chatham islands council

AGENDA | **2023**

Notice is hereby given that an Ordinary Meeting of the 11th triennium (2022-2025) Chatham Islands Council will be held on:

Date:	**8 June 2023**
Time:	**1.30pm**
Location:	**Council Chambers**
	Tuku Road
	Waitangi
	Chatham Islands

MEMBERSHIP

CHAIRPERSON	Mayor, Monique Croon
DEPUTY MAYOR	Keri Lea Day
MEMBERS	Steve Joyce
	Greg Horler
	Judy Kamo
	Graeme Hoare
	Amanda Seymour
	Celine Gregory-Hunt
	Nigel Ryan

Owen Pickles
Chief Executive

OUR PEOPLE
OUR ISLANDS
OUR FUTURE

Karakia

Kia hora te marino

Kia whakapapa pounamu te moana

Hei huarahi ma tatou I te rangi nei

Aroha atu, aroha mai

Tatou I a tatou katoa

Hui e! Taiki e!

May peace be widespread

May the sea be like greenstone

A pathway for us all this day

Let us show respect for each other

For one another

Bind us all together!

AGENDA
Meeting Held 8 June 2023

2. Democracy

2.1 Minutes of an Ordinary Meeting 27 April 2023

Date of meeting	8 June 2023
Agenda item number	2.1
Author/s	Jo Guise – Executive Assistant

Purpose

For the Council to receive and confirm the minutes of the Ordinary Meeting of Council held on 27 April 2023.

Recommendations

1. **THAT the minutes from the Ordinary meeting of the Chatham Islands Council held on 27 April 2023 be a true and accurate record.**

CHATHAM ISLANDS COUNCIL

Minutes of the Ordinary Meeting of the Chatham Islands Council, held in the Council Chambers, Tuku Road, Waitangi, on Thursday 27 April 2023, commencing at 1.30pm

Present:	Her Worship the Mayor, M Croon Deputy Mayor, K Day Cr G Horler Cr RS Joyce Cr J Kamo Cr N Ryan Cr A Seymour Cr C Gregory-Hunt
Absent:	Cr G Hoare
Management & Officers:	Chief Executive, Mr Owen Pickles Operations Manager, Colette Peni Executive Assistant, Jo Guise
Attendees:	Ms Kirsten Norquay (Stantec) via Zoom Mr Phil Holt (Fulton Hogan) Mr Jase Seymour (Biosecurity Officer, ECan) Ms Jo Mitten (ECan) via Zoom Ms Kaai Silbery Ms Bridget Preece Mr Peter de Lange via Zoom Ms Carol Fassbinder-Orth via Zoom Ms Kim Tuaine via Zoom Ms Jazmin via Zoom Mr Richard Hall via Zoom

2. DEMOCRACY

2.1 Minutes from Ordinary meeting 23 March 2023

RESOLVED:
THAT the minutes from the Ordinary meeting of the Chatham Islands Council held on Thursday 23 March 2023 be adopted as a true and accurate record.
RS JOYCE / C GREGORY-HUNT / CARRIED

2.1b Minutes from Ordinary meeting 29 March 2023

RESOLVED:
THAT the minutes from the Ordinary meeting of the Chatham Islands Council held on 29 March 2023 be a true and accurate record.
J KAMO / A SEYMOUR / CARRIED

2.2 CEO Report

RESOLVED:
THAT the Chatham Islands Council receives the report.
J KAMO / A SEYMOUR / CARRIED

2.3 Leave of Absence – Cr G Horler

RESOLVED:
THAT the request for a Leave of Absence from Cr G Horler be approved.
N RYAN / C GREGORY-HUNT / CARRIED

3. FINANCE

3.1 Financial Report

RESOLVED:
THAT the Council receive the financial report for March 2023.
RS JOYCE / KL DAY / CARRIED

3.2 Annual Report 2021& 2022 and Annual Report Summary 2021 & 2022

Agenda item 3.2 was not considered at the meeting and was deferred until a later date.

4. Works & Services

4.1 Stantec Monthly Report

Ms Kirsten Norquay joined the meeting and gave an update on current engineering projects.

RESOLVED:
THAT the report be received.
A SEYMOUR / RS JOYCE / CARRIED

4.2 Fulton Hogan Road Maintenance Reports – March 2023

Mr Phil Holt gave a verbal update on the road maintenance contract.

RESOLVED:
THAT the Chatham Islands Council receive the report.
A SEYMOUR / RS JOYCE / CARRIED

4.3 Fulton Hogan Water & Wastewater Operation Contract Reports – March 2023

Mr Phil Holt gave a verbal update on the water and wastewater maintenance contract.

RESOLVED:
THAT the Chatham Islands Council receives the report.
C GREGORY-HUNT / J KAMO / CARRIED

4.4 Fulton Hogan Waste Management Contract Reports – March 2023

RESOLVED:
THAT the Chatham Islands Council receives the report.
KL DAY / C GREGORY-HUNT / CARRIED

4.5 Three Waters Reform

RESOLVED:

1. **THAT the report be received;**
2. **THAT Council work up a programme of work for inclusion in the 2024 budget; and**
3. **THAT the Better-off funding projects in Tranche 2 be considered at a future meeting.**

KL DAY / RS JOYCE / CARRIED

6. REGULATORY

6.1 Activity Report from Environment Canterbury

Mr Jase Seymour gave a verbal update on recent biosecurity activity.

RESOLVED:
THAT Chatham Islands Council receive the report.
KL DAY / C GREGORY-HUNT / CARRIED

6.2 Resource Management Report for Chatham Islands Council CIC/2023/002

An application from the Chatham Islands Housing Partnership Trust had been received to cancel Condition 26 from approved Resource Consent CIC/2020/002.

Independent Commissioner Sharon McGarry had reviewed the application and approved the application on Council's behalf.

RESOLVED:
THAT the report be received.
A SEYMOUR / C GREGORY-HUNT / CARRIED

6.3 Changes to the CIRMD to give effect to the NPS-FM

Ms Jo Mitten explained the changes to the Chatham Islands Resource Management Document.

RESOLVED:
THAT the Chatham Islands Council:
1. Note the immediate changes to the CIRMD to give effect to the NPS-FM; and
2. Approve these immediate changes to the CIRMD with amendments noted.
A SEYMOUR / C GREGORY-HUNT / CARRIED

6.4 LATE ITEM – Resource Consent CIC/2023/001

RESOLVED:
THAT the report 'Resource Consent CIC/2023/001' be considered as a late item.
A SEYMOUR / C GREGORY-HUNT / CARRIED

An application for subdivision consent had been received to subdivide a site 252 Air Base Road, legally described as Lot 1 DP 45644 (Identifier WN18B/301) into proposed Lot 1 (comprising 2.2347 ha), proposed Lot 2 (comprising 1.2770 ha) and proposed Lot 3 (comprising 1.5958 ha).

RESOLVED:
Subdivision Consent (CIC/2023/001)

(i) That pursuant to Section 95A-G the application does not require public notification or limited notification.
(ii) That pursuant to Sections 104 and 104C of the Act Council grants consent to:

Subdivide Lot 1 DP 45644, located at 252 Air Base Road, Chatham Island into three allotments (Lots 1, 2 and 3) subject to the following conditions:

General

1. The proposed activity must be undertaken in general accordance with the information and plans provided with the resource consent application dated 2nd March 2023.

Accessways

2. That any accessway to new Lots 2 and 3 shall have side slopes battered at a maximum gradient of 1 in 3 (33%) or as agreed by the Council Engineer prior to construction.

3. Any culvert crossings and inlet / outlet structure to be constructed for each lot must adhere to Council's standard drawings for rural accessways, with culvert pipe size and length to be agreed with the Council Engineer prior to construction. Culvert construction shall be in general accordance with Council's standard drawings 004 and 005 (attached).

4. The design and construction of the accessways to Lots 2 and 3 shall be in general accordance with Council's standard drawing 005 (attached).

Geotechnical Investigation

5. Pursuant to Section 221 of the Resource Management Act 1991 a consent notice shall be imposed on the Record of Titles for Lots 2 and 3 advising as follows –
(i) Geotechnical Investigation
Prior to any future dwellings being constructed on Lots 2 and 3, a geotechnical assessment must be provided as part of the building consent for each individual dwelling.

A SEYMOUR / C GREGORY-HUNT / CARRIED

7. EMERGENCY MANAGEMENT

7.1 LATE ITEM – Chatham Islands Water Tank Project 2023

RESOLVED:
THAT the report 'Chatham Islands Water Tank Project 2023' be considered as a late item.
KL DAY / J KAMO / CARRIED

RESOLVED:
THAT the report be received.
N RYAN / RS JOYCE / CARRIED

9. CHATHAM ISLANDS

9.1 Chatham Islands Investment Strategy

RESOLVED:
THAT the Chatham Islands Council receives the minutes and notes from the Chatham Islands Investment Strategy workshop.
J KAMO / KL DAY / CARRIED

9.2 Letter from MABx Rekohu Wharekauri Apiculture Collective

Ms Kaai Silbery and Ms Bridget Preece were present and introduced members of the Maori Agribusiness Extension Programme run under the Ministry for Primary Industries.

As part of the programme, they asked Council to develop a Bylaw to reduce the risks of disease to bees and further protect apiculture on the island.

Council acknowledged the unique apiculture industry on the island and agreed a bylaw could be created, however the ability to enforce the bylaw would be difficult without on-ground Security present.

Mayor Croon advised SPS Biota were currently refreshing their information sheets and including specific bee information had been discussed. She also suggested that after the election it would be timely to start lobbying the government the reasons why we needed to look at biosecurity on the island.

RESOLVED:

1. **THAT Chatham Islands Council receives the letter from MABx Rekohu Wharekauri Apiculture Collective; and**
2. **THAT the Chief Executive explore ways to achieve what the delegation has requested and report back with his findings.**

KL DAY / J KAMO / CARRIED

RESOLVED:
That the meeting moves in to Public Excluded.
M CROON / J KAMO / CARRIED

The Meeting moved in to Public Excluded at 3.30pm and out at 3.55pm.

MEETING CLOSURE

After consideration of the Public Excluded Agenda, and there being no further business, the meeting was declared closed at 3.55pm.

CONFIRMED THIS 1st DAY OF JUNE 2023

MAYOR

Meeting Date	Meeting Item #	Task	Owner	Status	Date / Updated	Comments
21 October 2021	2.1a	Rateable value Maori Land – Clarify updated figure	OM	Active		Available after 1 July 2022
15 September 2022	2.3	Discuss with Tourism Manager - the board at the Waitangi West toilet – a gate would be more suitable	CE	Active		In process
15 September 2022	4.7	WMMP – Councils comments be provided before public consultation	OM	Active		In process
10 November 2022	3.1	Financial Report – Reporting changes				In process
23 February 2023	8.1	- Have discussion re stock on South Coast (no fencing)	CE			In process
23 March 2023	3.3	Prepare public engagement document for the Annual Plan budget	CE			In process
27 April 2023	6.1	Actively enforce the fencing bylaw	CE			In process
27 April 2023	9.2	Explore ways to achieve what the MABx (Bees) collective had requested and report back	CE			In process

2. Democracy

2.2 Minutes from Performance, Audit & Risk Committee held on 17 April 2023

Date of meeting	8 June 2023
Agenda item number	2.2
Author/s	Jo Guise, Executive Assistant

Purpose

Information for Council.

Recommendation:

THAT:

1. **The PARC meeting minutes from the meeting held on 17 April 2023 be received.**

Background

Minutes from the PARC meeting held on 17 April 2023 are attached to this report.

CHATHAM ISLANDS COUNCIL

Minutes of the Chatham Islands Council Performance, Audit & Risk Committee, held in the Council Chambers, Tuku Road, Waitangi, on Monday 17 April 2023, commencing at 9.00am

Present:	Independent Chair, Mr P Jones (via Zoom) Her Worship the Mayor, M Croon Cr KL Day Cr RS Joyce Cr G Horler (via Zoom)
Management & Officers:	Operations Manager, Colette Peni Executive Assistant, Jo Guise (Minutes) Financial Lead, Mereraina Hemara Ms Tanya Clifford, ECan (via Zoom)
Apologies:	N/A

1. Minutes of PARC Meeting 13 March 2023

RESOLVED:
THAT the minutes of the Performance, Audit & Risk meeting held on 13 March 2023 be received.
RS JOYCE / KL DAY / CARRIED

2. Financial Report to March 2023

RESOLVED:
THAT the Performance, Audit & Risk Committee receives the report.
M CROON / RS JOYCE / CARRIED

3. Insurance and Policy Schedule

Questions coming from discussion –

- With regards to standing timber, why it was insured when Council were never going to do anything with the timber, or is there a plan for them?
- The broker fees were $9.5k + gst. Is it reasonable and/or competitive?

RESOLVED:
1. THAT the Performance, Audit & Risk Committee receives the report.
P JONES / G HORLER / CARRIED

4. Three Waters Reform

The Chatham Islands fell outside of the 10 water service entities which were announced earlier in April. The Government had decided that a different approach should be taken for the Chatham Islands which involved the Crown providing financial support directly to the Chatham Islands for water infrastructure.

RESOLVED:
THAT the Performance, Audit & Risk Committee receives the information.
P JONES / KL DAY / CARRIED

5. Credit Card Summary

RESOLVED:
THAT the Performance, Audit & Risk Committee receives the Credit Card summary for January & February 2023.
KL DAY / RS JOYCE / CARRIED

RESOLVED:
THAT the meeting moves in to public excluded.
P JONES / M CROON / CARRIED

At 9.46am the meeting moved in to Public Excluded and out at 9.47am.

Meeting Closure

After consideration of the public excluded agenda, and there being no further business, the meeting was declared closed at 9.48am.

Confirmed this 17th day of April 2023.

Signed: _____ **(Chair)**

2. Democracy
2.3 CEO Report

Date of meeting	8 June 2023
Agenda item number	2.3
Author/s	Owen Pickles, Chief Executive

Purpose

This report is to provide an update on activities the Chief Executive has been involved with since the last Council meeting.

Recommendations

THAT the Chatham Islands Council receives the report.

Meetings

Name	Organisation	Topic	Date
Julian Tan and Debbie Bradfield	Director and Manager Audit NZ	Audit matters Chatham Islands Museum	26 April
Tanya Clifford	E.Can Accountant	Audit matters	27 April
Kirsten Norquay	Stantec	3 waters reforms	27 April
Avis Kilpatrick		Larry Reriti estate	28 April
Paul Eagle and Brian Dawson	MP	Catch up	28 April 5 May 12 May 19 May
Keri Brown	Chair Energy Hardship Group	Cost of electricity	1 May
Kirsten Norquay and Andrew Wong	Stantec	Water reforms	2 May 12 May
Keri Donoghue-Cox and others	MSD	Heartlands services	2 May
Julian Tan	Audit Director	Audit matters Housing partnership Trust	3 May
Noel Brown and Simon Carey	CIET	Audit matters Housing Partnership Trust	3 May
Dylan Fraser	Fulton Hogan	Island projects	3 May
Alfred Preece		Fish Dump closure	4 May
Jocelyn Powell	CI Museum	Oral history	5 May

Kerry Rodgers		Proposed subdivision	8 May
Jackie Gurden	Tourism Chatham Islands	TIF applications	9 May 16 May
MEMA and others		Freight/ transport briefing	10 May
Chris Taylor and Others	Waka Kotahi	Drivers licence contract and new fees	10 May
LGNZ	Zoom Hui	Audit Matters	11 May
CI Leadership Group	Zoom Hui	Stakeholders Working Groups	15 May
Nigel Donovan & Leanna O'Connell	MFE	Landfill Audit	16 May
Noel McGirr	Canterbury Rural Support Trust	Proposed cattle cull	16 May
Leith Weitzel	Builder	Hall Report	17 May
CI Leadership Group	CI Investment Strategy Workshop	Annual report/ Audit	19 May
Ecan Staff and DIA Staff		Crown funding and E.Can support	23 May
E.Can Steering Group	6 Weekly Meeting	E.Can activities	23 May
Regional Leadership group	Freight services during no ship period	Audit Progress	24 May
Charles Jarvie	MBIE	Island communications	24 May
LGNZ Combined sector meeting	Wellington		25 and 26 May
Fleur Fitzsimons	Labour Candidate Rongotai Electorate	Chatham Islands Issues	25 May
Steve Baker	Hunter Civil	Progress on Wharf Projects	30 May

2. Democracy

2.4 Representation Review

Date of meeting	8 June 2023
Agenda item number	2.4
Author/s	Owen Pickles, Chief Executive

Purpose

For Council to consider the submissions received for the Representation Review.

Recommendation

THAT Council:

1. **Receive the submissions; and**
2. **Consider the information within each submission.**

Background

Council is required to review their representation arrangements on a regular basis.

At the Council meeting on 23 March 2023, Council's preference was to stay with the status quo and agreed the representation arrangements should go out for public consultation.

Submissions closed on 8 May 2023 and three submissions have been received. The submissions are attached.

Owen Pickles
CEO. CICC.
P.O Box 24.
Waitangi
Chatham Islands
7-5-23

Received
08/05/2023

Review of Representation Arrangements.

Tena koe,

At the councils meeting 23 March 2023 they agreed to stay with the status quo, then resolved that the Representation arrangements be approved for public consultation. AFTER it has already been approved by the council.

The reasons given is that they consider that 9 members provide a cross section of community representation and allows for a larger quorum to cover for absentees. How often is absenteeism an issue? Does this require 9 members I agree that is good to have a good representation of the community

which may also be accomplished by having separate boards, instead a majority from one area (Oaonga)
Does the local Electrical Amendment Act 2003 stipulate when a community is too small. Size may make it easier to include a wider representation of people, but in reality this does not happen.
While meetings are said to be open to the public, one doesn't have speaking rights.
There are no communities of interest large enough to warrant the establishment of a community Board.
This statement clearly illustrates the bias nature of the writers.
What percentage of the community is Maori? How is there perspective included in activities of the council?

Harvea Raymond.

6 May 2023

The Councillors
Attn Owen Pickles
CEO
P>O>Box 24
Waitangi
Chatham Islands

Tena koutou,

Submission : Review of Representation Arrangements of council C.I.

A). Can council demonstrate and advise how in point 'a' council provides a good cross section Of community representation allowing for a larger quorum to cover ABSENTEES.

In the electoral act sec 4 (1) (a) provides for fair and effective representation? Where is this?

1). Technology today should eliminate council absenteeism. Council needs to be non biased a more inclusive body to enrich, to protect the cultural aspect i.e. tangata whenua, thus promoting a more harmonious relationship and outcome?

2). The use of stake holders as being representatives for Tangata whenua is NOT an option.

3). Council needs more consultation with its rate payers. As a rate payer the suggestion is council appoint their 8 councillors into 4 groups representing Northern, Central, Southern and Eastern.

B). The size of our community in council view is too small etc.

Can council provide the act that confirms councils statement that representation can or cannot be had, based on population? This only confirms council is made up OF the people, but not working FOR the people.

C). There are NO communities of interest etc.

This is a problem. Council continuously displays its opinion as one of biased and deliberate neglect and lack of knowledge pertaining to histories of Wharekauri. This on going process begs the question "where is fair and effective for tangata whenua whom council purports to represent, I REF. 19j of the act.

Kia Ora

George
teneragoomes@gmail.com

Attention Owen Pickles.
To C.I. Councillors
C.E.O
Chatham Islands Council
P.O.Box 24
Chatham Islands

7 May 2023

Kia ora Koutou katoa,

In response to your flyer in the CCF news, the review of representation arrangements etc,,

It is our view that we observe councils flippant attitude directed at their constituents
And dare it be said council views be accepted unchallenged.

In point 'a' council view provides a good cross section of community....etc.

Clearly a very confident mono cultural view that lacks input from people within te rohe of Wharekauri. I point out Councils inability to engage with its people. This SADLY LACKING to say the least.

How does council justify and demonstrate council process where council freely and willingly engages with tangata whenua and or its constituents other than its own crown bodies?

Is council capable of having a fair and effective representation? Is there a need to cover for absenteeism? Are rate payers getting value for their hard earned monies? Or is this a burden rate payers carry regardless?

Is it time for an internal audit on administration? We need evidence of councils fair and effective practices. Perhaps we dealing with conflicts of interest?

Point 'b' council views the community too small...etc.

In our opinion you have 8 councillors, split them up 2. On each riding, put a bit more responsibility on these players. Is there a set number council must have before council can or can't set up boards of representation?

Point 'c' There are no communities of...etc.

Should council have a view given councils blatant disregard to recognise, To acknowledge, to nurture, to enhance, to protect, to have some sensitivity to even engage Is testament to a mono culturally run council. Where is 19j in council view.

This brings into question councils ability to share information amongst all councillors or is council perhaps running a hierarchy within council?

It is not acceptable to gain cultural views from members of crown entities.

Na reira tena koutou

Jack
Box 35
Chatham Islands.

3. Finance

3.1 Financial Report to April 2023

Date of meeting	8 June 2023
Agenda item number	3.1
Author/s	Tanya Clifford, Environment Canterbury

Purpose

To present to Council the financial report to April 2023.

Recommendations

THAT the Financial Report to April 2023 be received.

Background

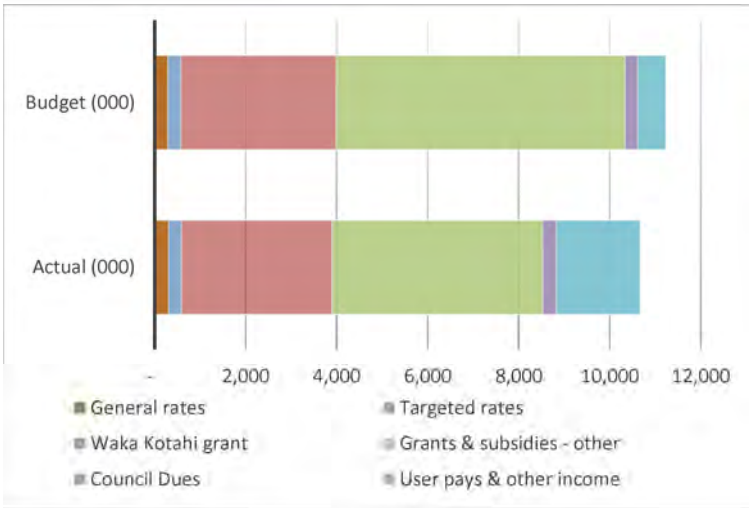
Attached is the financial report for April 2023.

Graphical Financial Information

as at 30 April 2023

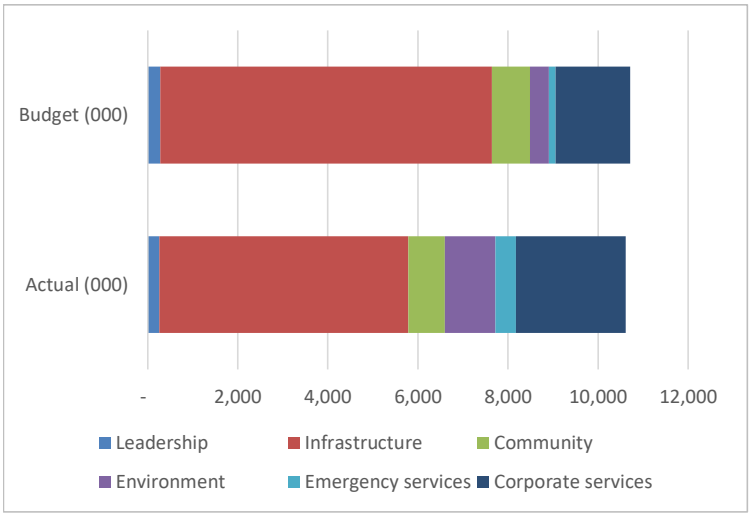
chatham islands council

Revenue



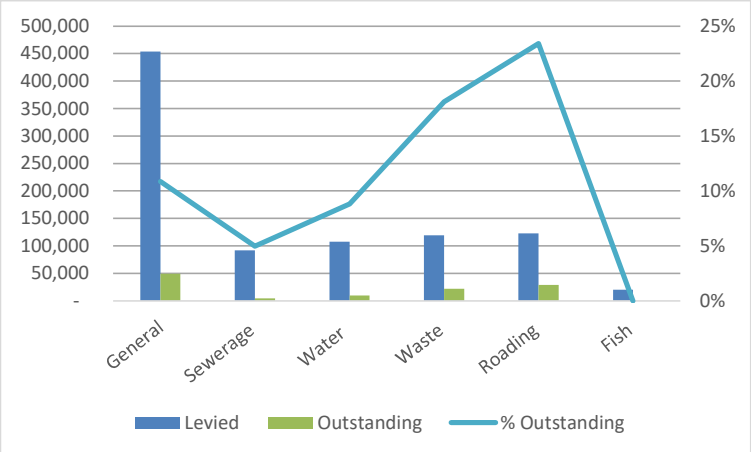
No significant items of concern related to revenue items. However, it is worth noting:
* Waka Kotahi, NZTA subsidy is driven by actual expenditure on roading works. The grant includes capital and operating expenditure.
* Council has received a number of unbudgeted grants, primarily from civil defence (for water tanks) and related to the three waters project.
* Other income has also increased from the Council taking over petrol operations on the island.

Operating & Capital Expenditure



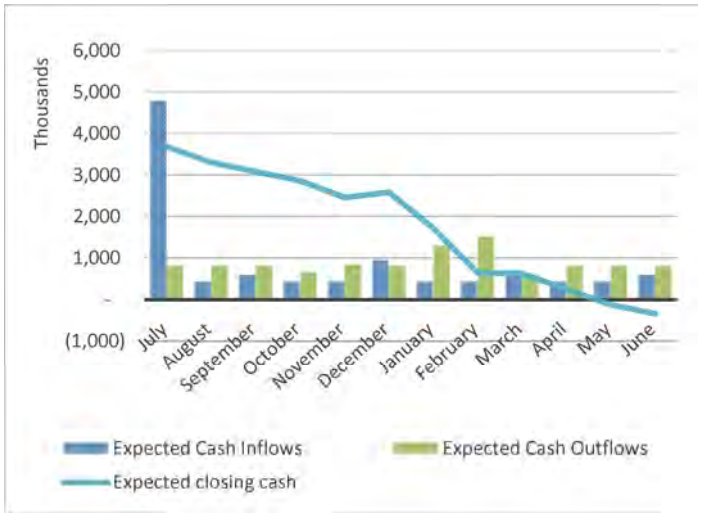
No significant items of variance related to expenditure.
* Waka Kotahi/NZTA funded roading projects are slightly behind budget due to issues sourcing material and other operational delays, as this is the second year of a three year funding cycle, any unspent funds will be transferred to the next financial year.
* Community expenditure includes costs related to the purchase and supply of petrol to the island
Minor variances due to allocation changes between groups of activities, for more information refer to the more detailed report.

Revenue rates collectability

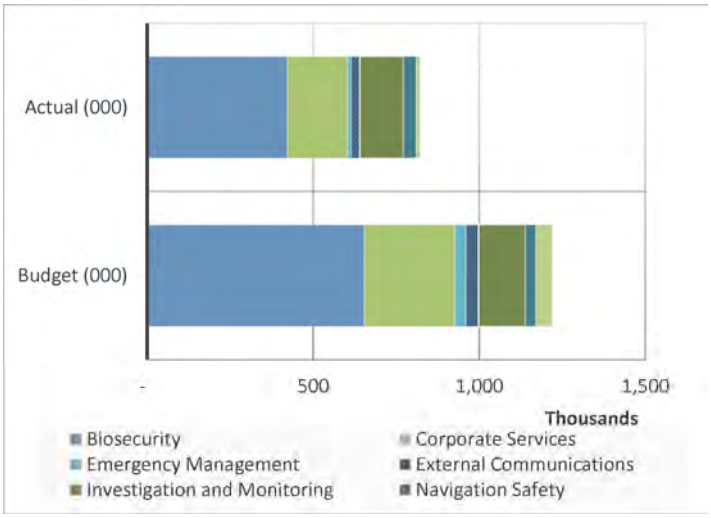


The third rate instalment was due on 15 February. This is the second year where Council will have four rate instalments during the year. The last rate instalment is due on 15 June. The graph indicates for the total rates levied for the year, 33% of rates remain outstanding. If the remaining instalment is excluded, the outstanding balance would be approximately 5%.
A significant portion of the outstanding balance relates to rates that were due in prior to 1 July 2022. A focus on collecting long outstanding rate balances is recommended to ensure the outstanding balance remains reasonable and collectable by year end.

Cashflow Forecast

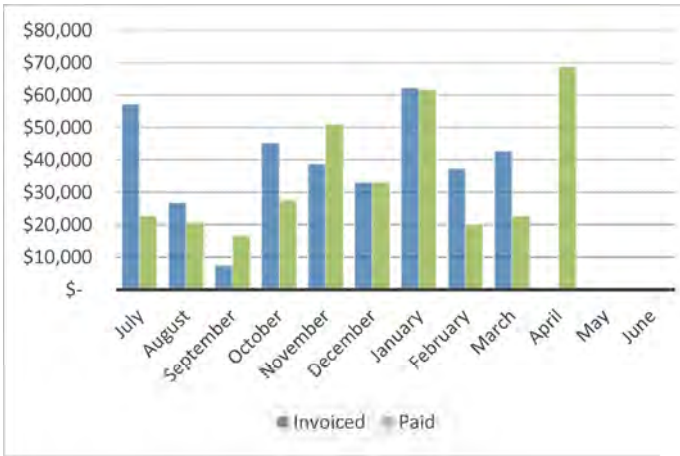


ECan Operational Expenditure



Actual expenditure reflects year to date spend, compared with the budgeted contract value. Biosecurity expenditure is lower than budget, with a deferment to the helicopter programme due to cost constraints.
ECan continues to operate within the overall budgetary constraints of the contract. Budget is likely to be fully allocated by year-end.

Revenue Council dues collectability



Note: The current outstanding Council Dues balance for April is $6k (including rolled forward balance from 2022).
Current trends are reflective of steady repayments being made. However, amounts have historically not always been repaid within a month of invoicing. Delays in collecting Council Dues, increases the risk of funds not being collected.

chatham islands council

Statement of Comprehensive Revenue and Expense

as at 30 April 2023

	Actual (000) $000	Budget (000) $000	Variance	Note Ref
Revenue				
General rates	303	289	14	**1**
Targeted rates	283	283	(0)	**1**
Grants & subsidies - Waka Kotahi NZTA	3,315	3,416	(101)	**2**
Grants & subsidies - other	4,623	6,343	(1,720)	**2**
Council Dues	302	280	22	
User pays, fees & charges and other income	1,835	621	1,214	**2**
Total revenue	**10,662**	**11,233**	**(571)**	
Expenditure				
Leadership and community partnerships	259	283	(23)	
Transportation, roading and coastal networks	1,635	3,663	(2,028)	**3**
Three waters - water	371	538	(167)	**3**
Three waters - wastewater & stormwater	130	125	5	**3**
Waste management and minimisation	726	472	255	**3**
Environmental management, protection and monitoring	820	846	(26)	
Community services	1,119	415	704	**4**
Emergency management	456	149	306	**5**
Corporate services	2,026	1,662	365	**5**
Total expenditure by activity	**7,542**	**8,152**	**(609)**	
Total surplus/(loss)	**3,120**	**3,081**	**39**	

Variance explanations:

1 Rates are invoiced based on the Council approved rates strike. A minor difference has occurred, with revision to targeted rates and in year penalty payments.

2 Roading subsidy based on 88% of actual expenditure (operational and capital). The negative variance in revenue is matched against the negative variance with roading capital and operational expenditure.
For the remaining grants and other income, Council has received an unbudgeted civil defence grant of $537k for water tanks and is expecting to receive other funds related to the three waters "better off funding" project.
The User pays, fees & charges and other income variance has increased with Council taking on the supply of petrol on the island (also contra increase in community services expenditure).

3 Infrastructure projects - primarily relate to the Stantec/Fulton Hogan roading, water, wastewater and waste management contracts. Three waters work has been paused, with the budget reflecting higher levels of grant funding and expenditure related to this programme, expenditure in 2023 had focused on providing information as part of the 'request for information' packages as opposed to actual 'maintenance' work being completed. The budget for waste management may not have incorporated the full value of the contract for service including support costs of waste management construction projects on island.

4 Community service expenditure primarily relates to the Council now supplying petrol for the island (further review to come at a later date). The budget incorrectly included grant and expenditure related to the museum, now constructed; CE expected to follow up any excess expenditure on the museum building from grant & interest funding received.

5 No notable areas of variance - significant movements relate primarily to the approach of allocating the ECan contract in budget and actuals. Otherwise, only notable area of increase to budget is with insurance payments within Corporate services.

Note depreciation expense (actual and budget) not included

Capital expenditure summary	Actual $000	Budget $000	Variance	Note Refere
Sources of capital funding				
Subsidies and grants for capital expenditure	2,017	2,333	(316)	**a**
Total sources of capital funding	**2,017**	**2,333**	**(316)**	
Application of capital funding				
Roading works	2,292	2,564	(272)	**a**
Three waters - water*	-	3,833	(3,833)	
Three waters - wastewater & stormwater*	-	1,250	(1,250)	
Waste management and minimisation*	369	1,566	(1,197)	
Other	413	-	413	
Total application of capital funding	**3,073**	**9,213**	**(6,140)**	
Movement in reserves	**(1,056)**	**(6,880)**	**5,824**	

***** Desired projects in the 2022/23 budget, removed due to lack of funding support

Variance explanations:

a Capital expenditure not included in budget, therefore The grant figure primarily relates to the Waka Kotahi budget, which is reflective of 88% of actual costs incurred. Actual expenditure behind expected budgeted levels, with work subject to timing fluctuations.

Note, budget figures are allocated on an equal monthly apportionment

Council Meeting
3.2 Annual Plan 2023/24

Date of meeting	8 June 2023
Agenda item number	3.2
Author/s	Tanya Clifford, ECan

Purpose
Having regard to the decision-making provisions within the Local Government Act 2002, for the Council to approve, the following information ratified by PARC - subject to any other adjustments or feedback received from the community:

- the assumptions underlying the budget information,
- the proposed capital expenditure for 2023/24 and
- the financial information forming the 2023/24 Annual Plan budget.

Recommendations

That the Council approves:

1. **the underlying assumptions applied to the 2023/24 Annual Plan as appropriate,**
2. **to approve the proposed capital expenditure (noting further capital expenditure may occur if grant funding is secured),**
3. **to approve the draft 2023/24 budget (noting the budget will form part of the Annual Plan 2023/24).**

Background information
The Long-Term Plan (LTP) is a planning document required under the Local Government Act 2002 that sets out a Council's priorities in the medium to long term. Whilst the plan is for a 10-year period, the document is revised every three years. Its purpose is to –

- Describe the council's activities and the community outcomes it aims to achieve.
- Provide integrated decision-making and coordination of the resources.
- Provide a long-term focus.
- Show accountability to the community.
- Provide an opportunity for participation by the public in council decision-making processes.

An annual plan is completed once a year and focuses on year-to-year budgets. Councils prepare an annual plan in each of the two years between LTP reviews and set out in them what the council plans to do in the next 12 months to move towards achieving its goals.

These plans are adopted before the start of the financial year in July. Whether the Council is required to consult with the public is at the Council's discretion and is dependent on the level of change between the proposed Annual Plan budget and that of the comparative budget in the Long-Term Plan for that year.

