



THREE WATERS ACTIVITIES REPORT JULY, AUGUST & SEPTEMBER 2023

July, August & September 2023 Report

Christchurch City Council | October 2023

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COMPLIANCE AND QUALITY ASSURANCE

Health Safety and Wellbeing

In total there were 153,999 hours worked over the months of July, August and September 2023. This covers Three Waters contractors that work on Three Waters projects.

A total of 84 events were reported. These events include 48 near misses, eight first aid injuries and one lost time injury:

- Grounds & Services Limited – GSL employee was starting the plate compactor and due to human error, he sustained an injury to his nose. Treatment was provided at Hornby Medical Centre, and he returned to work. Discussed at Toolbox Talks and discussion with employee on how to avoid this happening in future.

Please see appendix 1 for the detailed statistics.

Resource consents

Three Waters Unit holds more than 200 resource consents from Environment Canterbury for day-to-day operations and for capital projects to construct new infrastructure:

- 49 for water supply
- 54 for wastewater
- 118 for stormwater

There are no current enforcement actions or significant non-compliances against any of our resource consents.

Comprehensive Stormwater Network Discharge Consent (CSNDC - CRC231955)

On the 5 October 2023 as part of ECan’s 6 monthly monitoring review, the CSNDC was ranked as “Non-Compliance Action required”. This monitoring report listed 8 of the 65 consent conditions that the Council was either failing to comply with or required action in the next 3 months. Council staff are currently working to address these non-compliance issues and to complete them within ECan set deadlines.

Two of the non-compliant conditions are related to Erosion and Sediment Control (ESC) measures, and ECan has requested the Council to submit a Remediation Action Plan to address this matter. The Plan in the below table aims to provide a roadmap for Council to undertake actions to improve Erosion and Sediment Control implementation, monitoring and reduce sediment discharges from residential building sites.

Action	Timeframe	Details
Improving ESC inspections and	began August 2023	Quality and Compliance, Building Inspections and RMA compliance teams are now working collaboratively to improve the quality of ESC inspections at residential building sites and follow up enforcement actions for non-

Action	Timeframe	Details
enforcement actions		complying sites. Council's subdivision engineers are also being consulted around improving ESC performance on larger development sites
More staff out in the field	from November 2023	Currently the majority of ESC inspections are undertaken by Building Inspectors as part of the building consent process. To supplement these inspections and provide wider coverage and higher frequency of ESC inspections, four Quality Assurance Officers will begin visiting high-risk building sites to check for any sediment-laden discharges into the Council's stormwater network. Findings from these inspections will be fed back to the Building Inspections and RMA Compliance teams for follow-up actions, if required. Council and ECan are currently organizing a joint ESC training workshop for their staff to increase their expertise in this field.
Building industry engagement programme	between March and June 2024	Next year, the Council will be launching an industry engagement programme for the residential construction sector to highlight the issue of sediment runoff from building sites and to promote best ESC practice. This industry engagement programme will be tailored for project managers at large residential construction companies and will involve workshops at their company offices.
ESC on small sites brochure	from December 2023	An educational brochure has been developed (based on Auckland Council) to highlight the issue of sediment discharges from small scale building sites and to promote best practice ESC measures. The brochure's target audience is builders and contractors undertaking earthworks on single lot developments. These brochures will be issued along with the hard copies of all residential building consents by Council's Building Support team and will also be used for the industry engagement programme.
Plan Change 17	from late 2023 to mid. 2024	District Plan Change 17 aims to address several issues involving land development and housing, one of which is improving the health of the city's waterways by reducing sediment runoff from residential building sites. The current District Plan rules make it difficult for Council to monitor and enforce building sites discharging sediment, and so a plan change may be required to give the Council the ability to address this issue more thoroughly. Depending on the timeframes of Plan Change 17, its outcomes and changes to the District Plan will be shared via the industry engagement programme.
Follow-up residential building sites survey	September 2025 to May 2026	To measure the success of the Erosion and Sediment Control Remediation Action Plan and identify areas for improvement, a follow-up residential building sites survey will be conducted using the same methods as the 2022 survey. The follow up surveys will be undertaken over the

Action	Timeframe	Details
		Spring of 2025 and findings will be released in a report by May 2026.

Drinking Water Compliance

A Water Safety Plan documents a public health risk assessment and management process to ensure a safe and secure supply of drinking water for consumers, protecting public health.

Under the Water Services Act 2021, a Water Safety Plan and a Source Water Risk Management Plan (the Plans) are compulsory for all water supplies from November 2022, independent of the population served. The Plans were submitted to the regulator Taumata Arowai in November 2022 and are currently under internal review to update them with the new regulatory framework, upgrades, or any significant system change. The regulator will review them against the Water Services Act requirements and monitor ongoing compliance.

New drinking water standards and rules exemption processes

Taumata Arowai approved new Drinking Water Quality Assurance Rules (Rules), Drinking Water Standards (Standards) and Aesthetic Values in July 2022, which came into effect on 14 November 2022. The Standards set the Maximum Acceptable Values (MAVs) for a range of determinants which can affect the safety and quality of drinking water. The Council has been complying with the new reporting requirements since 1 January 2023 as required by Taumata Arowai.

Drinking water suppliers can apply for exemptions from some Water Service Act 2021 requirements.

Residual disinfection exemptions

Drinking water suppliers with piped supply networks may apply for exemptions from supplying drinking water without using residual disinfectants (e.g. chlorine) or from complying with certain requirements (e.g. chlorine contact time, continuous monitoring, etc.). An exemption may apply to all or a part of a supply. An exemption can only be granted if it is consistent with the main purpose of the Water Services Act 2021 and if all other legislative requirements will be complied with, including the duty to provide safe drinking water.

