8	14.9	12.4	Green	1 - No Smell
3/09/2025	8.6	14.5	12.9	Green	1 - No Smell	8.8	14.9	12.4	Green	1 - No Smell
4/09/2025	8.3	13.2	12.8	Green	1 - No Smell	8.4	12.9	13.5	Green	1 - No Smell
5/09/2025	8.2	7.2	13.2	Green	1 - No Smell	8.2	9.2	13.4	Green	1 - No Smell
6/09/2025										
7/09/2025										
8/09/2025	8.3	7.8	13	Green	1 - No Smell	8.3	7.8	13	Green	1 - No Smell
9/09/2025	8.4	12.7	12.4	Green	1 - No Smell	8.4	13.1	12.1	0	1 - No Smell
10/09/2025										
11/09/2025	8.4	12.6	12.5	Green	1 - No Smell	8.5	12.3	12.3	Green	1 - No Smell
12/09/2025	8.8	18.7	13.1	Green	1 - No Smell	8.7	17.2	12.8	Green	1 - No Smell
13/09/2025										
14/09/2025										
15/09/2025	7.6	10.6	12.7	Green	1 - No Smell	7.8	10.9	11.8	Green	1 - No Smell
16/09/2025	7.8	8.8	15.3	Green	1 - No Smell	8.1	9.2	13.3	Green	1 - No Smell
17/09/2025	7.8	8.8	15.3	Green	1 - No Smell	7.5	6.4	15.2	Green	1 - No Smell
18/09/2025	7.6	6.3	15	Green	1 - No Smell	7.5	4.4	15.1	Green	1 - No Smell
19/09/2025	7.5	4.4	15	Green	1 - No Smell	7.7	5.9	13.7	Green	1 - No Smell
20/09/2025										
21/09/2025										
22/09/2025	7.4	3.8	14.5	Green	1 - No Smell	7.5	3.3	14.3	Green	1 - No Smell
23/09/2025	7.4	2.7	14.4	Green	1 - No Smell	7.3	2.1	14.3	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
24/09/2025	7.2	4.1	14.8	Green	1 - No Smell	7.5	5.6	14.4	Green	1 - No Smell
25/09/2025	7.4	3.8	15	Green	1 - No Smell	7.4	5.1	14.8	Green	1 - No Smell
26/09/2025	7.7	6.1	12.7	Yellow	1 - No Smell	7.6	1.2	12.5	Green	1 - No Smell
27/09/2025										
28/09/2025										
29/09/2025	7.9	9.2	15.2	Green	1 - No Smell	7.6	6.2	15.3	Green	1 - No Smell
30/09/2025	8.1	11.6	14.9	Green	1 - No Smell	7.9	8	14.9	Green	1 - No Smell
1/10/2025	7.9	11.11	14.1	Green	1 - No Smell	7.9	10.23	14.2	Green	1 - No Smell
2/10/2025	8.1	12.9	13	Green	1 - No Smell	7.9	10.3	13.5	Green	1 - No Smell
3/10/2025	8.3	13.8	15.6	Green	1 - No Smell	8.1	12.5	13.2	Green	1 - No Smell
4/10/2025										
5/10/2025										
6/10/2025	10.8	10.8	16.2	Green	1 - No Smell	8.5	13.3	15.8	Green	1 - No Smell
7/10/2025	8.3	12.3	16.7	Green	1 - No Smell	8.7	13.3	16.5	Green	1 - No Smell
8/10/2025	8.5	16	16.1	Green	1 - No Smell	8.9	20.1	16.3	Green	1 - No Smell
9/10/2025	8.7	18.1	17.6	Green	1 - No Smell	8.9	16.2	16.7	Green	1 - No Smell
10/10/2025	8.2	8.6	16.7	Green	1 - No Smell	8.5	8	16.6	Green	1 - No Smell
11/10/2025										
12/10/2025										
13/10/2025	8.9	8.3	16.4	Green	1 - No Smell	8.7	10	16.3	Green	1 - No Smell
14/10/2025	7.8	8.3	17	Green	1 - No Smell	7.5	8.9	16.6	Green	1 - No Smell
15/10/2025	8.2	10.2	17.3	Green	1 - No Smell	8	9.9	17	Green	1 - No Smell
16/10/2025	7.5	6.9	16	Green	1 - No Smell	7.5	8.4	15.1	Green	1 - No Smell
17/10/2025	7.5	6.3	15.6	Green	1 - No Smell	8.6	11.4	15.7	Green	1 - No Smell
18/10/2025										
19/10/2025										
20/10/2025	7.7	1.2	16	Brown	1 - No Smell	8.2	6.5	16	Green	1 - No Smell
21/10/2025	7.7	1.5	16	Clear	1 - No Smell	7.8	3.7	15.9	Green	1 - No Smell
22/10/2025	7.8	2.2	16.1	Green	1 - No Smell	7.9	4.8	16	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
23/10/2025	7.6	2.1	14.8	Clear	1 - No Smell	7.6	4.1	14.9	Green	1 - No Smell
24/10/2025	8	9.7	16.4	Green	1 - No Smell	8.1	10	16.1	Green	1 - No Smell
25/10/2025										
26/10/2025										
27/10/2025	8.1	8.1	15.2	Green	1 - No Smell	7.8	5.6	15.5	Green	1 - No Smell
28/10/2025	8	6.2	15.6	Green	1 - No Smell	7.8	7.1	15.9	Green	1 - No Smell
29/10/2025	8.5	13.7	14.5	Green	1 - No Smell	7.9	8.5	14.7	Green	1 - No Smell
30/10/2025	8.5	11.9	15	Green	1 - No Smell	8.2	9.1	15.2	Green	1 - No Smell
31/10/2025	8.8	13.9	16.2	Green	1 - No Smell	8.3	10.1	15.8	Green	1 - No Smell
1/11/2025										
2/11/2025										
3/11/2025	8.9	17.4	17.8	Green	1 - No Smell	8.5	13.5	18	Green	1 - No Smell
4/11/2025	8.9	14.3	19	Green	1 - No Smell	8.6	10.8	18.7	Green	1 - No Smell
5/11/2025	9.5	12.2	19	Green	1 - No Smell	9.1	14.2	18.9	Green	1 - No Smell
6/11/2025	8.8	10.7	18.9	Green	1 - No Smell	8.6	6.8	18.6	Green	1 - No Smell
7/11/2025	8.9	16.4	21	Green	1 - No Smell	9	14.7	20.9	Green	1 - No Smell
8/11/2025										
9/11/2025										
10/11/2025	7.8	8.7	21.1	Green	1 - No Smell	8.6	3.9	20.1	Green	1 - No Smell
11/11/2025	7.8	7.6	19.7	Green	1 - No Smell	8.4	5.1	19.2	Green	1 - No Smell
12/11/2025	8.1	9.3	20	Green	1 - No Smell	8.5	7.2	19.6	Green	1 - No Smell
13/11/2025	7.5	0.8	21	Green	1 - No Smell	7.8	2.6	20.7	Green	1 - No Smell
14/11/2025	7.6	2.3	21.7	Green	1 - No Smell	8.3	9.5	21.5	Green	1 - No Smell
15/11/2025										
16/11/2025										
17/11/2025	8.8	12.8	18.8	Green	1 - No Smell	8.3	10.8	19.2	Green	1 - No Smell
18/11/2025	8.4	11.2	20.9	Green	1 - No Smell	8.7	10.4	20.4	Green	1 - No Smell
19/11/2025	8.1	10.2	21.8	Green	1 - No Smell	8.9	11.9	21.9	Green	1 - No Smell
20/11/2025	8	8.6	21.4	Green	1 - No Smell	8.6	9.8	21.1	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
21/11/2025	8	11.4	22	Green	1 - No Smell	8.8	13.2	22.2	Green	1 - No Smell
22/11/2025										
23/11/2025										
24/11/2025	8.4	16.1	22.7	Green	1 - No Smell	8.6	0.6	22	Green	1 - No Smell
25/11/2025	8.5	19.2	22.9	Green	1 - No Smell	8.8	11	22.1	Green	1 - No Smell
26/11/2025	7.7	3.1	22.8	Green	1 - No Smell	7.7	2.7	22	Green	1 - No Smell
27/11/2025	7.6	3.8	21.4	Green	1 - No Smell	7.7	3.2	20.5	Green	1 - No Smell
28/11/2025	7.6	3.8	21.4	Green	1 - No Smell	7.6	3.3	21.6	Green	1 - No Smell
29/11/2025										
30/11/2025										
1/12/2025	7.6	2.6	21.4	Green	1 - No Smell	7.8	4.3	21.4	Green	1 - No Smell
2/12/2025	7.7	4.8	19.7	Green	1 - No Smell	8.1	6.8	19.2	Green	1 - No Smell
3/12/2025	7.8	5.5	20.3	Green	1 - No Smell	8.4	8.2	20.2	Green	1 - No Smell
4/12/2025	7.7	4.1	19.5	Clear	1 - No Smell	8.9	14.9	19.9	Green	1 - No Smell
5/12/2025	7.5	1.6	18.5	Clear	1 - No Smell	8.8	13.5	18.3	Green	1 - No Smell
6/12/2025										
7/12/2025										
8/12/2025	8.1	11.5	23.6	Green	1 - No Smell	9.2	14.1	22.4	Green	1 - No Smell
9/12/2025	7.9	6.9	21.7	Green	1 - No Smell	8.8	8.8	20.8	Green	1 - No Smell
10/12/2025	8.5	18.6	24.5	Green	1 - No Smell	8.8	8.1	22.7	Green	1 - No Smell
11/12/2025	9.9	26.4	21.4	Green	1 - No Smell	9.8	23.8	26.3	Green	1 - No Smell
12/12/2025	8.9	20	23.7	Green	1 - No Smell	9.6	17.7	23.7	Green	1 - No Smell
13/12/2025										
14/12/2025										
15/12/2025	8.9	17.14	23.6	Green	1 - No Smell	8.8	15.4	23.2	Green	1 - No Smell
16/12/2025	8.8	11.6	21.4	Green	1 - No Smell	8.4	1.7	21.4	Green	1 - No Smell
17/12/2025	8.7	6.4	22.4	Green	1 - No Smell	8.7	11.2	21.4	Green	1 - No Smell
18/12/2025	8.7	11.5	19.3	Green	1 - No Smell	8.8	14.8	19.7	Green	1 - No Smell
19/12/2025	8.7	12.1	19.7	Green	1 - No Smell	8.7	10.6	19.3	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
20/12/2025										
21/12/2025										
22/12/2025	8.7	6.4	22.4	Green	1 - No Smell	8.4	7.1	22.8	Green	1 - No Smell
23/12/2025	8.7	10.8	21.2	Green	1 - No Smell	8.5	6.8	21.2	Green	1 - No Smell
24/12/2025	8.6	10.3	21.1	Green	1 - No Smell	7.8	4.2	20.9	Green	1 - No Smell
25/12/2025	8.6	9	20.9	Green	1 - No Smell	7.8	3.8	20.5	Green	1 - No Smell
26/12/2025	8.6	9.2	20.8	Green	1 - No Smell	7.9	2.4	20.3	Green	1 - No Smell
27/12/2025										
28/12/2025										
29/12/2025	8.8	14.2	21.2	Green	1 - No Smell	9.2	12.6	21	Green	1 - No Smell
30/12/2025	8.2	8.2	18.2	Green	1 - No Smell	8.2	7.6	18.1	Green	1 - No Smell
31/12/2025	8.5	11.9	19.5	Green	1 - No Smell	8.2	6.9	19.4	Green	1 - No Smell
1/01/2026	8.6	13.6	20.9	Green	1 - No Smell	8.3	9.8	20.4	Green	1 - No Smell
2/01/2026	8.6	11.5	21.1	Green	1 - No Smell	8.3	5	21.2	Green	1 - No Smell
3/01/2026										
4/01/2026										
5/01/2026	8.8	15.6	20.8	Green	1 - No Smell	8.4	7.8	20.6	Green	1 - No Smell
6/01/2026	8.8	14.6	22.5	Green	1 - No Smell	8.4	6.7	21.9	Green	1 - No Smell
7/01/2026	8.8	13.3	22.8	Green	1 - No Smell	8.2	2.7	22.4	Green	1 - No Smell
8/01/2026	8.92	16.83	23.7	Green	1 - No Smell	8.8	13.68	23.1	Green	1 - No Smell
9/01/2026	8.8	15.2	24	Green	1 - No Smell	8.7	11.4	23.5	Green	1 - No Smell
10/01/2026										
11/01/2026										
12/01/2026	8.6	11.6	22.9	Green	1 - No Smell	8.5	7.4	22.6	Green	1 - No Smell
13/01/2026	8.6	13.2	23.4	Green	1 - No Smell	8.4	11.4	21.5	Green	1 - No Smell
14/01/2026	8.3	10.9	22.5	Green	1 - No Smell	7.8	3.5	22.3	Green	1 - No Smell
15/01/2026	7.8	4.5	21.3	Green	1 - No Smell	7.7	6.8	20.9	Green	1 - No Smell
16/01/2026	4.6	3.9	20.6	Green	1 - No Smell	7.4	2.3	20.3	Green	1 - No Smell
17/01/2026										