Our underlying assumptions

The 2023/24 Annual Plan has been prepared using the following assumptions:

- ***Annual Crown Contribution***: The Council in receives an annual appropriation of $4.2 million as a contribution to the cost of Council's statutory responsibilities. A Deed of Funding agreeing to provide ongoing support with the Crown exists, however the level of support is not determined until May each year, as part of the appropriation process, so a significant level of uncertainty related to funding exists. Funding for the 2023/24 financial year is anticipated to be $4.2 million, which is consistent with prior period funding and excludes inflationary adjustments, increased funding to meet new legislative compliance requirements and asset replacement works. The result of such a funding approach is service levels may drop or Council may be non-compliant with legislation until sufficient funding is received to improve the service level offered to our community.
- ***Waka Kotahi NZ Transport Agency subsidy rates:*** The current Funding Assistance Rate provided by Waka Kotahi is 88% of total roading expenditure. It is assumed the financial subsidy will continue over the period of the Annual Plan. The difference between roading expenditure and the Waka Kotahi grant is expected to be funded from targeted rates and allocated general funds (which includes the annual Crown contribution). Capital and operational expenditure for the period is expected to match the approved Waka Kotahi programme of work for the three-year period ending 2024, noting there may be work deferred or other variations between the three-year period which may require Council to review and amend its roading programme. Any work not completed at the end of the year, will be incorporated into a new funding bid.
- ***Growth and other price changes:*** It has been assumed that the population base will remain stable for the foreseeable future. It has been further assumed that the number of rateable properties will not change significantly over the period. Council assumes any ratepayer financial hardships will be managed through the rates remission and postponement policy. Future price level adjustments, including inflation and interest adjustments are based on those recommended to local Government by BERL. The Chatham Islands' isolation and small population result in a higher cost of living overall compared with the rest of New Zealand. Freight and Council dues inflate the cost of all goods imported from the mainland, and the small, remote consumer base drives up the cost of utilities and other services like air transport. To incorporate the higher costs of living and transportation impacts into Council's budgetary assumptions, an additional adjustment of 1% to expenditure price movements has been made.
- ***Legislative change:*** Government legislation, regulations and Council documents such as the Resource Management Document shape the Council's operational and capital expenditure. Council's approach to providing services on-island is to maintain existing levels of service. No provision has been made for the impact of legislative or other changes in the Annual Plan. Council does not have the ability to fund higher levels of expenditure driven by legislative change, unless additional funding support is provided from Central Government. If such funding is not provided, the Council will be unable to comply with the legislation.
- ***Climate change:*** No significant impacts related to climate change impacts has been included in the financial forecast. However, it is acknowledged that planning is required. Council is committed to taking a collaborative approach to addressing any identified local causes and impacts of climate change, which includes strategically varying our core Council infrastructure and internal policies to reduce or mitigate any greenhouse gas emissions. We are also working to protect and enhance our natural

environment to ensure we meet our obligations. We take these steps to enable our community to remain buoyant in response to any climate changes. Such costs of meeting our climate change obligations are expected to be absorbed into our current financial projections.

- ***Resilience of infrastructure related to natural hazards:*** Financial estimates exclude the financial implications of a natural disaster as it is not possible to quantify any impact on Council. Although Council is insured, not all costs would be covered. As is common for remote islands, most of the important infrastructure is located very near to the coastline, leaving it susceptible to natural disasters caused by the ocean. The natural disasters the Chatham Islands are most likely to be exposed to include: cyclones, tsunamis, and localised flooding. Given the roading structure radiates outward to the various townships, it is possible that some areas may be cut-off due to such events as the roads being impassable. It is therefore essential that our residents are suitably provisioned for such events, which is promoted through our community development and emergency response activities. Key infrastructural assets may be potentially damaged from such events where the infrastructure is located on the coast such as wharves, bridges, seawalls, roads, pipelines, and pump stations. If infrastructure is damaged, roading repair work will fall under the Waka Kotahi NZ Transport Agency programme, and water and wastewater repairs will fall under the operations and maintenance contract, with any additional repair cost being funded through the Chatham Islands Mayoral Relief Fund. If necessary, an application will be made for Crown assistance. Privately owned assets, such as wharves, will be repaired at the owner's expense.
- ***The Three Waters reform:*** The Water Services Entities Act 2022, establishes four publicly owned water services entities to take over responsibilities for three waters service delivery and infrastructure from local authorities from 1 July 2024, with later legislation proposed to enable the transfer of three waters related assets and liabilities to these water services entities. In April 2023, the Government announced further proposed amendments changing the number of water entities and date of transfer to the new water service entities. There remains a significant amount of uncertainty related to how this will impact the Chatham Islands Council. For the purposes of the Annual Plan and completing our financial forecast, it is assumed that the responsibility for managing the Three Waters programme, including providing levels of service, collection of rates, and payment of operating and capital expenditure (including any associated debt repayment), will rest with the Council.
- ***The Local Government Review:*** The Government has competed a Ministerial Inquiry assessing the Future for Local Government. The review has considered aspects of Local Government roles, functions, and partnerships; representation and governance; and funding and financing. Recommendations from this review are likely to take effect after 1 July 2024. The impact of the review remains unclear. However, council has prepared the Annual Plan on the assumption the existing role and functions will continue for the life of the plan. Any changes will be incorporated in the 2024-34 Long-Term Plan.

Our capital expenditure

The 2023/24 Annual Plan assumes asset additions currently identified as capital additions in the financial system for 2022/23 are correct and estimated additional capital expenditure for May and June, this is to provide an 'opening balance' for asset additions. Subsequent review may identify other items that require to be added to/removed from this balance and this may impact on the opening property plant and equipment balance accordingly.

The Owenga ramp construction project, initially intended to be completed in the 2022/23 has been deferred and therefore the project budget has been included within the 2023/24 financial year (with the expected Waka Kotahi grant being updated to reflect the change). All other roading capital expenditure is in line with the Land transport programme for 2021-24 as agreed with Waka Kotahi.

The Council received a grant in 2022/23 for the purchase and installation of water tanks, these will not be owned by Council but by individual residents and therefore the $500k has been recognised as expenditure. However, to ensure better visibility, the transaction has been recorded as here for Council information.

Council also expects to receive a grant of approximately $600k from the Tourism Infrastructure fund (TIF) in line with prior year support levels, whilst a project(s) has not been identified as yet, it is likely a portion of these funds will be directed to community capital projects.

With the exception of these three above projects, no other capital purchases have been identified. It is assumed the solid waste capital projects related to the weighbridge and 'Mitre12' building will be completed within the 2022/23 financial year, although some costs may overrun into 2023/24 financial year.

Council may also secure additional grant funding during the 2023/24 financial year to invest in other capital projects, the budget has not included any essential capital upgrades where funding has not been secured.

Our budget

- Our budget for the 2023/24 financial year is based on inflated figures used in the 2021 Long-Term Plan. However, key balances, including: roading (Stantec/Fulton Hogan contract), three waters, ECan contract, salary information and depreciation expenditure estimates have been updated along with the DIA annual appropriation along with other notable expected grants for the 2023/24 financial year.
- Based on previous PARC/Council recommendation, the rates increase has been set at 3% of the 2022/23 base rate.
- The budget has been reviewed for reasonableness, with adjustments made to remove transactions not expected to occur in 2023/24. For example, a one-off grant that is unlikely to be repeated in the future.
- Based on this work performed, a surplus of $1.3 million is expected, with a negative cash movement of $0.2 million and negative reserve contribution of $0.6 million. With the additional cash injection Council received in 2022/23 for the three water projects, it is expected CIC will have a positive opening balance and therefore can use cash/reserves to cover these costs and therefore, it is reasonable to consider the balanced budget assumption to be met. However, to ensure ongoing financial viability including financial resilience it would be advised to secure further funding.

Statement of Comprehensive Revenue and Expense

	Actual 2021/22 $000	Annual Plan 2022/23 $000	Long-Term Plan 2023/24 $000	Annual Plan 2023/24 $000	Long-Term Plan 2024/25 $000	Long-Term Plan 2025/26 $000	Long-Term Plan 2026/27 $000
Revenue							
General Rates	328	347	334	358	342	351	361
Targeted Rates	380	342	329	400	336	345	355
Grants & Subsidies	9,101	13,869	8,088	9,834	8,700	9,223	9,033
Council Dues	324	336	265	281	265	265	265
User Pays, Fees & Charges and Other Income	332	585	329	305	337	349	355
Interest	2	31	58	16	59	60	61
Total Revenue	**10,467**	**15,637**	**9,553**	**11,194**	**10,039**	**10,593**	**10,430**
Expenditure							
Depreciation and Amortisation	2,889	2,707	2,057	2,484	2,172	2,377	2,566
Employment Benefits	921	1,188	1,091	990	1,117	1,145	1,173
Financial Costs	13	12	3	3	1	-	-
Other Expenditure	6,960	5,875	5,664	6,553	5,678	5,993	6,373
Total Expenditure	**10,783**	**9,782**	**8,815**	**10,030**	**8,968**	**9,515**	**10,112**
Share of surplus of associate	(4)	129	150	150	-	-	-
Total Surplus/Deficit	**(320)**	**5,855**	**738**	**1,314**	**1,071**	**1,078**	**318**
Increase/decrease in Revaluation Reserve	13,490	10,262	-	-	-	-	-
Total Comprehensive Income	**13,170**	**16,117**	**738**	**1,314**	**1,071**	**1,078**	**318**

Statement of Financial Position

	Actual 2021/22 $000	Annual Plan 2022/23 $000	Long-Term Plan 2023/24 $000	Annual Plan 2023/24 $000	Long-Term Plan 2024/25 $000	Long-Term Plan 2025/26 $000	Long-Term Plan 2026/27 $000
Current Assets							
Cash & Cash Equivalents	212	2,501	879	166	920	903	808
Current Trade and Other Receivables	671	1,417	1,108	718	1,164	1,228	1,209
Total Current Assets	**883**	**3,918**	**1,986**	**884**	**2,084**	**2,131**	**2,017**
Non-Current Assets							
Investment in associate	180	184	500	500	500	500	500
Loan receivable	-	-	385	-	337	288	238
Property, Plant & Equipment	97,785	95,113	99,068	100,827	97,319	98,449	98,995
Total Non-Current Assets	**97,965**	**95,297**	**97,220**	**101,327**	**98,156**	**99,237**	**99,733**
Total Assets	**98,848**	**99,215**	**99,206**	**102,210**	**100,240**	**101,368**	**101,750**
Current Liabilities							
Bank Overdraft	-	-	-	-	-	-	-
Trade & Other Payables	1,657	2,092	1,644	1,541	1,672	1,774	1,886
Employee Entitlements	92	112	93	99	95	98	100
Provisions	60	25	25	25	25	25	25
Current Term Liabilities	18	36	68	21	54	50	51
Total Current Liabilities	**1,827**	**2,265**	**1,830**	**1,686**	**1,847**	**1,947**	**2,062**
Total Non-Current Liabilities	**135**	**295**	**432**	**95**	**378**	**328**	**277**
Total Liabilities	**1,962**	**2,560**	**2,262**	**1,781**	**2,225**	**2,275**	**2,339**
Public Equity							
Accumulated Funds & Reserves	96,886	96,655	96,944	100,429	98,015	99,093	99,411
Total Public Equity	**96,886**	**96,655**	**96,944**	**100,429**	**98,015**	**99,093**	**99,411**

Statement of Cash Flows

	Actual 2021/22 $000	Annual Plan 2022/23 $000	Long-Term Plan 2023/24 $000	Annual Plan 2023/24 $000	Long-Term Plan 2024/25 $000	Long-Term Plan 2025/26 $000	Long-Term Plan 2026/27 $000
Cash Flow from Operating Activities							
Receipts from rates revenue	702	690	667	811	673	691	718
Receipts from grants and subsidies	9,698	13,869	8,126	10,297	8,659	9,176	9,047
Receipts from Council Dues	340	336	267	301	263	263	266
Interest received	2	31	58	16	59	60	61
Receipts from other revenue	617	523	337	407	328	339	358
Cash provided from Operating Activities	**11,359**	**15,449**	**9,456**	**11,832**	**9,983**	**10,529**	**10,449**
Payments made to employees	(941)	(1,188)	(1,089)	(982)	(1,115)	(1,143)	(1,171)
Interest paid	(13)	(12)	(3)	(3)	(1)	-	-
Other payments to suppliers	(7,375)	(5,875)	(5,814)	(6,808)	(5,648)	(5,891)	(6,262)
Cash required for operating activities	**(8,329)**	**(7,075)**	**(6,906)**	**(7,793)**	**(6,763)**	**(7,033)**	**(7,432)**
Net Cash Flow from Operating Activates	**3,030**	**8,374**	**2,549**	**4,039**	**3,219**	**3,495**	**3,017**
Cash Flow from Investing Activities							
Purchase of Fixed Assets	(2,704)	(3,077)	(2,582)	(4,242)	(3,156)	(3,507)	(3,112)
Net Cash Flow from Investing Activities	**(2,527)**	**(3,077)**	**(2,582)**	**(4,242)**	**(3,156)**	**(3,507)**	**(3,112)**
Cash Flow from Financial Activities							
Repayment of Loans	(31)	175	(22)	(22)	(22)	(5)	-
Net Cash Flow from Financial Activities	**(31)**	**175**	**(22)**	**(22)**	**(22)**	**(5)**	**-**
Increase/(Decrease) in Cash Held	**473**	**5,472**	**(55)**	**(225)**	**41**	**(17)**	**(95)**
Opening Cash Balance	(261)	(2,971)	933	391	879	920	903
Closing Cash Balance	**212**	**2,501**	**879**	**166**	**920**	**903**	**808**

CIC FUNDING IMPACT STATEMENT	Actual 2021/22 $000	Annual Plan 2022/23 $000	LTP 2022/23 $000	LTP 2023/24 $000	Annual Plan 2023/24 $000	LTP 2024/25 $000	LTP 2025/26 $000	LTP 2026/27 $000
Source of Operating Funding								
General Rates, Uniform Annual General Charge, Rates Penalties	356	347	326	334	358	342	351	361
Targeted Rates	352	340	321	329	400	336	345	355
Subsidies and Grants for Operating Purposes	7,269	11,161	6,084	5,906	6,520	6,020	6,231	6,403
Fees and Charges	100	76	104	107	43	109	112	115
Interest and Dividends from Investments	2	31	57	58	16	59	60	61
Local Authorities Fuel Tax, Fines, Infringement Fees, and Other Receipts	556	974	486	487	543	493	502	505
Total Operating Funding	**8,635**	**12,929**	**7,378**	**7,221**	**7,880**	**7,359**	**7,601**	**7,800**
Applications of Operating Funding								
Payments To Staff And Suppliers	5,710	7,063	6,545	6,755	7,543	6,795	7,138	7,546
Finance Costs	13	12	4	3	3	1	-	-
Other Operating Funding Applications	2,171	-	-	-	-	-	-	-
Total Application of Operating Funding	**7,894**	**7,075**	**6,549**	**6,758**	**7,546**	**6,796**	**7,138**	**7,546**
Surplus (Deficit) of Operating Funding	**741**	**5,854**	**829**	**463**	**334**	**563**	**463**	**254**
Source of Capital Funding								
Subsidies and Grants for Capital Expenditure	1,832	2,708	2,479	2,182	3,314	2,680	2,992	2,630
Increase (Decrease) in Debt	(31)	161	(21)	(19)	(19)	(21)	(5)	-
Gross proceeds from sale of assets	1	-	-	-	-	-	-	-
Total Source of Capital Funding	**1,801**	**2,869**	**2,458**	**2,163**	**3,295**	**2,659**	**2,987**	**2,630**

Application of Capital Funding								
Capital Expenditure								
-- to improve the level of service	-	-	492	257	1,420	1,029	810	105
-- to replace existing assets	2,544	3,077	2,445	2,222	2,822	2,016	2,590	2,884
Increase (Decrease) in reserves	403	5,646	350	147	(613)	177	50	(105)
Increase (Decrease) of investments	-	-	-	-	-	-	-	-
Total Applications of Capital Funding	**2,947**	**8,723**	**3,287**	**2,626**	**3,629**	**3,222**	**3,450**	**2,884**
Surplus (Deficit) of Capital Funding	**(1,146)**	**(5,854)**	**(829)**	**(463)**	**(334)**	**(563)**	**(463)**	**(254)**
Funding Balance	**(405)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Reconciliation of Operating Funding to Statement of Comprehensive Revenue and Expense								
Surplus (Deficit) of Operating Funding	741	5,854	829	463	334	563	463	254
Subsidies and Grants for Capital Expenditure	1,832	2,708	2,479	2,182	3,314	2,680	2,992	2,630
Depreciation	(2,889)	(2,707)	(3,081)	(2,057)	(2,484)	(2,172)	(2,377)	(2,566)
Share of surplus of associate	(4)	-	150	150	150	-	-	-
Movement in revaluation	-	-	10,262	-	-	-	-	-
Surplus/(deficit) before taxation per Statement of Comprehensive Revenue and Expense	**(320)**	**5,855**	**10,639**	**738**	**1,314**	**1,071**	**1,078**	**318**

4. Works & Services

4.1 Stantec Engineering Report – April 2023

Date of meeting	8 June
Agenda item number	4.1
Author/s	Shaun Bosher - Stantec New Zealand

Purpose

To update and inform Council about its Engineering Services contract.

Recommendations

THAT the reports be received.

Background

Members from the Stantec team will teleconference in to the meeting to give a verbal report on monthly activities.

Attachments

1. Stantec Monthly Report April 2023

CIC Engineering Services Contract: Monthly Report

Financial update – April 2023

Financial Position: Roading

The roading budget allocated for the 2022/23 financial year approved by Waka Kotahi is $5.16M.

The approved Maintenance, Operations and Renewals (MOR) budget is $4.02M (including carry-over from 21/22), and $1.26M of Low Cost, Low Risk (LCLR) funding.

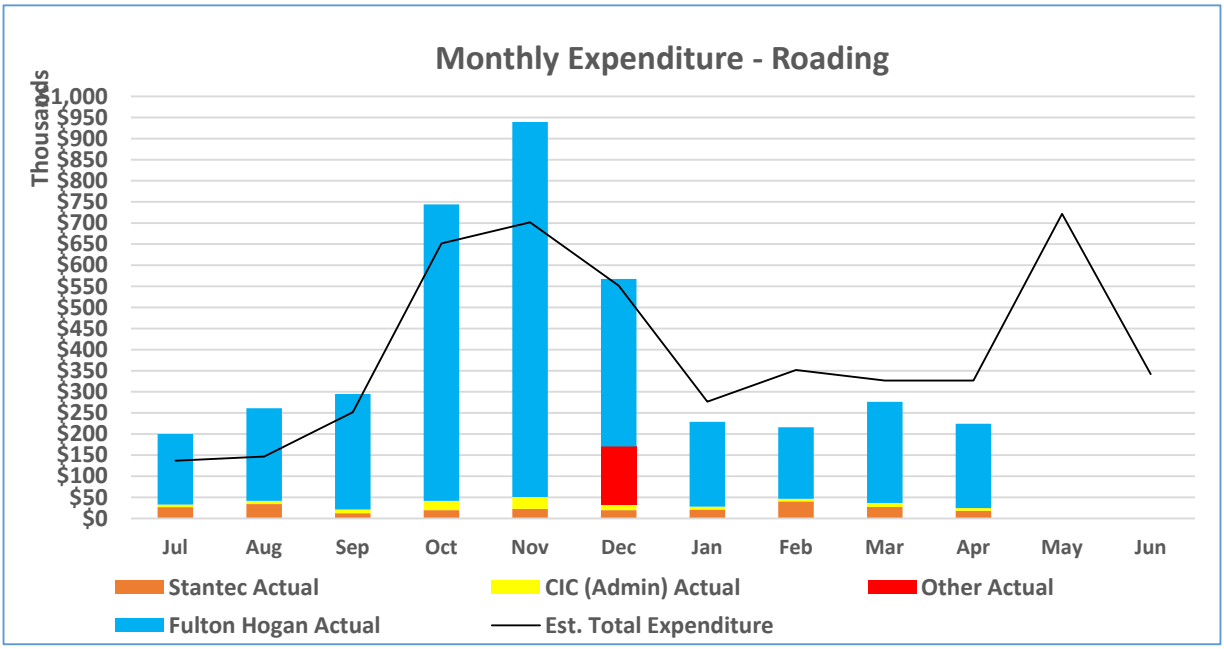
The April claim totalled $224k. We have now spent approximately 65% of the total budget and are 83% of the way through the financial year.

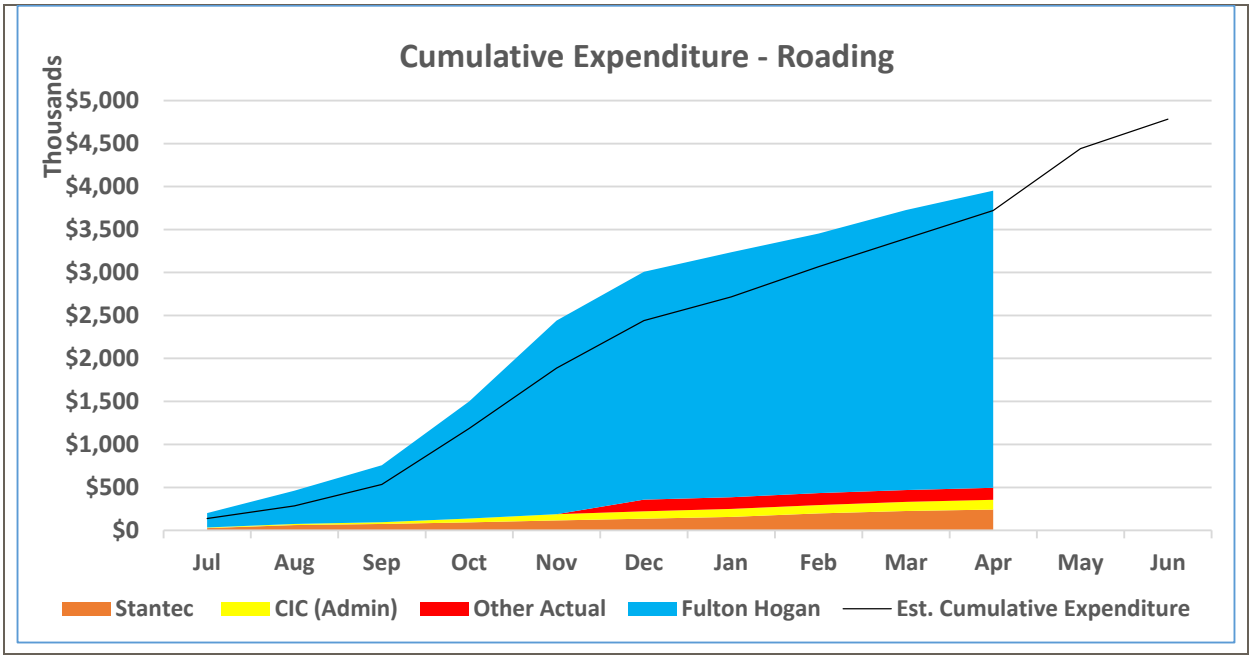
Expenditure of the core Maintenance, Operations, and Renewals (MOR) work has exhausted 92% of the FY 22/23 MOR budget. Discussions are being held with Waka Kotahi about bringing forward money form the 23/24 FY year to cover the expected shortfall.

The largest individual construction cost was for the Tuku Gully swales. The Largest engineering cost was the attendance at the Te Ringa Maimoa (Roading Efficiency Group) Workshop.

Expenditure Tracking of Waka Kotahi Funding

Tracking graphs for roading expenditure are presented below.





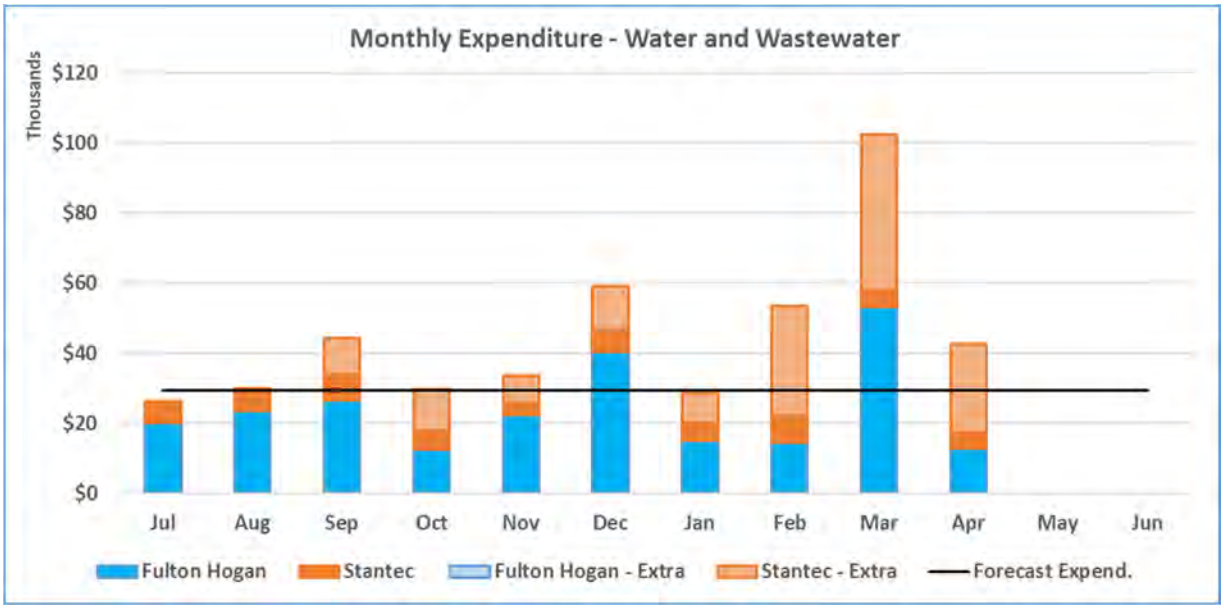
Financial Position: Water and Wastewater

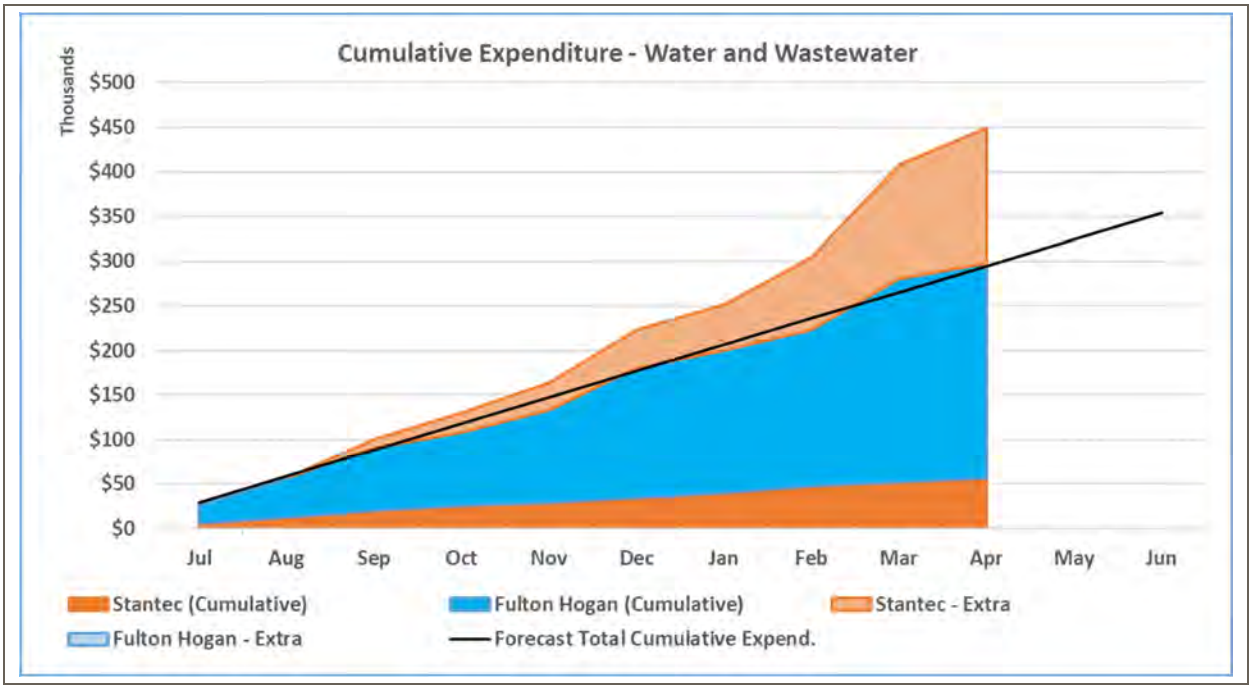
The operational expenditure for W+WW allocated in the 2021-31 LTP for 2022/23 is $354,000.

The March claim totalled $102.3k. The main construction costs were to assist with the installation of the new balance tank at the Waste Water treatment plant, and the main engineering costs were from the additional support for the on-going Three Water Reform.

Expenditure Tracking of Water & Wastewater Funding

Tracking graphs for the W+WW expenditure are presented below.




Cumulative Expenditure - Water and Wastewater
Thousands
$500
$450
$400
$350
$300
$250
$200
$150
$100
$50
$0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Stantec (Cumulative)
Fulton Hogan (Cumulative)
Stantec - Extra
Fulton Hogan - Extra
Forecast Total Cumulative Expend.

Roading Update – April 2023

Short-Term Roading Forward Work Programme	
Renewals	• Unsealed pavement strengthening works on North and Airbase Road to progress in 23/24 when funding becomes available now that the airport hauling has finished
Drainage	• Further drainage renewal works are planned for Tuku Road still subject to confirmation of the locations of underground electricity services in the area
Professional Services	• Ongoing monitoring for programme adjustments if inflation continues to increase. • Liaise with Waka Kotahi around requirements for next funding submission and to bring forward funding to cover the expected funding shortfall in 22/23
Whangamoe Bridge Design (LCLR)	• Stantec to begin the process for legalisation of the alignment of the legal road following completion of the bridge replacement works.
Road Safety Inspection	• Stantec Road Safety Engineer to undertake Road Safety Inspection 23rd to 26th May. • Inspection report to be issued shortly after.
Mid-Term Roading Forward Work Programme (approx. 2-6 months)	
Whangamoe Bridge Design (LCLR)	• Finalise legal boundaries and apply to Māori Land Court to lodge new titles for adjacent parcels and road. • Arrange for a cadastral survey of the road alignment following fence construction.
Owenga Loading Facility Design (LCLR)	• Draft concept design completed in consultation with the barge society/barge designer and builder to ensure proposed loading facility will work well with the barge operations. Currently with Contractor for constructability review. • Undertake a consent needs assessment and archaeological assessment in advance of physical works once design form and dimensions are confirmed.
Network & Asset management	• Identify quantum of work required in next 3-year NLTP cycle, and begin planning the NLTP / RLTP 24-27 Bid in earnest. • Progress preliminary design works on Maipito Bridge replacement for inclusion in the next NLTP investment cycle • Identify additional possibilities for minor Low Cost / Low Risk projects
Long Term Roading Forward Work Programme	
Owenga Loading Facility Construction (LCLR)	• Begin construction of the barge loading facility at Owenga.

Pavement Maintenance	
Previous Status: • The unsealed pavement programme will resume with rehab works on North Road June / July 2023. The amount of work will depend on the condition that the road is handed back in and the available Waka Kotahi funding.	***Updates:*** •

Drainage Maintenance	
Previous Status: • Some culvert replacements for Tuku Road are programmed but dependent on the Power Board as they are in the vicinity of the underground 11 kV power cables. • Fulton Hogan still trying to get in touch with CIET to progress Tuku Drainage work around power mains.	***Updates:*** • Drainage work in Tuku Gully has been completed but wet weather has delayed safe retrieval of some FH equipment.

Bridge Maintenance	
Previous Status: • The Te Awainanga replacement cleats are being fabricated and replacement works will begin when they arrive on island.	***Updates:*** • Pitt Island catch-up Inspection Addendum issued

Whangamoe Bridge Replacement	
Previous Status: • Enabling works to assemble the culvert barrel have been completed ahead of installation to minimise construction time	***Updates:*** • An agreement with the landowners has been formalised and FH have been instructed to proceed with the installation of the culvert

Owenga Loading Ramp Design	
Previous Status: • Bryan had a more detailed discussion with the Barge Society around form and dimensions for loading ramp. • Concept design work is on-going	***Updates:*** • Concept design with Contractor for feasibility review

Professional Services	
Previous Status: • Responding to Audit NZ queries has continued for all of March and into April. • Stantec have confirmed the preferred Tuku Gully signage and can assist Council with stakeholder engagement	***Updates:*** • Audit NZ queries reduced during April. •

Kaingaroa & Owenga Wharf Repairs	
Previous Status: • Bryan inspected both Wharves during his site visit. Contract management with Hunter Civil ongoing.	***Updates:*** • Hunter have completed the raising of the cross-bracing during their last visit but the conditions were too rough to complete the pile jacketing. • Crews will return to island at a later date to complete pile jacketing works.

Stantec Site Visits	
Previous Status: • Previous Roading site visits: Rebecca & Nigel in early March and Bryan in mid-February.	***Updates:*** • Next Stantec Roading visit 30th May to 2nd June

CIC catch-ups in Christchurch	
Previous Status: •	***Updates:*** •

Waka Kotahi (NZTA) Correspondence	
Previous Status: • Stantec attended the Te Ringa Maimoa Regional Efficiency Group (REG) Canterbury Workshop to understand timings and expectations at Waka Kotahi for the next funding and Activity Management Plan submission	***Updates:*** • Stantec to meet with the Waka Kotahi Investment Advisors on the 3rd of May to clarify on some of the guidance from the REG workshop and tailor our approach for our unique environment.

Water and Wastewater Update – April 2023

Contract Documentation	
Project:	***Current Status:***

Water Compliance	• CIC needs to carry out a catchment risk assessment / Source Water Risk Management Plan for both supplies.
	• CIC needs to revise the Water Safety Plans (WSP) for both supplies
	  o The revised WSP framework was released in December 2018. The current WSPs need substantial revision to comply with the new framework, by November 2022. CIC has elected to not review its WSPs at this stage. CIC had intended to update the WSPs through the 3Ws Reform Programme, but elected to allocate funds to capital works instead.
	• Tikitiki bore radiological testing was completed and results were all below detection limits for Radon, alpha activity, and beta activity.
	  o Radiological testing is to be repeated by October 2026.

Water Supply	
Project:	***Current Status:***
All Supplies – Funding and Site Visit	• In light on the 3Ws Reform announcement on 13 April 2023, responses to queries from DIA, the NTU, and Entity C are on "pause". Once additional information is provided on the future 3Ws delivery on the Chathams is provided, Stantec's inputs will be reassessed and an updated delivery plan will be developed.

Kaingaroa – Lake Rangitai	• There are some outstanding documentation deficiencies by FILTEC following the upgrade works at the WTP.
	• The new cloud-based telemetry system was installed and commissioned in April 2022.
	  o Updates to the online portal have been completed.
	  o Additional improvements to the telemetry system are planned for the next financial year (e.g., treated water tank level monitoring).
	• **The majority of the intake pipe has been installed at Lake Rangitai, with one last pipe section outstanding. The water level at Lake Rangitai has risen and completion of the intake pipe is delayed. Works at the intake pump shed (e.g., new pump, flow meter) are scheduled for May 2023. O&M contract funds are being used to complete this project.**

Waitangi water supply	• There are some outstanding documentation deficiencies by FILTEC following the upgrade works at the WTP.
	• The new cloud-based telemetry system was installed and commissioned at both WTPs in April 2022.
	  o Updates to the online portal have been completed.
	  o Additional improvements to the telemetry system are planned for the next financial year (e.g., Met Station Tanks and WTP connectivity).
	• CIC to consider introducing rules for enforcing private repairs within a certain timeframe to minimise loss of water and ensure the supply network can be maintained. **Ongoing**.
	• CIC to consider whether charges are applied for taking water from the FH yard and/or if water is only able to be taken during hours when the yard is manned (i.e., locked at other times). **Ongoing**.

Reporting/ Monitoring/ Sampling
April 2023
	• **Complete water quality results for April 2023 are outstanding. A request for the complete results has been issued. Samples were collected on 4 April 2023 and a preliminary report from Hill Laboratories on 6 April 2023 indicating that no E.coli was detected in the Waitangi Water System, nor the Kaingaroa Water System (except for the raw water at Lake Rangitai)**
	• **Waitangi Water Supply**
	  o Not complying with DWSNZ for protozoa with UV disinfection system.
	  ▪ The UV reactor is providing a protozoa barrier.