The Council has applied for two residual disinfection exemptions:

1. Brooklands/Kaingā: to provide unchlorinated water. The exemption application was lodged in September 2022.
2. Christchurch: to not comply with contact time values and continuous online monitoring (contact time (C.t) value is the minimum time required for the water to be in contact with chlorine for bacteria inactivation). The exemption application was lodged in October 2022.

Taumata Arowai staff provided to Council a draft report recommending declining both applications. On 30 of June, the Council submitted feedback on the draft report to Taumata Arowai, which is currently under their review to make a final decision on the applications.

Risks of being non-compliant with Drinking Water Standards (DWS) and rules

The new rules framework provides new and different requirements to achieve compliance, and the Council is working continuously to achieve it. However, some of the requirements were not ready when the rules came into force as they need specific budgets and projects that cannot be addressed within such a short timeframe.

Government water regulator Taumata Arowai wrote to the Council outlining its expectation that protozoa treatment barriers are put in place for water supplies that draw from bores with a depth less than 30m. It set deadlines of 30 June 2024 for plans to be in place, and 31 December 2025 for barriers to be installed and operating in Christchurch and Wainui water supplies.

However, the Council expects to be able to demonstrate Class 1 status for most of Christchurch water supply, which means it will comply without having to install protozoa treatment barriers. Class 1 status can be achieved when the water source is drawn from deeper than 30m, the well heads meet the requirements to be considered a sanitary bore, and an intensive sampling programme is completed.

Out of our 148 registered sources in Christchurch, only 11 cannot be considered for Class 1 status as the wells are too shallow or remain in underground chambers.

Projects to address the 11 Christchurch sources that can't be considered for Class 1 are planned or underway. These include:

- Projects have begun to deepen shallow wells at Montreal and Woolston pump stations.
- Five water sources in the Mairehau, Burwood and Averill pump stations can be permanently taken out of service once rezoning is complete.
- Two sources at Kerrs pump station will be replaced as part of a planned treatment plant replacement programme.
- Two sources at Tanner pump station need a protozoa treatment barrier (UV) installed.

In addition to the 11 Christchurch projects, the Wainui treatment plant also needs a protozoa treatment barrier (UV) installed.

Council staff are working on plans for the Wainui and Tanner upgrades, which need to be prioritized to be complete by the December 2025 deadline.

These will be included in the Long Term Plan 2024-34, which will be considered by the elected council next year.

Potential non-compliances with the new rules are detailed in the table below.

SUPPLY	AREA OF POTENTIAL NON COMPLIANCE	REASON	ESTIMATED DURATION OF NON-COMPLIANCE	PROPOSED MITIGATION
Christchurch	Water treatment plants (pump stations) will be protozoa non-compliant	Not achieving class 1 or interim class 1 source water or not having UV treatment in each pump station.	Until December 2025 (as per Taumata Arowai deadline)	Consider decommissioning or installing UV treatment systems in all pump stations that will not achieve class 1 status due to having below ground wellheads and/or well screens located less than 30m below ground.
	Water treatment plants will be bacterial non-compliant.	Not having proper sampling points to sample conductivity, pH and turbidity before treatment.	1 year	Install dedicated sampling points inside the pump stations and before any form of treatment
		Not having online monitoring for FAC, pH and turbidity after treatment.	5 years after approved in the LTP	An exemption application for continuous monitoring to Taumata Arowai was submitted.
		Not comply with contact time (C.t)	Ongoing	An exemption application for continuous monitoring to Taumata Arowai was submitted.
Akaroa	Water treatment plant will be bacterial non-compliant	Lack of controls/ analyzers to meet disinfection rules (turbidity on water leaving the treatment plant, pH after chlorine contact time, etc.)	2 years after approved in the LTP	
Little River	Water treatment plant will be bacterial non-compliant	Lack of permanent residual disinfection setup at the treatment plant	2 years after approved in the LTP	
	Water treatment plant will be protozoa non-compliant	Lack of UVT and additional turbidity continuous monitoring at the treatment plant.	Until December 2025 (as per Taumata Arowai deadline)	
Duvauchelle	On-going non-compliance	Lack of adequate treatment	Until a new water treatment plant is well established.	

SUPPLY	AREA OF POTENTIAL NON COMPLIANCE	REASON	ESTIMATED DURATION OF NON-COMPLIANCE	PROPOSED MITIGATION
Pigeon Bay	Water treatment plant will be bacterial non-compliant	Lack of permanent residual disinfection setup at the treatment plant	2 years after approved in the LTP	
Wainui	Water treatment plant will be non-compliant	Shallow depth of screen (<30m) means will not be able to meet Class 1	Until December 2025 (as per Taumata Arowai deadline)	Additional treatment required. Filtration and UV treatment followed by permanent chlorination
Birdlings Flat	Water treatment plant will be bacterial non-compliant	Lack of filtration and permanent residual disinfection setup at the treatment plant	5 years after approved in the LTP	
All Banks Peninsula water supplies	Distribution zones may be bacterial non-compliant	Not feasible to undertake enhanced FAC sampling in the long term with the frequency required	N/A	Setup continuous monitoring points across all the networks. Estimated time: 5 years after approved in the LTP.
All water supplies	Water supplies are non-compliant due to inadequate water quality monitoring.	It is not feasible to manage water quality data without dedicated software that links Laboratory data with Taumata Arowai and Council's requirements.	1 year after rules are approved	Engage with external suppliers to provide software for sampling schedule and monitoring. Currently a 6 month pilot has been contracted.
	Water supplies non-compliant due to inadequate use of hydrants by approved (and not approved) contractors (for water deliveries, use in construction etc.)	New Rules restrict access to hydrants to FENZ, other emergency services and the water supplier (but only as part of normal operation of the supply, e.g. flushing, etc.)	5 years after approved in the LTP	Initial planning for dedicated water supply stations underway. Will continue current approved standpipe scheme.