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
18/01/2026										
19/01/2026	8.4	8.4	19.7	Green	1 - No Smell	8.8	8.2	20	Green	1 - No Smell
20/01/2026	8.3	6.5	19.7	Green	1 - No Smell	8.1	5.3	19.7	Green	1 - No Smell
21/01/2026	7.7	2.7	19.6	Green	1 - No Smell	7.5	2	19.7	Green	1 - No Smell
22/01/2026										
23/01/2026	7.5	1.5	21.2	Green	1 - No Smell	7.5	0.2	21.1	Green	1 - No Smell
24/01/2026										
25/01/2026										
26/01/2026	7.4	4.2	21.3	Clear	1 - No Smell	7.5	0.4	21.1	Clear	1 - No Smell
27/01/2026	7.4	4.7	21.1	Clear	1 - No Smell	7.5	3.6	20.9	Clear	1 - No Smell
28/01/2026	8.1	9.7	21.5	Clear	1 - No Smell	7.5	3.6	21.6	Clear	1 - No Smell
29/01/2026	8.1	10.9	22.5	Clear	1 - No Smell	7.3	1.9	22.9	Clear	1 - No Smell
30/01/2026	8.1	9.3	22.3	Clear	1 - No Smell	7.4	0.6	22.5	Clear	1 - No Smell
31/01/2026										
1/02/2026										
2/02/2026	8.7	13.2	22.9	Green	1 - No Smell	7.4	4.2	22.8	Clear	1 - No Smell
3/02/2026	7.9	5.8	22.2	Green	1 - No Smell	7.5	2.8	22	Clear	1 - No Smell
4/02/2026	7.75	1.51	21.3	Green	1 - No Smell	7.51	1.22	21.4	Green	1 - No Smell
5/02/2026	8.3	9.6	20.6	Green	1 - No Smell	7.7	4.4	20.6	Green	1 - No Smell
6/02/2026	8.1	7.8	20.6	Green	1 - No Smell	7.5	3.1	20.3	Green	1 - No Smell
7/02/2026										
8/02/2026										
9/02/2026	8.3	11.8	21.5	Green	1 - No Smell	8.1	10.4	21.1	Green	1 - No Smell
10/02/2026	8	9.6	22.3	Green	1 - No Smell	8.6	15.8	22.5	Green	1 - No Smell
11/02/2026	8.5	14.58	22.2	Green	1 - No Smell	8.5	9.6	22.4	Green	1 - No Smell
12/02/2026	8.2	7.88	22.6	Green	1 - No Smell	8.7	14.6	22	Green	1 - No Smell
13/02/2026	8.1	8.1	23.3	Green	1 - No Smell	8.7	13.4	22.7	Green	1 - No Smell
14/02/2026										
15/02/2026										