	▪ Non-compliance is related to monitoring: UVI or UV dose (2 per week). UVT is monitored adequately. ▪ Monitoring is consistent with the existing WSP. • **Kaingaroa Water Supply** o Not complying with DWSNZ for protozoa with UV disinfection system. ▪ The UV reactor may not have provided a protozoa barrier due to a low UVT reading. ▪ Non-compliance is related to monitoring: UVI or UV dose (2 per week). UVT is monitored adequately. ▪ Monitoring is consistent with the WSP • **Council Office – Rain Water Supply** o Monthly monitoring is being completed, but not for compliance with the DWSNZ at this stage since it is not a registered supply. • **MPA Batching Bore (Potential Future Water Supply)** o MPA bore no longer in operation (or sampled). See June 2018 monthly update for results and conclusions.
Wastewater Treatment	
Project:	***Current Status:***
WWTP maintenance	• **Discharge consent review on-going.** • 70% of plantings have been planted in the land application area. Remaining 30% of plants due to be planted.
Reporting/ Monitoring/ Sampling **April 2023**	• **Waitangi Treated Wastewater Discharge** o **Treated wastewater results for April are outstanding for samples collected on 4 April 2023. A request for the results has been issued to Hill Laboratories.** o Stantec to review algae treatment options and sludge accumulation issue. o Maintenance and upkeep of the land application areas (i.e., tall grass / weeds) required.
General	
	• N/A

Solid Waste Update – April 2023

Landfill Operation	
Current Status: • MfE are to conduct an audit of the landfill in May, having postponed this from late last year.	***Actions – Stantec*** • Provide operational advice as requested from time to time by CIC staff. • Awaiting advice from Viking Containment on cost-effective liner repairs. ***Actions - Council*** • Placement of waste in the landfill to be undertaken as advised by Stantec.
Waste Minimisation Project (MfE Waste Minimisation Fund)	
Current Status: • Y1M3 report has been completed for the MfE. • Turtons have achieved completion and have provided additional information to support the Code of Compliance Certificate. • Building Inspectors have visited to inspect the Mitre 12 facility. • Additional signage and metal frames have been ordered and proofs of new signs provided to Council by ECan. • Sliding doors for the Te One MRF building have been installed.	***Actions - Stantec*** • Stantec to continue work with CIC, suppliers, and contractors, as needed. ***Actions - Council*** • Council to establish insurance needs for taking over the Mitre 12 facility. • Council and Stantec to complete milestone reports.
Weighbridge Project (CRRF Project)	
Current Status: • The weighbridge has been installed at Te One and is up and running. • The two one-tonne tare weights have been shipped and delivered to site. • Fulton Hogan to test the weighbridge with one-tonne weights to confirm its accuracy.	***Actions - Stantec*** • Stantec to continue to work with CIC, suppliers, and contractors, as needed. • Stantec to arrange spreadsheet from Precia Molen. ***Actions - Council*** • Council to provide input on the project, as needed. • Council to raise invoice for MfE's payment, as needed.
Sludge Lagoon Project	
Current Status – no change. • Stantec has provided a short report on the requirements for installing an overflow to the leachate pond. This has been given to FH.	***Actions - Stantec*** • No outstanding actions. ***Actions - Council*** • FH staff to install the overflow at the leachate pond. • Council to work with Stantec to secure funding for the Sludge Facility Project.

Other Waste Management Matters	
Current Status – no change. • Workshop held to discuss the draft Solid Waste Bylaw and draft Waste Management and Minimisation Plan. • Council has accepted the draft Solid Waste Bylaw and draft WMMP for consultation, together with the Statement of Proposals. • Stantec is still progressing a draft Issues and Options paper on SW Charges.	***Actions - Stantec*** • Stantec to be involved in consultation process for the draft Solid Waste Bylaw and draft WMMP, as needed. • Stantec to finalise a draft Issues and Options paper on SW disposal charges. ***Actions - Council*** • Council to consult on the draft Sold Waste Bylaw and draft WMMP.

4. Works & Services

4.2 Fulton Hogan Road Maintenance Report April 2023

Date of meeting	8 June 2023
Agenda item number	4.2
Author/s	Phil Holt – Fulton Hogan Contract Manager

Purpose

To inform and update the Council on the Chatham Islands Road Maintenance programme.

Attached is the April 2023 monthly reports from Fulton Hogan that will be presented by Mr Phil Holt (Fulton Hogan Contract Manager).

Recommendation

THAT the report be received.

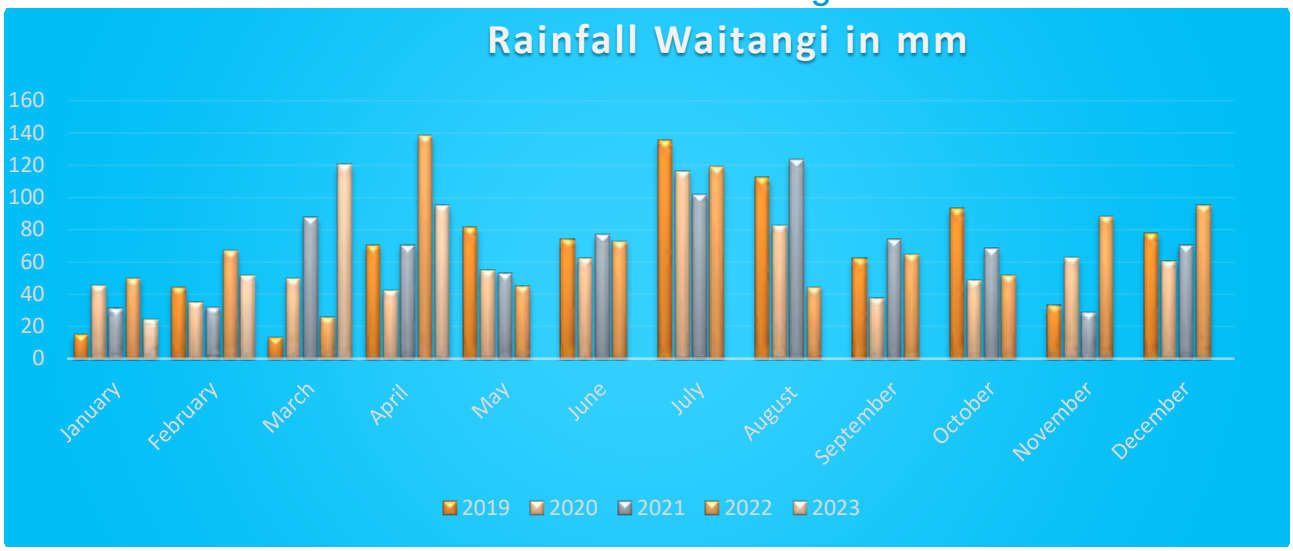
Awatotara Drainage Works Tuku Road

CHATHAM ISLANDS ROAD MAINTENANCE CONTRACT MONTHLY REPORT APRIL 2023

Work Summary
Outline of work carried out during month
Routine Maintenance and Operations
Pavement Renewals
Sealed Road Resurfacing
Drainage Renewals
Bridge and Structure Renewals
Traffic Services
Minor Improvements
Vegetation Control
Dayworks
Programmed Work for following month
Schedule of Work by Road Name
1. Maintenance Grading
2. Unsealed Maintenance Metaling
Next Month’s Target
Crash Damage Report Summary
Monthly Safety Report and Statistics
1. Safety Engagements
Metal Stockpiles
CIC Owned Materials
Signs
Culvert Pipes
Environmental Compliance & Feedback
Environmental Compliance
Stakeholder Complaints Register
Public Relations & Community Involvement
Innovation
When conditions allow we will continue with the blended maintenance material and continue to monitor areas already done to gauge how they perform in the wet/dry conditions.
Summary of Monthly Progress Claim by Work Category
1. Miscellaneous
2. Traffic Counting
3. Pitt Island
4. Wind Damage
Photos

Work Summary

Outline of work carried out during the month.



95.5mm rainfall recorded for April in the Waitangi yard.

Routine Maintenance and Operations

Finished doing drainage maintenance on Tuku road ahead of the wetter months, clearing ends of culverts and cleaning up our dump sites. Removing the high shoulders and reinstating watertables where required to let water shed from the pavement.
Very wet month so we were able to get a bit of metal on worst areas ahead of winter and give roads a grade.

Pavement Renewals

Sealed Road Resurfacing

Drainage Renewals

Replaced a couple of broken culverts on Tuku Road.

Bridge and Structure Renewals

Working with the land owners representatives to enable us to proceed with bridge replacement.

Traffic Services

Minor Improvements

Vegetation Control

Mowing where required as weather still pretty mild so grass is still growing.

Dayworks

Programmed Work for following month

Mainly routine works as and where required.

Schedule of Work by Road Name

1. Maintenance Grading

- Carried out as required during the month on the following roads:

Road ID	Disp	Road ID	Start RP	End RP	Quantity M
NORTH ROAD	5009	21	0	48508	32518
TAIA-HAPUPU ROAD	5011	41	0	5325	5325
WHAREKAURI ROAD	5022	121	0	4829	4829
AIR BASE ROAD	5026	71	0	5900	5900
PORT HUTT ROAD	5027	51	0	16615	16615
RAPANUI ROAD	5036	81	0	1155	1155
					66342m
				TOTAL	**66.342km**

2. Unsealed Maintenance Metaling

Road ID	Disp	Road ID	Start RP	End RP	Quantity	
TAIA-HAPUPU ROAD	5010	41	0	5325	328	
KAIWHATA ROAD	5016	31	0	1050	88	
NORTH ROAD	5017	21	4590	48508	408	
PORT HUTT ROAD	5019	51	0	16615	224	
TUKU ROAD	5021	111	700	5500	8	
		Totals		**This Month**	**1056**	**m3**
				Revised Target	**45000**	**m3**
				Contract TD	**45410**	**m3**

Next Month's Target

Currently 410m3 ahead at this stage due to getting roads ready for the wetter months ahead.

Crash Damage Report Summary

Crash Damage Report

Date	Event	Action	Repaired Y/N
9/05/22	Police asked us about a vehicle rollover on North Rd = we did hear about it but all cleaned up by the time we got there.	No damage to the road.	N
14/07/22	A car has gone off the road into the end of a culvert on North road by Cliff Whatiri's yards.	No official report of harm or damage.	N
31/10/22	A vehicle rolled on the flat straight section of North road just before the Wharekauri Reserve.	No official report of harm or damage to road. Vehicle not healthy.	N
20/12/22	A vehicle hit the bank by Big Bush and rolled onto its side = driver taken to hospital = blacked out due to being a diabetic	Given insulin at the hospital and recovered. Van righted and towed to a safe area.	N
25/01/23	A vehicle rolled while moving over to miss an approaching truck = hit loose metal on the side of the road, lost control and rolled = write off.	Driver taken to hospital for a checkup & vehicle removed from road.	N Road was graded the day before and this person travels the road regularly at speed.

Network Inspections

Month	Inspection Type	Faults Identified	Inspected By
June	Day	6 monthly road survey and report done.	Phil
July	Day	Weekly drive overs to make sure all was good after heavy rain events.	All Crews
August	Day	Drive over the network doing a sign audit = no real problem with network found	Phil
September	Day	All roads checked after rain events for damage.	All Crews
December	Day	Roadroid survey done = no problems found on the network.	Phil
January 2023	Day	Drive around network looking at signs etc	Phil
March 2023	Day	Drive around network to check culverts etc ahead of the winter period.	Tomby

Monthly Safety Report and Statistics

Nothing to report.

1. Safety Engagements

Date	Near Miss	Incident	Lost Time Injury	Plant Damage	Depot/Worksite Inspections
24/11/21	N	N	N	N	Inspection of Tiki Tiki water plant upgrades.
24/01/22	N	N	N	N	Meeting with crew to run through the Covid-19 requirements now we are in the Red.
14/03/22	N	N	N	N	Site visit to WW-O Rd culvert installation.
6/04/22	N	N	N	N	Culvert replacement site visit on WW-O road = all ok
26/05/22	N	N	N	N	Stoney Crossing quarry inspection = all good.
23/06/22	N	N	N	N	Culvert replacement site on WW-o Road = all good.
22/08/22	N	N	N	N	HSQES site audit carried out while crew clearing culvert ends = all ok.
12/09/22	N	N	N	N	Target Hill counterfort drains = making sure correct installation procedure being followed = all ok.
7/12/22	N	N	N	N	Reseal site inspection = all TM in place and sufficient.
29/3/23	N	N	N	N	Tiki Tiki water plant check with Kirsten.

Metal Stockpiles

30/04/2023							
Site	***AP40 Schist***	***AP65***	***AP32 Basalt***	***AP100 Schist***	***AP20***	***G3 Chip***	***G5 Chip***
Waitaha Schist	1,838	0	0	3,933	0		
Waitaha Basalt	0	0	0	0	371		
Paritu	2,902	0	0	1,593	0		
Stoney Crossing	0	3,706	10,578	0	2,494	287	361
Yard	0	0	0	0	0		
Ohinemama	0	0	0	0	0		
Muirsons Schist	0	0	0	1,038	0		
	4,740	3,706	10,578	6,564	2,873	287	361

CIC Owned Materials
Signs

Item Description	Unit	Purchased	Used April 2023	End Measure	Comments
Signs					
CS85 North Rd	ea.			1	
CS85 Port Hutt Rd	ea.			1	
RG1	ea.			1	
RG2	ea.			0	
RM6 White	ea.			8	
RM6 Yellow	ea.			7	
RM7	ea.			16	
P66X242	ea.			7	
PW11	ea.			1	
PW11.1L	ea.			1	
PW11.1R	ea.			1	
PW12L	ea.			1	900
PW12R	ea.			1	
PW24	ea.			2	
PW25 65KM	ea.			1	
PW28	ea.			1	
PW34.1	ea.			1	900 Y
PW34.2	ea.			2	
PW37	ea.			1	900
PW49 FIRE ENGINE	ea.			2	
PWSX1	ea.			2	
RH-4	ea.			2	
PW54	ea.			2	
Marker pegs					
EMP	ea.		33	329	
CULVERT MARKERS	ea.			8	
WHITE RAPID MARKERS	ea.			61	
Misc. Items					
ACROW PROPS	ea.			6	
ROAD COUNTER	ea.			1	
ROUGHOMETER	ea.			1	

Culvert Pipes

ALUFLOW

Item Description	Unit	Used	Purchased	End Measure
375mm	m			5
450mm	m			6
600mm	m			0
750mm	m			6
Civilboss				
225mm	m			36
300mm	m	12		36
375mm	m			54
450mm	m			50
525mm	m			15
600mm	m			30
700mm	m			30
800mm	m			30
1000mm	m			12
Builders Mix				
CEMENT	T			0
GEOGRID Tensar Triax 160	Rolls			14
BIDIM CLOTH 4m x 100m	Rolls			14
BIDIM CLOTH 4m x 50m	Rolls			13

Environmental Compliance

Date	Site Inspected	Compliant Y/N	Abatement Order Issued	Corrective Action Required	Completed By
20/01/22	Stoney Crossing Quarry	Y	N	N	Phil
14/03/22	WW-O Rd Culvert Installation	Y	N	N	Phil
27/06/22	Stoney Crossing Quarry	Y	N	N	Phil
26/08/22	North Road Strengthening works	Y	N	N	Phil
13/10/22	Target Hill Rehab Site	Y	N	N	Phil
1/12/22	Kaingaroa Rehab Site	Y	N	N	Tomby
21/02/23	Whangamoe Bridge Replacement	Y	N	N	Tomby

Stakeholder Complaints Register

Month	Council/ Public Complaint	Complaint	Repair Undertaken	Response Time
24/01/22	Public	Complaint about weeds in footpath cracks outside café.	Sprayed when weather allowed.	1 Week
15/02/22	Public	Muddy sections on WW-O Road after all the recent rain.	Metal put on worst areas.	Same Day
20/05/22	Public	Cattle stop on Kaingaroa road had large potholes at each end.	Grader was actually on the road at the time.	Same Day
26/05/22	Public	North Road dusty.	Not a lot can be done for this – it happens in dry weather.	
26/05/22	Public	Rubbish from the Te One transfer site was blowing into neighbouring properties.	Staff picked up what they could considering the very strong winds at the time.	Next Day
04/10/22	Public	Large potholes in metaled dip area in the seal at Kaingaroa.	Potholes filled when crew available and weather allowed.	1 Week
20/01/23	Public	Planks lifting on bridge.	Was a deep pothole in the RH wheel track that made it feel like bridge planks were lifting?	Next Day

Public Relations & Community Involvement

Innovation

Summary of Monthly Progress Claim by Work Category

	April 23	Separable Portion One - Roading			
Item	**Work Category**	**Value for Month**	**Value YTD**	**Annual Budget**	**% of Annual Budget**
1	P&G Other	$116,426.86	$1,518,631.55	$972,000.00	156.24%
2	Routine Maintenance and Ops	$62,603.13	$652,206.42	$910,000.00	71.67%
3	Pavement Renewals	$0	$716,337.04	$874,000.00	81.96%
4	Sealed Road Resurfacing	$0	$305,941.82	$227,000.00	134.78%
5	Drainage Renewals	$8,701.49	$113,695.45	$233,000.00	48.80%
6	Bridge Renewals	$0	$12,887.66	$111,000.00	11.61%
7	Traffic Services	$6,437.56	$21,634.44	$20,000.00	108.17%
8	Minor Improvements	$0	$0	$100,000.00	0%
9	Vegetation Control	$5,408.41	$54,066.10	$55,000.00	98.30%
11	Dayworks	$0	$51,779.94	$251,000.00	20.63%
	Total	**$199,577.45**	**$3,447,199.50**	**$3,753,000.00**	91.85%

Estimated

1. Miscellaneous

2. Traffic Counting

Have had the software downloaded onto new computer and am waiting for Dylan to show us how to program the unit for counts.

3. Pitt Island

4. Wind Damage

No reported or visible signs of damage this month.

Photos

Tuku Road Culvert Replacements

Tuku Gulley

4. Works & Services

4.3 Fulton Hogan Water and Wastewater Operation Contract Report April 2023

Date of meeting	8 June 2023
Agenda item number	4.3
Author/s	Phil Holt – Fulton Hogan Contracts Manager

Purpose

To inform and update the Council on the Chatham Islands Water and Wastewater Operation programme.

Recommendations

THAT the report be received.

Background

Attached is the April 2023 report from Fulton Hogan that will be presented by Phil Holt (Fulton Hogan Contract Manager).

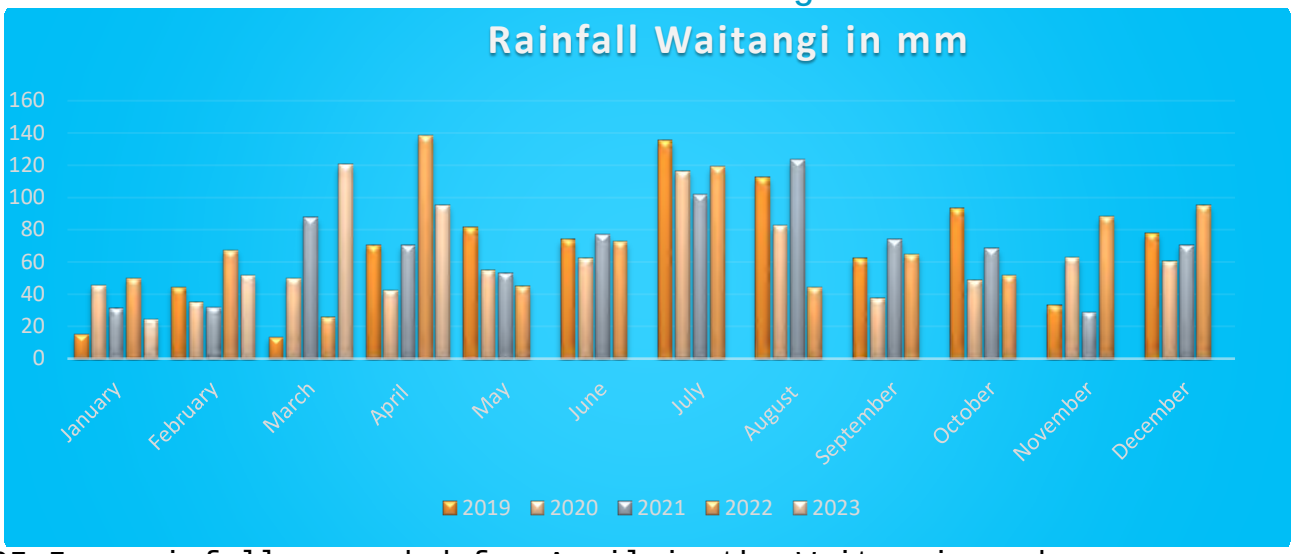
p

Kaingaroa Water Supply Lake 1st May

CHATHAM ISLANDS WATER AND WASTEWATER OPERATION CONTRACT MONTHLY REPORT

Work Summary

Outline of work carried out during the month.



95.5mm rainfall recorded for April in the Waitangi yard.

Water Supply Operation & Maintenance

Tikitiki bore working ok at the moment with all tanks being full. Water meter readings showed up a few properties with high usage and we are addressing these. Water level in the bore has come back up to normal. Raw water turbidity has settled down and plant is running good at the moment.
Kaingaroa = Treated water tanks are full and plant operating ok. Supply lake level is still high with all the rain we have had.

Water Treatment

Tiki Tiki plant = Plant operating good with very little trouble this month.
Kaingaroa plant = Operating ok. FAC still spiking when plant is running and water is being drawn for town, but nothing unusual for this type of operation.

Wastewater Treatment Plant at Waitangi

Plant coped ok with the last couple of heavy rain events since we have repaired/limited the amount of stormwater ingress. FH sparky has been in and done all the wiring that can be done till a couple of parts arrive from NZ. He will come back in Mid-May to complete and commission plant.

Dayworks – Water

Dayworks – Wastewater

Water and Wastewater Reticulation Network

No problems with the network this past month.

Water and Wastewater Treatment Plant: Monitoring

WWWT plant and water samples all good.

Kaingaroa Lake Monitoring Post = lake level is still up with all the recent rain events.

Summary of Monthly Progress Claim by Work Category

	April 23	Separable Portion Two - Water and Wastewater			
Item	**Work Category**	**Value for Month**	**Value YTD**	**Annual Budget**	**% of Annual Budget**
13	Preliminary and General	$4,120.57	$81,008.67	$49,614.04	163.28%
14	Water Supply Ops and Maint	$922.32	$9,223.20	$20,067.84	45.96%
15	Water Treatment	$2,947.89	$32,533.75	$39,801.86	81.74%
16	WWTP Waitangi	$922.32	$9,223.20	$35,580.63	25.92%
17	Dayworks - Water	$398.55	$43,015.06	$9,519.14	451.88%
18	Dayworks - Wastewater	$2,350.13	$49,928.46	$7,090.55	704.15%
19	Water and Wastewater Reticulation	$0	$461.16	$461.16	100%
20	Treatment Plant Monitoring	$1,188.52	$11,885.20	$14,262.24	83.33%
	Total	$12,850.30	$237,728.70	$176,397.46	134.77%

Last Financial Year

Programmed Work for Following Month

Pipework on the new balance tank.

Water Meter Report

Irrigation Dosing

Fields have been wet this past month but did dry out a bit faster due to being mowed and no sign of runoff.

Quality Assurance

Site Safety Report

Date	Near Miss	Incident	Lost Time Injury	Plant Damage	Depot/Worksite Inspections
9/08/22	N	N	N	N	New Balance tank site visit to make sure all is complete before crew leaves.
9/09/22	N	N	N	N	WWWT Plant waste water sprinkler system check = all ok and working as they should.
25/10/22	N	N	N	N	Check safety gear for chlorine use at the Kaingaroa Water Treatment plant = all ok
7/12/22	N	N	N	N	Steve in to do the annual service and inspection = all ok.
29/03/23	N	N	N	N	Crew working with FH sparky on the new balance tank.

Environmental Non Compliance

Monthly Stocktake of Supplies

General Supplies Stockpile – Month Ending April 2023

	Stock Purchased	Stock End of Previous Month	Stock Used	Stock Remaining End of Month
Salt		120 Bags	35	85 bags
Chlorine		80lts	20lts	60lts

PHOTO


FILTEC


MUST BE WORN
WHEN USING THE
CHLORINE
POOL SALT
20kg
SWIMMING
MARLEY

Kaingaroa Water Treatment

4. Works & Services

4.4 Fulton Hogan Waste Management Operation Contract Report April 2023

Date of meeting	8 June 2023
Agenda item number	4.4
Author/s	Dylan Fraser – Fulton Hogan Divisional Manager, Maintenance

Purpose

To inform and update the Council on the Chatham Islands Waste Management Operation programme.

Recommendations

THAT the report be received.

Background

Attached to this report is the April 2023 Waste Management report from Fulton Hogan.

chatham islands council

Fulton Hogan

CHATHAM ISLANDS WASTE MANAGEMENT CONTRACT MONTHLY REPORT APRIL 2023

Introduction

This report provides a summary of waste management activities through the month of April 2023.

Staff

John Kamo completed his wheels, track, rollers, and class 2 licence training. The next step is to get his competency assessed and then he will be able to operate his plant.
Bob Howat was on the island for a couple of weeks to assist while John was completing his training.

Te One Transfer Station

Discussions are underway with Macaulay Metals to establish whether they have an appetite to assist with removing the large amount of scrap metal on the island and at Te One. We have not received any further communication from them regarding this and we may need to look at another option.

The new doors for the main building have been installed and this has greatly improved safety for staff using the doors. They also look great.

We have received new signage for our recycling hatches from ECan and these will be installed in May.

The weigh bridge is now operational and is weighing recycling and waste. This has greatly improved the accuracy of the waste measurement.

There have also been some other minor safety improvements around the yard.

The waste records are included as Appendix 1 of this report.

Owenga Landfill

Additional filter cloth has been added around the landfill cell to allow for the next part of the cell to be filled. This was done with Bob's help.
Some damage to the liner was experienced when one of the staff was using an excavator to recover a stuck trailer. This has been isolated and covered until a permanent repair is sorted.
The recording and transporting of waste from Te One to Owenga is going well, including some larger waste as the crews get more confident with this.

Appendix 1

Te One Waste Record

Owenga Waste Record

Volume Conversion Basic Template

Customer Information						Measured or Assessed Volume (Insert volume in one cell only to right / Use only one conversion factor for each Measurement ---------->	Conversion Factor								Incoming Converted Tonnage	Outgoing Converted Tonnage
Date	Customer	Product Code	Quantity Assessed or Measured	Unit Assessed or Measured	Comments		Waste or material in rubbish bags or carried in cars 130 kg/cubic metre		Uncompacted general waste or material 200 kg/cubic metre		Compacted waste or material 320 kg/cubic metre		High-density waste or material 1500 kg/cubic metre			
							Conversion Factor	0.13	Conversion Factor	0.2	Conversion Factor	0.32	Conversion Factor	1.5		
							Incoming Volume (m3)	Outgoing Volume (m3)	Incoming Volume (m3)	Outgoing Volume (m3)	Incoming Volume (m3)	Outgoing Volume (m3)	Incoming Volume (m3)	Outgoing Volume (m3)		
1/04/2023		General waste	3	1/2 Skip	Squishy paddles not working couldn't put GW in it, noticed the Estop Button missing on the left side, got in contact with the Fulton Hogan electrician who was on island, he came and tested the control panel, appears power was getting through.Hold GW until Monday to tip off and catch up with Issac. Saturdays intake John and Arlette used net and tarp covers to cover bins and set aside for monday as the wind was getting up.		0		7.3575		0				1.4715	0
1/04/2023		Scrap Metal	1	1/2 Skip			0		0		0		2.4525		3.67875	0
1/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
3/04/2023	Kaingaroa	General waste	1	1/2 Skip	hand loaded into trailer		0		2.4525		0				0.4905	0
3/04/2023		Cardboard	1	Bale			0		0		0.675				0.216	0
3/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
3/04/2023		General waste	2	1/2 Skip	took Squishy to Owenga and unloaded, found a small metal pump inside a rubbish bag had jammed the paddle, Squishy working now.		0		4.905		0				0.981	0
4/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
4/04/2023		Glass	1	1/2 Skip			0		2.4525		0				0.4905	0
4/04/2023		Wood	1	1/2 Skip	heaps of wood coming in?		0		2.4525		0				0.4905	0
5/04/2023		Tin	1	Wool Pack			0.441		0		0				0.05733	0
5/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
5/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
5/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
6/04/2023		Plastic 1,2,5	2	Wool Pack	Clear/Empty all bins . Closed Easter Weekend		0.882		0		0				0.11466	0
6/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
6/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
6/04/2023		Wood	1	1/2 Skip			0		2.4525		0				0.4905	0
6/04/2023		Scrap Metal	1	1/2 Skip			0		0		0		2.4525		3.67875	0
6/04/2023		Glass	1	1/2 Skip			0		2.4525		0				0.4905	0
6/04/2023		rope	1	1/2 Skip			0		2.4525		0				0.4905	0
7/04/2023	Closed				Closed Good Friday, consulted with Client and Phil communications put out to the public that we would be closed for the Easter weekend.		0		0		0				0	0
8/04/2023	Closed				Closed		0		0		0				0	0
9/04/2023	Kaingaroa	General waste	2	1/2 Skip	Kaingaroa call out. Received a message with photos from Kaingaroa Local. Bins were over flowing with General waste and Cardboard. Public had put all of the cardboard in the skip bins out in the elements. A mixture of black bags general waste and lots of wet carpet and underlay		0		4.905		0				0.981	0
9/04/2023	Kaingaroa	Cardboard	1	1/2 Skip	Wet and soiled put into Squishy		0		2.4525		0				0.4905	0
10/04/2023	Closed				Closed		0		0		0				0	0
11/04/2023		General waste	2	1/2 Skip			0		4.905		0				0.981	0
11/04/2023		Cardboard	1	Bale			0		0		0.675				0.216	0
11/04/2023		Plastic 1,2,5	2	Wool Pack			0.882		0		0				0.11466	0
11/04/2023		Scrap Metal	1	1/2 Skip			0		0		0		2.4525		3.67875	0
11/04/2023		Wood	1	1/2 Skip			0		2.4525		0				0.4905	0
12/04/2023		Glass	1	1/2 Skip			0		2.4525		0				0.4905	0
12/04/2023		Wood	1	1/2 Skip			0		2.4525		0				0.4905	0
12/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
13/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
13/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
13/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
13/04/2023		Tin	1	Wool Pack			0.441		0		0				0.05733	0
13/04/2023		Scrap Metal	1	1/2 Skip			0		0		0		2.4525		3.67875	0
13/04/2023		Wood	3	1/2 Skip	Downer/ big load of broken pallets		0		7.3575		0				1.4715	0
15/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
15/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
15/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
17/04/2023	Kaingaroa	Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
17/04/2023	Kaingaroa	General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
17/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
17/04/2023		Glass	1	1/2 Skip			0		2.4525		0				0.4905	0
18/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
18/04/2023		tin	1	Wool Pack			0.441		0		0				0.05733	0
18/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
18/04/2023		General waste	3	1/2 Skip	Food Co came in with a Hiab full of general waste from the factory		0		7.3575		0				1.4715	0
19/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
19/04/2023		Cardboard	1	Bale			0		0		0.675				0.216	0
20/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
20/04/2023		Rope	1	1/2 Skip			0		2.4525		0				0.4905	0
22/04/2023		General waste	1	1/2 Skip			0		2.4525		0				0.4905	0
22/04/2023		Glass	1	1/2 Skip			0		2.4525		0				0.4905	0
22/04/2023		Cardboard	1	Bale			0		0		0.675				0.216	0
24/04/2023	Kaingaroa	General waste	1	1/2 Skip	need to bin lift glass and rope bins.		0		2.4525		0				0.4905	0
24/04/2023	Kaingaroa	Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
24/04/2023	Kaingaroa	Tin	1	Wool Pack			0.441		0		0				0.05733	0
24/04/2023	Te One				Opened Te One at 8am and closed to Public at 11am out of respect for Tangi procceedings today.		0		0		0				0	0
25/04/2023	Closed				Closed Anzac Day		0		0		0				0	0
25/04/2023	Glideaway Installers				Inducted Glide away Door Solutions Builders Josh and Sam onto site. Assisted in moving crate with doors and materials in it. They managed to assemble 1 door and I assisted them to lift the framing onto the runners.		0		0		0				0	0
26/04/2023	Closed				Closed Extreme Wind, Builders able to do some assembling inside shed, created a work station for them. They were unable to lift the second door frame due to the weather. Te One Site tie down. No waste processed.		0		0		0				0	0
27/04/2023	Closed				Closed Extreme weather, Hitting the Road training booklet, wash down shed. Builders away. No waste processed.		0		0		0				0	0
28/04/2023	Te One Open	General waste	2	1/2 Skip	Usually closed to the public yet opened today due to the weather calming down and the closures through out the week, very busy day		0		4.905		0				0.981	0
28/04/2023		Cardboard	1	Bale			0		0		0.675				0.216	0
28/04/2023		Aluminium	1	Wool Pack			0.441		0		0				0.05733	0
28/04/2023		Tin	1	Wool Pack			0.441		0		0				0.05733	0
28/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
29/04/2023		General waste	2	1/2 Skip			0		4.905		0				0.981	0
29/04/2023		Cardboard	1	Wool Pack			0.441		0		0				0.05733	0
29/04/2023		Plastic 1,2,5	1	Wool Pack			0.441		0		0				0.05733	0
							0		0		0				0

Volume Conversion Basic Template

Date	Vehicle	Registration	Type of Waste (general/black bag, glass, construction, special waste, etc.)	Volume Assessed or Measured	Type of cover used	Quantity of cover used	Comments (emergencies, complaints, other notes)	Measured or Assessed Volume Insert volume in one cell only to right / Use only one conversion factor for each Measurement ---------->	Conversion Factor Waste or material in rubbish bags or carried in cars 130 kg/cubic metre Conversion Factor 0.13 Incoming Volume (m3) / Outgoing Volume (m3)	Uncompacted general waste or material 200 kg/cubic metre Conversion Factor 0.2 Incoming Volume (m3) / Outgoing Volume (m3)	Compacted waste or material 320 kg/cubic metre Conversion Factor 0.32 Incoming Volume (m3) / Outgoing Volume (m3)	High-density waste or material 1500 kg/cubic metre Conversion Factor 1.5 Incoming Volume (m3) / Outgoing Volume (m3)	Incoming Converted Tonnage	Outgoing Converted Tonnage
1/04/2023	Hino	P#500398	Woody Waste	full	Glass	1 bucket					2.4		0.768	0
													0	0
3/04/2023	Hino	P#500398	General Solid Waste	full	Glass	1 bucket	Gave the pad a good track roll			2.4			0.48	0
3/04/2023	Squishy	P#490604	General Solid Waste	full	Glass	1 bucket	Unloaded squishy as the paddle wasn't working. Once squishy was fully empty I tried again to use the control panel. It began to turn again and a black bag had dislodged itself as it rotated around. I pulled the bag out out and on closer inspection there was a small metal pump that had got jammed. Took squishy back to Te One and was able to use as normal.				6.5			2.08	0
							gave the pad a good trackroll						0	0
3/04/2023	UTE/trailer	P#724249	General Solid Waste	full	soil	1bucket	Kainagroa general waste tip off only			4.86			0.972	0
3/04/2023	UTE/trailer	P#724249	General Solid Waste	full			tip off only / Dev got stuck			4.86			0.972	0
4/04/2023	Hino	P#500398	Woody Waste	full	Glass	1 bucket					2.4		0.768	0
6/04/2023	Hino	P#500398	General Solid Waste	full	Glass	1 bucket				2.4			0.48	0
9/04/2023	Squishy	P#490604	General Solid Waste	full	Glass	2 buckets	Tip off pad needed another good track roll. Some damp spots.				6.5		2.08	0
					soil	1 bucket							0	0
11/04/2023	Squishy	P#490604	General Solid Waste	full	Glass	1 bucket	busy day at Te One also loaded with a heap of non recyclable plastics what use to be the heavy plastics bin. Waitangi seafoods also came in with a truck load of general waste from the factory.				6.5		2.08	0
13/04/2023	izuzu	P#491488		full	Glass	6 buckets	Bob transport glass cover to Owenga landfill				8.4		2.688	0
13/04/2023	izuzu	P#491488		full	Glass	6 buckets					8.4		2.688	0
13/04/2023	Hino	P#500398	General Solid Waste	full	Glass	1 bucket				2.4			0.48	0
13/04/2023	izuzu	P#491488	Woody Waste	full	Glass	2 buckets	2 buckets from Te One put ontop of wood load to hold down and also used to cover out at Owenga				10.8		3.456	0
14/04/2023	izuzu	P#491488	Woody Waste	3 skips	soil	3 buckets	hand loaded 2 skips of wood into izuzu Bob also loaded x3 buckets of soil cover ontop to hold load down and used at Owenga to cover.			11.5575			2.3115	0
17/04/2023	Squishy	P#490604	General Solid Waste	full	Glass	1 bucket					6.5		2.08	0
17/04/2023	Hino	P#500398	General Solid Waste	full	Glass	1 bucket	Bob and dev took the weed eater out and tidied up the turning bay. Bob moved the big log to the edge on the right of the turning bay. Dev and bob moved the temporary gates to the turning bay and fixed them in a row to warrahtahs. This created a fence line that catches the loosed rubbish and Debri and also has created a barrier that marks where the fern flora etc begins and where there is a covered drop off.			2.4				0.48	0
18/04/2023	izuzu	P#491488		full	Glass	8 buckets	Glass cover only from Te One, Bob clearing the glass cover from Te One as he has reccommended having a good amount of cover out at Owenga,				11.2		3.584	0
18/04/2023	izuzu	P#491488	General Solid Waste	mix	Glass	1 bucket	mixture of woody waste and general waste pulled out by Lette from the scrap metal pile around the back. Loaded onto the izuzu			8			1.6	0
			Woody Waste	mix	soil	1bucket							0	0
18/04/2023	Hino	P#500398		full			4 card board bales and green tarp to put over the tear in the bladder and protect it.				2.7		0.864	0
19/04/2023	Hino	P#500398		full			4 card board bales to put at the top of the drive pad to stop vehicles driving into corner.				2.7		0.864	0
19/04/2023	Hiab	P#204439	General Solid Waste	full	Glass	1bucket	extra large skip bin genral waste from Te One that has come up from the old fire pit location			2.4			0.48	0
19/04/2023	Hiab	P#204439	General Solid Waste	full	soil	1 bucket	extra large skip bin genral waste from Te One that has come up from the old fire pit location			2.4			0.48	0
20/04/2023	Hiab	P#204439	General Solid Waste	full	Glass	2 buckets	extra large skip bin genral waste from Te One that has come up from the old fire pit location			2.4			0.48	0
20/04/2023	Hiab	P#204439	General Solid Waste	full	soil	2 buckets	extra large skip bin genral waste from Te One that has come up from the old fire pit location			2.4			0.48	0
20/04/2023	Hino	P#500398		full	Glass	2 buckets	Glass cover only from Te One, Bob clearing the glass cover from Te One as he has reccommended having a good amount of cover out at Owenga,				2.4		0.768	0
21/04/2023	Hiab	P#204439	Woody Waste	full	Glass	1 bucket					8		2.56	0
21/04/2023	Hino	P#500398	General Solid Waste	full	soil	1 bucket				2.4			0.48	0
22/04/2023							During Bobs trip he done a huge reshape and tidy up out at Owenga. He showed me the correct way to track roll the rubbish. Together we also lay geotech matting all the way along the south side of the cell. And also 8 metres along the other side closest tot he Entry point of the tip off area to protect the tear.						0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
													0	0
								TOTALS	0	0	50.8775	0	85.4	0	0	0	**37.5035**	**0**

Gross Tonnage *All material that enters the facility*	37.5035
Diverted Tonnage *All material that is diverted from the facility*	0
Net Tonnage *Gross minus Diverted Tonnage - Tonnage on which the Waste Levy is Payable*	37.5035

Measurement Volumes	
Wool pack volume	0.441
Wool pack volume	0.441
Trailer volume	4.86
1/2 Skip volume	2.4525
Bale volume	0.675
Compactor Truck	6.5
Loader bucket	1.4
Hino tray	2.4

19 6.08

	Month total	Quarter Total
Cardboard	0	
Plastic	0	
Aluminium	0	
Tin	0	
Soft Plastic	0	
General Waste	0	
Total	**0**	

4. Works & Services

4.5 Better-off Funding Tranche 2

Date of meeting	8 June 2023
Agenda item number	4.5
Author/s	Owen Pickles, Chief Executive

Purpose

Decision paper for variation of Tranche 1 funding projects.