FINANCIAL OVERVIEW

The numbers

Financial Results – Three Waters – July - Sep 2023				
Cost Element (\$000's)	July-Sep 2023 (P1-3)			
	Actual	Budget	Variance	%
Term Rental	(17)	(61)	(43)	-72%
Entry/Usage Fees	(2,149)	(2,615)	(466)	-18%
Professional Services	(179)	(259)	(81)	-31%
Product and Information Sales	(5)	(4)	1	15%
Cost Recoveries	(84)	(243)	(159)	-65%
Controllable Revenue	(2,433)	(3,182)	(748)	-24%
Personnel Costs	4,971	5,463	492	9%
Office Expenses	59	39	(20)	-52%
Grants and Levies	0	4	4	100%
Professional Advice	719	1,119	400	36%
Operating Costs	4,449	3,877	(572)	-15%
Maintenance Costs	9,721	9,348	(373)	-4%
Internal Reallocations	(1,941)	(1,700)	241	-14%
Controllable Costs	17,977	18,150	172	1%
Controllable Net Cost of Service	15,544	14,968	(576)	-4%
Non-Controllable Internal Reallocations	5,875	5,874	(1)	0%
Depreciation Expense	41,585	41,564	(21)	0%
Insurance and Rates	24,361	27,135	2,774	10%
Non-Controllable Costs	71,820	74,573	2,753	4%
Total Net Cost of Service	87,364	89,541	2,176	2%

Controllable revenues – year to date \$0.748m less than budget:

The under-budget variance is mostly timing in respect of Excess Water Charges \$545k (mainly seasonality of residential excess water). The cost recoveries \$159k variance is being investigated.

Controllable Costs - \$0.172m over budget

Personnel Costs - \$492k under budget as a result of ongoing vacancies. Current FTE is approximately 180 compared to a plan of 200.

Professional Advice costs - \$400k under budget as a result of limited engagement of consultants across the business.

Operating Costs – over budget by \$572k mainly due to overspend on Service contracts \$156k (Chlorination costs), Fuel \$142k (seasonal spend - timing) and Electricity 360k (mainly CWTP).

Maintenance costs – over budget by \$373k due to reactive maintenance. This is currently over budget in Water supply, Flood Protection and Wastewater. This is partially offset by Stormwater being under budget.

Internal Reallocations - \$241k under budget due to Consultancy recoveries of \$245k. Staff recoveries are on budget.

WATER SUPPLY

DRINKING WATER QUALITY

This section provides drinking water compliance status from 1 July to 30 September 2023. The compliance status was assessed against Drinking Water Quality Assurance Rules and Drinking Water Standards New Zealand 2022.

The Rules require:

- Bacterial and Protozoal compliance for Water Treatment Plants and,
- Bacterial compliance for distribution zones.

Under the new rules, water suppliers must select the rule modules (which cover source, treatment, and distribution) that they will use to show compliance for each supply they administer. The complexity of the rule modules increases depending on the size of the supply. Supplies with a population between 101 and 500 people are required to follow the level 2 modules. Supplies with a population above 500 people are required to follow the level 3 modules.

Below is a summary of the rule modules (levels) that each supply operated by the Christchurch City Council will follow:

Supply (Code)	Source Module	Treatment Module	Distribution Module	Comments
Christchurch (CHR009)	S3	T3	D3	
Akaroa (AKA001)	S3	T3	D3	
Birdlings Flat (BIR001)	S3	T2	D2	
Duvauchelle (DUV001)	S2	T2	D2	
Little River (LIT001)	S2	T3	D2	Required to follow T3 module due to Slow Sand Filtration
Pigeon Bay (PIG001)	S2	T2	D2	
Wainui (WAI138)	S2	T2	D2	

Below are two tables that summarise our compliance for the period July to September 2023:

	Non-compliant
	Compliant

- Compliance of Level 3 Supplies from July to September 2023**

Supply / Zone	Treatment Plants Compliance			Distribution Compliance		
	Bacterial	Protozoal	Chemical	Residual Disinfection	Disinfection By-Products	Microbiological
Brooklands/ Kainga						
Central Christchurch						
Main Pumps				Not Applicable (Treatment Plant Supplies Central Christchurch Distribution Zone)		
Ferrymead						
Lyttelton	Not Applicable (Distribution Zones Supplied from Ferrymead Zone Treatment Plants)					
Governors Bay						
Diamond Harbour						
Northwest						
Rawhiti						
Parklands						
Riccarton						
West						
Akaroa						
Little River				Not Applicable (Level 2 Distribution Zone)		

- Compliance of Level 2 Supplies from July to September 2023**

Supply / Zone	Treatment Plants Compliance				Distribution Compliance	
	Filtration	UV	Chlorine	Chemical	Residual Disinfection	Microbiological
Birdlings Flat						
Duvauchelle						
Little River	Not Applicable (Level 3 Treatment Plant)					
Pigeon Bay						
Wainui						

Notifications to Taumata Arowai

The Water Services Act requires that Taumata Arowai are notified of the following:

- If your drinking water does not comply with standards.
- If your drinking water is or may be unsafe (when a critical control point is exceeded).
- If you have a notifiable risk or hazard.
- Your ability to maintain sufficient water is at imminent risk.
- You have a planned restriction or supply interruption longer than 8 hours.
- You have an unplanned restriction or supply interruption longer than 8 hours.