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
16/02/2026	7.7	3.14	17.3	Green	1 - No Smell	8.05	7.41	16.7	Green	1 - No Smell
17/02/2026	7.5	5.1	18.5	Green	1 - No Smell	7.8	8.3	18.1	Green	1 - No Smell
18/02/2026	7.9	8.1	21	Green	1 - No Smell	8.1	9.9	20.8	Green	1 - No Smell
19/02/2026	8.4	14.7	22.3	Green	1 - No Smell	8.1	7.8	21.6	Green	1 - No Smell
20/02/2026	8.1	8.7	20.1	Green	1 - No Smell	7.9	6.2	19.7	Green	1 - No Smell
21/02/2026										
22/02/2026										
23/02/2026	8.5	11.4	19.5	Green	1 - No Smell	8.7	13.1	19.8	Green	1 - No Smell
24/02/2026	8.3	9.7	20.2	Green	1 - No Smell	7.9	4.2	20.1	Green	1 - No Smell
25/02/2026	8.27	10.9	19.7	Green	1 - No Smell	8.01	6.77	19.3	Green	1 - No Smell
26/02/2026	8.6	13.2	22.1	Green	1 - No Smell	8	6.8	21.5	Green	1 - No Smell
27/02/2026	7.7	6.1	20.5	Green	1 - No Smell	7.8	2.7	20.2	Green	1 - No Smell
28/02/2026										
1/03/2026										
2/03/2026	8.1	9.7	17.9	Green	1 - No Smell	8.3	11.3	18	Green	1 - No Smell
3/03/2026	8.1	8.6	16.2	Green	1 - No Smell	7.7	6.9	15.9	Green	1 - No Smell
4/03/2026	8.5	9.4	16.4	Green	1 - No Smell	8.2	9.5	16.2	Green	1 - No Smell
5/03/2026	8.4	7.6	16.3	Green	1 - No Smell	8.1	7.6	16.3	Green	1 - No Smell
6/03/2026	8.3	11.1	19	Green	1 - No Smell	8.2	14.5	19.1	Green	1 - No Smell
7/03/2026										
8/03/2026										
9/03/2026	7.8	4.8	20.2	Green	1 - No Smell	7.7	3.3	19.6	Green	1 - No Smell
10/03/2026	7.8	4.5	18.9	Green	1 - No Smell	7.6	6.1	17.8	Green	1 - No Smell
11/03/2026	0	0	0	0	0	0	0	0	0	0
12/03/2026	8.4	9.7	17.4	Green	1 - No Smell	8.5	12.2	17.2	Green	1 - No Smell
13/03/2026	0	0	0	0	0	0	0	0	0	0
14/03/2026										
15/03/2026										
16/03/2026	8.8	4.1	19.8	Green	1 - No Smell	9.1	14.3	19.3	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
17/03/2026	8.2	7.6	19.8	Green	1 - No Smell	8.3	9.5	19.4	Green	1 - No Smell
18/03/2026	7.8	1.2	20.7	Green	1 - No Smell	8.4	8.3	20.3	Green	1 - No Smell
19/03/2026	8.5	7.9	20.7	Green	1 - No Smell	7.8	4.5	20.6	Green	1 - No Smell
20/03/2026	9.1	18.8	22	Green	1 - No Smell	9.6	15.4	21.2	Green	1 - No Smell
21/03/2026										
22/03/2026										
23/03/2026	8.4	13.4	19	Green	1 - No Smell	9.6	16	20.5	Green	1 - No Smell
24/03/2026	8.6	12.6	18.8	Green	1 - No Smell	9.4	16.4	18.7	Green	1 - No Smell
25/03/2026	7.8	12.6	18.8	Green	1 - No Smell	7.6	5.8	18.4	Green	1 - No Smell
26/03/2026	7.2	1.7	19.1	Green	1 - No Smell	7	3.2	18.8	Green	1 - No Smell
27/03/2026	7.5	1	18.1	Green	1 - No Smell	7.3	2.2	17.9	Green	1 - No Smell
28/03/2026										
29/03/2026										
30/03/2026	7.4	0.6	18.6	Green	1 - No Smell	7.1	3.8	18.4	Green	1 - No Smell
31/03/2026	7.5	3.3	18.3	Green	1 - No Smell	7.4	5.7	18	Green	1 - No Smell
1/04/2026	7.4	4.34	15.8	Green	1 - No Smell	7.2	0.4	15.2	Green	1 - No Smell
2/04/2026	7.7	4.6	15.7	Green	1 - No Smell	7.7	8.8	15.3	Green	1 - No Smell
3/04/2026	7.7	5.1	16.2	Green	1 - No Smell	7.2	8.3	15.6	Green	1 - No Smell
4/04/2026										
5/04/2026										
6/04/2026	7.7	1.6	18	Green	1 - No Smell	7.7	7.9	17.8	Green	1 - No Smell
7/04/2026	7.7	2.5	18.9	Green	2 - Slight Smell	8.4	10.6	18.8	Green	1 - No Smell
8/04/2026	0	0	0	0	0	0	0	0	0	0
9/04/2026	7.4	8.4	21.3	Green	1 - No Smell	7.9	2.3	21.3	Green	1 - No Smell
10/04/2026	0	0	0	0	0	0	0	0	0	0
11/04/2026										
12/04/2026										
13/04/2026	0	0	0	0	0	0	0	0	0	0
14/04/2026	7.6	6.7	21.3	Green	1 - No Smell	7.2	7.2	21.3	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
15/04/2026	7.8	9.8	17.9	Green	1 - No Smell	8	8.8	16.8	Green	1 - No Smell
16/04/2026	7.6	5.9	15.6	Green	1 - No Smell	7.7	7.4	15.6	Green	1 - No Smell
17/04/2026	8.1	10	15.3	Green	1 - No Smell	8.3	10.1	15	Green	1 - No Smell
18/04/2026										
19/04/2026										
20/04/2026	7.9	9.5	16.1	Green	1 - No Smell	7.7	8.1	15.8	Green	1 - No Smell
21/04/2026	7.6	8.3	13.2	Green	1 - No Smell	7.4	6.3	13.4	Green	1 - No Smell
22/04/2026	7.6	6.5	12.1	Clear	1 - No Smell	6.6	5.25	12.4	Green	1 - No Smell
23/04/2026	7.7	8.3	11.9	Clear	1 - No Smell	7.5	5.7	11.9	Green	1 - No Smell
24/04/2026	7.7	8.9	11.4	Clear	1 - No Smell	7.7	9.4	11.6	Green	1 - No Smell
25/04/2026										
26/04/2026										
27/04/2026	7.7	9.7	13	Green	1 - No Smell	7.4	9.2	13.2	Green	1 - No Smell
28/04/2026	8	10.6	13.9	Green	1 - No Smell	8.1	12.8	14	Green	1 - No Smell
29/04/2026	7.8	9.1	14.4	Clear	1 - No Smell	7.9	8.8	14.3	Green	1 - No Smell
30/04/2026	7.8	8.7	15.4	Clear	1 - No Smell	7.8	6.4	15.2	Green	1 - No Smell
1/05/2026	7.8	8.5	15.3	Clear	1 - No Smell	7.8	7.2	14.9	Green	1 - No Smell
2/05/2026										
3/05/2026										
4/05/2026	7.7	9.4	12.6	Clear	1 - No Smell	7.4	8.4	12.5	Green	1 - No Smell
5/05/2026										
6/05/2026	7.5	9.3	14.2	Clear	1 - No Smell	7.3	5	13.8	Green	1 - No Smell
7/05/2026	7.7	12.6	15.4	Clear	1 - No Smell	7.4	7	15.4	Green	1 - No Smell
8/05/2026	7.7	9.2	15.5	Green	1 - No Smell	7.2	3.1	15.8	Green	1 - No Smell
9/05/2026										
10/05/2026										
11/05/2026	0	0	0	0	0	0	0	0	0	0
12/05/2026	7.9	9.5	12.5	Clear	1 - No Smell	7.3	2.8	12.6	Green	1 - No Smell
13/05/2026	7.9	8.6	12.4	Clear	1 - No Smell	7.3	5.1	12.4	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
14/05/2026	7.7	7.5	12.1	Clear	1 - No Smell	7.5	6.5	12.2	Green	1 - No Smell
15/05/2026	7.7	6.4	12.1	Clear	1 - No Smell	7.6	4.9	11.9	Green	1 - No Smell
16/05/2026										
17/05/2026										
18/05/2026	7.9	8.9	11.9	Clear	1 - No Smell	7.9	6.4	11.7	Green	1 - No Smell
19/05/2026	7.9	7.2	11.8	Clear	1 - No Smell	7.8	8.1	12.3	Green	1 - No Smell
20/05/2026	7.6	9.6	10.6	Green	1 - No Smell	7.4	9.1	10.7	Green	1 - No Smell
21/05/2026	7.7	8.2	11	Clear	1 - No Smell	7.5	7.7	10.6	Green	1 - No Smell
22/05/2026	7.6	8.5	12.6	Clear	1 - No Smell	7.7	8.7	12.6	Green	1 - No Smell
23/05/2026										
24/05/2026										
25/05/2026	7.7	6.4	11.5	Clear	1 - No Smell	7.7	6.9	11.3	Green	1 - No Smell
26/05/2026	7.5	7.8	20.4	Green	1 - No Smell	7.5	10.4	20.4	Green	1 - No Smell
27/05/2026	8.2	9.4	12.4	Green	1 - No Smell	8.5	13.2	12.7	Green	1 - No Smell
28/05/2026	8.5	7.9	13	Clear	1 - No Smell	8.3	8.9	13	Clear	1 - No Smell
29/05/2026	8.1	9.3	13	Green	1 - No Smell	8.6	12.9	12.9	Green	1 - No Smell
30/05/2026										
31/05/2026										
1/06/2026	8.12	8.57	13.9	Clear	1 - No Smell	8.18	7.55	13.9	Green	1 - No Smell
2/06/2026	8	7.9	14	Green	1 - No Smell	8	8.1	14.1	Green	1 - No Smell
3/06/2026	8.3	11.5	14.9	Green	1 - No Smell	8.6	7.6	14.9	Green	1 - No Smell
4/06/2026	7.7	10.1	14.4	Green	1 - No Smell	7.6	4.4	14.6	Green	1 - No Smell
5/06/2026	7.5	4.2	15	Green	1 - No Smell	7.6	4.9	15.1	Green	1 - No Smell
6/06/2026										
7/06/2026										
8/06/2026	7.9	5.3	13.9	Clear	1 - No Smell	7.8	6	13.9	Green	1 - No Smell
9/06/2026	7.6	3.7	12.3	Clear	1 - No Smell	7.6	3.1	12.4	Green	1 - No Smell
10/06/2026	7.71	4.96	11.2	Green	1 - No Smell	7.65	5.27	10.5	Green	1 - No Smell
11/06/2026	7.8	9.7	10.9	Green	1 - No Smell	7.9	9.7	10.6	Green	1 - No Smell