Recommendation

THAT:

Council use the Tranche 1 funds for variation to proposed projects as described.

Background

With the Governments re-set of the proposed water reforms, funding of Better-off Tranche 2 will no longer be available. Attached is what was proposed for these funds.

The immediate issue for the Council to address is the projects that required funding from both Tranche 1 and Tranche 2. Those were:

	Tranche 1	**Tranche 2**
New House	$300,000	$500,000
NKMR upgrades	$300,000	$162,000

New House

The $300,000 Tranche 1 funding could be applied to land purchase and deposit with the balance borrowed as a mortgage against the property.

NKMR Funding

The intention was for these funds to be paid to the NKMR committee to use as leverage for fund-raising for capital projects. A cover over the netball courts is the priority.

While the above suggestions still lead to the proposed end, the Council in consultation with Imi / Iwi can propos something new.

3 WATERS BETTER OFF FUND.

PROJECT	DETAILS	TRANCHE #1	TRANCHE#2	
		Sep-22	Jul-24	
		$ 2,210,000.00	**$ 6,662,000.00**	
Waste Management				
Mitre 12 building		-$ 88,871.00		These are waste management projects that are to be co funded
Weighbridge		-$ 33,320.00		by Waste Minz
Septic Waste Disposal Pond			-$ 1,000,000.00	Disposal ponding system for disposal and tratment of septic tank waste
Emergency Services Depot			-$ 1,000,000.00	Multi agency facility CDEM, FENZ, St John, to replace ageing facilities located at back of beach in tsunami zone. This will be on high ground.
Housing				
CEO House Upgrade		-$ 200,000.00		These are all relating to the Council's housing stock including the provision
Community Houses Upgrades		-$ 287,809.00		of a new house and visitor accommodation.
New House		-$ 300,000.00	-$ 500,000.00	Visitor accommodation is for the many mainland support people who serve
Visitor Accommodation		-$ 200,000.00		the council. With commercial accommodate mostly taken by tourism.
NKMR UPGRADES		-$ 300,000.00	-$ 162,000.00	The Islands main recreational facility. Main project is to cover netball courts
New Kaingaroa Wharf			-$ 4,000,000.00	Major economic driver for the Island. Current wharf is near end of life.
Kaingaroa Whar Make Safe		-$ 350,000.00		To make safe current wharf until a replacement facitity can be provided.
Owenga Wharf upgrade		-$ 450,000.00		Main link to Pitt Island. This will replace toredo worm infested timbers.
		$ -	$ -	

4. Works & Services

4.6 Water & Wastewater Summary Report January - June 2023

Date of meeting	8 June 2023
Agenda item number	4.6
Author/s	Stantec NZ

Purpose

To summarise the operation of the three water schemes for the period of 1 January 2023 to 30 June 2023 and recommend actions to protect public health and minimise adverse environmental effects.

Recommendation

THAT:

1. That the report be received;

2. That Council work with funders and DIA to achieve the required compliances.

Background

Attached to this report is a summary of information recorded for the water and wastewater schemes under the O & M Contract for the period from 1 January 2023 to 30 June 2023 and recommended actions for the Council to consider for the protection of public health and to ensure the efficient and effective operation of these schemes.

Water and Wastewater Schemes
Summary Report January to June 2023

PREPARED FOR Chatham Island Council | April 2023

Stantec

Revision Schedule

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
0	17 Mar 2023	Internal Draft	IH	AW	AW	
1	28 Apr 2023	Issued to Client	IH	AW	AW	KN

Quality Statement

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STATUS Draft | Project No 310205020

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Executive Summary

The Kaingaroa and Waitangi Water Schemes and the Waitangi Wastewater Scheme are owned by the Chatham Islands Council (Council) and are operated and maintained under contract by Fulton Hogan.

The purpose of this report is to summarise the operation of the three schemes for the period from 1 January 2023 to 30 June 2023 and recommend actions to protect public health and minimise adverse environmental effects.

Key findings, recommended actions, and progress for this reporting period are summarised below.

Scheme	Key findings	Progress to Date	Recommended actions
Waitangi Water	• Non-complying for this reporting period with the DWSNZ because UVT and monitoring is not frequent enough. • No E. coli detected in raw, treated or reticulated water.	• Based on monitoring results from this reporting period, the UV system is providing a 4-log protozoa treatment barrier.	• Continue monthly UVT monitoring to develop water quality history and identify 'best practicable' approach for compliance. • Complete commissioning of new plant and telemetry system, including alarms and continuous recoding of UVI.
Kaingaroa Water	• Non-complying with DWSNZ, primarily due to poor water intake and inadequate treatment (UVT not consistently above 70%). • E. coli was detected and a BWN was put in place on 15 December 2022.	• GAC has improved the UVT, but not consistently above 70%. Water quality expected to improve and may comply following intake extension and media replacement. • Intake designed and materials delivered to the island. Enabling works are underway but extension requires low water levels.	• Continue monthly water quality monitoring and identify 'best practicable' approach for compliance. • Urgently extend water intake into deeper water when lake levels allow. Works planned next summer if lake levels are low. • Replace GAC media at next annual service. Monitor and assess if additional GAC filtration capacity required • Complete commissioning of new plant and telemetry system, including alarms and continuous UVI recording.
Waitangi Wastewater	• Non-complying with resource consent, due to elevated nitrogen and E. coli. • Non-complying with resource consent due to exceeding daily flow limit on 9 August 2022. • Complying with solids and organics limits.	• Plumbing of new Balance Tank in progress.	• Continue monthly monitoring (bimonthly required under consent) • Complete commissioning of new Balance Tank and progress irrigation system upgrades • Lodge consent variation

Central Government Funding secured through MoH and Three Water Stimulus grants have enabled several improvement projects for both water and wastewater systems to be completed; outstanding commissioning will be completed as part of the O&M funding. Collectively, this has improved the resilience and performance of these systems, as well as improved the safeguards to public health. However, the water and wastewater schemes still urgently require remedial or upgrade works to address substantial limitations, meet current best practice, and achieve compliance.

Abbreviations

Acronym	Meaning
Ammonia N	Ammonia Nitrogen
cfu	Coliform Forming Unit
BOD	Biochemical Oxygen Demand
CCP	Critical Control Point
COD	Chemical Oxygen Demand
DWA	Drinking Water Assessor
DWQAR	Drinking-water Quality Assurance Rules
DWSNZ	Drinking-water Standards for New Zealand 2005 (Revised 2018)
E. coli	*Escherichia coliform (E. coli)*
FAC	Free Available Chlorine
GAC	Granular Activated Carbon
LTP	Long Term Plan
MPN	Most Probable Number
O&M	Operation and Maintenance
PHRMP	Public Health Risk Management Plan (now called a Water Safety Plan)
RBC	Rotating Biological Contactor
TSS	Total Suspended Solids
UV	Ultraviolet
WSP	Water Safety Plan
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

The Waitangi community on the Chatham Islands is served by a reticulated sewerage system and treatment plant, installed in 2005, and a treated, reticulated water supply, upgraded in the same year. The Kaingaroa community is served by a treated, reticulated water supply, upgraded in 2014. Urgent upgrades and replacements to the water treatment plants and wastewater treatment plant were completed in 2021-2022.

The water and wastewater schemes are owned by the Chatham Islands Council (the Council) and are operated and maintained under a combined water/wastewater and roading operations and maintenance contract (the O&M Contract). It was awarded to Fulton Hogan and commenced on 1 January 2016. It is a ten-year contract.

The key objectives in the operation and maintenance of the water and wastewater schemes are to protect public health, minimise adverse environmental effects, and ensure the efficient and effective operation of the schemes.

The purpose of this report is to provide a summary of information recorded for the water and wastewater schemes under the O&M Contract for the period from 1 January 2023 to June 2023 (the reporting period) and recommended actions for the Council to consider for the protection of public health and to ensure the efficient and effective operation of these schemes.

1.1 LEGISLATIVE CHANGES, REQUIRED UPGRADES AND FUNDING CHALLENGES

Key legislative changes, required upgrades, and funding challenges from this reporting period are provided below.

1.1.1 Legislative Changes

In July 2020 Central Government embarked on the Three Waters Reform Programme, following its Three Water Review after the Government Inquiry into Havelock North Drinking Water. The reform programme has four key outcomes: safe, reliable drinking water; better environmental performance of wastewater and stormwater services; efficient, sustainable, resilient and accountable multi-regional water and sewage services; and making it affordable for future generations. To achieve this, it has three key pou, or pillars: establishment of a dedicated water service regulator; regulatory reforms; and reforms to water delivery services. Drinking water, wastewater and stormwater services will be provided by four multi-regional publicly owned water service entities (WSEs).

Various legislative changes have been implemented or proposed to enable the reform, including:

- **Water Services Regulator Act 2020** was enacted on 6 August 2020, establishing Taumata Arowai as a Crown entity in March 2021. Taumata Arowai took over from the Ministry of Health (MoH) as the drinking water regulator on 15 November 2021 when the Water Services Act came into effect. In 2024, it will assume responsibility for wastewater and stormwater networks, becoming the national three waters regulator.
- **Water Services Act 2021** came into effect on 15 November 2021 and sets out the regulatory framework for water services in New Zealand that Taumata Arowai will administer. It is intended to improve drinking water systems through increased compliance, monitoring and enforcement of water regulation.
- **Drinking-water Standards for New Zealand (DWSNZ)** 2005 (revised 2018) has been reviewed alongside the revised draft DWSNZ and draft **Drinking Water Quality Assurance Rules (DWQAR)** released in November 2021. The Water Services (Drinking Water Standards for New Zealand) Regulations 2022 were made under section 47 of the Water Services Act 2021 and came into force on 14 November 2022, revoking the earlier DWSNZ and setting maximum acceptable values (MAVs) for determinands in drinking water in 4 tables. A final version of the DWQAR was published on 25 July 2022 and also came into force on 14 November 2022.
- **Water Services Entities Act** was passed on 14 December 2022, with transitional aspects coming into force in 2022 and the remainder coming into force at a later date (e.g., 1 July 2024). The Act establishes the four new water services entities (WSEs), outlining the ownership, governance and accountablity requirements relating to the WSEs and provides for transitional arrangements so the WSEs are ready to provide services from 1 July 2024. It locks in community ownership of the new WSEs by making councils the sole shareholders; each councils having one share per 50,000 people in their area, rounded up. It also ensures

communities will have a say in the running of the WSEs through Council and iwi oversight, while giving them financial and operational independence to deliver water services.

- The new service delivery system requires two other bills that are pending – the **Water Services Legislation Bill** (which provides the new WSEs with the necessary legal functions, responsibilities, and powers to be fully operational from 1 July 2024) and the **Water Services Economic Efficiency and Consumer Protecion Bill** (which provides economic regulation, ensuring WSEs provide affordable and well managed services, and a consumer protection regime, including a Water Services Commissioner). Both bills had their first reading in parliament on 13 December 2022 and were out for public consultation until mid February 2023.

In late 2021, Central Government established the **National Transition Unit (NTU)** to lead and be responsible for the transition from the current system to the new one on 1 July 2024. The NTU is a new, dedicated business unit within Te Tari Taiwhenua Department of Internal Affairs (DIA). In 2022 the NTU set up four **Local Establishment Entities (LEEs)** to support the local transition in their area. On 1 July 2024 these four entities will become the four WSEs, with CIC's three waters assets transferred to, and services delivered by Entity C.

Further details on the reform, associated legislation and consultation process are available from Te Tari Taiwhenua Department of Internal Affairs (DIA)'s website.

1.1.2 Required Upgrades and Funding

- The water and wastewater schemes all require significant maintenance or upgrades to address substantial limitations and ensure compliance with current and proposed standards and rules. This is due to legislative changes as well as aging infrastructure.
- Some of the required upgrades have been carried out using external funding from either the MoH ($340k) or the Three Water Stimulus Fund ($640k). Broadly, these were wastewater maintenance or improvements, water safety improvements, and water resilience projects. To enable delivery within the timeframes required to receive the funding, most projects were carried out as a variation under the existing O&M and professional engineering services contracts. This was successful, with all funds were fully spent by 30 June 2022.
- CIC, Stantec and Fulton Hogan will continue to carry out urgent minor remedial works to the water and wastewater schemes as required, as O&M funding allows. Other works identified but able to be carried out due to funding constraints will be prioritised and carried out as funding allows.
- The Council developed it's 2022-2023 Annual Plan assuming a Business-as-Usual approach to funding, with continued contributions for operation costs but not for asset depreciation or capital works. Several key upgrades are identified in the Annual Plan but excluded from financial forecasts as funding has not been secured. These are the Waitangi Water Treatment Plant upgrade and extension of reticulation to Te One, Kaingaroa water reticulation renewals, Waitangi Wastewater Treatment Plant upgrade, and the water tank loan scheme.

2.0 WATER SUPPLY

2.1 WAITANGI WATER SUPPLY

2.1.1 Process Overview

Raw water is drawn from the Tikitiki Bore[1] at Tikitiki Hill. The raw water enters the water treatment plant (WTP) and is pumped through a multimedia filter (sand and anthracite media) to remove particulate matter. The water is softened to reduce scaling in pipes from excessive hardness in the water. Disinfection is provided via UV (Critical Control Point, CCP; provides protozoa protection) and sodium hypochlorite dosing (CCP; provides residual disinfection in the reticulation network). The Tikitiki Reservoir provides more than 30 minutes contact time prior to treated water being pumped into the network. The four, interconnected Met Station Reservoirs are within the network for storage. Most properties have a header tank and some also have a booster pump.

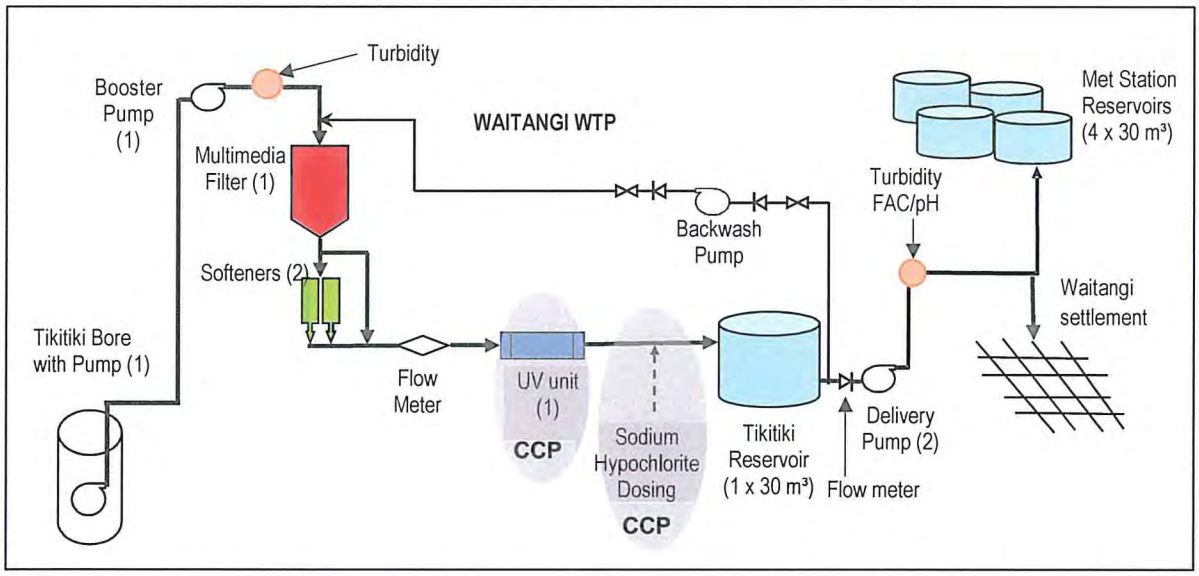


Figure 1: Waitangi Water Supply System schematic. CCPs shaded grey. The orange circles represent locations of online monitoring instruments.

2.1.2 Improvement Projects

The MoH and Three Waters Stimulus funding grants were used to:

- Investigate the suitability of using the MPA bore as a potable water source;
- Improve the filter backwashing system;
- Purchase and install new online monitoring instruments (e.g., flow meter, turbidimeters, FAC/pH);
- Purchase and install a new UV disinfection system, with UV disinfection becoming a CCP);
- Purchase and install a cloud-based telemetry system;
- Replace toby boxes (flow meters and valves) throughout the reticulation system; and,
- Purchase and install backflow preventers on key water users.

Unfunded projects in the 2022/2023 Annual Plan and the 2021/31 LTP include upgrading the Waitangi Water Supply with a new bore source as the current demand exceeds the sustainable yield of the existing aquifer during summer, a new treatment plant, and extending the reticulation to Te One.

[1] The Tikitiki Bore does not have secure status. Limited information is available on the bore's construction.

2.1.3 DWSNZ Requirements

Note: Drafts of the new DWSNZ and DWQAR were released in late 2020 and underwent public consultation until March 2022. The new DWSNZ and DWQAR were finalised on 7 June 2022 and 25 July 2022. Both came into effect on 14 November 2022. This section reflects the current DWSNZ (2005, revised 2018) and the final DWQAR. In lieu of reporting on the using both the DWSNZ 2018 from 1 July 2022 and 13 November 2022, and the DWQAR from 14 November 2022 to 31 December 2022, we have elected to complete the compliance reporting based on the DWSNZ 2018. Compliance reporting against the DWQAR will begin from 1 January 2023 onwards.

2.1.3.1 Water Supply Classification

The Waitangi Water Supply is classified as a small supply (i.e., less than 500 people) under the DWSNZ. The supply did not have appropriate protozoal treatment as per Table 10.1 in Section 10 of the DWSNZ[2] due to the lack of cartridge filtration. Consequently, the Waitangi Water Supply is required to comply with Sections 4-9 of the DWSNZ. All requirements in Table 5.6 in Section 5.16 of the DWSNZ, except one (weekly UVT monitoring), are currently being met. There is an allowance to reduce the sampling frequency to monthly provided that 12 months of weekly samples demonstrate that the UVT is not less than that for which the UV reactor has been validated.

Under the draft DWQAR it is classified as a small supply (i.e., greater than 50, less than 500 people). With the new UV system in operation, protozoal treatment is being provided and the WTP complies with the draft DWQAR. However, the draft monitoring requirements are currently not being fully met (daily UVT monitoring). When the DWQAR are finalised, monitoring carried out by CIC will be reviewed to identify the 'best practicable' approach for compliance; weekly monitoring for parameters that require analysis by a laboratory located on the mainland is logistically challenging.

2.1.3.2 Water Safety Plan (WSP)

Under the Health (Drinking Water) Amendment Act, the Council was not required to have a Water Safety Plan (WSP) in place as the water supply serves less than 500 people, however it elected to do so[3]. A WSP for the scheme was approved by the DWA on 29 July 2016. It includes the minimum monitoring required to be undertaken for ongoing WSP compliance and operation. This report is based on that monitoring regime.

CIC has not updated its WSP (which was due for review in July 2021) due to uncertainty around the new drinking water framework and the new water delivery entities. However, the CCPs were reviewed and documented as part the WTP upgrades; they are included in this report (Appendix H). A portion of the grant funding in 2021/22 was intended to be used to update the WSP, but these funds were allocated to complete urgent repairs instead.

The final version of the Acceptable Solution for Spring and Bore Water Supplies was published on October 2022. This version limits the applicability of the Acceptable Solution for the supply of a single building with a population of up to 500 people, or up to three buildings with a maximum combined population of 100 people. Since the Waitangi Water Supply provides water to more than three buildings, the Acceptable Solution cannot be applied. Therefore, an updated WSP is required under the Water Services Act 2021.

2.1.3.3 Groundwater Security Status (Tikitiki Bore) and Protozoal Treatment

Tikitiki bore was granted secure status by the DWA on 27 July 2016, which meant that no protozoal treatment was required under the DWSNZ. However, secure bore status was lost on 27 June 2018 following the DWA's WSP implementation audit in December 2017, hence protozoal treatment is required. The current UV disinfection system provides protozoal treatment barrier. Given the findings of the Havelock North Drinking Water inquiry, CIC carried out minor improvements to the bore, but elected to not seek secure bore status.

[2] The Council understood they could demonstrate compliance under section 10 of DWSNZ, which requires a WSP. However, in late 2019, the DWA considered the supply was not currently eligible for compliance under Section 10.
[3] The Council understood they could demonstrate compliance under section 10 of DWSNZ, which requires a WSP. However, in late 2019, the DWA considered the supply was not currently eligible for compliance under Section 10.

The Council has continued to monitor the raw bore water as per the WSP. E. coli has not been detected in the raw water for the past five years. Low levels of total coliforms have been detected on eight occasions in the last five years, refer to Appendix B, Table B-1; this needs ongoing monitoring.

The new UV system was commissioned and operational in November 2021; commissioning of the telemetry system, including alarms, is ongoing. Based on the monthly laboratory UV transmittance (UVT) results and UV system display readings, 4-log protozoal treatment barrier is being provided based on the NSF/ANSI 55 Class A certification it holds. The DWSNZ 2018 only awards 3-log protozoal inactivation credits; however, the DWQAR awards the full 4-log protozoal inactivation credits. See comments in Section 2.1.3.1 about current monitoring regime.

Under the draft DWQAR there is no secure bore status allowance for small supplies.

2.1.3.4 Critical Control Points (CCPs)

The Council is required by the WSP Framework to have Critical Control Points (CCPs) in place for its supplies. A CCP is an active barrier that is essential for protecting consumers from water quality hazards. CCPs need to be monitored regularly, ideally continuously, to ensure the effectiveness of barriers. Properly operated CCPs help ensure safe drinking water.

Stantec updated the CCPs in September 2021 to reflect the changes to be made to the Waitangi WTP through the upgrade works. This documentation was developed based on the MoH revised water safety plan handbook[4]. The CCPs are as follows:

- UV disinfection
- Residual chlorination.

The CCP documentation is provided in Appendix H.

2.1.4 Monitoring Regime

Monitoring is undertaken within the water supply for DWSNZ compliance as well as for WTP operation as per the WSP. This monitoring is summarised in Table 1.

Table 1: Waitangi water quality monitoring regime

	Sampling Requirement		DWSNZ Compliance		Operational Requirement	
	Frequency	Location	Parameter	Limit	Parameter	Target
Source Compliance						
Bacterial	Monthly	Raw water	-	-	Turbidity E. coli Total coliforms	- <1 MPN/100mL <1 MPN/100mL
Treatment Compliance						
Bacterial	Monthly	Treated water	E. coli Total coliforms	<1 MPN/100mL no limit	Turbidity Total coliforms FAC[5] pH	<0.3 NTU <1 MPN/100mL 0.2-0.6 mg/L[6] 6-9[7]
Protozoal	Weekly		Turbidity UVT[1]	<1 NTU >80%		

[4] Ministry of Health, "Handbook for Preparing a Water Safety Plan", May 2019.
[5] Free Available Chlorine (FAC)
[6] For FAC, DWSNZ has a Guideline Value (GV) of 0.6-1.0 mg/L for taste and odour, a Maximum Acceptable Value (MAV) of 5 mg/L and requirement of >0.2 mg/L in the network (section 4.2.2).
[7] For pH, DWSNZ has a guideline range of 7 – 8.5 for aesthetics and notes less than 8 is preferable for effective disinfection with chlorine. Note that no chemicals are dosed at the WTP to control pH.

	Continuous		UVI[2]	>40 mJ/cm^2		
Distribution Compliance						
Bacterial	Monthly	Reticulation	E. coli Total coliforms	<1 MPN/100mL no limit	Total coliforms	<1 MPN/100mL

Note:

[1] UVT is required to be measured weekly under the draft DWSNZ and DWQAR. Currently it is only measured monthly.

[2] UVI is required to monitored continuous under the DWSNZ and DWQAR. This is currently not being completed but will be addressed following commissioning of the telemetry system, which is ongoing.

FAC[8] and pH of the treated water has been measured with a hand-held meter on-site since the 2005 WTP upgrade. Turbidity of the raw and treated water has been measured by laboratory analysis on the mainland since 26 July 2016. New online turbidity and FAC/pH analysers have been installed and are verified with hand-held instruments. UVT of the raw and treated water has been measured by laboratory analysis on the mainland since 25 January 2022. There is no online or handheld UVT instrument on the Chatham Islands to measure the UVT more frequently.

UV disinfection and chlorination are CCPs, with documentation provided in Appendix H. It is expected, but not clear at this time, that CCP monitoring will comprise part of the future compliance monitoring.

2.1.5 Monitoring Results

The monitoring results from 1 January 2018 to 31 December 2022 are provided in Appendix B, with the results from this reporting period shaded grey.

Table 2 summarises the monitoring results from this reporting period in the context of the current DWSNZ compliance and operational requirements as per the WSP. Revision to the required compliance monitoring will be required to align with the published final DWQAR.

[8] Fulton Hogan (Chatham Islands) are authorised by South Island Drinking Water Assessment Unit to perform measurement of FAC by a hand-held meter. The authorisation is based on an assessment of Fulton Hogan staff carried by the Drinking Water Assessment on 6 December 2017 and is valid until January 2021.

Table 2: Waitangi water quality monitoring results for this reporting period

	DWSNZ Compliance	Operational Requirement
Source Compliance		
Bacterial	No requirements.	E. coli: All water samples were analysed and were below the detection limit of 1 MPN/100mL. Total coliforms: All water samples were analysed and were below the detection limit of 1 MPN/100mL. Monitoring is ongoing.
Treatment Compliance		
Bacterial	E. coli: All required treated water samples were analysed and were below the detection limit of 1 MPN/100mL, therefore meeting the DWSNZ requirement. Total coliforms: All required treated water samples were analysed and were below the detection limit of 1 MPN/100mL. No limit. **Compliant**	Total coliform: All required treated water samples analysed. No total coliforms detected. pH and FAC: All required treated water samples analysed and recorded. pH: All results within expected bounds, stable trend observed. FAC: All results within target operational range, except for one sample taken on 29 August 2022, where the FAC was below 0.2 mg/L but greater than 0.1 mg/L. When results are outside the required range, the operator adjusts the chlorine dosing. On 31 August 2022, the FAC was measured to be greater than 0.2 mg/L. Turbidity: All treated water samples analysed. No samples were measured greater than the operational target.
Protozoal	**Non-compliant** as UVT sampling is not adequate. (Note: weekly sampling of treated water UVT required under section 5; WSP requires monthly sampling) Note: The UV disinfection system is validated to provide 4-log protozoa inactivation at a minimum UVT of 70% at a flow rate of 3.2 L/s. The UVT has been measured monthly to be greater than 95%. The UV reactor has not faulted (e.g., on low UV dose). The system is providing a protozoa treatment barrier.	Turbidity: All treated water samples analysed. No samples were measured greater than the operational target.
Distribution Compliance		
Bacterial	E. coli: All required reticulation samples analysed and less than limit. Total coliforms: All required reticulation samples analysed. No limit. **Compliant**	Total coliforms: All required reticulation samples analysed and were below the detection limit of 1 MPN/100mL. Samples were taken from both Works Yard and Council House over the reporting period.

2.1.6 Key Maintenance Works

Key maintenance and one-off works undertaken in the reporting period over and above routine works allowed for in the lump sum prices for the O&M Contract are summarised in Appendix A.

2.1.7 Water Conservation and Demand Management

The daily bore meter readings from January 2018 to the end of January 2022 is shown in Figure 2. Data for the 6-month reporting period from the 1 July to the 31 December 2022 is shown as the grey section in Figure 2. Note the gap in the data from July 2021 to April 2022: the original flow meter was replaced in July 2021 with a new magnetic flow meter; however, it was not fully commissioned until April 2022.

During the reporting period there were twelve occasions when the water demand exceeded the sustainable yield of 65 m^3/day.

Based on the daily bore meter readings for this reporting period:

- the 30-day moving average varied between 41 and 54 m^3/day.
- the 6-month average daily usage was 47 m^3/day. Based on a population of 170 people, this equates to 276 L/person/day.

A decrease in demand was observed in 2019 following completion of the Wharf Project (i.e., water demand in July 2019 is similar to that seen in July 2015 before the start of the Wharf Project). However, this trend was reversed in late 2020 and can be attributed to Covid-19 – restrictions around international travel saw increased numbers of NZ domestic tourists visiting Chatham Islands, as well as investigation work associated with the "Longer and Stronger" Chatham Islands (Tuuta) Airport runway extension project. However, the summer peak demand in 2020/21 was lower than previously observed. No data is available for the 2021/22 summer.

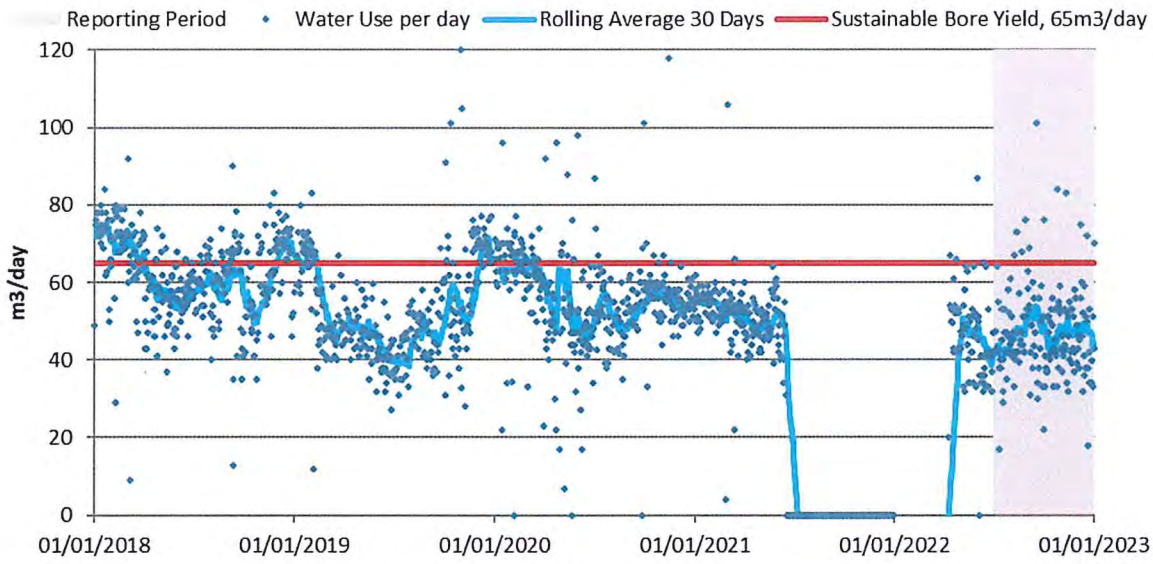


Figure 2: Daily Water Abstraction

Meter readings are required to be taken on a quarterly basis. Meter readings were taken in June 2022, September 2022, and January 2023. The next reading is programmed for April 2023.

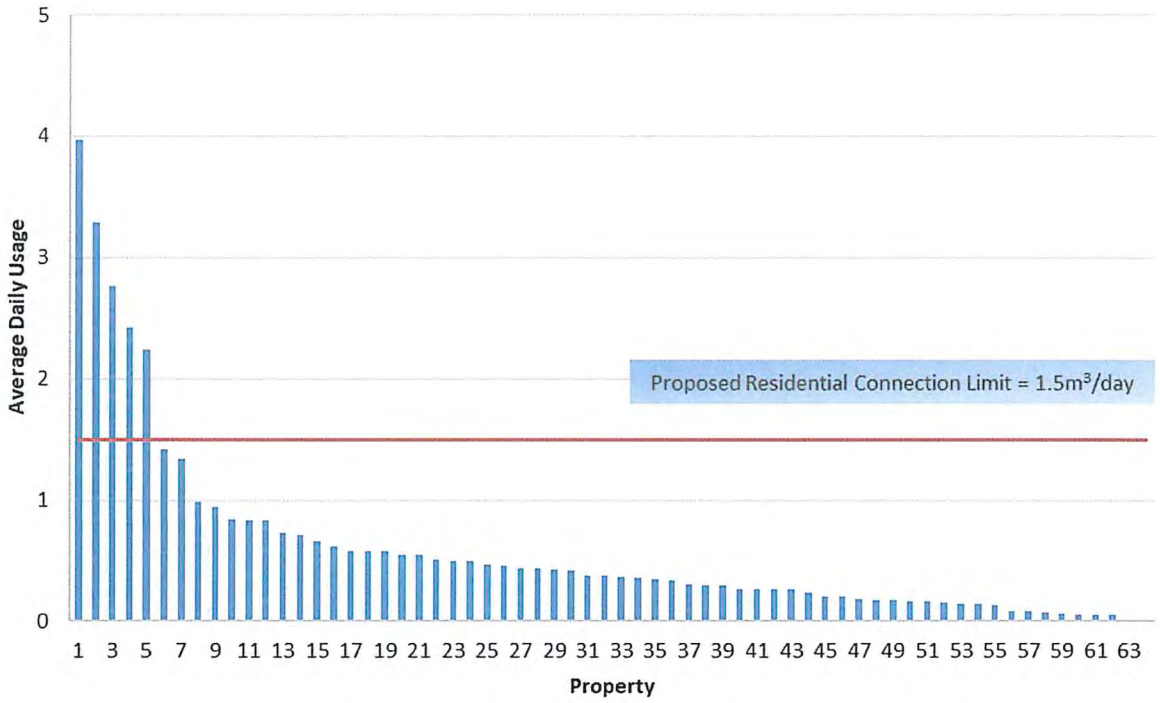


Figure 3 provides an overall summary of the average daily water use across the community for this reporting period. There were 80 monitored meters with 62 active connections in this reporting period.

The majority of properties used less than the 1.5 m^3/day (i.e., the proposed residential connection limit outlined in the Chatham Island Water Strategy, December 2010) in this reporting period. There were five exceptions: Hotel Chathams, Hospital House, Eddie & Lynn Fraser, Tuku Rd Met/Station, and Council Flats. Fulton Hogan continues to monitor water usage and investigates when atypically high usage is measured.