The following notifications were made to Taumata Arowai during the period July - September 2023:

Supply Details	Drinking Water Safety, Compliance or Sufficiency Category	Notification ID	Date	Details
BIR001	Water is non-compliant	NOT-00004975	17/07/2023 21/09/2023 28/09/2023	FAC in water leaving the treatment plant was measured to be less than 0.5 mg/L (indicating non-compliance with rule T2.19).
BIR001	Water is non-compliant	NOT-00005478	07/09/2023	pH of water leaving the treatment plant was measured to be 8.1 (indicating non-compliance with rule T2.21).
CHR009	Drinking Water is or may be Unsafe	NOT-00004941	11/07/2023	Total Coliforms detected at a level of 41 MPN per 100 mL in Estuary Treatment Plant Suction Tank.
CHR009	Drinking Water is or may be Unsafe	NOT-00005106	28/07/2023	Total Coliforms detected at a level of 25 MPN per 100 mL at 9 Velsheda St.
CHR009	Water is non-compliant	NOT-00005292	01/09/2023	Failure of Chlorine Dosing Pump at Kainga Treatment Plant led to unchlorinated water entering the Brooklands/Kainga distribution zone as

Supply Details	Drinking Water Safety, Compliance or Sufficiency Category	Notification ID	Date	Details
				Brooklands Treatment Plant was unable to be run.
CHR009	Water is non-compliant	NOT-00005311	05/09/2023	Failure of non-return valve at Brooklands Treatment Plant resulted in malfunctioning of chlorine dosing system and unchlorinated water entering the Brooklands/Kaingā distribution zone.
CHR009	Unplanned Restriction or Interruption Longer than 8 Hours	NOT-00005451	28/09/2023	Difficult main repair at 155 Greers Rd took more than 8 hours to complete.
CHR009	Water is non-compliant	NOT-00005464	27/09/2023	Error by technician during routine inspection of chlorine dosing pump at Tara Treatment Plant resulted in the pump going into standby mode. This meant that it did not operate when the treatment plant was operated and resulted in unchlorinated water entering the distribution zone.
PIG001	Water is non-compliant	NOT-00004832	03/07/2023	FAC in water at Campground Reservoir measured to be less than 0.1 mg/L (indicating non-compliance with rule D2.5).
PIG001	Water is non-compliant	NOT-00004967	11/07/2023	Only 2 out of 5 FAC samples collected between 3 rd and 11 th July 2023 were above 0.2 mg/L (indicating non-compliance with rule D2.5).
PIG001	Water is non-compliant	NOT-00005434	25/09/2023	FAC in water leaving the treatment plant was measured to be less than 0.5

Supply Details	Drinking Water Safety, Compliance or Sufficiency Category	Notification ID	Date	Details
				mg/L (indicating non-compliance with rule T2.19).

Water Supply Planning

Development Planning

The Three Waters Asset Planning team continues to provide engineering support to developers as part of subdivision and building consent applications.

Description	Jul-Oct Q1 FY24	Apr- June Q4 FY23	FY24 to date	FY23
Subdivision Consents – advice & conditions	5	↓ 13	5	36
Engineering Acceptance of new subdivisions (WS)	10	↑ 9	10	36
Infrastructure Provider Agreements	1	↑ 0	1	2
Water Capacity Reviews	130		130	
BCN Engineering Acceptance	0	↓ 1	0	2

Water Planning Activities

Planning processes are underway to enable the decommissioning of non-compliant drinking water pump stations. The planning team is busy scoping work to inform the capacity increase of the Ferrymead Water Supply Zone and to deliver Stage 1 of the water supply rezoning programme.

Water Supply Capital delivery

The Team is celebrating a successful start to FY24. The Team is stable, with vacancies and leave being backfilled through secondments and engaging contractors. This has allowed the projects to continue to be delivered to programme.

Focus for this team during the next quarter will be aimed at developing more effective communication throughout the larger unit, and continued delivery of the Water Supply programme.

Eastern Terrace water main renewal

Status: Construction

Budget: \$20m

Update: The project is 99% completed. Minor works remaining.

Completion: October 2023

Jeffreys pump station upgrade

Status: Construction

Budget: \$8.7 million

Update: Commissioning of the tank is being undertaken.

Completion date: November 2023



Okains Bay New Water Supply

Status: Detailed design

Budget: \$8.5m

Update: Consent has been lodged. Following consultation with Te Rūnanga o Koukourarata there is a risk that the consent process will be protracted, due to Rūnanga concerns over the discharge from the water treatment plant.

The programmed completion date has been delayed by an expected 2 years.

Completion: December 2025

PS1030 Spreydon Well 2 & Well 3 renewals

Status: Construction

Budget: \$1.8 million

Update: Dry commissioning completed for new Well07 and new wellhead cage installed. Bermad valve expected delivery due end of October. Bermad will be installed and well brought back online in February 2024. Site restoration will continue over next month.

Completion: February 2024

PS1007 Blighs Road pump station well 3 renewal

Status: Construction

Budget: \$1.08 million

Update: Well 3 will be brought back online in February 2024. Site restoration will continue over the next month.

Completion: February 2024

Akaroa L'Aube Hill reservoir replacement

Status: Design and Construction

Budget: \$6.6 million

Update: Enabling works will be completed in November. Permanent reservoir tender documentation is finalized. Construction to begin in Quarter 2, 2024.

Completion: November 2024.

Koukourārata Drinking Water Scheme

Status: Investigation

Budget: \$10 million

Update: The purpose of this project is to establish a safe and reliable reticulated drinking water supply for properties around the southeast side of Port Levy inlet including the local Marae. The scheme will consist of: surface water intake(s), water treatment plant, treated water storage, piped distribution network, trickle feed connections to properties. Monitoring equipment has been installed on Owhetoro and Te Kawa streams to determine flows and turbidity. Monthly water quality sampling is also undertaken. Additional assessments currently underway: flooding risks and coastal hazards; stream catchment risk and water quality assessment to provide input into the treatment design.

Completion: June 2028

Water Supply operations

There were no significant issues with the water supply operations over the July to September period. The Network Operations team worked closely with the capital delivery team to support the delivery as much capital works as possible during the low-demand winter / spring period. The team also worked closely with the Quality & Compliance Team, and the Laboratory Team to enable the frequent sampling to enable Class 1 water status to demonstrate the protozoa barrier.