Date	Pond A Daily Observations					Pond B Daily Observations				
	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Pond Colour	Odour
12/06/2026	7.5	6.4	11.5	Green	1 - No Smell	7.4	6.7	11.4	Green	1 - No Smell
13/06/2026										
14/06/2026										
15/06/2026	7.7	4.6	13.3	Green	1 - No Smell	7.7	6.6	13.4	Green	1 - No Smell
16/06/2026	7.5	6.2	13.6	Green	1 - No Smell	7.5	7.2	13.4	Green	1 - No Smell
17/06/2026	7.15	3.74	12.4	Clear	1 - No Smell	7.1	5.46	12.4	Green	1 - No Smell
18/06/2026	6.8	3	12.2	Green	1 - No Smell	7.1	4.9	12	Green	1 - No Smell
19/06/2026	7.3	11.1	12.3	Green	1 - No Smell	7.8	8.2	11.2	Green	1 - No Smell
20/06/2026										
21/06/2026										
22/06/2026	5.1	3.9	13.4	Green	1 - No Smell	5.3	6.9	13.5	Green	1 - No Smell
23/06/2026	5.9	8.9	11.7	Green	1 - No Smell	5.1	6.1	11.9	Green	1 - No Smell
24/06/2026	7.8	7.1	11.2	Clear	1 - No Smell	7.9	5.9	11.6	Clear	1 - No Smell
25/06/2026	7.8	8.4	10.6	Clear	1 - No Smell	7.8	6.1	10.5	Clear	1 - No Smell
26/06/2026	7.9	6.6	10.4	Clear	1 - No Smell	7.8	5.9	10	Clear	1 - No Smell
27/06/2026										
28/06/2026										
29/06/2026	7.7	2.8	9.9	Clear	1 - No Smell	7.8	6.7	10.1	Clear	1 - No Smell
30/06/2026	7.8	4	9.5	Clear	1 - No Smell	7.9	6.3	9.3	Clear	1 - No Smell

Appendix B: Meter Verification Details

ABB MEASUREMENT & ANALYTICS | TEST REPORT

ABB Ability™

Verification for measurement devices



Verification Report for:

FEP300/500; FEH300/500

Measurement made easy

Measurement & Analytics
Service

Installation Details

Meter Owner	KCDC
Machine Name	OTAKI WWTP LDTA Flowmeter
Medium	WasteWater

Customer Details

Site Address	Kapiti Coast District Council
Telephone	
Email	

Operator Details

Date and Time	26-06-2023 10:43:42
Operator's Name	Admin
Operator's Signature	

Overall Status - Passed

The flowmeter has passed its internal continuous verification and automatic self-calibration. It is working within +/- 2% of original factory calibration.

ABB Ability Verification for measurement devices verifies the function of the measurement product within the specification limits over the lifetime of the device with a total test coverage > 90% and complies with the requirements for traceable verification according to DIN EN ISO 9001:2015 - section 8.5

Sensor Information	
Sensor Type	Process 300 series
Sensor Model	
Sensor Size	DN 150
Sensor Serial No.	1
Sensor SAP No	?
Sensor Tag	?
Measuring Range Qmax	250.000 l/s
User Span	100.000 %
Liner Material	PTFE
Electrode Material	Hastelloy C-4
Sensor Span Ss	200.100 %
Sensor Zero Sz	0.000 mm/s
First Calibration Date of Sensor	00:00:00 2000/01/01
Sensor Run Hours	9351hrs -27804mins
Actual Flow Rate	0.000 l/s

Transmitter Information	
Diagnosis Functions	Sensor Status
Empty Pipe	OFF
Sensor Measurement	OFF
Transmitter Serial No	124978
Transmitter SAP Order No	?
Tag Name	FIT-1001
Tx Firmware Version	D200S069U01_01.06.00
System Zero	0.000 mm/s
Run Hours	18736hrs 29696mins
Communication	FEX300 HART
Pulses per Unit	1.000 /m³
Pulse Width	200.000 ms

Summary Verification of the Sensor

Coil Group	PASS
Coil Resistance Factory Fingerprint	17.000 Ohms
Coil Resistance Measured	15.991 Ohms
Coil Current Measured	199.849 mA
Reference	62.867 mV
Cable Length	3.500 m

Electrode Group	PASS
Electrode Group Status	No Alarms

Sensor Group	PASS
Sensor Group Status	No Alarms

Pipe Status	INFO
Empty Pipe	**ON**
Detector	1850 Hz
Threshold	3000 Hz

Totalizer Information

	Start	End	Difference
Forward	1480349.000 m³	1480349.000 m³	0.000 m³
Reverse	0.637 m³	0.637 m³	0.000 m³
Net	1480348.000 m³	1480357.000 m³	9.000 m³

Summary Verification of the Transmitter

Output Group	

Current Output 31/32		PASS
Applied	**Measured**	**Result**
4 mA	4.000 mA	PASS
12 mA	12.000 mA	PASS
20 mA	20.000 mA	PASS

Digital Output 51/52		PASS
Applied	**Measured**	**Result**
5000 Hz	5000.000 Hz	PASS
2625 Hz	2625.000 Hz	PASS
1000 Hz	1000.000 Hz	PASS

Digital Output 41/42		NOT EXECUTED
Applied	**Measured**	**Result**
5000 Hz		
2625 Hz		
1000 Hz		

Digital Input 81/82	NOT EXECUTED
Transmitter Group	**PASS**
Transmitter Group Status	No Alarms

Transmitter Calibration Verification			PASS
	Fingerprint	**Measured**	**Result**
10 m/s	10.181450 m/s	10.179650 m/s	PASS
5 m/s	5.078596 m/s	5.067461 m/s	PASS
Common Mode Rejection	-0.001262	-0.009602	PASS

Signal Quality		INFO
NV resets	0 /s	Info Only
Signal Quality (SNR)	70.000 dB	Info Only

Comments (Installation, Grounding etc.)

1st Verification

Verification Certificate has been generated by ABB Ability Verification for measurement devices variant "Licensed software testing" (ABB FEP300/500; FEH300/500 VDF Version 03.37).