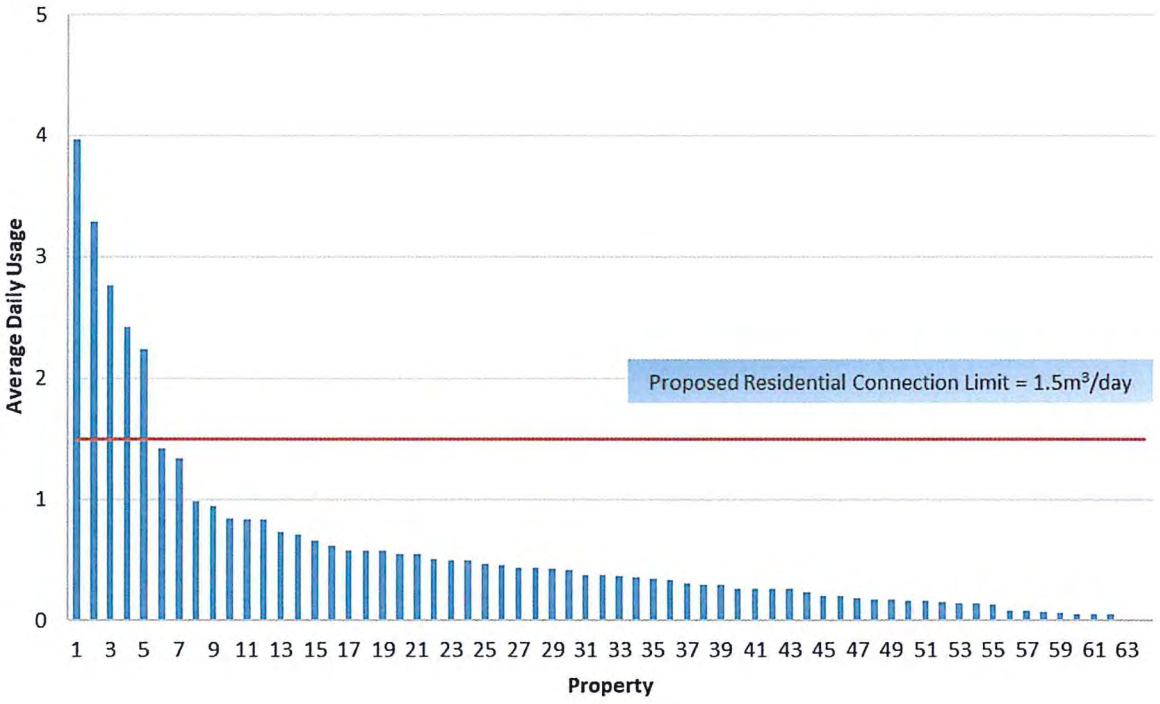


Figure 3: Ranked average daily water use in Waitangi

2.2 KAINGAROA WATER SUPPLY

2.2.1 Process Overview

Raw water is drawn from Lake Rangitai via a screened inlet and pumped approximately 8 km to the raw water reservoirs at the water treatment plant (WTP) located in Kaingaroa. There is a rural supply connection off the raw water pumping main and a branch to fill stock water troughs along the shore of Lake Rangitai. The rural supply network and stock water troughs are not actively operated or maintained by Council.

At the WTP, raw water is first pumped through a set of multimedia filters (sand and anthracite media) to remove particulate matter and protect the downstream equipment, and then a Macrolite filter (ceramic media) to further remove particulate matter and for protozoa protection[9]. The water is softened to reduce scaling in pipes from excessive hardness in the water. Then the water passes through granular activated carbon (GAC) filters to reduce the concentration of dissolved organics and risk of producing chlorinated disinfection by-products after chlorine is added. The water is disinfected with UV (CCP, provides protozoa protection[10]) and dosed with sodium hypochlorite (CCP, provides residual disinfection in reticulation network). The GAC filters and chorine dosing were installed in late 2021; both systems have been operating since November 2021, however commissioning of some aspects, including telemetry and alarms, is ongoing.

The raw and treated water reservoirs provide storage at the WTP site, and chlorine contact time. Most properties also have a header tank, and some have a booster pumps.

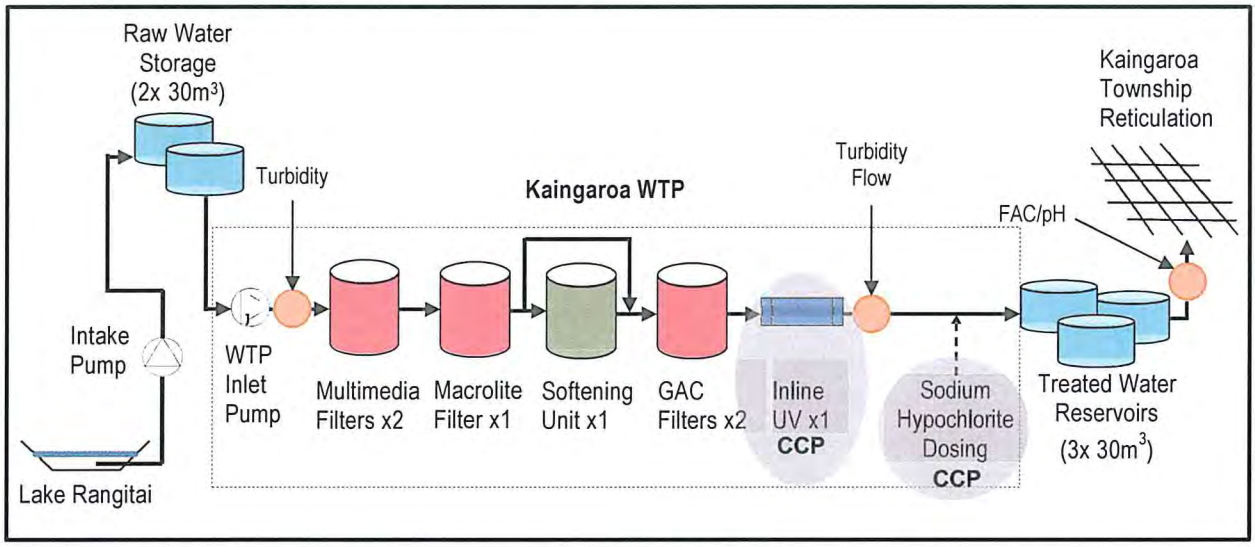


Figure 4: Kaingaroa Water Supply System schematic. CCPs are shaded grey. The orange circles represent locations of online monitoring instruments.

[9] The Macrolite filter is not recognised as providing protozoal protection under Section 5 or 10 of the DWSNZ, however was verified independently by Massey University as providing 3 log protozoal treatment. The original Macrolite ceramic media is no longer available. In future the filter media will be replaced with Aqualite media, which has now been verified independently by Massey University as providing 2-log protozoal removal based on AS/NZS 4348:1995. The Macrolite filter was a CCP prior to the 2021 upgrade; UV disinfection and chlorination are now the CCPs,

[10] The UV disinfection unit was not previously recognised as providing protozoal protection under Section 5 or 10 of the DWSNZ due to dissolved organics resulting in extended periods of low UV transmittance (eg 50-60%). To maximise UV dose delivery, the UV disinfection unit was selected to be significantly oversized hydraulically, being validated for 4-log protozoa inactivation under NSF/ANSI 55 Class A at 70% UVT for flows up to 189 L/min; the flow through the reactor is restricted to 37 L/min. GAC filters were installed in 2021 to remove organics and improve UV transmittance; performance of the UV system following the upgrade is pending. The GAC media will require regular replacement.

2.2.2 Improvement Projects

The MoH and Three Waters Stimulus funding grants were used to:

- Purchase materials for the intake extension and improvements to the intake pump (e.g., new pump, strainer, flow meter);
- Purchase and install new online monitoring instruments (e.g., flow meter, turbidimeters, FAC/pH);
- Purchase and install new GAC filters and chlorine dosing system, with UV disinfection and chlorine dosing becoming the CCPs in place of the Macrolite filter;
- Purchase and install a cloud-based telemetry system; and,
- Purchase and install a community non-potable rainwater collection scheme.

Unfunded projects in the 2022/2023 Annual Plan and the 2021/31 LTP include replacing the reticulation at Kaingaroa as it is now at the end of its useful life, resulting in frequent pipe breakages and leakage. There is limited information on the existing network as it was built and operated by a third party for many years prior to ownership of the water supply system being transferred to the Council.

2.2.3 DWSNZ Requirements

Note: Drafts of the new DWSNZ and DWQAR were released in late 2020 and underwent public consultation until March 2022. The new DWSNZ and DWQAR were finalised on 7 June 2022 and 25 July 2022. Both came into effect on 14 November 2022. This section reflects the current DWSNZ (2005, revised 2018) and the final DWQAR. In lieu of reporting on the using both the DWSNZ 2018 from 1 July 2022 and 13 November 2022, and the DWQAR from 14 November 2022 to 31 December 2022, we have elected to complete the compliance reporting based on the DWSNZ 2018. Compliance reporting against the DWQAR will begin from 1 January 2023 onwards.

2.2.3.1 Water Supply Classification

The Kaingaroa Water Supply is classified as a neighbourhood supply (i.e., less than 100 people) under the current DWSNZ. In 2016, the supply did not have appropriate protozoal treatment as per Table 10.1 in Section 10 of the DWSNZ, due to the lack of cartridge filtration. Consequently, the Kaingaroa Water Supply is required to comply with Sections 4-9 of the DWSNZ. All requirements in Table 5.6 in Section 5.16 of the DWSNZ, except one (weekly UVT monitoring), are currently being met. There is an allowance to reduce the sampling frequency to monthly provided that 12 months of weekly samples demonstrate that the UVT is not less than that for which the UV reactor has been validated.

Under the DWQAR, the Kaingaroa Water Supply is classified as a small supply (i.e., greater than 50, less than 500 people). Performance of the UV system following the upgrades at the WTP are pending. Presently it is understood that full protozoal treatment is being partially provided. Four grab samples out of six had measured UVT values that were less than 70%. The instrument displaying the UV dose, which was provided as part of the upgrade, has been commissioned. Therefore, the system does not fully comply with the DWQAR. The draft monitoring requirements for UVT monitoring (monthly) are currently being met. Monitoring carried out by CIC will be reviewed to identify the 'best practicable' approach for compliance, as weekly monitoring for parameters that require analysis by a laboratory located on the mainland is logistically challenging and costly.

2.2.3.2 Water Safety Plan (WSP) and Implementation

Under the Health (Drinking Water) Amendment Act, the Council was not required to have a Water Safety Plan (WSP) in place as the water supply serves less than 500 people, however it elected to do so[11]. A WSP for the scheme was approved by the DWA on 5 August 2016. It includes the minimum monitoring required to be undertaken for ongoing WSP compliance and operation. This report is based on that monitoring regime.

[11] The Council understood that they could demonstrate compliance for Kaingaroa Water Supply under section 10 of DWSNZ, which requires a WSP. However, in late 2017, the DWA considered the supply eligible for compliance this was not currently possible under Section 10.

CIC has not updated its WSP (due for review in July 2021) due to uncertainty around the new drinking water safety plan framework and the potential for new water delivery entities. However, CCPs were reviewed and documented as part of the WTP upgrades; they are included in this report (Appendix H).

2.2.3.3 Protozoal Treatment

Appropriate treatment is required to be in place for protozoal compliance under the DWSNZ. Historically, the high level of dissolved organics present in the lake water meant that the existing UV disinfection was not effective and precluded chlorination due to the risk of forming disinfection by-products. However, it is noted that prior to the 2015 WTP upgrade it was agreed with the MoH that this treatment process was the best practicable option to address the public health risks for Kaingaroa at the time.

The new GAC filters and chlorination system were installed and commissioned in 2021, which helped to address public health risks and was a step towards DWSNZ compliance. The UVT grab sample data suggests that the upgraded system does not fully comply with the DWSNZ; additional GAC filter capacity may be required.

2.2.3.4 Critical Control Points (CCPs)

The Council is required to have CCPs in place for its supplies. See Section 2.1.3.4 for additional information.

Stantec updated the CCPs in September 2021 to reflect to changes to be made to the Kaingaroa WTP through the upgrade works. This documentation was developed based on the MoH revised water safety plan handbook[12]. The CCPs are as follows:

- UV disinfection
- Residual chlorination.

The CCP documentation is provided in Appendix H. The Macrolite filter is no longer considered a CCP.

2.2.4 Monitoring Regime

Monitoring is undertaken within the water supply for WSP compliance as well as for WTP operation as per the WSP. This monitoring is summarised in Table 3.

[12] Ministry of Health, "Handbook for Preparing a Water Safety Plan", May 2019.

Table 3: Kaingaroa water quality monitoring regime

	Sampling Requirement		WSP Compliance		Operational Requirement	
	Frequency[13]	Location[14]	Parameter	Limit	Parameter	Target
Source Compliance						
Bacterial	Monthly	Raw water	-	-	E. coli Total coliforms	- -
	Weekly		-	-	Turbidity	-
Treatment Compliance						
Bacterial	Monthly	Treated water	E. coli Total coliforms UVT	<1 MPN/100mL no limit	Total coliforms UVT	<1 MPN/100mL >70%
Protozoal	Weekly[15]		-	-	Turbidity FAC pH	<0.3 NTU 0.2-0.6 mg/L 6-9
	Continuous		UVI[1]	>40 mJ/cm^2		
Distribution Compliance						
Bacterial	Monthly	Reticulation	E. coli Total coliforms	<1 MPN/100mL no limit	Total coliforms	<1 MPN/100mL

Note:
[1] UVI is required to monitored continuous under the DWSNZ and DWQAR. This is currently not being completed but will be addressed following commissioning of the telemetry system, which is ongoing.

Turbidity has been analysed in the raw and treated water by on-line instruments, with values recorded manually during operator WTP visits, since 30 July 2017. The online turbidity data is recorded automatically to a cloud-based telemetry system. New FAC/pH analysers have been installed in 2021 and are verified with hand-held instruments. UVT of the raw and treated water has been measured by laboratory analysis on the mainland since 25 January 2022. There is no online or handheld UVT instrument on the Chatham Islands that would enable operators to measure the UVT more frequently.

UV disinfection and chlorination are CCPs, with documentation provided in Appendix H. It is expected, but not clear at this time, that CCP monitoring will comprise part of the future compliance monitoring.

2.2.5 Monitoring Results

The monitoring results from 1 January 2018 to 31 December 2022 are provided in Appendix D, with the results from this reporting period shaded grey.

Table 4 summarises the monitoring results from the reporting period in the context of DWSNZ compliance and operational requirements as per the approved WSP. Revision to the require compliance monitoring will be required to align with the draft DWQAR.

[13] Maximum interval for parameters monitored monthly is 45 days and weekly is 11 days. Kaingaroa Water Supply is exempt from sampling on a minimum number of days of the week due to logistics of transporting samples to laboratory.
[14] Manual sampling locations are: raw water - at the WTP, before the multimedia filter; treated water - at the WTP after the treated water reservoirs, before entering the reticulation; reticulation - one of two locations within the reticulation (Club, North Whaitiri), with location alternating each month. Turbidity sampling locations at the WTP are prior to multimedia filter (raw water) and after the softener but prior to the UV disinfection
[15] Turbidity analysed continuously in raw and treated water by on-line instruments. Continuous dataset is not able to be downloaded. Displayed value is manually recorded each time the operator visits the site (at least once a week).

Table 4: Kaingaroa water monitoring results for this reporting period

	DWSNZ Compliance	Operational Requirement
Source		
Bacterial		E. coli and total coliforms: All required raw water samples were analysed. E. coli was detected in all but one sample and total coliforms detected in all samples. This is typical for a surface water source. However, higher than normal levels have been measured during this reporting period. This has been attributed to cows drinking water from the inlet channel.
Treatment		
Bacterial and protozoal	E. coli: All required treated water samples analysed. **Non-compliant** as E. coli was detected in the 14 December 2022 sample. A Boil Water Notice was put in place on 15 December when the preliminary Certificate of Analysis was received. Christmas shutdown of the lab and changes to flight schedules prevented investigations from being completed before the end of December 2022. Total coliforms: All required treated water samples analysed. No limit. **Non-compliant** as UVT sampling is inadequate, and monthly UVT results were not always greater than 70%. GAC media may need replacing. (Note: weekly sampling of treated water required under DWSNZ section 5; WSP requires monthly sampling) Note: The UV disinfection system is validated to provide 4-log protozoa inactivation at a minimum UVT of 70% at a flow rate of 3.2 L/s.	Total coliforms: All required treated water samples analysed. Reduction seen through treatment process, but was at detectable levels in one sample. Turbidity: No turbidity above the 0.3 NTU operational target was detected.
Distribution		
Bacterial	E.coli: All required samples analysed. E. coli was not detected monthly distribution samples. **Compliant**	Total Coliforms: All required samples analysed. Elevated levels of total coliforms detected in four samples.

Lake Rangitai Monitoring

To better understand the state of the environment, Environment Canterbury analyses water from Lake Rangitai (i.e., Kaingaroa's raw water source) four times per year for a range of parameters. The available data from 2005 to the end of this reporting period is provided in Appendix C to augment the raw water quality data obtained as part of the water supply monitoring.

Based on the raw water quality data during this reporting period, the water at Lake Rangitai generally falls within the range observed since 2005, nutrients (nitrogen and phosphorus), conductivity and salinity were typically at the upper end of this range. Ongoing monitoring is required to understand if this reflects the extended period of low lake levels seen during this period or a deterioration in health of Lake Rangitai.

2.2.6 Key Maintenance Works

Key maintenance and one-off works undertaken in the reporting period over and above routine works allowed for in the lump sum prices for the O&M Contract are summarised in Appendix A.

2.2.7 Water Demand Management

There is a flow meter downstream of the UV reactors that records totalised flow. Manual recording of the totalised daily flow by the WTP Operator commenced on 30 July 2016.

The maximum daily flow observed during this reporting period was 48 m^3/day, with the daily flows typically being between 3 and 25 m^3/day.

The average daily flow for this reporting period was 14.6 m^3/day, an increase from the last reporting period. Based on a population of 60 people, this equates to an average usage of 242 L/person/day. This is higher than the value in the previous reporting period of 226 L/person/day, but within the range expected for a reticulated supply.

3.0 WAITANGI WASTEWATER SCHEME

3.1 PROCESS OVERVIEW

Raw wastewater is collected from the Waitangi Township via a reticulated sewer network. The wastewater flows by gravity to the Inlet Pump Station (Old Septic Tank) and is pumped approximately 600 m to the Waitangi Wastewater Treatment Plant (WWTP). At the WWTP (Figure 5), wastewater passes through the mechanical Inlet Screen into one of the two Balance Tanks, prior to being pumped to the Rotating Biological Contactor (RBC) units for biological treatment and clarification. In the clarification section of the RBC unit, particles in the wastewater settle to the bottom, while the clarified liquid gravity flows to the Final Holding Tank. The settled particles from the clarifier are pumped to the Sludge Tank, which is cleaned out periodically. The accumulated sludge is disposed off-site and the supernatant from the Sludge Tank is pumped to the Balance Tanks.

From the Final Holding Tank, the wastewater is pumped via the Irrigation Pump through disc filters to further reduce the suspended solids before entering the UV unit. The UV unit requires low suspended solids to ensure effective transmittance of UV light through the wastewater. The UV reactor disinfects the wastewater, which is then irrigated to land at the WWTP site.

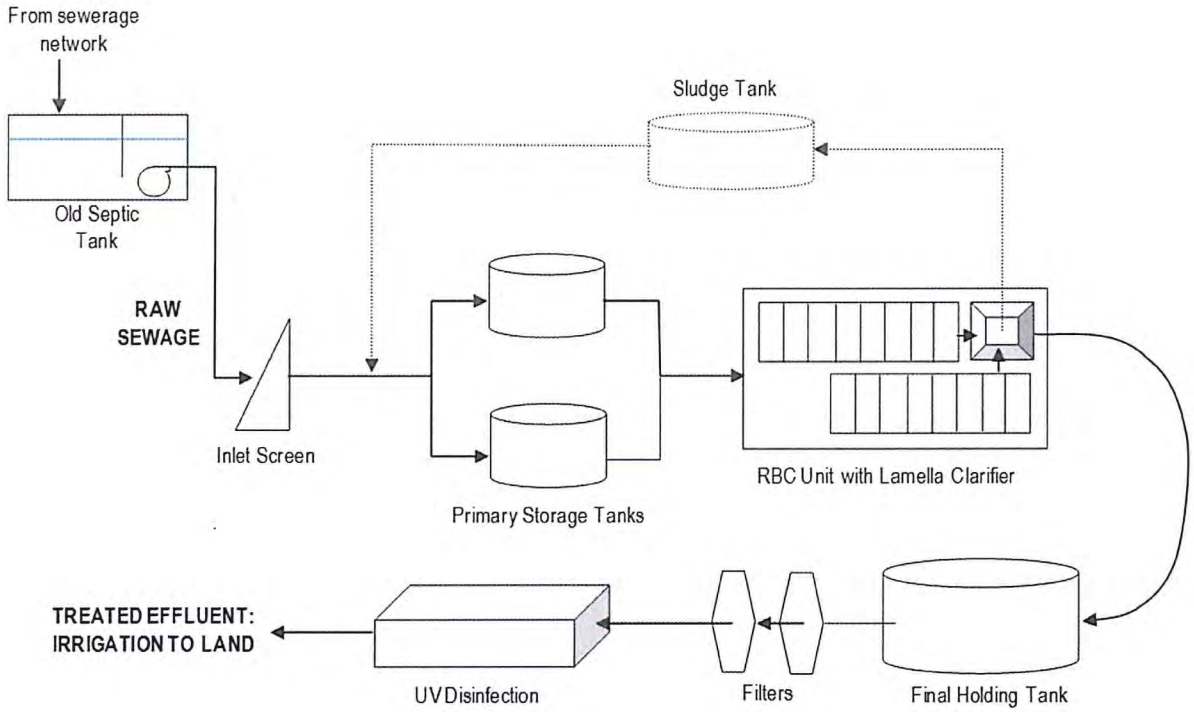


Figure 5: Waitangi Wastewater Treatment Plant Schematic

3.2 IMPROVEMENT PROJECTS

The MoH and Three Waters Stimulus funding grants were used to:

- Purchase materials and complete remedial repairs on the Inlet Pump Station;
- Purchase materials and complete remedial repairs on the RBCs;
- Concept design for a WWTP upgrade to support future funding applications;
- Add plantings to the land application area to help address ponding and surface runoff to the adjacent property; and,
- Purchase and install a new bolted steel tank to replace the existing Balance Tanks.

Plumbing, electrical work, and commissioning of the new Balance Tank is ongoing and being addressed under the O&M Contract. Extension of the land application system within the existing WWTP designated site is planned for the next financial year.

Unfunded projects in the 2022/2023 Annual Plan and the 2021/31 LTP include upgrading the Waitangi WWTP as it has passed the end of its useful life. An upgrade is required to ensure public health and environmental outcomes are met.

3.3 RESOURCE CONSENT REQUIREMENTS AND MONITORING

There are three resource consents for the Waitangi WWTP: discharge of treated wastewater to land, discharge of contaminants to air, and discharge of contaminants into groundwater from monitoring bores. The first of these consents has monitoring and reporting requirements and the second has reporting requirements. All three consents were granted on 25 February 2005 for a period of 35 years (i.e., expire in 2040). A variation to the existing consents is underway.

The current monitoring regime, including both resource consent requirements and operational requirements, is summarised in Table 5. As noted in the table, the current monitoring regime departs slightly from that outlined in the resource consent. For the purpose of this report, the WWTP operation is considered to comply with the resource consent if the consent limits given in the fourth column of Table 5 are not exceeded.

Table 5: Wastewater monitoring regime

Sampling Location	Sampling Frequency[1]	Parameter	Consent Limit[2]	Operational Target	Comment
UV Reactor	Continuous (online)	UV intensity	-	-	Review data weekly
Treated Wastewater, prior to land discharge	Monthly[1]	TSS	25 mg/L	-	
		Ammonia N	25 mg/L	-	Consent limit of 30 mg/L for total nitrogen, assumed ammonia N limit informally adopted post consent award for compliance. Consent also requires nitrate monitoring but no consent limit and not done
		Total COD	75 mg/L	-	Consent limit of 25 mg/L for BOD, assumed total COD limit informally adopted post consent award for compliance
		E. coli	500 cfu/100mL	-	
		Total Coliforms	-	-	Monitored but no consent limit or operational target
		pH	-	6-9	
		Electrical conductivity	-	<200 mS/m	
Discharge Meter	Daily	Volume	126 m^3/d	-	Maximum daily volume
Irrigation Area	Daily	Irrigation depth	5mm	-	Average to individual irrigation area over 5 consecutive days
		Irrigation depth	8mm	-	Maximum depth of single application

Note
1 Consent requires two monthly sampling, but monthly sampling is done for WWTP operation.
2 All limits and targets are annual medians unless stated otherwise in column titled "comment".

In addition to the monitoring departures given in Table 5, the following monitoring is required under the consent but is not currently undertaken.

- Groundwater in bores upstream and downstream of the site twice annually for E. coli and nitrate nitrogen (Condition 15). This has not been carried out to date as groundwater has not been seen in either bore. Surface water was sampled on some occasions, but it is not an appropriate surrogate due to potential contamination from other sources (e.g., stock).
- Soil layers in the irrigation area once every two years for total phosphorous, major exchangeable ions, pH and conductivity (Condition 17). This has not been carried out. Existing treated wastewater discharge has appeared to enhance growth of vegetation in land application area.

A review of the consent conditions has been completed, and a consent condition variation request is being drafted. Part of the Three Waters Stimulus funding package was allocated to this work.

3.3.1 UV Performance

The WWTP Operator monitors the UV intensity and any UV disinfection system alarms as part of the routine WWTP operational inspection carried out at least once a week. The UV lamps are cleaned as required (e.g., on or prior to a low UV intensity alarm). The UV lamps were replaced during the annual service in December 2022.

3.3.2 Treated Wastewater Quality

The treated wastewater quality data available since 1 January 2018 are provided in Appendix E with the results from this reporting period shaded grey. All required treated water samples were collected and analysed for the required parameters during this reporting period.

Overall, the monitoring of the treated wastewater carried out during the reporting period shows:

- TSS: Complied with the annual median limit during this reporting period.
- Ammonia N: Did not comply with the assumed Ammonia-N annual median limit. The annual median decreased below 25 mg/L mid-way through this reporting period.
- Total Nitrogen: Did not comply with the annual median limit. All samples were measured above the annual median limit of 30 mg/L.
- COD: Complied with the annual median limit during this reporting period.
- BOD: Complied with the annual median limit during this reporting period.
- E. coli: Did not comply with the annual median limit of 500 CFU/100 mL during this reporting period. The annual median ranged between 1,500 MPN/100 mL and 2,500 MPN/100 mL during the reporting period.

Non-compliance with the ammonia and nitrogen annual median limits have been due to a number of factors, including increased influent nitrogen loads from increased tourist numbers and visitors associated with the airport runway extension project. It is also noted the WWTP was not designed for ammonia and nitrogen reduction and so the operators have no ability to control the reduction achieved at the WWTP.

Non-compliance of the E. coli annual median limit has been due to increase loads from increased tourist numbers and the UV system being at or near the end of its useful life.

The land application system will further reduce TSS, COD, ammonia, total nitrogen, and E. coli prior to reaching groundwater, particularly now that the sprinklers have been maintained and have been moved further from the property boundary (carried out in November 2020). New plantings have been added to the land application area in June 2021. Additional plants have been propagated and will be planted in 2022-2023.

MoH funding has been used to carry out urgent remedial work on the pump station and the RBC in November-December 2020. Part of the 3 Waters Stimulus funding was used to carry out urgent remedial works, vary existing consent (part, in progress), replace the existing balance tanks, and design a new WWTP to be located at the same site. Collectively, these works will go some way to addressing consent non-compliance and/or mitigating any adverse environmental effects associated with the treated wastewater discharge. The design has been carried out to support future funding applications.

3.3.2.1 Treated Wastewater Volume and Irrigation Rate

Appendix E (Figure E-8) shows the daily volume of treated wastewater discharged from the WWTP to the land irrigation area since 1 January 2018, with this reporting period shaded grey.

The daily volume exceeded the consent limit of 126 m^3/day during this reporting period, on 9 August 2022 where a reading of 150 m^3/day was recorded.

Data required to assess the average and maximum irrigation rates, including size frequency of dosing to individual areas and irrigation volume, was not available for this reporting period. This information would enable a comparison with the consent limits.

3.3.2.2 Complaints Received

No complaints have been received during this reporting period.

However, the Council has previously received a written public complaint about the operation of the wastewater system in relation to concern about treated wastewater run-off from the land application system into the adjacent property. This follows previous complaints from the same landowner about the same issue.

The Council has progressively worked to rectify this issue as funding allowed.

- The dilapidated boundary fence was replaced in 2020 to prevent farm animals from the neighbouring property from eating planted vegetation in the irrigation area.
- Stantec wastewater engineers carried out a site and soil investigation in November 2020 to prepare an as-built plan of the existing land application system and inform the design of an extended system.
- Urgent maintenance was carried out in November 2020, with sprinklers maintained and moved further from the property boundary, and regular mowing of vegetation in land application area.
- New plantings were added in June 2021 to help address some boggy areas and mitigate wind drift.
- Concept design for a new land application system was completed in 2021, with construction of new irrigation pump, pipework and sprinklers anticipated in 2022-2023 as funds allow.
- Additional plants have been propagated by a local nursery and will be ready to plant in 2022-2023.

3.3.2.3 Summary

Table 6 summarises the monitoring results from the reporting period in the context of consent compliance and operational requirements.

Table 6: Waitangi wastewater monitoring results for reporting period

Item	Consent Compliance
UV intensity	**Complied** with UV intensity and UV alarms monitoring requirements. UV intensity and UV alarms reviewed several times per week.
Treated wastewater Quality	**Complied** with the annual median limits for TSS, COD, and BOD less than or equal to the during the reporting period. **Did not comply** with the annual median limits for Ammonia-N, Total Nitrogen, and E. coli exceeded limit at end of reporting period. **Operational Requirement:** Electrical conductivity and pH were within operational targets. **Note:** Council has carried out urgent remedial works at the inlet pumping station and RBCs. 3 Waters Stimulus funding secured to carry out further urgent remedial works at WWTP and design a new WWTP for the site to support future funding applications.
Treated wastewater volume	**Did not comply** with daily flow limit on 9 August 2022.
Irrigation Rate	**Did not comply** due to insufficient data to determine irrigation rates for reporting period.
Complaints Log	No complaints were received this reporting period related to operations, wastewater run-off, or odour. Council has previously received a written public complaint in relation to concerns about treated wastewater run-off into the adjacent property. Council has taken several steps to address this complaint. No other operational or odour complaints from public.

Item	Consent Compliance
	Note: Appropriate plants are being propagated locally; once mature they will be planted to mitigate surface water ponding/runoff from land application system. Three Waters funding secured to extend land application system to further mitigate issue.

3.3.3 Key Maintenance Works

Key maintenance and one-off works undertaken in the reporting period over and above routine works allowed for in the lump sum prices for the O&M Contract are summarised in Appendix A.

4.0 CONCLUSION AND RECOMMENDATIONS

Key findings, progress and recommended actions for this reporting period are summarised below.

Table 7: Key findings and recommended actions

Scheme	Key findings	Progress to Date	Recommended actions
Waitangi Water	• Non-complying for this reporting period with the DWSNZ because UVT and monitoring is not frequent enough. • No E. coli detected in raw, treated or reticulated water.	• Based on monitoring results from this reporting period, the UV system is providing a 4-log protozoa treatment barrier.	• Continue monthly UVT monitoring to develop water quality history and identify 'best practicable' approach for compliance. • Complete commissioning of new plant and telemetry system, including alarms and continuous recoding of UVI.
Kaingaroa Water	• Non-complying with DWSNZ, primarily due to poor water intake and inadequate treatment (UVT not consistently above 70%). • E. coli was detected and a BWN was put in place on 15 December 2022.	• GAC has improved the UVT, but not consistently above 70%. Water quality expected to improve and may comply following intake extension and media replacement. • Intake designed and materials delivered to the island. Enabling works are underway but extension requires low water levels.	• Continue monthly water quality monitoring and identify 'best practicable' approach for compliance. • Urgently extend water intake into deeper water when lake levels allow. Works planned next summer if lake levels are low. • Replace GAC media at next annual service. Monitor and assess if additional GAC filtration capacity required • Complete commissioning of new plant and telemetry system, including alarms and continuous UVI recording.
Waitangi Wastewater	• Non-complying with resource consent, due to elevated nitrogen and E. coli. • Non-complying with resource consent due to exceeding daily flow limit on 9 August 2022. • Complying with solids and organics limits.	• Plumbing of new Balance Tank in progress.	• Continue monthly monitoring (bimonthly required under consent) • Complete commissioning of new Balance Tank and progress irrigation system upgrades • Lodge consent variation

Central Government Funding secured through MoH and Three Water Stimulus grants have enabled several improvement projects for both water and wastewater systems to be completed; outstanding commissioning will be completed as part of the O&M funding. Collectively, this has improved the resilience and performance of these systems, as well as improved the safeguards to public health. However, the water and wastewater schemes still urgently require remedial or upgrade works to address substantial limitations, meet current best practice, and achieve compliance.

Appendices

Appendix A CONTRACT MEETINGS AND DAYWORKS

Chatham Islands Water & Wastewater Maintenance Contract Meeting Record
Record of monthly contract meeting for November 2022.
Present: Andrew Wong, Phil Holt

Contract Documentation	
Project:	***Current Status:***

Water Compliance	• CIC needs to carry out a catchment risk assessment / Source Water Risk Management Plan for both supplies.
	• CIC needs to revise the Water Safety Plans (WSP) for both supplies.
	  ○ The revised WSP framework was released in December 2018. The current WSPs need substantial revision to comply with the new framework, by November 2022. CIC has elected to not review its WSPs at this stage. CIC had intended to update the WSPs through the 3Ws Reform Programme but elected to allocate funds to capital works instead.
	• Tikitiki bore radiological testing was completed and results were all below detection limits for Radon, alpha activity, and beta activity.
	  ○ Radiological testing is to be repeated in October 2026.

Water Supply	
Project:	***Current Status:***
All Supplies – Funding and Site Visit	• The full MoH grant budget ($340,000) was spent by the original 30 June 2022 deadline. • The full 3Ws grant budget ($640,000) was spent by the 30 June 2022 deadline. **Final reporting was submitted 7 November 2022, and final invoice for payment was submitted on 9 November 2022.** • **Site visit was completed on 5-9 December 2022.** • **A site visit in the New Year to align with Filtec's annual servicing visit of the Water Treatment Plants (WTP) is proposed.** • CIC's Entity C CAPEX Request for Information (RfI) was submitted on the 28 October deadline. • CIC's Entity C OPEX RfI was submitted on the 2 December deadline. • CIC's Entity C Financial RfI was not submitted by the 21 October deadline. ○ CIC has forwarded relevant contact information at ECan to the National Transition Unit but has noted that a submission of this information we be completed in February / March 2023.
Kaingaroa – Lake Rangitai	• There are some outstanding documentation deficiencies by FILTEC following the upgrade works at the WTP. • Materials for the intake extension are on the island and awaiting installation by FH. **Wet weather has prevented the completion of this work and was not completed under the grant funding budgets. O&M contract funds will be used to cover the outstanding costs to complete the project.**
Waitangi Water Supply upgrade	• There are some outstanding documentation deficiencies by FILTEC following the upgrade works at the WTP. • The new cloud-based telemetry system was installed and commissioned at both WTPs in April 2022. ○ Improvements to the online portal have been noted and to be implemented in the New Year. • CIC to consider introducing rules for enforcing private repairs within a certain timeframe to minimise loss of water and ensure the supply network can be maintained. **Ongoing**.