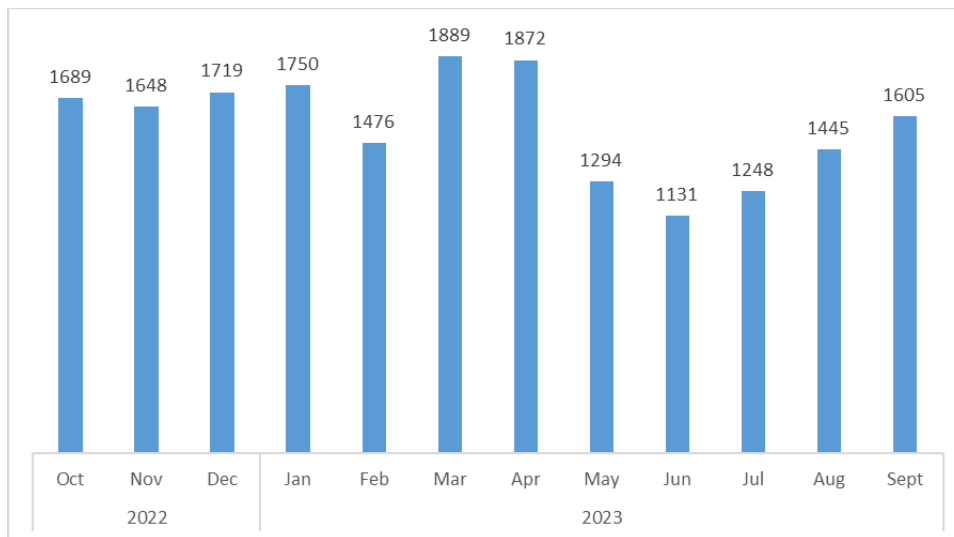
Water Supply reticulation and maintenance

The volume of water jobs for July-September 2023 has dropped by just over 1000 compared to the same period in 2022. This is likely to the settling down of service requests following the expected spike associated with excess water charges.

Following the changes to response and completion timeframes within the new maintenance contract our contractor has maintained improved performance.

The main categories of service requests remain unchanged, leaks on connections, sub-mains, hydrants, and valves.

Job volumes



Total Water Abstraction for Christchurch Supply

		LTP/AP22: 12.0.9 Total volume of water abstracted for urban water supplies in Mm3 per year
Target		<=55
Jul-23	MTD Result	3.8
	YTD Result	3.8
	Comment for Month	Water usage in July was up slightly from June but remained less than 5 year average. On (Target achieved at end of FY23)
Aug-23	MTD Result	3.88
	YTD Result	7.6
	Comment for Month	Water usage in August was the same from July and remained less than 5 year average.
Sep-23	MTD Result	3.9
	YTD Result	11.5
	Comment for Month	Water usage in September was the same from July and remained less than 5 year average,

Response Times (Water Supply)

Water Supply Response Times (@ Sept 2023)	
Immediate/ Urgent -On Site within 1 Hour	34 mins
Immediate/ Urgent Service Restored – 5 Hours	2 hrs 14 mins
Normal/Low - On Site within 3 days/ 72 Hours	9 hrs
Normal/Low Service Restored - 4 days/ 96 Hours	12 hrs 6 mins

WASTEWATER

Christchurch Wastewater Treatment Plant

All the resource consent parameters over the reporting period (July to September) were met, with all final effluent water quality results within the consented parameters.

There was no repeat of the odour incident brief in late April / Early May as the ponds transitioned from summer mode to winter mode. Lots of communications and frequent webpage updates were made to keep the community fully informed of any issues with surface aerators on the ponds and the temporary activated sludge plant.

There was an incident with the temporary activated sludge plant, when one of the clarifier arms stopped turning. The clarifier arms are required to rotate in order to enable the removal of the activated sludge from the bottom of the clarifier where it has settled, back to the start of the activated sludge plant to treat the sewage flowing through the plant.

The stopping of the arms coincided with a high wind event, which implied that something had blown into the clarifier to prevent the arms from turning. As nothing could be seen above the water line, a diving contractor was engaged to go into the 6-meter-deep clarifier, and search the bottom of the clarifier and the arms for any debris which had been blown in. The below sequence of photographs shows the initial entry of the diver into the first clarifier with the assistance of the new telehandler, recently bought to support the maintenance of the temporary activated sludge plant. (Please note the author will readily admit this isn't quite how they envisaged the telehandler being used to support the maintenance of the temporary activated sludge system when they ordered it);





As a result of this temporary breakdown of the temporary activated sludge plant, odorous emissions were detected in the immediate vicinity of the ponds, and very occasionally on the odour meters located in the surrounding areas. However, the detection was very low, with no notable number of odour complaints. (Ironically, the high winds which caused the issue of debris being blown into the clarifier causing the arms to stop, also significantly aerated the ponds, making them resilient to the temporary increase in load whilst the temporary activated sludge plant was by-passed to allow the divers to do their work.)

Across the rest of the plant, despite the temporary nature of the activated sludge plant, the site performed well. However, the breakdown is a reminder that the site is operating at maximum capacity, with minimal redundancy. Whilst multiple steps continue to be taken to try and reduce this risk, an external consultant has undertaken a “Risk Review” to understand the current risk posed by the plant in its current state. A draft of this “Risk Review” has been received and the recommendations are currently being costed.

Since the fire in November 2021, the number of midges from the ponds has been very low. This was also experienced over the previous three months. However, the midge monitoring programme has again been prepared for the annual summer monitoring regime.

Christchurch Wastewater Treatment plant risk

As noted above, a “Risk Review” has been drafted by an external consultant and is currently being costed.