ABB Ability Verification for measurement devices Version 04.00.00.7

—

To find your local ABB contact, visit:

abb.com/contacts

For more information, visit:

abb.com/measurement

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ABB

Flow Meter Calibration Verification Certificate

Customer Information		Meter Information	
Customer:	Owner	**Meter Owner:**	Owner
		Meter Type:	MagMaster
		Sensor Size / Pipe ID:	250 mm
CalMaster2 Owner:		**Pipe Status:**	Full
		Sensor Serial No.:	P/50589/5/4
Verification Date:	5/22/2023 10:47:13 PM	**Transmitter Serial No.:**	vkh022497
Report Date:	6/29/2023 11:16:35 AM	**Tag:**	TxmTag
		Location:	Location

Overall Meter: Passed

The test results verify that this flow meter is functioning within normal working limits, and is within +/-2% of original calibration certification.

Summary of Results	
Coil Group:	Passed
Electrode Group:	Passed
Sensor Group:	Passed
Transmitter Signal Group:	Passed
Transmitter Driver Group:	Passed
Transmitter Output Group:	Passed

Totaliser Information

	Start:	End:	Difference:
Fwd: (m^3)	11076140	11076148	8
Rev: (m^3)	16035	16035	0
Net: (m^3)	11060105	11060113	8

CalMaster Information		Post-Processing Information	
Serial No.:	v/cm22200-2	**CalMaster2 Version:**	1.00.1062
Firmware Version:	CM1.0.1099	**Scripts Version:**	1.01.2017
Test Script Version:	Issue 20	**Processing Script Version:**	8/14/2022 8:07:30 AM
		Download Date:	6/29/2023 10:40:27 AM
Next Calibration Date:	12/12/2023 12:30:10 PM	**Number of Tests Scored:**	2

CalMaster is fully traceable to National and International Standards.
For details refer to CalMaster Traceability Documentation.

Installation Comments:

6/29/2023 11:16:35 AM

Date/Time: _____ **Operator Signature:** _____ **Print Name:** _____

QSTA1358 Iss.2

World Flow Technology Centres

ABB Ltd. **ABB Inc.** **ABB Australia Pty Ltd.** **ABB Automation GmbH.**

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Appendix C: Incident Notification

M E M O

TO:	Joshua Knowles, Senior Resource Advisor, Environmental Regulation, Greater Wellington Regional Council (GWRC)
FROM:	Tess Drewitt, Compliance Consultant for Water & Wastewater Infrastructure, Kapiti Coast District Council (Council)
DATE	24 September 2025
SUBJECT:	WGN160002: Incident Report – Water Meter Reporting Issue

1. Purpose

This memo provides an incident report of a water meter reporting issue that has come to the Kapiti Coast District Council's (Council) attention relating to the recording and reporting of effluent discharged to the Land Discharge and Treatment Area (LDTA) at the Ōtaki Wastewater Treatment Plant (WWTP) in accordance with resource consent WGN160002.

2. Background

The Council holds resource consent WGN160002 from Greater Wellington Regional Council (GWRC) to discharge treated effluent to the LDTA at the Ōtaki WWTP. Key elements of the resource consent relevant to this report are:

- The consent authorises a maximum discharge rate of 2,820 m^3/day (Condition 9).
- The Council is required to maintain flow meters at the inlet to the WWTP and outlet to the LDTA. The meters must be accurate to within +/- 5% (Condition 12).
- The meters must be verified at least every 5 years (Condition 13).

3. Discharge Meter Recording & Reporting

(a) <u>How the Meter records flows</u>

The Council uses an electromagnetic flow meter to measure how much treated effluent from the WWTP is discharged to the LDTA. This meter gives two types of information:

- Instantaneous Flow Rate – This shows how fast water is flowing at any moment, measured in litres per second (L/s). This data updates constantly.
- Totalised Volume – This shows the total amount of water discharged over time, measured in cubic meters (m^3). It increases step-by-step as the meter sends pulses to the SCADA system. The total starts at zero when the meter is first installed and grows with each pulse. The 24-hours total is reported to 3PM every day.

The SCADA system receives three key signals from the meter. Although recorded every second within the meter, these values are sent from the Meter Programmable Logic Controller (PLC) every minute to the SCADA Server:

- OS_Effluent_Flow.PV – the current flow rate (L/s).
- OS_Effluent_Flow.Total_Yesterday – the total volume discharged in the previous 24 hours (3PM to 3PM).
- OS_Effluent_Flow.Total_Today – the running total for today's discharge.

(b) How Volumes Are Calculated for this Analysis

To compare the flow rate with the total volume:

- Council staff download SCADA data on to a spreadsheet that converts the instantaneous flow into volume by multiplying the flow rate by 60 seconds (1 minute), then by 10 minutes, and dividing by 1000. This gives the volume in cubic meters (m^3) for each 10-minute period.
- To calculate a corresponding 10-minute volume based on the running total, the totalised volume of the previous 10-minute total is subtracted from the current one. This shows how much water was discharged during that time.

To carry out an analysis daily, the daily totaliser (**OS_Effluent_Flow.Total_Yesterday**) can be compared by summing up the 10-minute instantaneous derived data volumes from the previous day.

(c) Why the Numbers Can Be Different

The meter and SCADA system process data in different ways:

- The meter totaliser gives a direct and accurate record of how much water was discharged.
- The Meter PLC records the raw analogue value (4-20 milliamp signal) and converts this signal to a readable instantaneous value. This signal is then sent to the SCADA Server where it is recorded and displayed on a graphic interface. This data is extracted from the SCADA Server via Water Outlook. A spreadsheet exports 10-minute data that provides an average flow rate during that 10-minute period rather than the instantaneous flow at each 10-minute time period.

Because of short-term changes, like pump cycles, SCADA might show a higher average flow than what the meter recorded at the same time. Over a full day, the instantaneous and totaliser values may not match exactly but typically will be a good match.

(d) Which Data Is Used for Compliance

The WWTP relies on the totalised meter output (**OS_Effluent_Flow.Total_Yesterday**) to ensure discharge stays within consented limits. These readings are considered the most accurate as they count every single cubic meter of water passing through the meter and can be checked on the meter display by recording the difference between cumulative totaliser figures on consecutive days.

4. Non-Compliance With Discharge Limits

As part of preparing the 2024-25 Annual Report, Council staff identified a discrepancy between the totaliser daily flows (**OS_Effluent_Flow.Total_Yesterday**) and the SCADA spreadsheet data. WWTP staff investigated this discrepancy and found that the signal coming from the WWTP discharge meter was too fast. The totaliser pulse width (or signal) was set to 200 milliseconds but the Meter PLC checking for signals was looking every 300 milliseconds. This meant that the Meter PLC was missing signals and under-reporting the meter totaliser volumes sent back to the SCADA (i.e. the signal would come and go before the Meter PLC even noticed it).

Figure 1 shows the historic daily effluent flows since January 2020 as recorded by SCADA – the green line shows the meter totaliser and the yellow line shows the derived daily flow (using effluent instantaneous flows), as reported in SCADA. **Figure 1** shows that, prior to June/July 2023, the yellow and green lines follow each other closely, which we would expect if the Meter PLC was reading the meter accurately accounting for all pulses. However, from around June/July 2023, we can see a discrepancy between the yellow and green lines, indicating that Meter PLC started under-reporting totalised volumes from this time.