	• CIC to consider whether charges are applied for taking water from the FH yard and/or if water is only able to be taken during hours when the yard is manned (i.e., locked at other times). **Ongoing**.
Reporting/ Monitoring/ Sampling **November 2022**	• **Waitangi Water Supply** o Complies with WSP for bacteria (E. coli not detected in raw, treated or network sample). o Not complying with DWSNZ for protozoa with UV disinfection system. ▪ The UV reactor is providing a protozoa barrier. ▪ Non-compliance is related to monitoring: UVI or UV dose (2 per week). UVT is monitored adequately. ▪ Monitoring is consistent with o Total coliforms not detected in the raw, treated, or network sample. o Treated water turbidity was below the operational target of 0.3 NTU. • **Kaingaroa Water Supply** o Complies with WSP for bacteria. No E. coli or total coliforms detected in the treated and network samples. o E. coli and total coliforms detected in the raw sample, but still in compliance. o Not complying with DWSNZ for protozoa with UV disinfection system. ▪ The UV reactor is providing a protozoa barrier. ▪ Non-compliance is related to monitoring: UVI or UV dose (2 per week). UVT is monitored adequately. ▪ Monitoring is consistent with the WSP. ▪ UVT has not been consistently above 70%. o **High levels of total coliforms and moderate levels of E. coli were observed in the November 2022 raw water sample. It has been attributed to rain and strong winds.** Detection of E. coli and total coliforms are expected with a lake water source o Troubleshooting of the chlorine dosing system is ongoing. Monitoring using handheld instrument. • **Council Office – Rainwater Supply** o Monthly monitoring is being completed, but not for compliance with the DWSNZ at this stage since it is not a registered supply. o No E. coli or Total Coliforms detected in the treated water sample. o UVT was high at 97.7% • **MPA Batching Bore (Potential Future Water Supply)** o MPA bore no longer in operation (or sampled). See June 2018 monthly update for results and conclusions.
Wastewater Treatment	
Project:	***Current Status:***
WWTP maintenance	• **Discharge consent review on-going.** • 70% of plantings have been planted in the land application area. Remaining 30% of plants due to be planted early 2023. • Annual servicing visit completed by Steve Riley on December 7-9.
Reporting/ Monitoring/ Sampling **June 2022**	• **Waitangi Treated Wastewater Discharge** o **The treated wastewater complied in November with all parameters, except for nitrogen and E. coli. Stantec and FH will continue to monitor treated wastewater quality, particularly with additional tourist numbers and urgent need for WWTP upgrade.** It is noted that the land application system will further reduce TSS, COD, ammonia and E. coli prior to reaching groundwater, particularly now that the sprinklers have been maintained and have been moved further from the property boundary. o Stantec to review algae treatment options and sludge accumulation issue. o Maintenance and upkeep of the land application areas (i.e., tall grass / weeds) required.
General	
	• N/A

A.2

Table A-1 Approved day works items

Scheme	Date	Comment
Waitangi WWTP	July-Aug 2022	Balance tank construction
Waitangi WTP	August 2022	Electrical issue investigation
Waitangi WTP	September 2022	High usage / leakage investigations
Waitangi WTP	October 2022	New toby box and backflow preventer for public toilet
Waitangi WWTP	December 2022	Balance tank plumbing

Note: These are items over and above those allowed for in lump sum prices in Operation and Maintenance contract. The majority of the costs were covered by MoH or Three Waters Stimulus funding.

Table A-2 Additional works carried out by Stantec

Scheme	Date	Comment
All Schemes	July-Nov 2022	Liaise with Crown Infrastructure Partners (CIP) to complete final 3Waters Stimulus fund reporting and final payment.
All Schemes	Jul-Dec 2022	Liaise with DIA, NTU, and Entity C to respond to 3 Waters Reform RFIs.

Appendix B WAITANGI WTP DATA

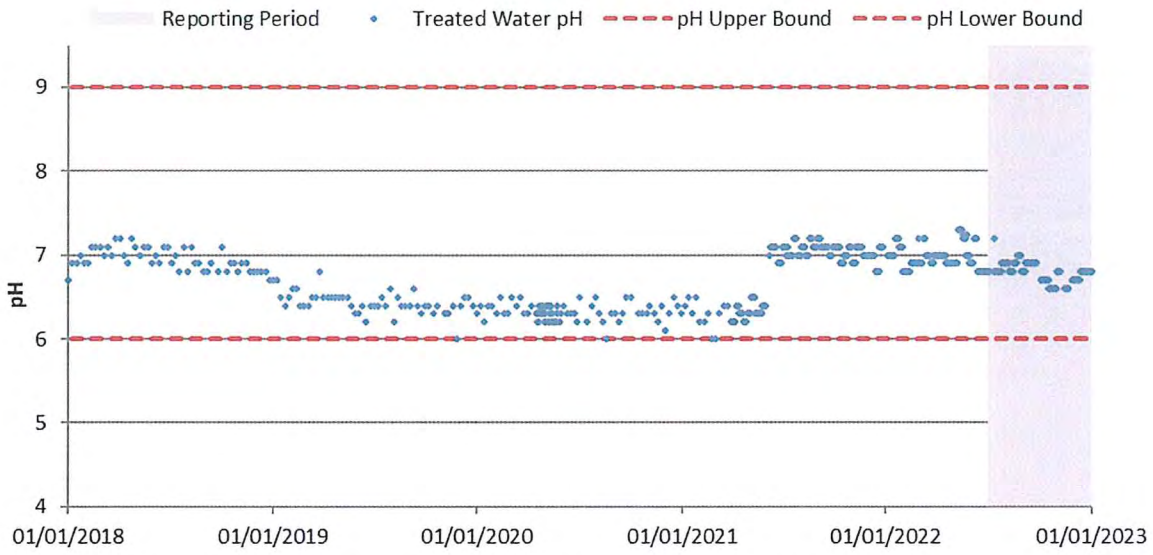


Figure B-1 Waitangi treated water pH data from 1 Jan 2018 to 31 Dec 2022

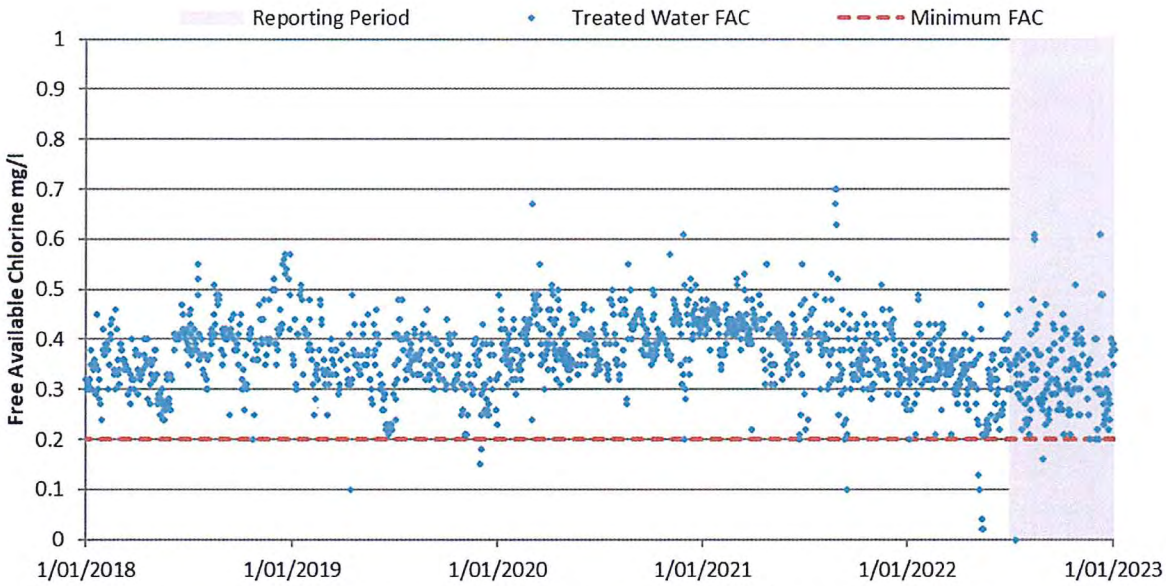


Figure B-2 Waitangi treated water FAC data from 1 Jan 2018 to 31 Dec 2022

(Note: Results on 19 April 2020 of 6.3 mg/L and on 14 May 2020 of 6.4 mg/L not shown)

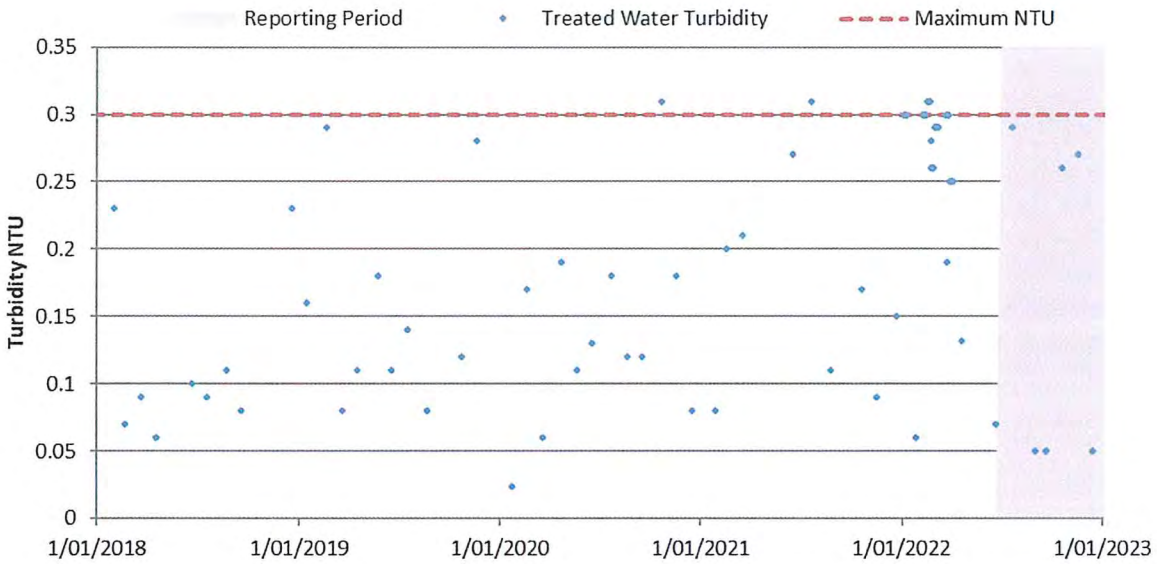


Figure B-3 Waitangi treated water turbidity data from 1 Jan 2018 to 31 Dec 2022

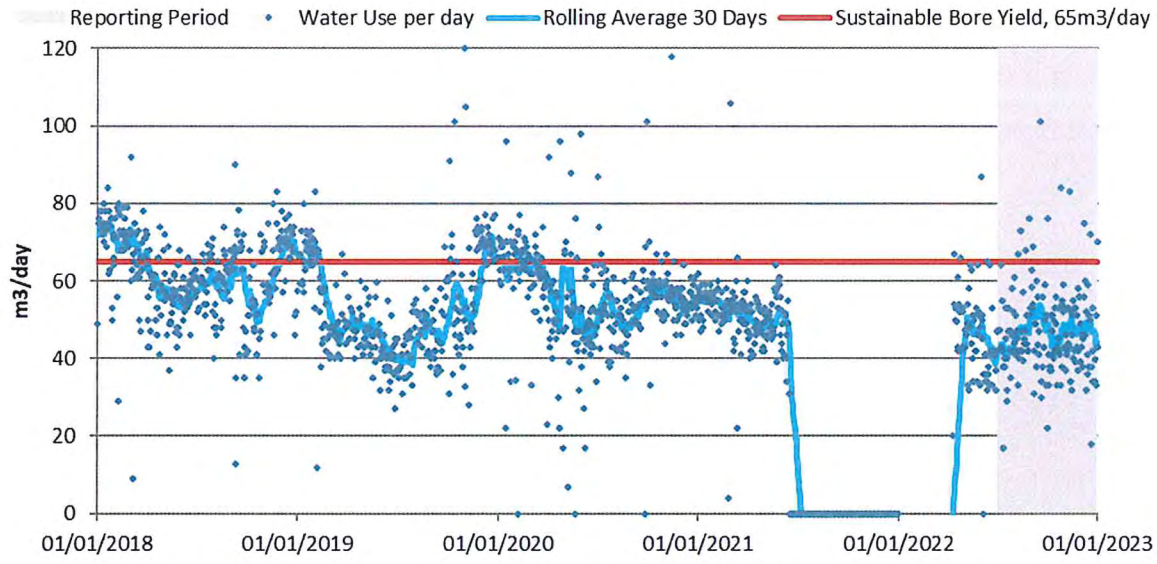


Figure B-4 Tikitiki Bore flow meter readings from 1 Jan 2018 to 31 Dec 2022

Table B-1 Waitangi WTP microbiological data from Feb 2008 to Dec 2022

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)			Date of Sampling	Days between samples	Total Coliforms (MPN/100mL)		
		Raw	Treated	on			Raw	Treated	Reticulation
01/02/2008		<1		<1					
26/02/2008	25	<1		<1					
25/03/2008	28	<1		<1					
27/05/2008	63	<1		<1					
01/07/2008	35	<1		<1					
29/09/2008	90	<1		<1					
29/10/2008	30	<1		<1					
25/11/2008	27	<1		<1					
23/12/2008	28	<1		<1					
27/01/2009	35	<1		<1					
24/02/2009	28	<1		<1					
31/03/2009	35	<1		<1					
30/04/2009	30	<1		<1					
29/05/2009	29	<1		<1	29/09/2008			<1	
30/06/2009	32	<1		<1	29/10/2008	30	<1	<1	<1
30/07/2009	30	<1		<1	25/11/2008	27	<1	<1	<1
27/08/2009	28	<1		<1	23/12/2008	28	<1	<1	<1
29/09/2009	33	<1	<1		27/01/2009	35	<1	<1	<1
29/10/2009	30	<1	<1		24/02/2009	28	<1		<1
24/11/2009	26	<1	<1		31/03/2009	35	<1		<1
22/12/2009	28	<1	<1		30/04/2009	30	<1		<1
26/01/2010	35	<1	<1		29/05/2009	29	<1		<1
23/02/2010	28	<1	<1	<1	30/06/2009	32	<1		<1
30/03/2010	35	<1	<1		30/07/2009	30	<1		<1
27/04/2010	28	<1	<1		27/08/2009	28	<1		<1
28/05/2010	31	<1			29/09/2009	33	<1		
29/06/2010	32	<1	<1	<1	29/10/2009	30	<1		
20/07/2010	21	<1	<1		24/11/2009	26	<1		
27/07/2010	7	<1			22/12/2009	28	<1		
04/08/2010	8	<1			26/01/2010	35	<1		
10/08/2010	6	<1			23/02/2010	28	<1	1	<1
17/08/2010	7	<1			30/03/2010	35	<1	<1	
24/08/2010	7	<1			27/04/2010	28	<1	<1	
02/09/2010	9	<1	<1	<1	28/05/2010	31	<1		
07/09/2010	5	<1			29/06/2010	32	<1	<1	
14/09/2010	7	<1							
21/09/2010	7	<1							
28/09/2010	7	<1	<1		27/07/2010			<1	
05/10/2010	7	<1			02/09/2010	37	<1	<1	<1
12/10/2010	7	<1			28/09/2010	26		<1	
02/11/2010	21	<1	<1		02/11/2010	35	1	<1	
30/11/2010	28	<1	<1		30/11/2010	28	<1	<1	
29/12/2010	29	<1	<1	<1	29/12/2010	29	<1	<1	<1
02/02/2011	35	<1	<1	<1	02/02/2011	35	<1	<1	<1
01/03/2011	27	<1	<1		01/03/2011	27	<1	<1	
26/04/2011	56	<1	<1	<1	26/04/2011	56	<1	<1	<1
31/05/2011	35	<1	<1	<1	31/05/2011	35	38	<1	1
07/06/2011	7	<1	<1	<1	07/06/2011	7	>201	<1	<1
14/06/2011	7	<1			14/06/2011	7	4		
28/06/2011	14	<1	<1	<1.	28/06/2011	14	1	1	<1
05/07/2011	7	<1	<1		05/07/2011	7	<1	<1	
27/07/2011	22	<1	<1	<1	27/07/2011	22	<1	<1	<1
30/08/2011	34	<1	<1	<1	30/08/2011	34	<1	<1	<1
15/09/2011	16	<1	<1		15/09/2011	16	<1	<1	
27/09/2011	12	<1	<1	<1	27/09/2011	12	<1	<1	<1
05/10/2011	8	<1	<1		05/10/2011	8	<1	<1	

* Reticulation samples taken from following locations: Works Yard, Wilson Place, Council House

Table B-1 Waitangi WTP microbiological data from Feb 2008 to Dec 2022 (continued)

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)		
		Raw	Treated	on
11/10/2011	6	<1	<1	
25/10/2011	14	<1	<1	<1
29/11/2011	35	<1	<1	1
06/12/2011	7	<1	<1	<1
20/12/2011	14	<1	<1	<1
31/01/2012	42		<1	<1
07/02/2012	7	<1		
29/02/2012	22	<1	<1	<1
27/03/2012	27	<1	<1	
24/04/2012	28	<1	<1	<1
08/05/2012	13			<1
29/05/2012	21	<1	<1	
26/06/2012	28	<1	<1	<1
31/07/2012	35	<1	<1	<1
28/08/2012	28	<1		
25/09/2012	28	<1		
30/10/2012	35	<1		
27/11/2012	28	<1		
18/12/2012	21	<1	<1	<1
29/01/2013	42	<1	<1	<1
12/02/2013	14			1
19/02/2013	7			<1
26/02/2013	7	<1	<1	<1
26/03/2013	28	<1	<1	<1
30/04/2013	35	<1	<1	<1
29/05/2013	29	<1	<1	<1
25/06/2013	27	<1	<1	<1
30/07/2013	35	<1	<1	<1
27/08/2013	28	<1	<1	<1
24/09/2013	28	<1	<1	<1
29/10/2013	35	<1	<1	<1
26/11/2013	28	<1	<1	<1
17/12/2013	21	<1	<1	<1
28/01/2014	42	<1	<1	<1
25/02/2014	28	2	<1	<1
04/03/2014	7	<1	<1	NT
11/03/2014	7	<1		NT
25/03/2014	14	<1		
29/04/2014	14	>201	<1	<1
06/05/2014	7	<1	<1	NT
28/05/2014	22	<1	<1	<1
24/06/2014	27	<1	<1	<1
29/07/2014	35	<1	<1	<1
26/08/2014	28	<1	<1	<1
30/09/2014	35	<1	<1	<1
28/10/2014	28	<1	<1	<1
02/12/2014	35	<1	<1	<1
23/12/2014	21	<1	<1	<1
27/01/2015	35	<1	<1	<1
24/02/2015	28	<1	<1	<1
31/03/2015	35	<1	<1	<1
28/04/2015	28	<1	<1	<1
26/05/2015	28	<1	<1	<1
7/07/2015	42	<1	<1	<1
28/07/2015	21	<1	<1	<1

Date of Sampling	Days between samples	Total Coliforms (MPN/100mL)		
		Raw	Treated	Reticulation
11/10/2011	6	<1	<1	
25/10/2011	14	<1	<1	<1
29/11/2011	35	9	<1	1
06/12/2011	7	<1	<1	<1
20/12/2011	14	2	<1	<1
31/01/2012	42		<1	1
07/02/2012	7	<1		
29/02/2012	22	<1	<1	<1
27/03/2012	27	<1	<1	<1
24/04/2012	28	<1		>201
08/05/2012	14			<1
29/05/2012	21	<1	<1	<1
26/06/2012	28	<1	<1	<1
31/07/2012	35	<1	<1	<1
28/08/2012	28	<1		
25/09/2012	28	<1		
30/10/2012	35	<1		
27/11/2012	28	<1		
18/12/2012	21	<1	<1	<1
29/01/2013	42	<1	<1	1
12/02/2013	14			2
19/02/2013	7			<1
26/02/2013	7	<1	<1	<1
26/03/2013	28	<1	<1	<1
30/04/2013	35	NT	<1	<1
29/05/2013	29	<1	<1	<1
25/06/2013	27	<1	<1	<1
30/07/2013	35	<1	<1	<1
27/08/2013	28	<1	<1	<1
24/09/2013	28	<1	<1	<1
29/10/2013	35	<1	<1	<1
26/11/2013	28	<1	<1	<1
17/12/2013	21	<1	<1	<1
28/01/2014	42	<1	<1	<1
25/02/2014	28	5	<1	<1
04/03/2014	7	4	<1	NT
11/03/2014	7	<1		NT
25/03/2014	14	<1		
29/04/2014	14	<1	<1	<1
06/05/2014	7	<1	<1	NT
28/05/2014	22	<1	<1	<1
24/06/2014	27	<1	<1	<1
29/07/2014	35	<1	<1	<1
26/08/2014	28	<1	<1	<1
30/09/2014	35	<1	<1	<1
28/10/2014	28	<1	<1	<1
02/12/2014	35	<1	<1	<1
23/12/2014	21	<1	<1	<1
27/01/2015	35	<1	<1	<1
24/02/2015	28	<1	<1	<1
31/03/2015	35	<1	<1	<1
28/04/2015	28	<1	<1	<1
26/05/2015	28	<1	<1	<1
7/07/2015	42	<1	<1	<1
28/07/2015	21	<1	<1	<1

* Reticulation samples taken from following locations: Works Yard, Wilson Place, Council House

** NT – Not Taken

Table B-1 Waitangi WTP microbiological data from Feb 2008 to Dec 2022 (continued)

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)			Date of Sampling	Days between samples	Total Coliforms (MPN/100mL)		
		Raw	Treated	on			Raw	Treated	Reticulation
29/09/2015	35	<1	<1	<1	29/09/2015	35	<1	<1	<1
27/10/2015	28	<1	<1	<1	27/10/2015	28	<1	<1	<1
24/11/2015	28	<1	<1	<1	24/11/2015	28	<1	<1	<1
22/12/2015	28	<1	<1	<1	22/12/2015	28	<1	<1	<1
26/01/2016	35	<1	<1	<1	26/01/2016	35	<1	<1	<1
23/02/2016	28	<1	<1	<1	23/02/2016	28	<1	<1	<1
29/03/2016	35	<1	<1	<1	29/03/2016	35	<1	<1	<1
26/04/2016	28	<1	<1	<1	26/04/2016	28	<1	<1	<1
31/05/2016	35	<1	<1	<1	31/05/2016	35	<1	<1	<1
5/07/2016	35	<1	<1	<1	5/07/2016	35	<1	<1	<1
26/07/2016	21	<1	<1	<1	26/07/2016	21	<1	<1	<1
30/08/2016	35	<1	<1	<1	30/08/2016	35	<1	<1	<1
27/09/2016	28	<1	<1	<1	27/09/2016	28	<1	<1	<1
1/11/2016	35	<1	<1	<1	1/11/2016	35	<1	<1	<1
6/12/2016	35	<1	<1	<1	6/12/2016	35	<1	<1	<1
30/12/2016	24	<1	<1	<1	30/12/2016	24	<1	<1	<1
31/01/2017	32	<1	<1	<1	31/01/2017	32	<1	<1	<1
31/01/2017	0	Na	Na	<1	31/01/2017	0	Na	Na	1
21/02/2017	21	<1	<1	<1	21/02/2017	21	<1	<1	<1
21/03/2017	28	<1	<1	<1	21/03/2017	28	<1	<1	<1
18/04/2017	28	<1	<1	<1	18/04/2017	28	4	<1	<1
16/05/2017	28	<1	<1	<1	16/05/2017	28	16	<1	<1
20/06/2017	35	<1	<1	<1	20/06/2017	35	3	<1	<1
24/07/2017	34	<1	<1	<1	24/07/2017	34	1	<1	<1
22/08/2017	29	<1	<1	<1	22/08/2017	29	<1	<1	<1
19/09/2017	28	<1	<1	<1	19/09/2017	28	<1	<1	<1
17/10/2017	28	<1	<1	<1	17/10/2017	28	<1	<1	<1
14/11/2017	28	<1	<1	<1	14/11/2017	28	1	<1	<1
19/12/2017	35	<1	<1	<1	19/12/2017	35	<1	<1	<1
30/01/2018	42	<1	<1	<1	30/01/2018	42	<1	<1	<1
20/02/2018	21	<1	<1	<1	20/02/2018	21	<1	<1	<1
20/03/2018	28	<1	<1	<1	20/03/2018	28	<1	<1	<1
17/04/2018	28	<1	<1	<1	17/04/2018	28	<1	<1	<1
15/05/2018	28	<1	<1	<1	15/05/2018	28	<1	<1	<1
20/06/2018	36	<1	<1	<1	20/06/2018	36	<1	<1	<1
17/07/2018	27	<1	<1	<1	17/07/2018	27	<1	<1	<1
21/08/2018	35	<1	<1	<1	21/08/2018	35	<1	<1	<1
18/09/2018	28	<1	<1	<1	18/09/2018	28	<1	<1	<1
16/10/2018	28	<1	<1	<1	16/10/2018	28	<1	<1	<1
20/11/2018	35	<1	<1	<1	20/11/2018	35	<1	<1	<1
18/12/2018	28	<1	<1	<1	18/12/2018	28	<1	<1	<1
15/01/2019	28	<1	<1	<1	15/01/2019	28	<1	<1	<1
19/02/2019	35	<1	<1	<1	19/02/2019	35	<1	<1	<1
19/03/2019	28	<1	<1	<1	19/03/2019	28	<1	<1	<1
16/04/2019	28	<1	<1	<1	16/04/2019	28	<1	<1	<1
21/05/2019	35	<1	<1	<1	21/05/2019	35	6	<1	<1
18/06/2019	28	<1	<1	<1	18/06/2019	28	1	1	<1
16/07/2019	28	<1	<1	<1	16/07/2019	28	2	<1	<1
20/08/2019	35	<1	<1	<1	20/08/2019	35	3	<1	<1
17/09/2019	28	<1	<1	<1	17/09/2019	28	<1	<1	<1
22/10/2019	35	<1	<1	<1	22/10/2019	35	<1	<1	<1
19/11/2019	28	<1	<1	<1	19/11/2019	28	<1	<1	<1
24/12/2019	35	<1	<1	<1	24/12/2019	35	<1	1	<1
21/01/2020	28	<1	<1	<1	21/01/2020	28	<1	<1	34
18/02/2020	28	<1	<1	2	18/02/2020	28	<1	<1	>200

* Reticulation samples taken from following locations: Works Yard, Wilson Place, Council House

Table B-1 Waitangi WTP microbiological data from Feb 2008 to Dec 2022 (continued)

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)		
		Raw	Treated	Reticulation
21/02/2020	3	<1	<1	<1
24/02/2020	3	<1	<1	<1
25/02/2020	1	<1	<1	<1
3/03/2020	7	<1	<1	<1
17/03/2020	14	<1	<1	<1
21/04/2020	35	<1	<1	<1
19/05/2020	28	<1	<1	<1
16/06/2020	28	<1	<1	<1
21/07/2020	35	<1	<1	<1
18/08/2020	28	<1	<1	<1
15/09/2020	28	<1	<1	<1
20/10/2020	35	<1	<1	<1
17/11/2020	28	<1	<1	<1
15/12/2020	28	<1	<1	<1
26/01/2021	42	<1	<1	<1
16/02/2021	21	<1	<1	<1
16/03/2021	28	<1	<1	<1
20/04/2021	35	<1	<1	<1
18/05/2021	28	<1	<1	<1
16/06/2021	29	<1	<1	<1
20/07/2021	34	NT	<1	<1
24/08/2021	35	NT	<1	<1
21/09/2021	28	<1	<1	<1
19/10/2021	28	<1	<1	<1
16/11/2021	28	<1	<1	<1
21/12/2021	35	<1	<1	<1
18/01/2022	28	<1	<1	<1
25/01/2022	7	<1	<1	<1
15/02/2022	21	<1	<1	<1
22/03/2022	35	<1	<1	<1
19/04/2022	28	<1	<1	<1
17/05/2022	28	<1	<1	<1
21/06/2022	35	<1	<1	<1
19/07/2022	28	<1	<1	<1
30/08/2022	42	<1	<1	<1
20/09/2022	21	<1	<1	<1
19/10/2022	29	<1	<1	<1
16/11/2022	28	<1	<1	<1
14/12/2022	28	<1	<1	<1

Date of Sampling	Days between samples	Total Coliforms (MPN/100mL)		
		Raw	Treated	Reticulation
21/02/2020	3	<1	<1	<1
24/02/2020	3	<1	<1	<1
25/02/2020	1	<1	<1	<1
3/03/2020	7	<1	<1	<1
17/03/2020	14	<1	<1	<1
21/04/2020	35	<1	<1	<1
19/05/2020	28	<1	<1	<1
16/06/2020	28	<1	<1	<1
21/07/2020	35	<1	<1	<1
18/08/2020	28	<1	<1	<1
15/09/2020	28	<1	<1	<1
20/10/2020	35	<1	<1	<1
17/11/2020	28	<1	<1	<1
15/12/2020	28	3	<1	<1
26/01/2021	42	<1	<1	<1
16/02/2021	21	<1	<1	<1
16/03/2021	28	<1	<1	<1
20/04/2021	35	<1	<1	<1
18/05/2021	28	<1	<1	<1
16/06/2021	29	<1	<1	<1
20/07/2021	34	NT	<1	<1
24/08/2021	35	NT	<1	<1
21/09/2021	28	<1	<1	<1
19/10/2021	28	<1	<1	<1
16/11/2021	28	<1	<1	<1
21/12/2021	35	5	<1	<1
18/01/2022	28	NT	NT	NT
25/01/2022	7	<1	<1	<1
15/02/2022	21	<1	<1	<1
22/03/2022	35	<1	<1	<1
19/04/2022	28	2	<1	<1
17/05/2022	28	<1	<1	<1
21/06/2022	35	5	<1	<1
19/07/2022	28	<1	<1	<1
30/08/2022	42	<1	<1	<1
20/09/2022	21	<1	<1	<1
19/10/2022	29	<1	<1	<1
16/11/2022	28	<1	<1	<1
14/12/2022	28	<1	<1	<1

* Reticulation samples taken from following locations: Works Yard, Wilson Place, Council House

** NT – Not Taken

***Shaded area represents the reporting period

Appendix C LAKE RANGITAI WATER QUALITY

Source: Environment Canterbury

The approximate sampling location of Lake Rangitai when lake levels allow is illustrated with a teal dot in Figure C-1. When the lake level is low, the sample is taken from the raw water intake trench for the water supply.

Figure C-1: Approximate sampling location of Lake Rangitai

Table C-1: Data for Lake Rangitai (SQ34846) from April 2005 to September 2017. Source: Environment Canterbury

Source:Lake Rangitai (Chathams) eastern shore off Taia-Hapupu Rd Site No:SQ34846

Site_ID	Date	Time	E coli	Ammonia Nitrogen	Chlorophyll a	Chlorophyll a (plankton)	Dissolved Organic Carbon	Dissolved Organic Carbon (DOC)	Dissolved Reactive Phosphorus	Electrical Conductivity (EC)	Nitrate and Nitrite Nitrogen	pH	Total Nitrogen	Total Phosphorus	Conductivity field	pH field	Rain	Rain Previously	Salinity, Field	Clarity Tube	Chathams Water Colour	Dissolved Oxygen	Dissolved Oxygen % saturation	Water Clarity	Water Colour	Water Temperature	Wind Direction	Wind Strength
SQ34846	6-Apr-05	1720		0.011			7.6		0.003		0.006	8.2	0.7	0.027	90		not raining	no rain		>100		8.66	91	clear	clear	17.6		
SQ34846	14-Sep-05	1100		0.009		0.5	7.8		<0.001		0.014		0.49	<0.008	93	8.2				100+		9.57	94.6	clear	brown/yellow	14.2		
SQ34846	8-Dec-05	1630		<0.005		0.8	8.6		0.002		0.019		0.57	0.01		8.7	not raining	no rain		100		9.22	96.1	clear	clear	17.6		
SQ34846	30-Mar-06	1305		0.01		1.4	7.7		<0.001		0.008		0.61	0.011		8.6	raining	light rain	0.5	100+		10.1	101.3	clear	clear	15.8		
SQ34846	14-Jun-06	1100		0.009		1.4	9.3		0.002		0.011		0.57	0.015	53.5	8.2	not raining	moderate	0.3	38		7.49	75.3	clear	rose red	7.4		
SQ34846	19-Oct-06	1600	2			0.9	8						0.36	0.012	92	8.5	not raining	light rain				10.99	106.9	clear	clear	13.9		
SQ34846	30-Nov-06	1040	11				6.7						0.47	0.01	92	8.5	not raining	no rain	0.5	81		7.9	102.3	clear	brown/yellow	18		
SQ34846	29-Mar-07	1300	370			0.4	8.8						0.34	<0.008	104	8.8	not raining	no rain	0.5	100+		12	125	clear	clear	17.4		
SQ34846	21-Jun-07	1600	7			0.6	7.3						0.37	<0.008	93.3	9.1	raining	heavy	0.5	100+		11.9	99	clear	clear	8.2		
SQ34846	10-Jul-07	1530	<10			0.3	7.8						0.42	<0.008	87.1	7.3	not raining	light rain	0.4	98		11.5	102	clear	clear	11		
SQ34846	17-Dec-07	1500	43			0.9	7.9						0.71	0.042	102.6	7.4	not raining	no rain	0.5	64				clear	clear	23.8		
SQ34846	30-Mar-08	1630	650			4.6	8.4						0.73	0.21	37.8	8.9	raining	moderate	0.2	100+		10.1	104	clear	green	17		
SQ34846	29-Jun-08	1700				0.7	6.9						0.31	0.008	59.5	8.2	not raining	heavy	0.4	100+		11.4	99.2	clear	clear	9.8		
SQ34846	21-Sep-08	1500	25			1.1	7.5						0.48	0.008	71	8.5	not raining	no rain	0.4	100+		10.78	104	clear	clear	14.1		
SQ34846	18-Dec-08	1330	79			1	7						0.39	0.009	62	8.6	not raining	light rain	0.3			9.7	102	clear	clear	17.6		
SQ34846	23-Mar-09	1800	3			0.4	7.8						0.57	<0.008	96.9	9	not raining	moderate	0.6	100+	clear	10.02	105.9	clear		18		
SQ34846	18-Jun-09	1500	16			0.7	8						0.28	<0.008	103.7	8.4	not raining	moderate	0.5	100	clear	11.7	100.2	clear		8.3		
SQ34846	20-Sep-09	1030	11	0.007		0.9	7.6		<0.001		<0.005	8.3	0.48	<0.008	105.9	N/A	not raining	no rain	0.5	100+	clear	10.1	89.6	clear		10.4		
SQ34846	14-Dec-09	1440	66	<0.005		0.8	9.7		0.002		<0.005		0.75	0.025	101.6	N/A	not raining	no rain	0.4	75	clear	8.64	101.1	clear		23.5		
SQ34846	17-Mar-10	1545	5			6.8	7.9						0.54	0.013	98.9	8.6	not raining	moderate	0.6	100+	clear			clear		12.9		
SQ34846	14-Jun-10	1330		0.013		1.3	6.6		<0.001		0.022		0.51	0.008	82	8.4	not raining	light rain	0.2	<100	clear	11.8	100.2	clear		8.3		
SQ34846	28-Jun-10	1350	8																									
SQ34846	20-Sep-10	1350	11	0.011		2.3	9.8		<0.001		<0.005		0.53	0.015	79.4	7.2	not raining	light rain	0.5	85	clear	11.05	102	clear		12		
SQ34846	13-Dec-10	1440	<1	0.006		0.5	7.8		<0.001		<0.005		0.53	0.011	105.8	8.4	not raining	no rain	0.6	>100		9.14	96.5	clear		18		
SQ34846	24-Feb-11	1206					8.7				0.002		0.54	0.13	118.1	8.5	not raining	no rain	0.7	>100	green/yellow	9.37	99.4	clear		18.4		
SQ34846	13-Jun-11	1330	91	0.008			10		<0.001		0.017		0.61	0.013	72.6	8.1	not raining	light rain	0.5	55	clear	11.28	98.5	turbid		9.6		
SQ34846	12-Sep-11	1415	2	0.007			5.8		<0.001		0.035		0.19	<0.008	74.9	o pH mete	not raining	moderate	0.5	>100	ed/brown/yellow	7.6	77.2	clear		14.2		
SQ34846	28-Nov-11	1400	3	0.008			9		<0.001		<0.005		0.41	0.018	75.4	7	not raining	no rain	0.5	62	clear	10.19	101.7	clear		14.7		
SQ34846	15-Mar-12	1500	16	0.009		1.2	8.3		<0.001		<0.005		0.46	0.009	100.8	8.4	not raining	no rain	0.5	100	brown	9.77	99	clear		15.8		
SQ34846	18-Jun-12	1603		0.016		2.2	7.1		0.001		0.007		0.43	<0.008	97.7	8.5	not raining	no rain	0.48	> 100	clear	12.54	106.6	clear		7.8		
SQ34846	25-Jun-12	1509	3																									
SQ34846	10-Sep-12	1515	730	0.008		<0.2	7.6		<0.001		<0.005		0.33	0.013	77	8.5	not raining	moderate	0.45	72	clear	101.8	10.51			12.9		
SQ34846	10-Dec-12	1510	9	< 0.010	0.0007		8.7		< 0.004		< 0.002		0.38	0.008	102.5	8.61	not raining	light	0.51	>100		9.7	100.5	clear	no colour			
SQ34846	11-Mar-13	1605	2420	< 0.010	0.001		7.6		< 0.004		< 0.002		0.44	0.018	108.9	8.64	not raining	nil	0.94	75		9.76	163.3	clear	no colour	18		
SQ34846	10-Jun-13	1529	52	< 0.010	0.0012		6.7		< 0.004		< 0.002		0.33	0.005	106	8.37	not raining	nil	0.53	>100		11.08	100	clear	colourless	11.5		
SQ34846	2-Sep-13	1457	< 10	0.011	0.0008		5.5		< 0.004		< 0.002		0.34	0.007	104		not raining	light	0.52	>100				clear	colourless	11.1		
SQ34846	9-Dec-13	1340	9	< 0.010	0.0006		7.6		< 0.004	105.1	< 0.002	8.2	0.39	< 0.004	109.3		not raining	nil	0.5	100+	no colour	8.96	106.1	clear		23.5		
SQ34846	4-Mar-14	1010	56	< 0.010	0.0004			9.8	< 0.004	94.5	< 0.002	8.3	0.36	< 0.004	90	8.55	not raining	moderate	0.5	>100	red/ brown	8.77	102.3	clear		15.1		
SQ34846	16-Jun-14	1516	2	< 0.010	0.0005			4.7	< 0.004	50.1	< 0.002	8.3	0.23	< 0.004	1020	8.66	not raining	nil	0.5	>100	no colour	10.12	103.8	clear		9.7		
SQ34846	8-Sep-14	1540		< 0.010	0.0009			7.5	< 0.004	81.6	< 0.002	8.3	0.36	0.007			not raining	moderate		75	green	11.03	100	turbid		11.1		
SQ34846	10-Dec-14	1020	1	< 0.010	0.0004			8.4	< 0.004	97.5	< 0.002	8.3	0.37	< 0.004	103.1		not raining	nil	0.51	100+	green	10.4	102.2	clear		14		
SQ34846	9-Mar-15	1430	4	< 0.010	0.0002			8.5	< 0.004	114.2	< 0.002	8.3	0.38	0.005	118.8		not raining	moderate	0.59	>100	no colour	9.6	98.9	clear		19.6		
SQ34846	12-Jun-15	1342	12	< 0.010	0.0003			7.4	< 0.004	106.2	0.004	8.2	0.4	< 0.004	110.2		not raining	nil	0.55	>100	no colour	10.62	96.4	clear		9.4		
SQ34846	21-Sep-15	1549	< 10	< 0.010	0.001			8.6	< 0.004	105.3	0.036	8.2	0.53	0.01	103.4		not raining	light	0.51	85	no colour	9.52	87.6	clear		11.3		
SQ34846	14-Dec-15	1635	25	0.012	0.0004			6.3	< 0.004	74.3	0.013	8.2	0.35	0.009	114.4		not raining	moderate	0.57	100	no colour	8.59	92.5	clear		14.8		
SQ34846	13-Mar-16	1100	7	< 0.010	< 0.0002			8.2	< 0.004	129.8	< 0.002	8.1	0.43	< 0.004	134		not raining	light	0.67	>100	no colour	10.11	97.6	clear		14.3		
SQ34846	10-Jun-16	1130	30	< 0.010	0.0006			6.8	< 0.004	121.6	< 0.002	8.1	0.38	< 0.004	122.5		not raining	light	0.61	>100	no colour	4.62	53.7	clear		12.7	N	strong
SQ34846	12-Sep-16	1509	56	< 0.010	0.0048			8.2	< 0.004	117.7	0.007	8.2	2.3	0.156	119.8		not raining	nil	0.6		coffee	10.68	101	turbid		13.1	NW	moderate
SQ34846	19-Dec-16	1712	28	< 0.010	0.0003			11.5	< 0.004	139.6	< 0.002	8.6	0.54	0.006	134.2		not raining	nil	0.67	100	no colour	7.97	92.5	clear		20.2	W	moderate
SQ34846	10-Mar-17	1102	23	< 0.010	< 0.0002			9.1	< 0.004	111.9	< 0.002	8.3	0.35	0.005	155.9		not raining	nil	0.79	100	no colour	9.69	97.7	clear		16.1	NW	light
SQ34846	9-Jun-17	1144	6	< 0.010	0.0009			4.9	< 0.004	103.6	< 0.002	8.2	0.39	0.009	131.2		not raining	moderate	0.66		no colour	11.34	99.5	clear		9.6	S	moderate
SQ34846	11-Sep-17	1520	579		0.0012			9.1	< 0.004	118.8	0.003	8.2	0.57	0.009														