Wastewater planning

Development planning

The Three Waters Asset Planning team continues to provide engineering support to subdivision and building consents.

Description	Jul-Oct Q1 FY24	Apr-Jun Q4 FY23	FY24 to date	FY23
Subdivision Consents – advice & conditions	5	↓ 13	5	36
Engineering Acceptance of new subdivisions (WW)	8	↓ 9	8	28
Infrastructure Provider Agreements	4	↓ 1	4	3
Wastewater Capacity review and advice for BCN and RMA processes	263	↑ 240	263	1,426
BCN Engineering Acceptance				
<ul style="list-style-type: none"> New connections 	12	↓ 14	12	66
<ul style="list-style-type: none"> Local pressure sewer pumps 	80	↓ 146	80	632

Wastewater planning activities

The planning team has recently completed a 3-month flow monitoring program for three wastewater catchments (PS42, PS20 and PS21). The flow monitoring data will be used to calibrate the wastewater model, whereafter the long-term time series rainfall analysis will be re-run to inform the wet weather overflow consent.

Wastewater Capital Delivery

WW Akaroa Reclaimed Water Treatment and Reuse Scheme

Status: Investigation/design

Budget: \$74 million

The current main focus for staff is the consenting process in order to gain approval for the construction and operation of the proposed scheme. At present ECan have yet to make a decision regarding public notification of the consent applications, which is expected over the next month.

Staff are currently preparing the tender documentation for the detailed design of the scheme and are finalising the Basis of Design with the expectation to let the tender in the new year. Intensive wastewater sampling is planned for the coming summer to inform the designers of the wastewater contaminant load during the peak summer period.

A planting trial has been established on the Hammond Point block to inform the future large-scale planting. An estimated 40,000 Kanuka seedlings have germinated which was lower than the expected 75,000, with staff working to increase the numbers of seedlings to make up for the shortfall.

Completion: 2029

WW Duvauchelle Treatment and Disposal Renewal

Status: Investigation/design

Budget: \$14.5 million

The contract for the Assessment of Environmental Effects relating to the disposal of treated wastewater on land has been awarded to Pattie Delamore Partners.

The Christchurch City Council will apply for two resource consents. One will be for the drip irrigation on trees that are located on a piece of CCC owned land adjacent to the Akaroa Golf Course. The other resource consent is for spray irrigation on the fairways and greens at the golf course.

For both, the consent lodgment date is planned for early November 2024.

In parallel, a consultant has been engaged to verify and optimise both irrigation schemes for Akaroa and Duvauchelle and completed by the end of October 2023. This will help the team to lock the scope in and work towards a detailed design for both schemes.

Completion:

Project completion 2029

WW ANZAC Drive Wastewater Main Renewal

Status: Emergency repair/ detailed design

Budget: \$5.5-6 million

Degradation of a section of trunk wastewater main adjacent to Anzac Drive due to H₂S gases, has resulted in emergency repair works being carried out.

Design is underway to replace the section of the trunk pipeline across Anzac drive on a new alignment with associated structures at either end. The remainder of the works through private property will be completed at a later date.

Completion: Temporary repair completed. Time frame still to be confirmed at this stage.

WW South East Riccarton Wastewater Renewal (Multiple Streets)

Status: In Construction

Budget: \$12.2 million

Work is underway on 11 streets in the Riccarton Area, replacing and upsizing wastewater pipes, manholes and laterals to property boundaries. The package of work is progressing well and is ahead of schedule. To date, about 90% has been completed.

Completion: Early 2024

WW Wastewater Main Renewal (Multiple Streets)

Status: In Construction

Budget: \$4.7 million

This package of works originally contained 9 streets requiring wastewater renewals in the Sydenham/Somerfield/Cashmere area. More works were added into this package making it a total of 11 streets. These are Bradford Ave, Norwood St, Hunter Tce, Malcolm Ave, Young St, Woodbridge Rd, Penrith Ave, Cardiff Ave, Port Hills Rd, Soleares Ave and Maffey Rd. Construction is currently ongoing at Port Hills Rd, Hunter Tce and Woodbridge Rd. Soleares Ave and Maffey Rd are next. The rest of the works have been completed. Project is due for completion in early 2024.

Completion: Early 2024



WW Fyfe Road Pump Station Renewal (PS0101)

Status: Investigation Design

Budget: \$1.1million

Following the failure of the Fyfe Road wastewater pump station wet well wall, Council is undertaking the urgent replacement of the chamber.

A temporary system has been installed to bypass the failed chamber. Following a robust design process, a replacement design is about to be tendered to enable the renewal of the chamber in the new year.

Completion: March 2024

Alport Pump Station renewal

Status: Design

Budget: \$2.2 million

Update: The design is underway to maximize the opportunity we have with replacing these pumps, to future proof the station, and minimize the whole of life cost. One of the key design elements being undertaken now is the Computational Flow Dynamics (CFD) modeling that should be completed by late December. The results of the CFD should lock the preferred pump down, to then finalise detail design.

Completion: December 2024

Response Times (Wastewater)

Wastewater Supply Response Times @ Sept 23	
Urgent Urban - On Site 1 Hour	33 mins
Urgent Rural – On Site 2 Hours	45 hrs 13 mins
Urgent - On Site 5 days/ 120 hours	47 mins
Non-Urgent – On Site 5 days / 120 hours	5 hrs 10 mins

STORMWATER AND WATERWAYS

Stormwater and Waterways Operations

The total rainfall for Christchurch in 2023 is above average with approximately 640mm of rain recorded so far this calendar year. One significant rain event was experienced in July with 80-100mm recorded across the city. Otherwise, this quarter has seen long periods of no rain with 2-3 small rain events. Our team has also been looking forward to the coming summer when strong El Niño conditions are forecast which suggests dry and warm northwest winds. This is likely to have a negative impact on spring flows in waterways in the city and potentially reducing flows in Banks Peninsula waterways as well.