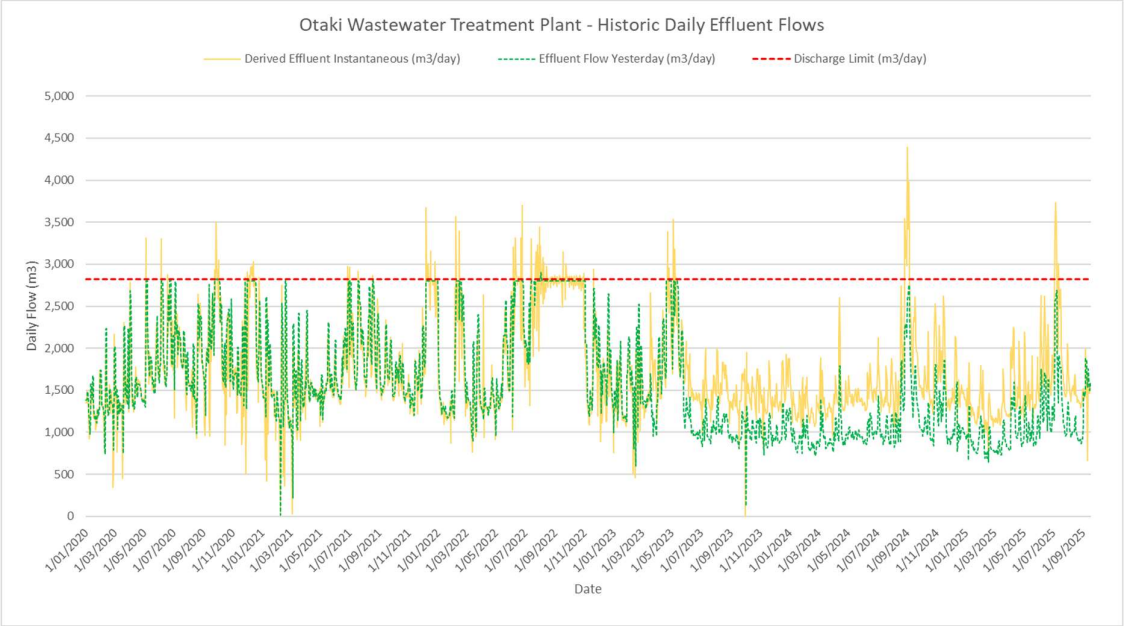


Figure 1: Otaki WWTP - Historic effluent flows

When we compare influent flows with effluent flows over this same period, **Figure 2**, we can see that the derived effluent instantaneous flow closely aligns with influent flow. The derived effluent instantaneous rates appear to be a more accurate representation of actual flow rates than the Meter PLC totaliser recordings for this period (i.e. post mid-2023).

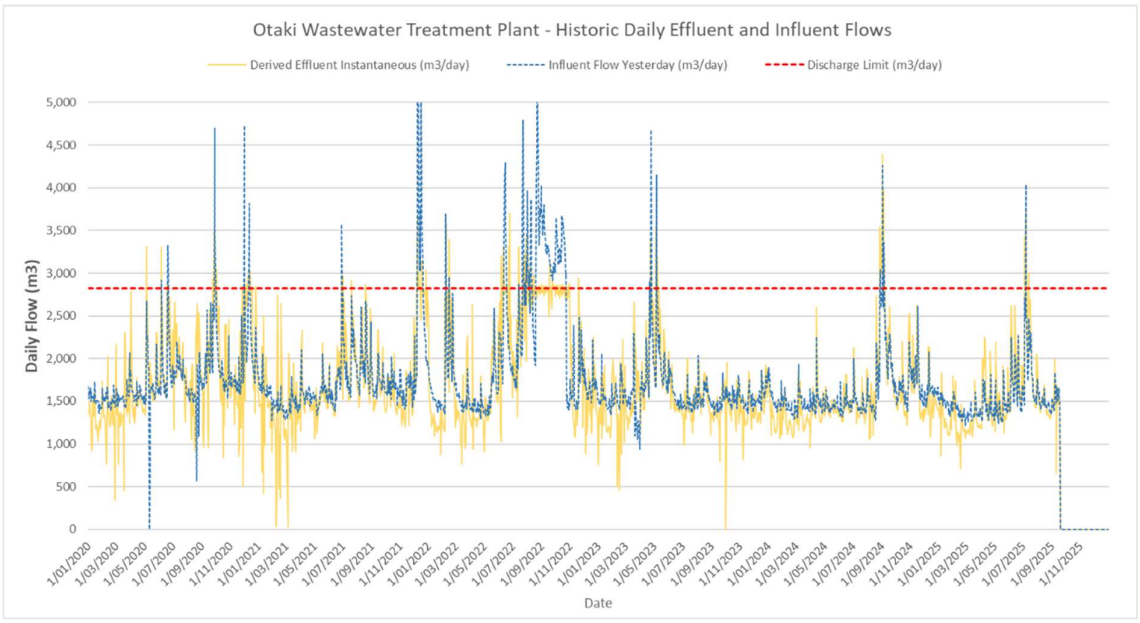


Figure 2: Otaki WWTP - Influent and Effluent flows

5. Cause of Exceedances

We believe the signal error started in mid-2023 after the WWTP discharge meter was moved and recalibrated. While the meter was verified as accurate on 26 June 2023, as required by the resource consent, the verification did not involve ensuring that the Meter PLC was accurately configured with pulse width rates to meet the max flow of 250 L/s. As such, the signal recording issue was not identified as part of the verification process.

6. Extent of Exceedances

We have analysed the derived effluent instantaneous flow data and can see from **Figure 1** that instantaneous flow exceeded the consented limit on several occasions since mid-2023. We therefore assume that the discharge limit of 2,830m^3/day was exceeded at these times. This is because the "shut-off" is based on Meter PLC totaliser recordings and not the derived instantaneous rate, and as Meter PLC recordings were underreporting, the system would not have known that the discharge limit had been reached and to shut-off.

Table 1 shows that the 2820 m^3/day discharge limit was potentially breached up to 10 times in 2024/25, totaling 6,640m^3 treated effluent discharged above the daily consented limit. This represents 1.1% of the annual volume discharged to the LDTA in 2024/25 of 582,570 m^3. **Table 1** shows no breaches in 2023/24. Prior to June/July 2023 (i.e. including 2022/23), for reasons discussed above, we believe that the totaliser record was a more accurate record of effluent flows. The 2022/23 Annual Report includes discussion around limit exceedances in that year as recorded by the Meter PLC.

Year	Annual Effluent Flow Yesterday (m3)	Derived Annual Effluent Instantaneous (m3)	Annual Influent Flow Yesterday (m3)	Derived Annual Influent Instantaneous (m3)	Days Totaliser >2820	Days Instantaneous >2820	Volume Instantaneous >2820
2022/2023	741,689	736,975	773,157	780,646	2	56	7,073
2023/2024	364,330	518,747	551,367	559,661	0	0	0
2024/2025	410,226	582,570	582,405	591,881	0	10	6,640

Table 1: Level of exceedance each year (days and volume)

7. Potential Adverse Effects From Exceedances

The LDTA has a limited capacity for land treatment of effluent, and the maximum daily discharge rate was calculated to ensure this capacity is not exceeded. As such, any exceedances of this rate could potentially affect the LDTA's ability to treat effluent, which could have flow-on effects on ground and surface water quality, as evidenced through data from monitoring bores and the spring.

We have analysed the monitoring data from the groundwater bores and spring before and after the underreporting issue to determine if there has been any decrease in water quality that could be attributable to the issue. The analysis compared water quality data before the meter failure (May 2021–June 2023) and after (July 2023–September 2025), including averages, maximums, 95th percentiles, and annual medians. In summary:

- Dissolved Reactive Phosphorous (DRP) is considered the best indicator for the LDTA performance, and the results from 2021 – July 2025 indicate that DRP has stabilised or improved over this time. The charts provided in **Appendix A** show these trends; **Appendix B** shows the location of the monitoring bores.
- Overall, nitrate concentrations were lower post-failure across most bores and the spring, except Bore 4 which showed a small increase (still well within the 11.4 g/m^3 limit in Condition 19), which could also be attributable to surrounding land uses.
- E.Coli levels have increased post-failure, particularly in Bore 3, which had already shown higher results pre-failure. Further investigation as to the cause of this increase could be warranted, however, we note that the consent does not specify a limit for E.Coli in Bore 3.

Based on this initial analysis, the exceedance does not appear to have resulted in any adverse effects on groundwater or spring water quality. We continue to monitor the discharge quality and groundwater in accordance with consent requirements and report results to GWRC quarterly and in the Annual Report.

8. How the Issue Has Been Resolved

We expect that the meter records discharge rates accurately as it was verified in June 2023. However, the issue relates to how Meter PLC is reading these recordings. Council staff have since rectified this to ensure that the Meter PLC is reading pulses more regularly and accurately. **Figures 2 and 3** show the cumulative totaliser (i.e. meter readings) and cumulative instantaneous before and after the issue was rectified. **Figure 3** shows that the totaliser and instantaneous are now recording the same values.

The WWTP staff will also regularly check actual meter readings against the SCADA readings to ensure these are consistent. Council will also investigate alert options when the manual meter readings differ to those stored in SCADA. The alert will act as a trigger to investigate the discrepancies. Options to capture the meter reading through the telephonic network is being discussed with ABB. If achieved, this arrangement enables the auditing of the meter reading with the calculations through PLC.