Table C-2: Data for Lake Rangitai (SQ34846) from September 2017 to December 2022. Source: Environment Canterbury 1/3/2023

Site Name	Date	Time	Sample Parameters							Ammoniacal Nitrogen	Chlorophyll a (planktonic)	Clarity Tube	Conductivity	Conductivity (Field)	Dissolved Organic Carbon	Dissolved Oxygen	Dissolved Oxygen % Saturation	Dissolved Reactive Phosphorus	E. coli	Nitrate-N + Nitrite-N	Salinity (Field)	Total Nitrogen	Total Phosphorus	Water Temperature (Field)	pH	Comments
			Rain	Rain Previously	Site is dry	Water Clarity	Water Colour	Wind Direction	Wind Strength	(mg/L)	(ug/L)	(cm)	(mS/m)	(mS/m)	(mg/L)	(mg/L)	(%)	(mg/L)	(MPN/100ml)	(g/m3)	(ppt)	(g/m3)	(g/m3)	(C)		
Site Name: Lake Rangitai (Chathams) east shore off Taia-Hapupu Rd																										
SQ34846	11-Dec-2017	13:56:00	not raining	nil	no	clear	no colour	NW	strong	<0.010	0.30	100.00	126.00	129.80	6.00	8.06	94.90	<0.0040	3.00	<0.002	0.65	0.42	<0.004	23.30	8.00	Lab mistakenly did not test for Entercocci
SQ34846	12-Mar-2018	13:54:00	not raining	nil	no	clear	no colour	NE	light	<0.010	0.20	100.00	144.20	154.20	7.30	9.29	98.30	<0.0040	4.00	<0.002	0.78	0.47	0.01	18.20	8.20	Lab mistakenly did not test for Entercocci
SQ34846	07-Jun-2018	10:11:00	not raining	light	no	clear	colourless	SW	light	0.02	0.40	100.00	128.60	90.80		12.08	105.00	<0.0040		<0.002	0.43	0.37	0.01	8.60	8.30	Lab mistakenly did not test for E. coli, Entercocci and DOC
SQ34846	17-Sep-2018	14:30:00	not raining	light	No	clear	coffee	W	moderate	<0.010	0.80	96.00	122.00	121.50	9.60	9.38	93.80	<0.0040		0.00	0.61	0.43	0.01	15.60	8.10	
SQ34846	17-Sep-2018	14:48:00	not raining	light	No	clear	coffee	N	moderate										7.00							
SQ34846	10-Dec-2018	15:20:00	not raining	light	No	clear	no colour		strong	<0.010	0.50	100.00	163.70		6.10	9.30	104.40	<0.0040	126.00	<0.002		0.45	0.00	20.50	8.10	ProDDO used = no EC or Salinity
SQ34846	18/Mar/2019	16:24:00								0.011	0.3	100	166.6	187.1	10.7	8.32	84	<0.0040	27	0.003	0.96	0.63	<0.004	16.1	8.1	
SQ34846	30/May/2019	15:00:00								0.35	0.5	100	131.2	153.6	13.2	7.67	75.5	<0.0040		0.019	0.78	0.86	0.008	14.2	8.3	E. coli sample frozen - not able to be processed by lab.
SQ34846	12/Feb/2019	3:16:00 pm	not raining	nil		clear	no colour												291							
SQ34846	18/Mar/2019	4:24:00 pm	not raining	nil		clear	no colour			0.011	0.3	100	166.6		10.7	8.32	84	<0.0040			0.96	0.63	<0.004	16.1	8.1	
SQ34846	18/Mar/2019	4:26:00 pm	Not raining	Nil		Clear	No colour												27							
SQ34846	30/May/2019	3:00:00 pm	not raining	nil		clear	no colour			0.35	0.5	100	131.2		13.2	7.67	75.5	<0.0040			0.78	0.86	0.008	14.2	8.3	
SQ34846	3/Jun/2019	3:54:00 pm	not raining	moderate		clear	no colour																			
SQ34846	16/Sep/2019	2:48:00 pm	not raining	light		clear	no colour			<0.010	3	82	121.5		12.8	7.93	79.5	<0.0040			0.62	0.63	0.015	15.2	8.2	
SQ34846	16/Sep/2019	2:56:00 pm	not raining	light		clear	no colour												63							
SQ34846	2/Dec/2019	3:16:00 pm	not raining	nil		clear	no colour			0.015	1.2	100	96.4		3.2	6.23	70.9	0.006			0.71	0.35	<0.004	21.3	8.4	
SQ34846	16/03/2020	3:03:00 pm	Lake level very	Not Raining	Nil	Opaque	Green	E	Light	0.121	1	11	121.1	151.7	8.5	11.42	114.9	<0.0040	20	0.007	0.77	0.72	0.022	15.4	8.2	
SQ34846	15/06/2020	2:45:00 pm	Water level low	Not Raining	Nil	Clear	Colourless		Calm	0.105	0.4	100	130.8	155.8	6	11.83	100.2	<0.0040	137	<0.002	0.79	0.54	<0.0040	8.6	8.2	
SQ34846	14/09/2020	2:13:00 pm	Not raining	Light	No	Colourless	Clear			0.01	0.5	100	74.6	152.6	9.91	105.6	105.6	0.004		0.002	0.77	0.34	0.004	18.5	8.6	
SQ34846	14/09/2020	2:45:00 pm	Not raining	Nil	No	Colourless	Clear	NW	Light										10							
SQ34846	11/12/2020	11:17:00 am	Not raining	Moderate	No	Colourless	Clear	N	Light			100		151.6	0.02		86.5		28		0.77			18		
SQ34846	8/03/2021	15:16:00	Not Raining	Heavy		Opaque	Colourless	SW	Strong	0.39	3.6	12		122.9	14.8	7.65	81.7	<0.0040		0.4	0.62	1.65	0.048	17.3	8	
SQ34846	8/03/2021	15:21:00	Not Raining	Heavy		Opaque	Colourless	SW	Strong										>2420							
SQ34846	3/06/2021	15:21:00	Not Raining	Light		Clear	Colourless	SW	Moderate	0.34	0.6	55		177.2	15.8	11.46	102	<0.0040		0.025	0.9	1.04	0.008	10.2	8.1	
SQ34846	7/06/2021	14:46:00	Not Raining	Nil		Clear	Colourless	N	Calm										11							
SQ34846	25/10/2021	2:35:00 PM	Not Raining	Nil	No	Clear	Coffee	NW	Moderate	<0.010	0.7	61		134.2	12.3	10.98	118.2	<0.0040	9	<0.002	0.67	0.39	0.006	18.9	8.4	
SQ34846	3/12/2021	11:36:00 AM	Not Raining	Nil	No	Clear	Colourless	NE	Light	<0.010	0.6			149.3	12	10.73	106.6	<0.0040		<0.002	0.76	0.49	0.006	15.7	8.4	
SQ34846	13/12/2021	7:33:00 PM	Not Raining	Nil	No	Clear	Colourless		Calm										18							
SQ34846	25/10/2021	2:35:00 PM	Not Raining	Nil	No	Clear	Coffee	NW	Moderate	0.005	0.7	61		134.2	12.3	10.98	118.2	<0.0040	9	<0.002	0.67	0.39	0.006	18.9	8.4	
SQ34846	3/12/2021	11:36:00 AM	Not Raining	Nil	No	Clear	Colourless	NE	Light	0.005	0.6			149.3	12	10.73	106.6	<0.0040		<0.002	0.76	0.49	0.006	15.7	8.4	
SQ34846	13/12/2021	7:33:00 PM	Not Raining	Nil	No	Clear	Colourless		Calm										18							
SQ34846	15/03/2022	3:16:00 PM	Not Raining	Light	No	Clear	Colourless			0.005	3.7	100		175.8	13.1	8.16	87.7	<0.0040		<0.002	0.9	0.48	0.011	18.6	8.6	pH field result (3.61) suspected value and much higher than lab result, removed in QA, SianB 20221010.
SQ34846	21/03/2022	2:16:00 PM	Not Raining	Nil	No	Clear	Colourless	E	Calm										613							
SQ34846	17/06/2022	11:59:00 AM	Not Raining	Light		Clear	Colourless	S	Moderate	0.056	2.8	60		108	8.3	10.24	82.3	0.009		0.013	0.8	0.71	0.013	8	8.3	
SQ34846	21/06/2022	7:11:00 AM	Not Raining	Light		Clear	Colourless	SW	Light										33							
SQ34846	15/09/2022	5:12:00 PM	Not Raining	Light	No	Clear	Colourless	NW	Moderate	<0.010	3.1			146.1	9.8	10.19	93	<0.0040		<0.002	0.7	0.58	0.008	11.2	8.3	
SQ34846	19/09/2022	3:17:00 PM	Not Raining	Nil	No	Clear	Colourless	N	Calm										2							
SQ34846	9/12/2022	12:22:00 PM	Not Raining	Nil	No	Clear	Colourless	N	Light	<0.010	0.6	100		137.7	9	7.45	87.1	<0.0040		<0.002	0.8	0.48	0.006	16.3	8.3	
SQ34846	13/12/2022	8:38:00 AM	Not Raining	Light	No	Clear	Colourless	N	Calm										46							

*Note: the shaded area represents the reporting period.

Appendix D KAINGAROA WTP DATA

Table D-1 Kaingaroa WTP microbiological data from July 2013 to Dec 2022

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)			Total Coliforms (MPN/100mL)		
		Raw	Treated	Network*	Raw	Treated	Network*
30/07/2013		<1			<1		
27/08/2013	28	<1			<1		
24/09/2013	28	<1			<1		
29/10/2013	35	<1			<1		
26/11/2013	28	<1			<1		
17/12/2013	21	<1			<1		
28/01/2014	42	1			2		
4/02/2014	7	<1			2		
11/02/2014	7	<1			12		
11/02/2014	0	<1			8		
11/02/2014	0	<1			18		
11/02/2014	0	<1			12		
18/02/2014	7	<1			>201		
25/02/2014	7	<1			201		
29/04/2014	63	<1			3		
6/05/2014	7	<1			19		
28/05/2014	22	<1			<1		
24/06/2014	27	<1			<1		
29/07/2014	35	<1	<1	NT	<1	<1	NT
26/08/2014	28	1	<1	NT	5	<1	NT
30/09/2014	35	<1	<1	NT	2	<1	NT
28/10/2014	28	<1	<1	<1	1	<1	NT
2/12/2014	35	<1	<1	<1	<1	<1	NT
23/12/2014	21	2	<1	<1	9	<1	NT
27/01/2015	35	NT	<1	<1	NT	<1	<1
24/02/2015	28	NT	<1	<1	NT	1	<1
31/03/2015	35	2	<1	<1	11	<1	<1
28/04/2015	28	12	<1	<1	41	<1	<1
26/05/2015	28	5	<1	<1	14	<1	<1
7/07/2015	42	<1	<1	<1	24	<1	<1
28/07/2015	21	<1	<1	<1	6	<1	<1
25/08/2015	28	<1	<1	<1	1	<1	1
29/09/2015	35	<1	<1	<1	1	<1	<1
27/10/2015	28	<1	<1	<1	<1	<1	<1
24/11/2015	28	1	<1	<1	2	<1	<1
22/12/2015	28	<1	<1	<1	3	<1	<1
26/01/2016	35	<1	<1	<1	4	<1	15
2/02/2016	7	1	<1	<1	9	<1	4
23/02/2016	21	6	<1	<1	62	1	1
29/03/2016	35	4	<1	<1	6	1	1
26/04/2016	28	94	<1	<1	118	18	6
31/05/2016	35	56	<1	<1	70	1	3
5/07/2016	35	3	<1	<1	17	<1	2
26/07/2016	21	9	<1	<1	15	<1	<1
30/08/2016	35	1	<1	<1	1	<1	<1
27/09/2016	28	<1	<1	<1	11	1	<1
1/11/2016	35	8	<1	<1	15	<1	1
6/12/2016	35	<1*	1*	<1	<1*	2*	<1
13/12/2016	7	<1	<1	<1	<1	<1	1
20/12/2016	7	3	<1	<1	10	<1	<1
31/01/2017	42	1	<1	<1	8	<1	<1

* Reticulation samples taken from the following locations: Club and North Whaitiri

Table D-1 Kaingaroa WTP microbiological data from July 2013 to Dec 2022 (continued)

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)			Total Coliforms (MPN/100mL)		
		Raw	Treated	Network*	Raw	Treated	Network*
21/02/2017	21	3	<1	<1	43	4	<1
21/03/2017	28	21	<1	<1	165	6	50
18/04/2017	28	14	<1	<1	62	29	25
16/05/2017	28	1	<1	<1	94	19	48
20/06/2017	35	<1	<1	<1	15	8	4
24/07/2017	34	1	<1	<1	4	<1	2
22/08/2017	29	6	<1	<1	21	<1	11
29/08/2017	7	2	N/A	N/A	6	N/A	N/A
19/09/2017	21	1	<1	<1	5	<1	<1
17/10/2017	28	11	<1	<1	53	5	8
14/11/2017	28	<1	<1	<1	3	1	<1
19/12/2017	35	<1	<1	<1	15	<1	<1
30/01/2018	42	14	<1	<1	109	3	2
20/02/2018	21	12	<1	<1	>200	1	<1
20/03/2018	28	1	<1	<1	16	31	19
27/03/2018	7	1	<1	<1	15	16	3
17/04/2018	21	8	<1	<1	36	16	12
15/05/2018	28	<1	<1	<1	<1	1	<1
20/06/2018	36	2	<1	<1	9	9	6
17/07/2018	27	3	<1	<1	5	4	9
21/08/2018	35	4	<1	>200	14	<1	>200
28/08/2018	7	11	2	1	27	2	1
28/08/2018	0			3			4
11/09/2018	14	3	<1	<1	8	<1	<1
11/09/2018	0			<1			1
18/09/2018	7	8	<1	<1	9	<1	<1
18/09/2018	0			<1			1
16/10/2018	28	1	<1	<1	3	<1	<1
20/11/2018	35	<1	<1	<1	5	<1	1
18/12/2018	28	16	<1	<1	45	<1	200
15/01/2019	28	<1	<1	<1	2	2	5
19/02/2019	35	18	<1	<1	83	<1	1
19/03/2019	28	16	<1	<1	130	<1	6
16/04/2019	28	11	<1	<1	130	19	25
23/05/2019	37	16	<1	<1	109	4	10
28/05/2019	5	10	>200	<1	48	>200	<1
4/06/2019	7	2	<1	<1	12	<1	8
11/06/2019	7	8	<1	<1	21	<1	<1
18/06/2019	7	8	<1	<1	>200	2	5
16/07/2019	28	5	<1	<1	15	2	<1
20/08/2019	35	5	<1	<1	18	<1	<1
17/09/2019	28	5	<1	<1	165	<1	1
22/10/2019	35	6	<1	<1	16	<1	<1
19/11/2019	28	12	<1	<1	29	<1	<1
24/12/2019	35	3	<1	<1	11	3	<1
21/01/2020	28	8	<1	<1	94	<1	<1
18/02/2020	28	<1	<1	<1	43	<1	<1
17/03/2020	28	9	3	<1	74	53	8
23/03/2020	6	1	<1	<1	>200	36	1
24/03/2020	1	4	<1	<1	62	27	6
21/04/2020	28	1	<1	<1	88	3	4

* Reticulation samples taken from the following locations: Club and North Whaitiri

Table D-1 Kaingaroa WTP microbiological data from July 2013 to Dec 2022 (continued)

Date of Sampling	Days between samples	E.coli (MPN/ 100mL)			Total Coliforms (MPN/100mL)		
		Raw	Treated	Network*	Raw	Treated	Network*
5/05/2020	14	<1	5	<1	<1	70	1
19/05/2020	14	<1	<1	<1	4	<1	1
26/05/2020	7	21	<1	<1	34	11	4
9/06/2020	14	2	<1	<1	6	<1	<1
16/06/2020	7	5	<1	<1	19	2	<1
21/07/2020	35	<1	<1	<1	3	<1	<1
18/08/2020	28	<1	<1	<1	3	<1	<1
15/09/2020	28	1	<1	<1	8	<1	<1
20/10/2020	35	1	<1	<1	3	<1	<1
17/11/2020	28	32	<1	<1	38	<1	<1
15/12/2020	28	1	<1	<1	4	<1	<1
26/01/2021	42	165	<1	<1	165	<1	<1
16/02/2021	21	31	<1	<1	118	<1	<1
16/03/2021	28	2	<1	<1	32	1	3
20/04/2021	35	<1	<1	<1	11	4	<1
18/05/2021	28	1	<1	<1	15	<1	<1
16/06/2021	29	<1	<1	<1	4	<1	<1
20/07/2021	34	1	<1	<1	3	<1	<1
24/08/2021	35	45	<1	<1	66	<1	<1
21/09/2021	28	32	<1	<1	>200	<1	1
19/10/2021	28	2	<1	<1	19	27	15
26/10/2021	7	<1	<1	<1	4	8	10
16/11/2021	21	130	<1	<1	200	<1	<1
21/12/2021	35	NT	<1	<1	NT	<1	<1
18/01/2022	28	45	<1	<1	NT	NT	NT
25/01/2022	7	50	<1	<1	2	<1	<1
15/02/2022	21	32	8	2	43	12	2
22/02/2022	7	32	<1	<1	70	<1	<1
1/03/2022	7	NT	1	1	NT	2	1
8/03/2022	7	8	<1	<1	19	<1	1
15/03/2022	7	25	<1	<1	>200	2	2
22/03/2022	7	83	<1	<1	109	<1	<1
19/04/2022	28	15	<1	<1	43	2	<1
17/05/2022	28	1	<1	NT	8	<1	NT
21/06/2022	35	29	<1	<1	>200	<1	<1
19/07/2022	28	4	<1	<1	29	<1	<1
30/08/2022	42	43	<1	<1	130	<1	<1
20/09/2022	21	4	<1	<1	10	<1	<1
19/10/2022	29	3	<1	<1	6	<1	1
16/11/2022	28	31	<1	<1	165	<1	<1
14/12/2022	28	<1	1	<1	2	8	1

* Reticulation samples taken from the following locations: Club and North Whaitiri

** NT – Not Taken

***Shaded area represents the reporting period

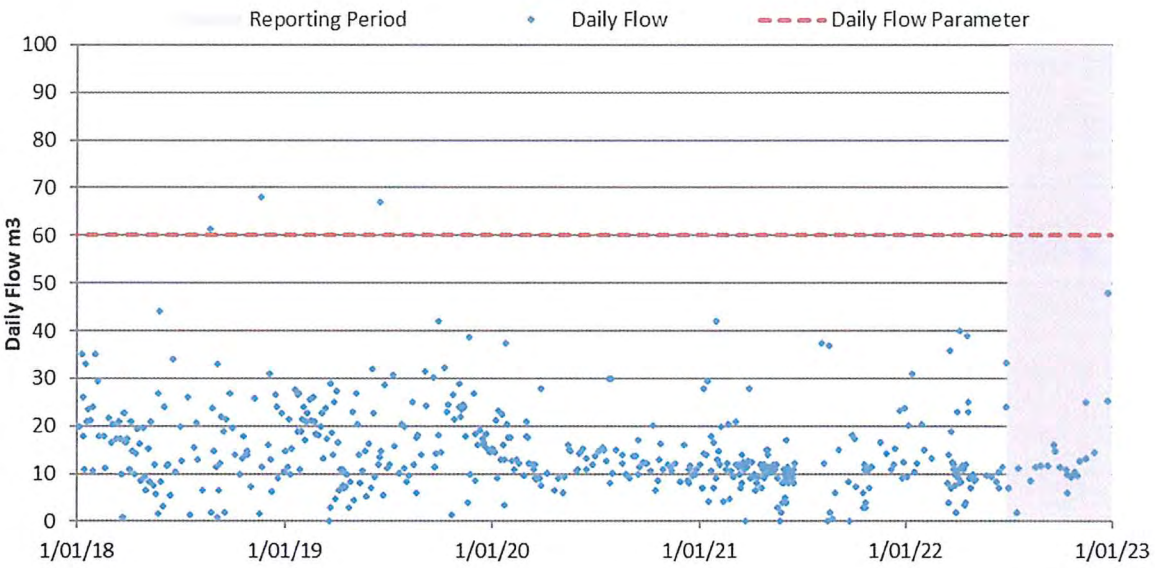


Figure D-1 Kaingaroa treated water daily flow data from January 2018 to December 2022

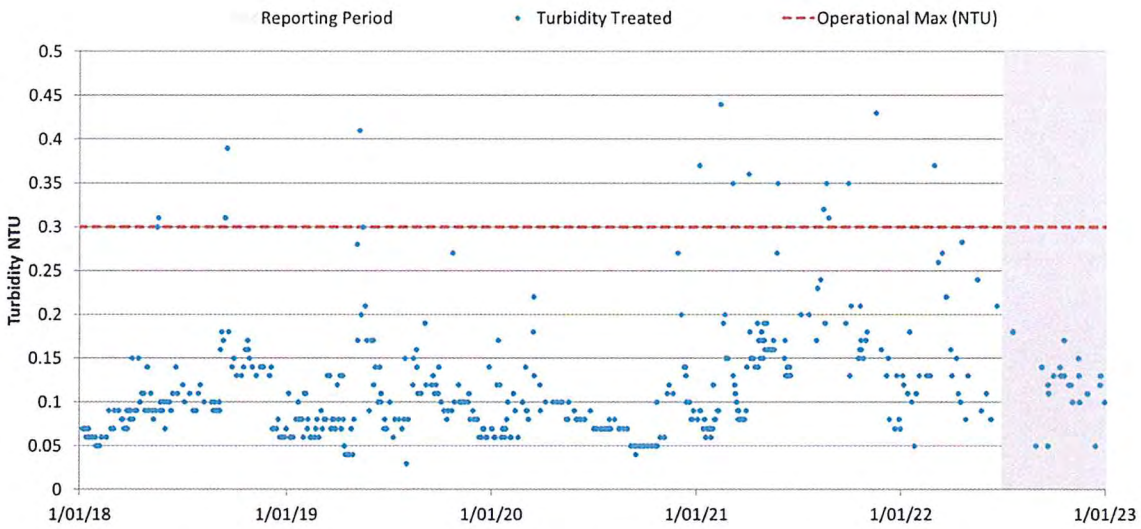


Figure D-2 Kaingaroa treated water turbidity data from January 2018 to December 2022

Appendix E WAITANGI WWTP DATA

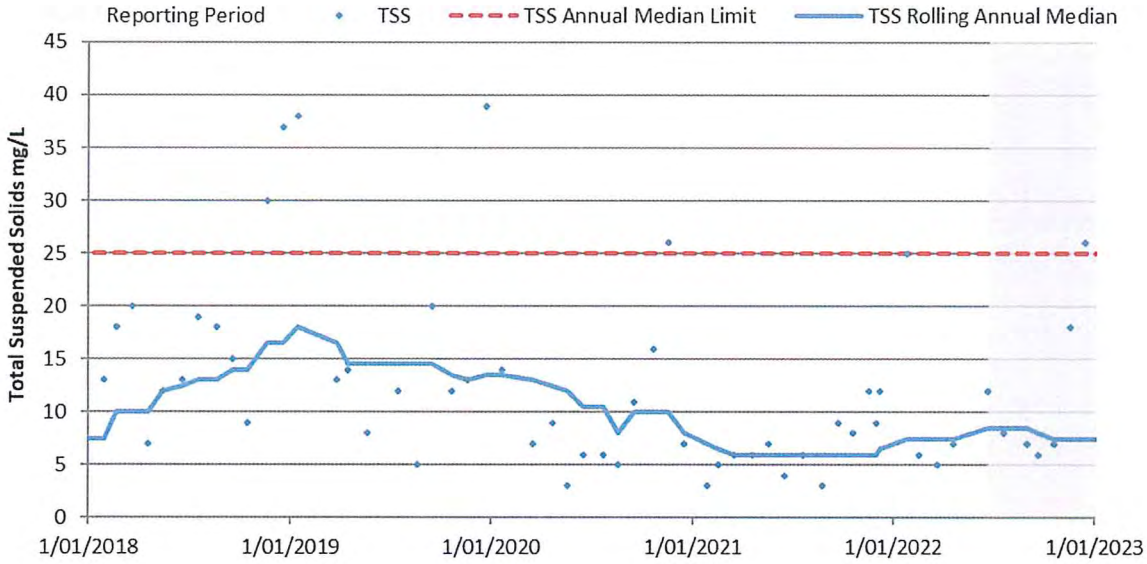


Figure E-1 Waitangi treated wastewater TSS concentrations from January 2018 to December 2022

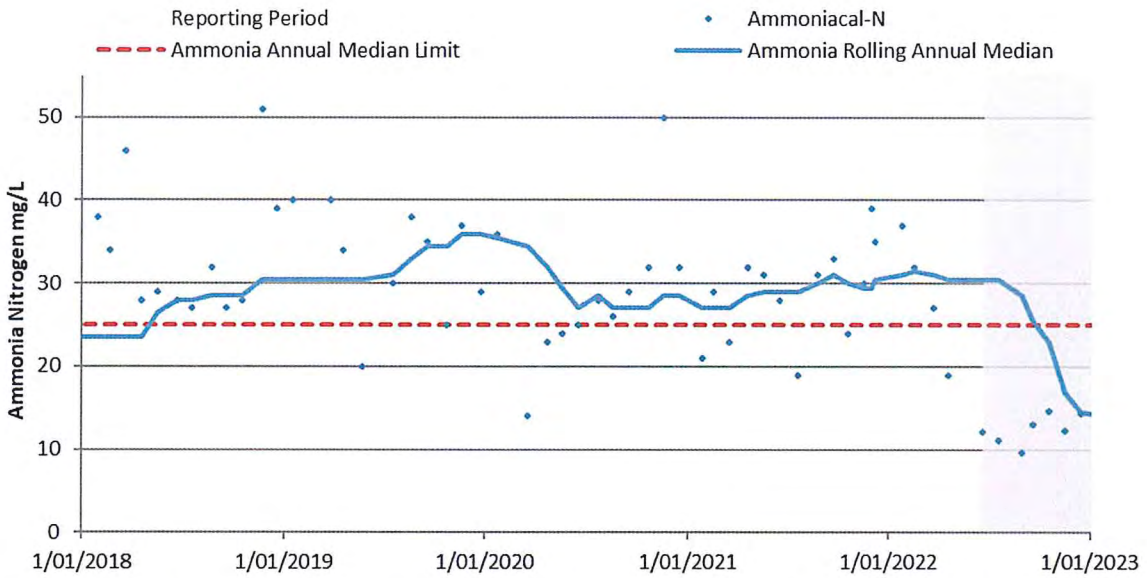


Figure E-2 Waitangi treated wastewater ammonia-nitrogen concentrations from January 2018 to December 2022

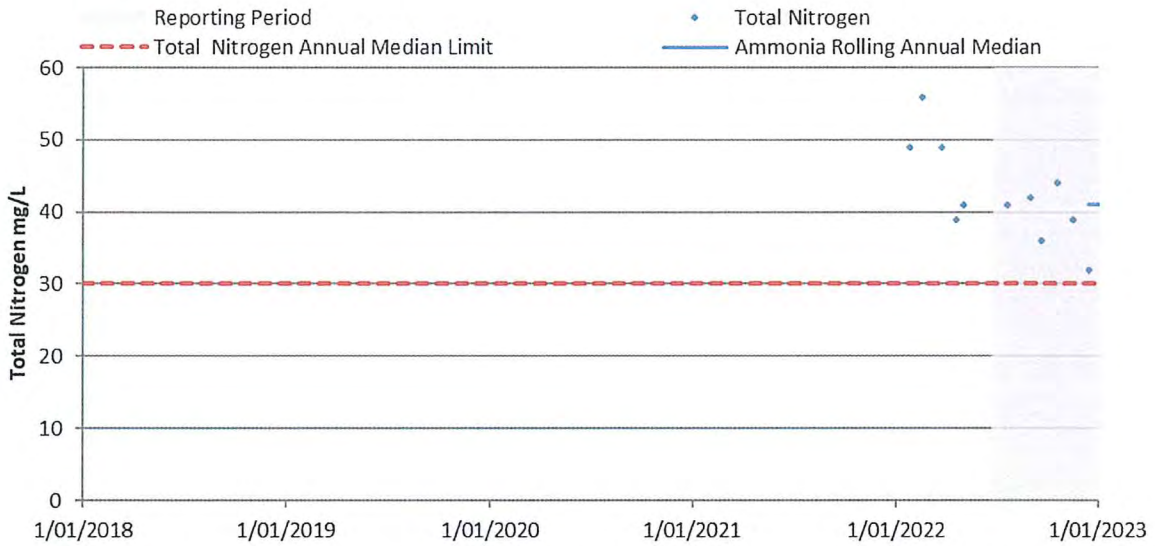


Figure E-3 Waitangi treated wastewater total nitrogen concentrations from January 2018 to December 2022

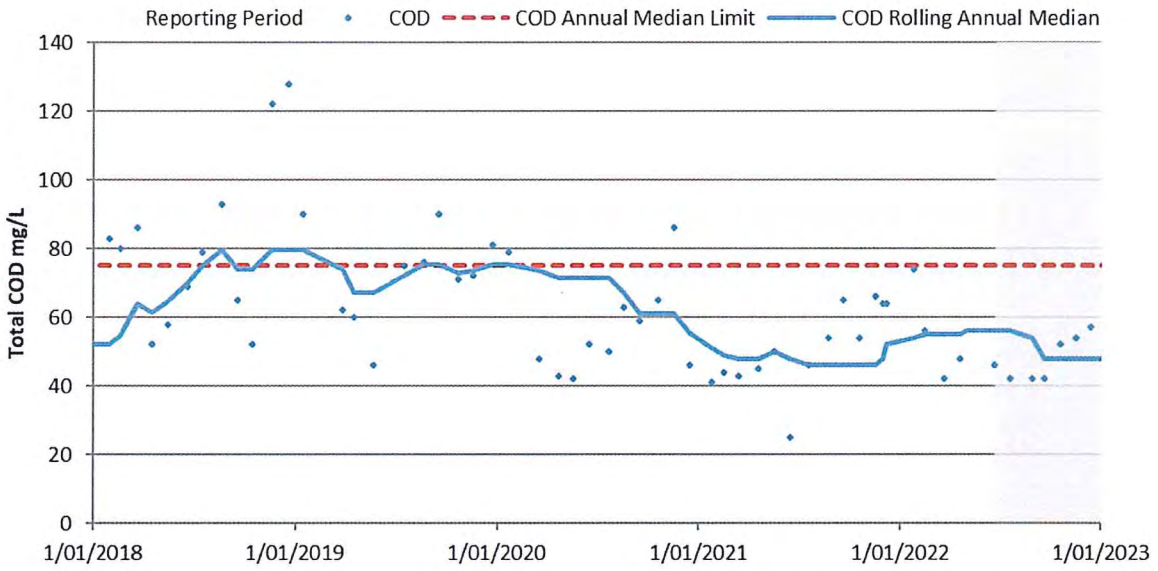


Figure E-4 Waitangi treated wastewater Total COD concentrations from January 2018 to December 2022