The operations team received 392 service requests or complaints from July to September, typical of recent trends. This continues to be a high volume for the team with no obvious trends as to why.

This quarter Citycare have met their programmed maintenance schedule and, in some instances, are ahead of the programme. As this has been during months of relatively slow vegetation growth, we will continue to monitor their progress closely as the warmer spring/summer weather will increase growth over the next quarter. In addition to that, an increase in auditing the quality of their work is proving helpful in identifying and addressing any issues that arise.

Inspections of the Avon River temporary stopbanks were completed earlier this year and planning for repairs and/or raising the stop banks to design level are underway. In particular a repair strategy was completed this quarter and repairs are scheduled for October at Hardy Street and damage to the gabion basket stopbanks around the Porritt Loop will be undertaken later this FY.

The Ilam Stream project is continuing, and staff have met with the community group Network Of The Ilam Stream (NOTIS) to work together on a planting plan and community planting days for Ilam Stream at Avonhead Park.

Stormwater and Waterways planning

Loss of staff who were filling consent-processing roles, due to resignation and parental leave, has increased workload on the rest of the team over this period, while recruitment and temporary vacancy cover using contractors has been put in place. This increased workload has meant that some responses to non-critical enquiries and requests from customers and elected members has been slower than ideal but unfortunately unavoidable.

Base workload from “business as usual” critical team commitments has included responding to the ongoing high workload from building and resource consents, implementation of tasks under

the Comprehensive Stormwater Network Discharge Consent (CSNDC) and providing planning and technical support to the Surface Water and Waterways Project Delivery Team.

Other work by the team has included input to the 2024 –34 Draft Long term Plan (LTP), Water Service, District Plan changes (relating to earthworks, residential dwelling intensification and groundwater) and supporting Council efforts to overcome Environment Canterbury (ECan) consent processing delays relating to groundwater.

Recruitment of suitably qualified and experienced staff for key planning roles remains challenging in the current employment market. Cover for some positions has been achieved through term engagement of contractors.

Long Term Plan (LTP) Development – Capital Programme

The Stormwater and Waterways Planning Team have rephased the 10-year capital programme for the Stormwater Drainage and Flood Protection and Control Works activities within the draft LTP. This was in contribution to staff submitting an affordable and deliverable programme overall.

Consequently, the projects in the Draft Capital Programme for Stormwater and Flood Protection are focused on the essential priority works to meet legal and consent obligations, works already committed or in progress, contractual commitments and works which are already funded within the current LTP. Some projects which were previously in the draft Capital Programme have been deferred out to later years in the programme. These projects include several which would have addressed localised surface flooding in areas across the city.

Environment Canterbury Consent Processing Delays and Constraints

The ECan position on Council earthworks which interface with groundwater continues to cause delays and design inefficiencies. Overall, the ECan position is placing at risk the delivery of the 3 Waters capital programme and Council's compliance with the CSNDC.

Council is continuing to try to find consenting pathways which will overcome this impediment and has been successful in devising a design change for the stormwater treatment facility at the Highest residential development which has successfully obtained consent.

Team Focus over Coming Months

The team's focus will be on supporting the 2024-34 LTP process, meeting the current high consents-related workload and supporting capital project implementation

Monitoring of Erosion and Sediment Control

The 3 Waters Quality and Compliance Team, in conjunction with the Building Consenting Unit have been jointly working on auditing of erosion and sediment control from building sites.

Building sites that do not comply with sediment control requirements fail their site inspection and must rebook for a further inspection before proceeding. Data from the last six months (as a percentage of total failed inspections) is included below.

In addition to this, the Quality and Compliance Team carry out spot checks monthly. Any observations of failures to comply are fed back to the Subdivisions and Building Consenting Teams.

	Jul-23	Aug-23	Sep-23
Total Number of Building Consent Failed Inspections	935	1118	909
Total Number of Building Consent Failed Inspections due to Sediment Control	68	95	71
% Failed Due to Sediment Control Over Total Failed Number	7%	8%	8%

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Total Number of Building Consent Failed Inspections	612	745	1141	912	1067	951
Total Number of Building Consent Failed Inspections due to Sediment Control	17	27	69	124	89	63
% Failed Due to Sediment Control Over Total Failed Number	3%	4%	6%	14%	8%	7%

Stormwater and Waterways Capital Delivery

The Stormwater and Waterways Delivery Team are actively managing 123 projects with a current year FY24 budget total of \$59.9m. Key project details are given below.

Cashmere Worsley flood storage

Status: Construction

Budget: \$34.6m

Update: Dam construction almost complete, with landscape planting 85% complete. Control gate to be installed in November and gate commissioning planned for February 2024

Photo shows stored flood water July 23.

Completion date: November 2023



Eastmans, Sutherlands and Hoon Hay basins & wetlands (Te Kuru)

Status: Construction

Budget: \$39.8 Million

Update: The southern area of the site is open to the public. The overall site is now known as Te Kuru.

Te Kuru covers 109 hectares and when completed will collectively store more than two million cubic metres of flood water.

The Project is making good progress, and it is planned that the majority of the site will be open to the public early 2024 (ahead of schedule). Budget requirements are being reassessed.

Te Kuru will eventually provide around 14km of walking and cycling tracks and around 600,000 native, eco sourced plants (including 110,000 trees) – although not all can be secured & planted within the project timeframe.

Completion date: December 2024 (with some planting to follow).



Mayor and CE on recent visit with Senior Project Manager Mark Penrice

Cashmere Stream enhancement

Status: Construction

Budget: \$4.2 Million



Update: Enhancement work on two kilometers of Cashmere Stream between Sutherlands Road and Dunbars Stream near Cashmere Road are being enhanced. Ministry for the Environment is co-funding.