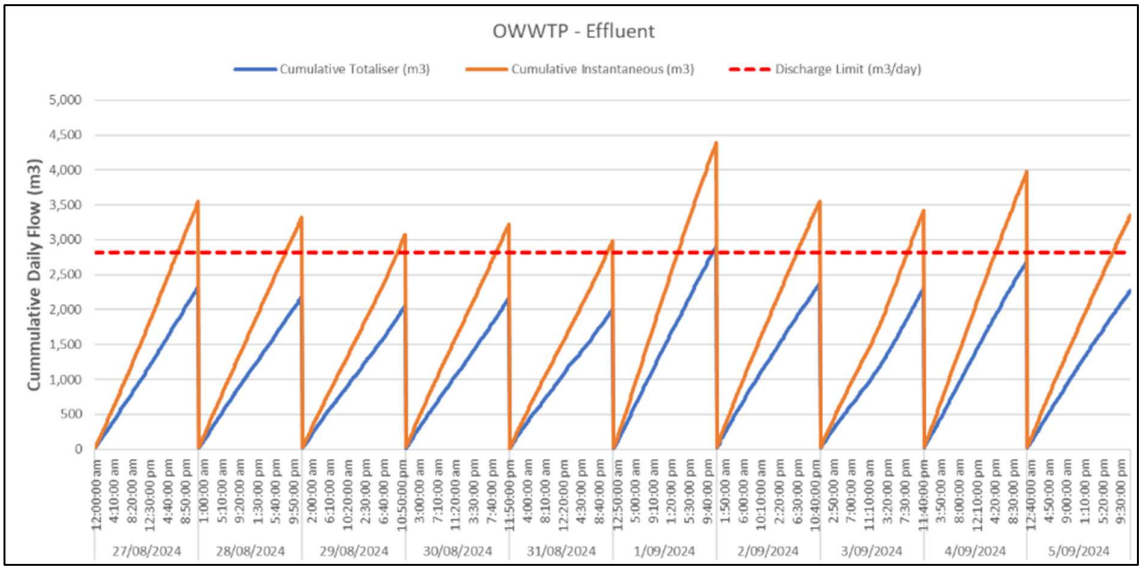


Figure 3: WWTP meter recordings – August 2024

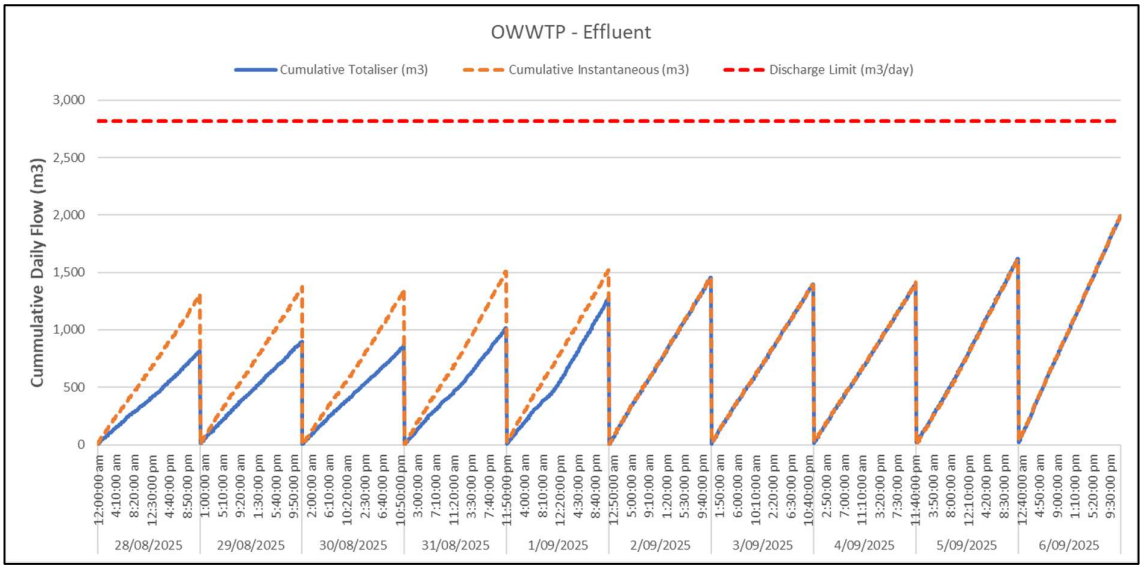


Figure 4: WWTP meter recordings - Aug/Sept 2025

Going forward, all meter verifications will include checking that the Meter PLC is submitting a complete and accurate dataset to the SCADA system.

9. Next steps

We have prepared the Council's Annual Report for 2024-25, which is due on 30 September 2025. We will include SCADA data within this report, noting that this incident report will be attached as an addendum. We have discussed this non-compliance with Caleb Royal from Ngā Hapū o Ōtaki and will include him in all communications to GWRC. We will also highlight the non-compliance with the Community Liaison Group (CLG) as part of the Annual Meeting, which will be scheduled for November 2025.

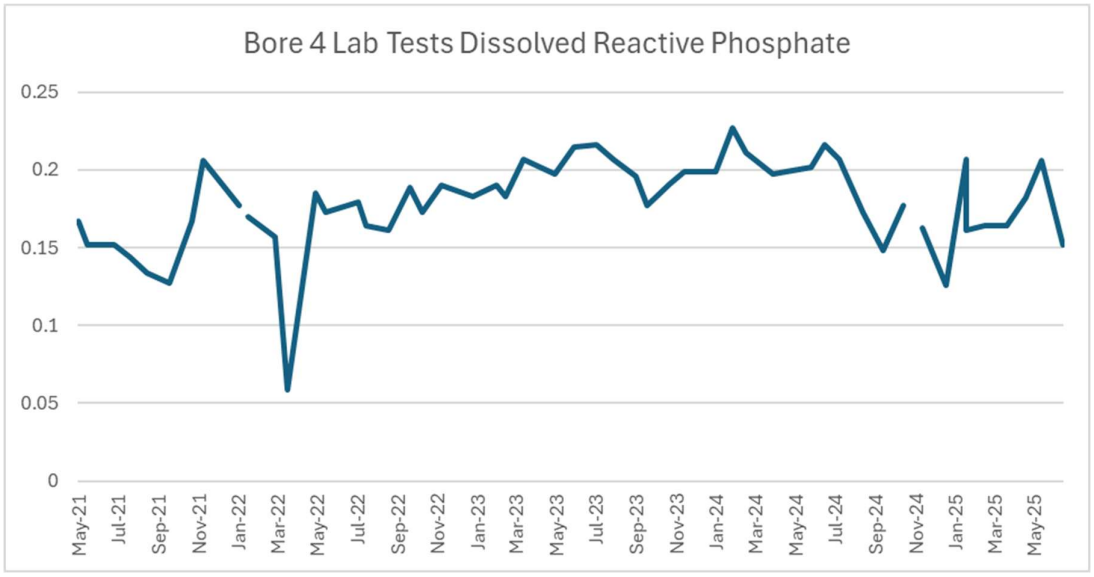
We are happy to meet and discuss this incident report further with you.

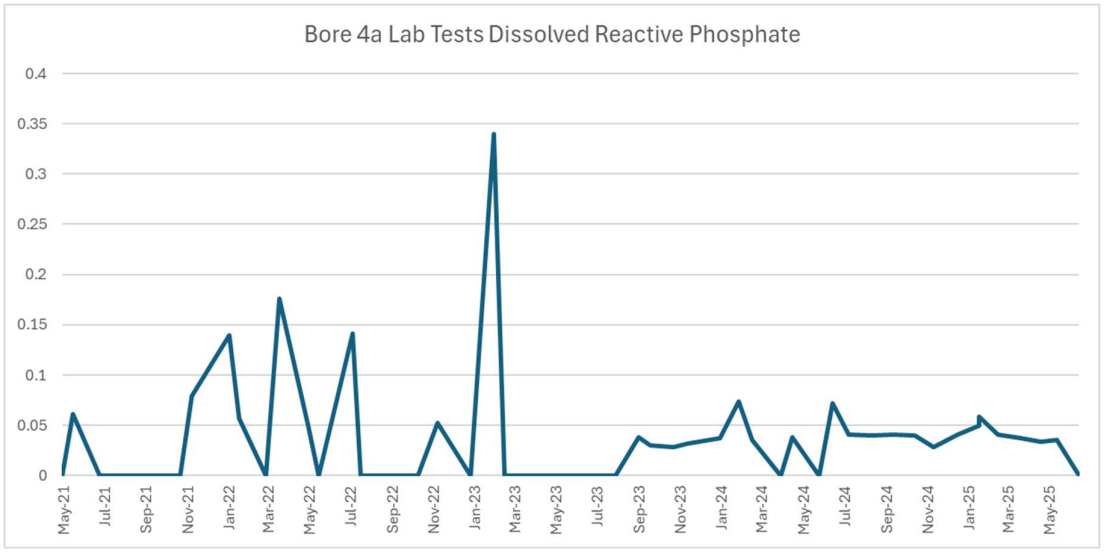
Nga mihi nui,

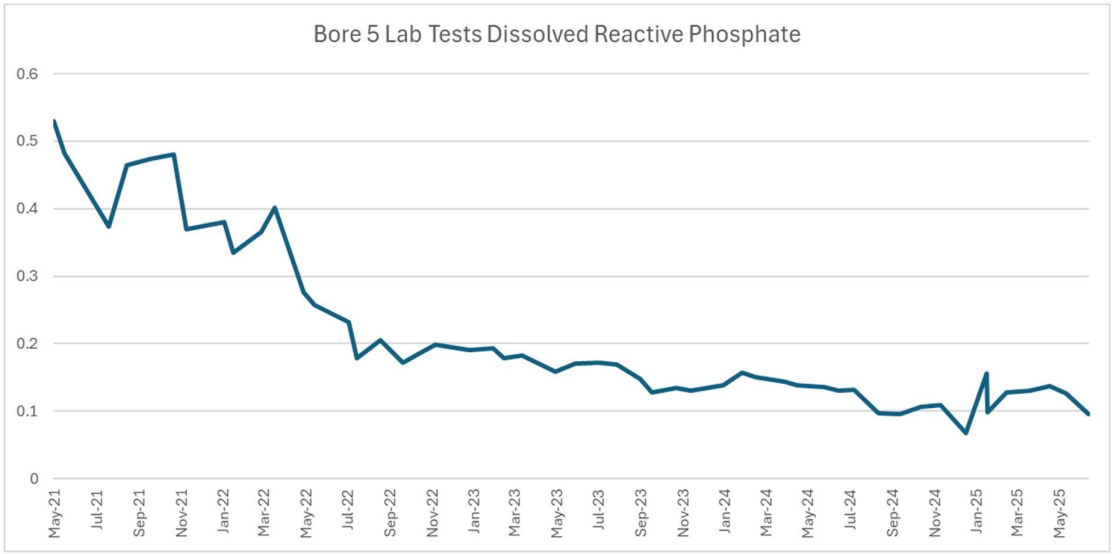


Tess Drewitt
Compliance Consultant to
Kapiti Coast District Council

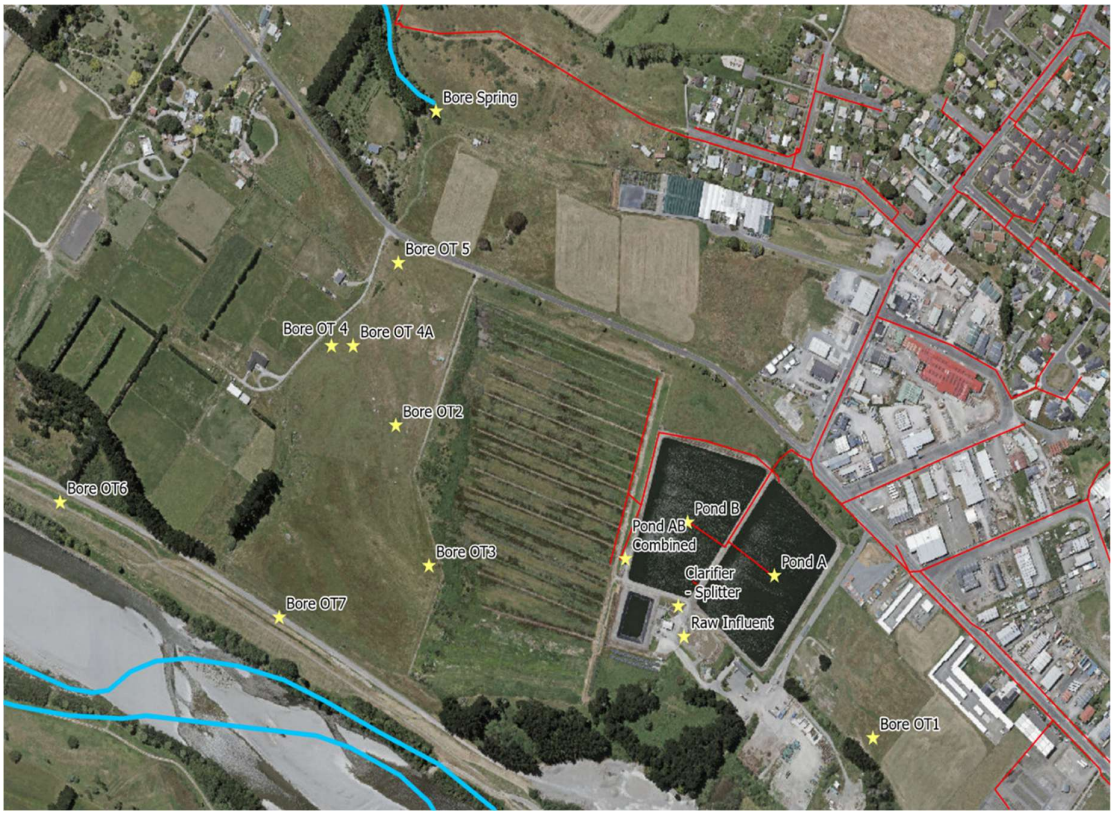
Appendix A: DRP Data Trends in Groundwater







Appendix B: Monitoring Locations



Outlook

WGN160002 - Non-compliance notification

From Tess Drewitt <Tess.Drewitt@kapiticoast.govt.nz>
Date Fri 19/09/2025 4:17 PM
To Joshua Knowles <joshua.knowles@gw.govt.nz>
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Kia ora Josh,

The Otaki WWTP resource consent requires the Council to regularly monitoring the quality of the effluent discharged to the LDTA. Condition 17 includes several limits for various contaminants that the discharge must comply with in any consecutive 12-month period. Yesterday the SCADA system alerted us to the fact that Limit 2 for Ammoniacal Nitrogen (NH4-N) has now been exceeded 3 times in a 12-month period, where the resource consent only authorises 2/12 exceedances.

The following table shows these exceedances:

Otaki WWTP - Effluent Pond Samplying Results - October 2024 - September 2025

Limit 1 (not exceed >8/12	23 g/m3
Limit 2 (not exceed >2/12	30 g/m3

	Ammonia
	g/m^3
17/10/2024	25.9
20/11/2024	20.5
18/12/2024	20.1
14/01/2025	15.8
12/02/2025	22.6
6/03/2025	24.9
2/04/2025	23.5
9/05/2025	27.9
12/06/2025	34.8
16/07/2025	28.2
12/08/2025	30.4
18/09/2025	32.2

NH4-N in the effluent typically rises and falls with temperature, and we see this seasonal pattern regularly. However, levels are looking higher than last year. The Annual Report has some analysis on exceedances over the 2024-25 year and why these might have occurred. The aeration lagoon plays a critical role in converting ammonia to nitrates. The Council has undertaken works over the past couple of years that have required the aeration lagoon to be bypassed. Additionally, the most recent Otaki WWTP

capacity report noted that the aerators in the lagoons have reached their capacity and require replacing to improve DO in the lagoon.

The Council has been working through a programme of works to do this, which started with sealing the aeration lagoon earlier this year. Council is progressing with design for new aerators and will be going to the market later this year to get this work done as soon as possible. Rest assured, it's something everyone is working on to address the ongoing issue with ammonia and DO in the lagoons.

We will provide some more commentary on this in the quarterly report next month, and you'll also see the discussion in the Annual Report once that's submitted.

Please let me know if you have any questions in the mean-time.

Nga mihi,

Tess Drewitt
Contractor to Kāpiti Coast District Council

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