Work on final two stages in progress.

Completion date: June 2024

Waitaki Street (Ōtākaro Avon River Corridor) – Avon Flood Management

Status: Construction

Budget: \$12.2 million

Update: Work on construction of the stopbank is substantially complete.

Construction of the stormwater treatment facility on the city side of the stopbank is delayed due to Environment Canterbury consenting issues over groundwater take (these issues are affecting multiple projects). Budget requirements being reassessed. Completion of the shaping of the stopbank and connection to the future site of the new Pages Road Bridge will happen in summer 2023/4. At the end of this stage all works on the river side of the stopbank will be complete.

Completion date: March 2025

Waikākāriki - Horseshoe Lake Stormwater Treatment Facility

Status: Concept Design

Budget: \$27.2 million

Update: Project to design and construct stormwater treatment to comply with global consent conditions. Challenges included dealing with contaminated land, biodiversity impacts and impacts of Environment Canterbury consenting issue over groundwater take. Project has been delayed while awaiting review and finalisation of concept design. Budget and completion date being reviewed.

Completion date: Under review

ANZAC to Waitaki Stopbank

Status: Concept Design

Budget: \$16.0 million

Update: Project to design and construct a stopbank between ANZAC Drive and the completed stopbank at Waitaki Street. This project has been given priority due to the fragility of the temporary stopbank in this location. The project also includes design of a stormwater treatment device and a pumpstation, and budget has been requested in the Long Term Plan for construction of these under this project.

Completion date: mid 2027

Lyttelton Reticulation Renewals (Brick Barrels)



Status: Construction

Budget: \$5.2 million

Update: Repair and renewal of Lyttelton's 100+ year old brick barrel stormwater drains (around 6km) including the installation and modification of new access manholes, with depths 2m to 8m below ground. Manholes now completed. New section of stormwater pipe replaces a previously dilapidated brick barrel pipe. Recent work discovered a previously unrecorded subterranean heritage timber drain which was investigated by archaeologists and recorded for Heritage New Zealand Pouhere Taonga

Completion date: June 2024

Marshland Road Canal Reserve Drain

Status: Construction

Budget: \$8.3 million

Update: Renewal of 1.9km of timber lined drain contract for phase one nearing completion. Phase two is being designed.

Completion date: April 2024

Horseshoe Lake (Waikakariki) Outlet Renewal

Status: Design

Budget: \$2.7 Million



Update: Project to renew outlet pipes under New Brighton Road. Preliminary design underway. ECI with preferred contractor to accelerate design.

Completion date: June 2024

Manchester Street Brick Barrels Renewal (Purchas St to Bealey Ave)

Status: Procurement

Budget: \$4.1 million

Update: Diversion down new alignment in Manchester Street with construction planned to start early FY24. Early Contractor Involvement (ECI) ahead of detailed design has created a collaborative approach that is reducing risks and adding value.

Completion date: June 2025

Gardiners Stormwater Facility

Status: Construction

Budget: \$5.6 m



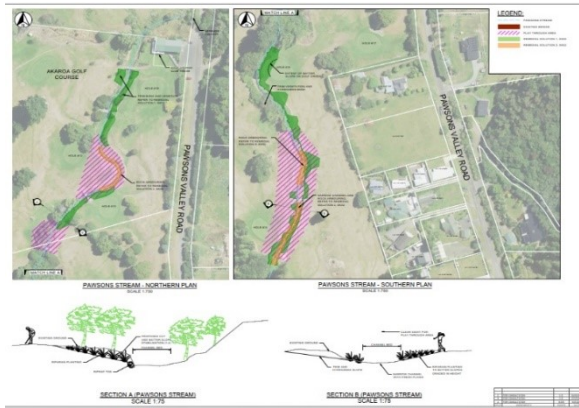
Update: After delay due to changes in Environment Canterbury consent requirements, construction works started in March 2023. However, earthworks halted on site for winter due to wet ground conditions. Works re-started in September.

Completion date: January 2024, with planting to follow by May 2024

Duvauchelle Waterway Renewals

Status: Design

Budget: \$3.7M



Update: The renewal of 3 flood damaged waterways in Duvauchelle - Pawsons Drain and Duvauchelle Showground Drain within the Akaroa Golf Course and Pipers Stream between the state highway and Seafield Road. Preliminary design nearly completed.

Completion date: June 2024

Knights Drain Ponds

Status: Construction **Budget:** \$7.3 million



Update: Construction 90% complete. Additional ground improvement works currently being undertaken. Landscaping 80% complete and will be finished once civil construction is completed adjacent to Pages Road.

Completion date: December 2023

Port Hills Revegetation and Sediment Control

Status: Investigation

Budget: \$1.0 million

Update: Purpose is to reduce the amount of sediment being eroded from the Port Hills into the Heathcote River and Ihutai Estuary. It is expected that this will mostly be achieved by planting native trees.

Completion date: July 2027

APPENDIX 1 – HEALTH SAFETY AND WELLBEING STATISTICS

Health Safety and Wellbeing Statistics - FY2024	July	August	September	YTD Totals
Lag Indicators				
Near Misses	12	20	16	48
Incidents	26	29	29	84
First aid injuries	5	3	0	8
Medical Treatment	2	2	1	5
Lost Time Injuries	1	0	0	1
No. of days lost	9.75	0	0	10
Hours worked	64392.4	52272.2	37334.2	153,999
No. of Notifiable Events	0	0	0	

Health Safety and Wellbeing Statistics - Year to Date July 2022 - June 2023	Year end Totals
Near Misses	441
First aid injuries (FAI)	21
Medical Treatment Injuries (MTI)	2
Lost Time Injuries (LTI)	7
No. of days lost to LTIs	79
No. of hours worked	461,940