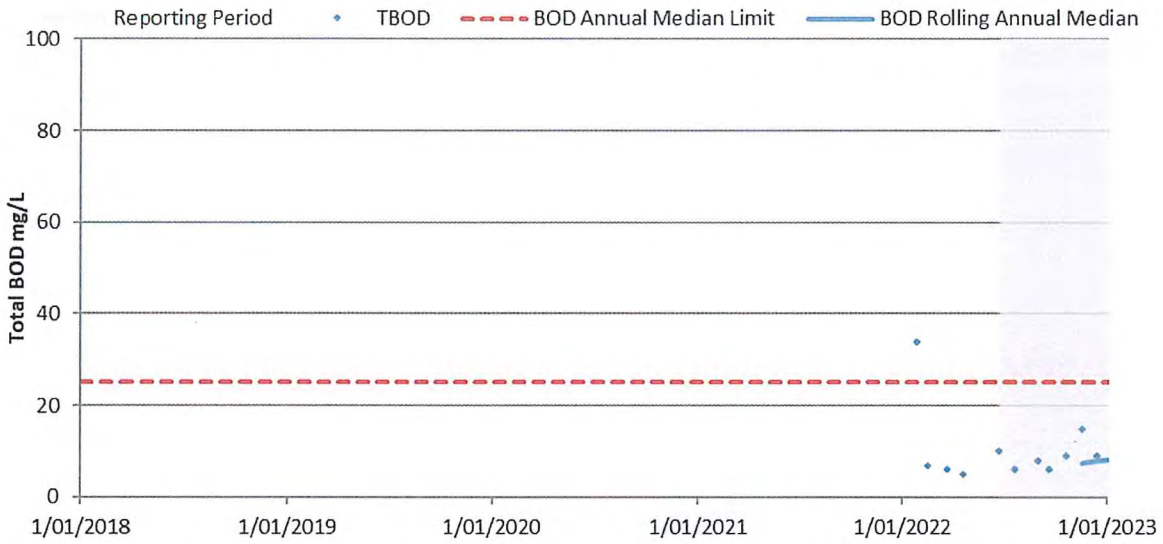


Figure E-5 Waitangi treated wastewater Total BOD concentrations from January 2018 to December 2022

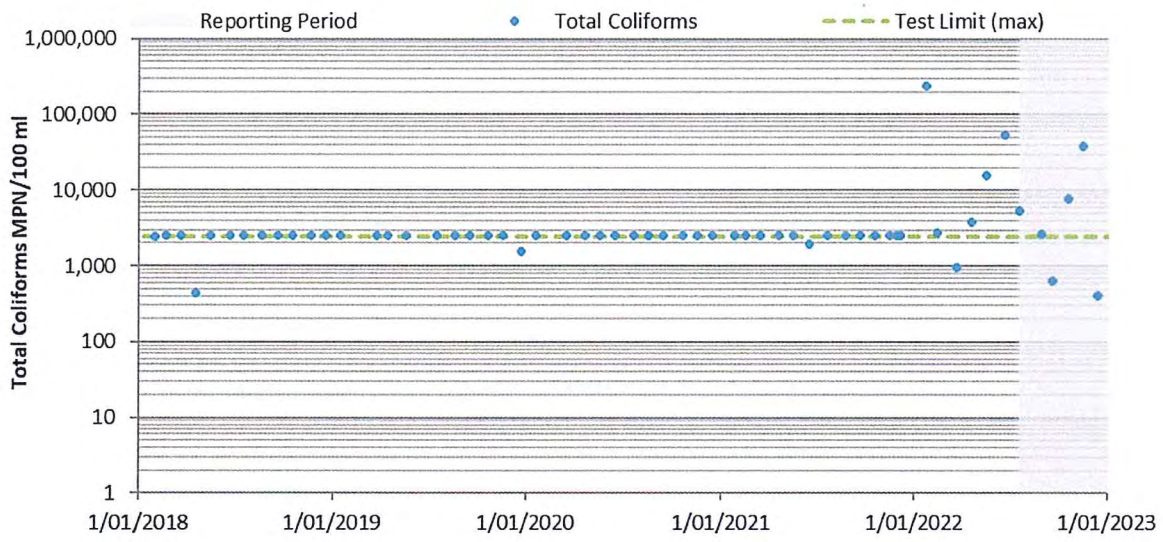


Figure E-6 Waitangi treated wastewater total coliform concentrations from January 2018 to December 2022

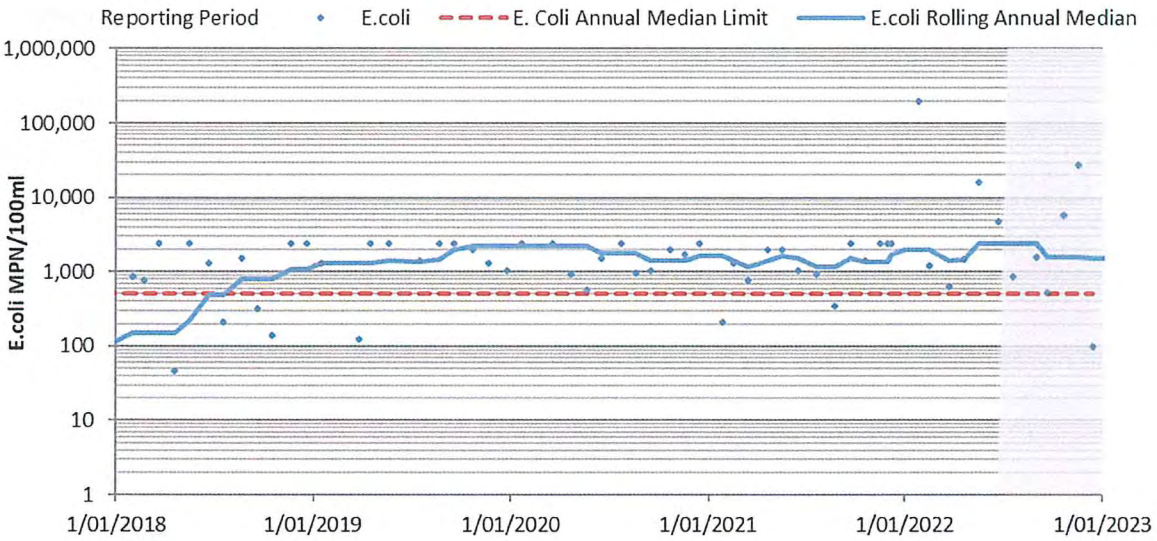


Figure E-7 Waitangi treated wastewater E. coli concentrations from January 2018 to December 2022

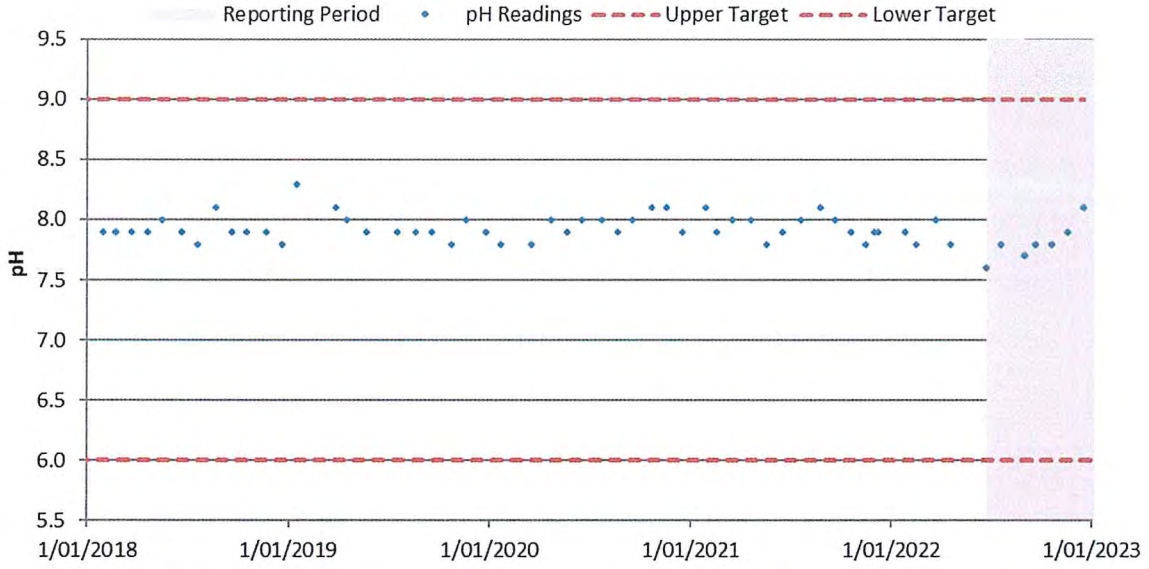


Figure E-8 Waitangi treated wastewater pH from January 2018 to December 2022

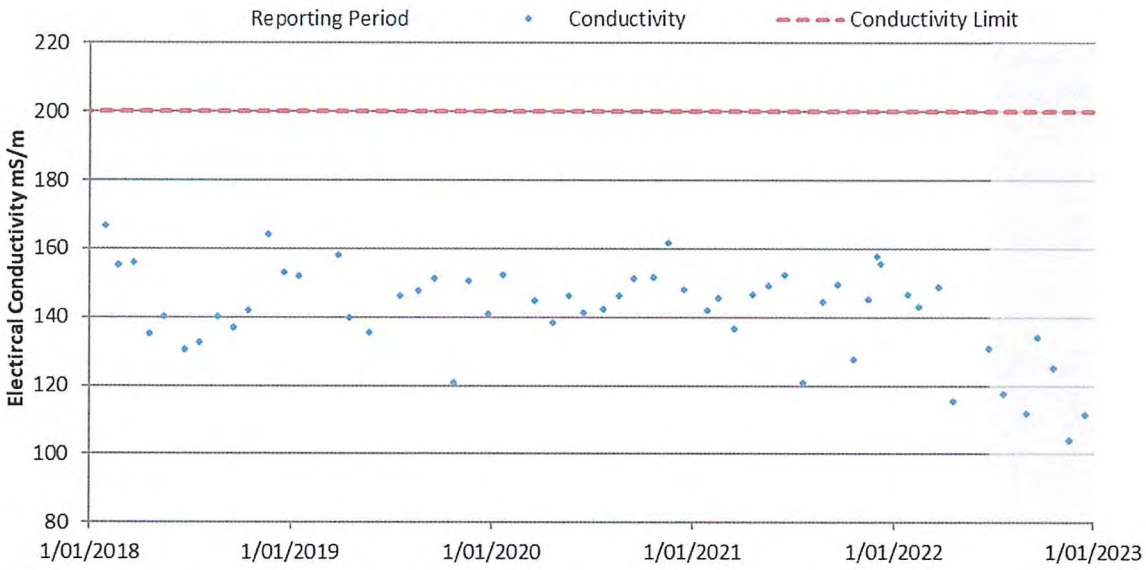


Figure E-9 Waitangi treated wastewater electrical conductivity January 2018 to December 2022

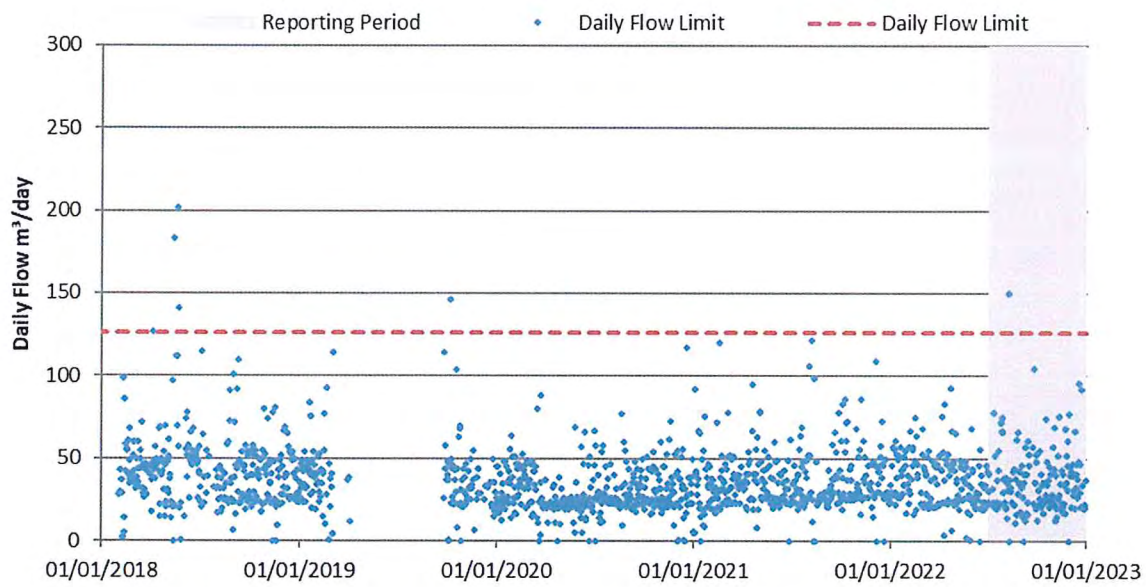


Figure E-8 Waitangi treated wastewater irrigation flow from January 2018 to December 2022.

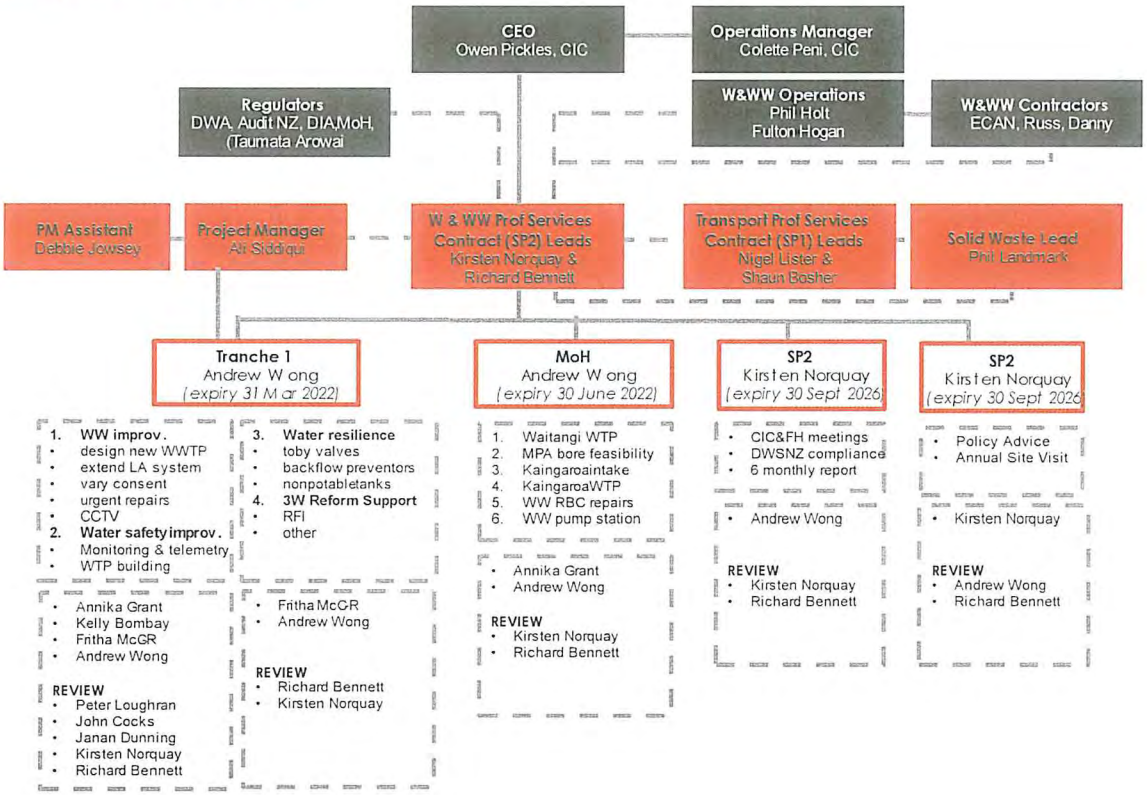
Note: Irrigation flow meter was not functional March – September 2019

Appendix F ORGANISATION INFORMATION

This Appendix includes the following organisation information:

- Organisation Chart
- CVs of key staff
- Training Register of key staff

Organisation Chart



F.2

Qualifications/Experience Chart

Photo	Name / Organisation / Role	Qualifications / Experience	Contact Details
	**Kirsten Norquay** **Stantec NZ** **Water Engineer**	Kirsten is a chartered civil and environmental engineer who has been with Stantec for over 18 years and has over 20 years of experience. Her qualifications include: • BSc (Hons), Biochemistry. • BE (Hons), Civil. • Chartered Professional Engineer of Engineering New Zealand (CPEng) • Chartered Member of Engineering New Zealand (CMEngNZ). Prior to joining Stantec she worked as a Biochemistry Teaching Fellow at the University of Otago. Kirsten is a versatile engineer, whose experience includes water, wastewater and solid waste management. Kirsten has worked on various projects, ranging from investigation, feasibility & consenting to design, tendering, construction & commissioning. Many of these projects have been reconsenting or plant upgrades to meet more stringent resource consent requirements or drinking water standards. Some relevant water projects include: • Water and Wastewater Engineer, Chatham Islands Council, 2014 to present. • Water Safety Plans, Chatham Islands Council, 2015-16. • Water Safety Plans, Dunedin City Council, 2016 to 2018. • Waitangi Water Scheme Upgrade, Chatham Islands Council, 2015-2017. • Outram Water Treatment upgrade, Dunedin City Council, 2009 to 2018. • Riverton Water Treatment Plant Upgrade, Southland District Council, 2013 to 2016. • Maitai Alternative Water Source, Nelson City Council, 2014 to 2015. • Kyogle Water Treatment Plant Upgrade, Kyogle Council, 2013. • Richmond Water Treatment Plant, Tasman District Council, 2012 to 2013. • Rural Water Scheme Upgrades, Waimate District Council, 2012. • Port Chalmers Water Treatment Plant, Dunedin City Council 2007 to 2010. • Rotary Park Distribution Watermain, Dunedin City Council, 2007 to 2008. Kirsten is a founding member of Stantec's Water Safety Group, formed in 2016 to ensure Stantec is proactive in implementing best practice for management of safe drinking water supplied throughout NZ. Kirsten attended the WaterNZ Drinking Water Workshop in September 2017 and the WaterNZ Havelock North Inquiry Outcomes Seminar in February 2018.	**Email:** Kirsten.Norquay@stantec.com **Work Phone:** +64 3 474 3097 **Mobile Phone:** +64 27 582 5171

Photo	Name / Organisation / Role	Qualifications / Experience	Contact Details
	**Richard Bennett** **Stantec NZ** **Water Engineer**	Richard has over 25 years' experience as a civil engineer and has worked on complex infrastructure projects throughout his career. He has managed all the stages of water and wastewater projects from conception through to completion of commissioning. His qualifications include: • BEng, Civil Engineering, University of Newcastle upon Tyne, 1993. • Chartered Engineer, Institution of Civil Engineers (ICE), UK. • Member, Institution of Civil Engineers, UK (MICE). • Project Management Professional (PMP), International Management Institute, 2008. He understands the need to provide robust proven treatment solutions, but through his role as Technical Discipline Leader for Stantec Asia Pacific Civil Water, he is also familiar with new products and industry capabilities. Richard is also a member of Stantec's Water Safety Group and is proactive in implementing best practice for management of safe drinking water supplied throughout NZ. He also attended the WaterNZ Drinking Water Workshop in Hamilton in September 2017. Richard is skilled at focusing on critical problems and finding the best possible outcome. He is proud that all treatment plants that he has had an involvement with recently have been commissioned and operate in accordance with the design expectations. He has extensive experience managing contracts under FIDIC including Design and Build contracts.	**Email:** Richard.Bennett@stantec.com **Work Phone:** +64 3 4743096 **Mobile Phone:** +64 27 224 7198
	**Andrew Wong** **Stantec NZ** **Water Engineer**	Andrew is a Chartered Professional Engineer in water treatment for the Water group in Stantec's Dunedin office. He has technical experience with a wide variety of treatment processes in municipal water treatment. His qualifications include: • BSc, Chemical Engineering, Queen's University at Kingston, 2010. • MASc, Civil Engineering, University of Waterloo, 2015. • Professional Engineer, Professional Engineers Ontario. • Professional Engineer, Association of Professional Engineers and Geoscientists of Alberta. • Chartered Professional Engineer, Engineering New Zealand. Typical projects have included process design, optioneering, operation, troubleshooting, optimization, construction monitoring, contract management, and peer reviews. Andrew is a member of Stantec's Water Safety Group and is proactive in implementing best practice for management of safe drinking water. He also attended at the Water NZ Drinking Water Workshop and presented at the Annual Conference in Hamilton in September 2019.	**Email:** Andrew.Wong@stantec.com **Work Phone:** +64 3 474 3968 **Mobile Phone:** +64 27 248 1427

Photo	Name / Organisation / Role	Qualifications / Experience	Contact Details
	Phil Holt **Fulton Hogan** **Contract Manager**	To be confirmed	**Email:** Philip.Holt@fultonhogan.com **Work Phone:** +64 3 305 0791
	**Danny Whaitiri** **Self Employed** **Kaingaroa WTP – Main Operator**	Danny has been the Kaingaroa WTP Operator since 2013. He previously operated the Kaingaroa Fish Factory Filtration Water Treatment Plant since 1981. Other relevant experience, qualifications and skills include: • Operates and maintains the Kaingaroa Electricity Board and diesel generation plant • Refrigeration technician who manages most of the refrigeration infrastructure on the Chatham Island • Certified Fitter and Turner Engineer • Apprenticeship training and Fitter and Turner at Bluff Engineering and Welding from 1969 to 1976 • Served in the NZ Army for 3 months under National Service 31st (and last) intake in 1972 • Involved in boat maintenance/engineering of various vessel in Chatham Islands • Filtec Training on water treatment plant operation in Nov 2017.	**Email:** dandale@xtra.co.nz **Work Phone:** N/a **Home phone:** 03 305 0251 **Mobile Phone:** n/a
	**Russell Philips** **Chorus/Downer** **Waitangi WTP - Main Operator & Sampler** **Kaingaroa WTP – Sampler**	Russell has been the WTP and WWTP operator at Waitangi since it was built in 2004. Other relevant experience, qualifications and skills include: • Telecommunication technician for all the telecom work on the Chatham Islands including Chorus and Spark, Farmside satellite and their infrastructure. • Traineeship at Telecom New Zealand from 1987 to 1990. • St Johns First Aid Certificate. • National Certificate in Water Reticulation Level (Service Person) Level 3 Wastewater, 2013. • National Certificate in Water Reticulation Level (Service Person) Level 3 Water. • National Certificate in Telecommunications (Maintenance and Repair) Level 4, Mechanical, 2013. • Volunteer Fireman. • Filtec Training on water treatment plant operation in Nov 2017.	**Email:** Russell.Phillips@downer.co.nz **Work Phone:** 03 305 0055 **Home phone:** 03 305 0150 **Mobile Phone:** n/a

Photo	Name / Organisation / Role	Qualifications / Experience	Contact Details
	**Bruce Winter** **Fulton Hogan** **Backup WTP Operator**	Bruce has been the backup operator for the Waitangi WTP and Kaingaroa WTP operator since October 2016. Other relevant experience, qualifications and skills include: • Factory/Compliance Manager of fish factory at Rekohu/Waitangi Seafood's between 2007 to 2011. Duties included staff coordination, organising and documentation of processing, storage, and shipment of product, and also included management of the company's Risk Management Programme (MAF Food Safety). • Experience in building and installing pivot irrigation units for PGG Plumbing and Irrigation, NZ between 2003-2004. • Various other experience as fuel tanker driver, bar manager, fishing boat deckhand and farmhand on dairy farm including skills in building, landscaping, chemical spraying, operating machinery, and commercial fishing. • Qualified fire fighter volunteering at the Chatham Island's Fire Brigade and operating the New Zealand Fire Service electronic certification system. Passed NZFS courses in basic rural firefighting, breathing apparatus recertification, MVA pump rescue tender and Volunteer recruit Pre TMS. • Filtec Training on water treatment plant operation in Nov 2017.	**Email:** brucewinter@hotmail.co.nz **Work Phone:** 03 305 0682 **Home phone:** 03 305 0747 **Mobile Phone:** n/a

Training Activities

Name / Organisation / Role	Training Activity	Trainer	Date	Duration
Kirsten Norquay **Stantec NZ** Water Engineer	• IPWEA Conference	IPWEA	December 2020	3 days
	• Water NZ Conference	Water NZ	November 2020	3 days
	• Water NZ Conference	Water NZ	19-21 Sept 2018	1 day
	• Water NZ Drinking Water Workshop	Water NZ	19 Sept 2017	1 day
	• Borehead Security Training	Stu Clarke	8 Sept 2017	4 hours
	• Site Safe Consultants Passport	Site Safe	6 April 2016	1 hour
	• Ethics and Business Conduct for Global Employees	Stantec	14 Dec 2017	1 hour
	• Process Control and Instrumentation Modules 1-3	MWH	2015	3 hours
	• Safety in Design Training	MWH	2015	1 day
Richard Bennett **Stantec NZ** Water Engineer	• Water NZ Conference	Water NZ	Sept 2015 & Sept 2017	3 days per conference
	• Water NZ Drinking Water Workshop	Water NZ	19 Sept 2017	1 day
	• Borehead Security Training	Stu Clarke	8 Sept 2017	5 hours
	• Ethics and Business Conduct for Global Employees	Stantec	14 Dec 2017	1 hour
	• Safety in Design Training	MWH	2015	1 day
Andrew Wong **Stantec NZ** Water Engineer	• 2021 Ethics and Cybersecurity	Stantec	14 July 2021	1 hour
	• Legionella Management and Treatment	USEPA	28 January 2020	1 hour
	• Impact of COVID-19 on Water and Wastewater Utilities	Stantec	7 May 2020	1 hour
	• Water NZ Drinking Water Workshop	Water NZ	17 Sept 2019	8 hours
	• Water NZ Conference	Water NZ	18-20 Sept 2019	3 days
	• Engineer's & Contractor's Representative NZS 3910	IPWEA	7-8 May 2019	2 days

Name / Organisation / Role	Training Activity	Trainer	Date	Duration
Phil Holt **Fulton Hogan** Contract Manager	To be confirmed			
Danny Whaitiri **Self Employed** Kaingaroa WTP – Main Operator	• Filtec Onsite Training at Kaingaroa.	Filtec	7 Nov 2017	2 hours
Russell Philips **Chorus/Downer** Waitangi WTP - Main Operator & Sampler Kaingaroa WTP – Sampler	• Filtec Onsite Training at Waitangi and Kaingaroa WTPs. • NZQA unit 6401 and 6402 – Provide First Aid and Provide Basic Life Support. • NZQA Unit 5627 Operate as a Traffic Controller (TC) for low volume and Level 1 roads. • National Certificate in Water Reticulation (Service Person) Level 3 Wastewater and also Level 3 Water.	Filtec NZQA NZQA NZQA	7 & 8 Nov 2017 21 Jan 2017 1 Nov 2015 18 June 2013	2 hours Not specified Not specified Not specified
Bruce Winter **Fulton Hogan** Backup Operator	• Filtec Onsite Training at Waitangi and Kaingaroa WTPs. • Growsafe Introductory Certificate – for Management of Agrichemicals. • St Johns First Aid Recertification. • Accelerated Business Growth Programme, NZ Trade and Enterprise. • NZQA unit 3288 - Load Water and Additives for Aerial Operations and NZQA 20388 – Work Safely with Aircraft at Emergency Incidents. • Work Safely in the Construction Industry.	Filtec NZ Agrichemical Education Trust St John Aoraki Development Trust PF Olsen Ltd Elmo Accredited	7 & 8 Nov 2017 19 Sep 2017 2 Sept 2017 July 2012 6 Sept 2009 2012 9/5/2009	2 hours 3 hours 8 hours Not known 6 hours Not known

Name / Organisation / Role	Training Activity	Trainer	Date	Duration
	• MVA PRT Rev4602 firefighting qualification. • TAPs Qualified Firefighter.	NZ Fire Service NZ Fire Service	7-10 Sept 2007	1 day 3 days

Appendix G SUPPORTING REPORTS

CIC Three-Waters Stimulus Project Close-out Report

Three-Waters Stimulus Project Close-out Report

Chatham Islands Council

1.0 Programme Summary

The Three Waters (3Ws) Stimulus Tranche 1 programme was delivered successfully. This was only possible through careful planning and with the support and collaboration of several people, including staff at Chatham Islands Council (CIC), Stantec, Fulton Hogan (FH), and their subcontractors. The programme of works was developed and executed with the purpose of providing the maximum benefit to the local community, while providing sustainable and affordable solutions that can be readily constructed, operated, and maintained under the unique conditions of the Chatham Islands. All works were completed by 30 June 2022.

3-Waters Stimulus Expenditure	Initial Approval	Actual	Percentage Delivered
3-Waters Stimulus Funding	$640k	$640k	100%
Council Co-Funding (MoH grant)	$340k	$340k	100%
Total	**$980k**	**$980k**	**100%**

LTP Expenditure (including Co-Funding)	Budget	Actual	Percentage Delivered
FY2021 LTP (MoH grant)	$228k	$233k	102%
FY2022 LTP (MoH grant)	$112k	$107k	96%
Total	**$340k**	**$340k**	**100%**

Delivery Metrics	Planned	Approved Changes	Delivered	Percentage Delivered
Full Time Equivalents (FTEs)	3	NA	5	167%

3Ws Stimulus funding enabled CIC to make significant improvements to their water and wastewater infrastructure to substantially improve public health and resilience outcomes for residents. CIC relies on an annual Crown allocation to fund its services. This annual allocation is sufficient for day-to-day operations and minor urgent repairs. However, it is not enough to complete preventative maintenance, renewals, or upgrades, and does not cover asset depreciation. As a result, urgent capital works are regularly deferred until external funding is secured.

The Government Inquiry into the Havelock North Drinking Water recommended significant change to the water supply industry. In response, CIC sought Central Government funding to allow for capital upgrades to both Waitangi and Kaingaroa water supply systems to enable full compliance with the Drinking Water Standards for New Zealand. However, this funding application was declined in early May 2018. A second funding application was submitted to Central Government at the end of May 2018 to complete interim upgrades to the water supply systems, but this was also unsuccessful. A third attempt to obtain Central Government funding was submitted in April 2019 to address priority infrastructure needs, but was unsuccessful.

The Ministry of Health (MoH) approved CIC's application to fund urgent water and wastewater improvements on 28 August 2020, which was prior to the 3Ws Stimulus fund becoming available. The timing of the funding grants was leveraged by creating a combined integrated programme of works.

2.0 Programme Outcomes and Successes

In anticipation for the 3Ws Stimulus fund, cost estimates for the proposed projects were revised at the end of 2019, and provided the basis for CIC's 3Ws funding agreement with DIA and the approved 3Ws Stimulus Grant Delivery Plan. For this reason, the impact of the global COVID-19 pandemic was not fully accounted for in the cost estimates and delivery plan. Therefore, flexibility was critical to the successful delivery of the programme of works.

Project 1 – Wastewater Improvements

The objectives of the Wastewater Improvements Project were to mitigate adverse public health and environmental impacts, improve system resilience, and address consent non-compliance. To achieve these objectives, the following works were proposed:

- Waitangi Wastewater Reticulation Network CCTV Inspection
    - Develop as-built records of the wastewater reticulation network and complete a condition assessment to inform future renewal programmes when funding is available.
- WWTP Land Application System Upgrade
    - Increase plantings and extend the land application system to mitigate ponding and runoff.
- WWTP Balance Tank Replacement
    - Replace existing Balance Tanks at the WWTP which needed urgent replacement.
- Waitangi Wastewater Treatment Plant (WWTP) Upgrade
    - Complete an options assessment and concept design for the upgrade of the Waitangi WWTP to improve treated wastewater quality and address future population growth / connection of existing properties.
- WWTP Discharge Consent Update
    - Vary the existing discharge consent to address administrative non-compliances.

As the project was advanced and quotations from qualified contractors and suppliers were obtained, it became apparent that the full programme of wastewater improvement works could not be completed within the available budget.

Quotations to complete a CCTV inspection of the Waitangi wastewater reticulation network were four to six times greater than originally anticipated. The inspection would need to be completed using pan and tilt cameras, which are prone to damage. A more reliable vehicle-based CCTV inspection system is not feasible due to the remote location of the Chatham Islands. Due to its cost and lack of immediate benefit to the residents of Waitangi, this work was abandoned and the budget was reallocated to complete physical upgrade works at the WWTP.

Preliminary design of the WWTP land application system upgrade was progressed, which included the extension of the irrigation system and the addition of native plants to help mitigate ponding and run-off onto a neighbouring property. New native plants have been planted, which have helped mitigate localised ponding. Quotations that were received for a new irrigation system were all above the allocated budget. Revisions to the quotations resulted in lower cost estimates, but with several exclusions and a higher risk of cost escalation. Therefore, this work was abandoned, with the intention to revisit the design and upgrade after the 3Ws Stimulus programme of works was completed. The budget was reallocated to complete other physical upgrade works at the WWTP.

The two existing Balance Tanks at the WWTP had significant signs of corrosion. The interior liner of both tanks remained watertight, but several of the support panels had developed holes. Several support members at the top

of both tanks had to be removed due to corrosion, and concern that they may fall into tank and damage the liner. With the removal of these supports, the structural integrity of the tanks was compromised and the tanks required urgent replacement.

A single glass-fused bolted steel tank, with the same combined operating volume, was selected to replace the two existing Balance Tanks due to its durability and ease of construction on-site. A standard tank design was selected to minimise both design inputs and delivery times. Open channels of communication were quickly formed between the Engineer, Supplier, and O&M Contractor. When site specific piping conflicts were discovered while the tank was being fabricated, the Team was able to work quickly and collaboratively to agree on solutions that could be implemented on-site. The Team held several meetings to confirm a construction schedule, roles and responsibilities, and ensure that all the necessary resources were available in Waitangi for the construction of the tank.

The site-specific investigations, design, and enabling works necessary to accommodate the new tank were completed in parallel with the tank manufacturing and shipping stages. This was done to fast track the schedule as much as possible and to mitigate shipping delays. Several works including the geotechnical investigations, design of the ground improvement works, relocation of the site boundary fence, demolition of the existing tank, and enabling works were scheduled and completed in advance of the delivery of the tank. All necessary materials (e.g., concrete mix, granular fill) was coordinated to be available on the Chatham Islands prior to tank construction. Additional design work was necessary to relocate the existing screen to accommodate the new hydraulic grade line, and the Team took the opportunity to improve the Balance Tank pump arrangement and removal system.

The full cost of the new Balance Tank and associated enabling works was three times greater than the original budget estimate and is largely attributed to unforeseen cost escalation due to the global COVID-19 pandemic as well as additional required modifications required to accommodate a standard tank design (e.g., twice as tall as existing, relocating screen). The pandemic has significantly impacted the supply chain and availability of resources (e.g., material, personnel), which has impacted costs across the industry. Reallocation of budget from the various tasks within Project 1 and cost savings incurred in Projects 2, 3, and 4 resulted in an overspend of approximately $16,000. This cost was covered by CIC's O&M Contract budget.

Due to shipping delays, there was a very real risk that the tank would not be constructed before the 30 June 2022 deadline. This risk was mitigated through regular communication and coordination meetings with the tank supplier to confirm an estimated delivery date to Waitangi from mainland New Zealand, and ensuring that installation technicians were ready to arrive at Waitangi and begin construction within a day of the ship's arrival.

3Ws funds were used to carry out an assessment of WWTP replacement options. Concept designs were then developed for three short-listed options with cost estimates; a Moving Bed Biofilm Reactor (MBBR) packaged plant was the preferred option. The layouts developed for the various WWTP design options were used to inform siting of the new balance tank, which would be required upstream of a future MBBR. While no capital works were undertaken as part of this work, the intent of completing the concept design was to allow rapid procurement of the packaged system once funding becomes available and ensure that the replacement Balance Tank is sited at a suitable location for future upgrades.

There have been on-going issues with the monitoring of, and compliance with some of the existing discharge consent conditions. A number of these issues relate to logistical challenges posed by the location of the WWTP and its remoteness from analytical laboratories. An application was drafted to change or cancel conditions of the

consent to better reflect the monitoring that is able to be undertaken and to appropriately provide for the quality of effluent able to be produced by the plant, bearing in mind its ultimate disposal to land. This application will help enable the WWTP to comply with the discharge permit going forward. The application is being finalised and due to be lodged before the end of 2022. A nominal amount of additional cost will be incurred to lodge the consent variation, which shall be covered under CIC's Professional Services Contract with Stantec.

Project 2 – Water Safety Improvements

The objectives of the Water Safety Improvements Project were to enable real-time monitoring and reporting of water quality from CIC-owned reticulated water supply systems, as well as improving the treatment barriers protecting the public health of the community. To achieve these objectives, the following works were proposed:

- WTP Upgrades
    - Waitangi WTP – Upgrade works include: a new UV disinfection system, new online monitoring instruments (i.e., flowmeters, turbidimeters, and FAC/pH analyser), and improvements to the multimedia filter backwash system.
    - Kaingaroa WTP – Upgrade works include: new granular activated carbon (GAC) filters for organics removal, a new chlorination system, and new online monitoring instruments (i.e., flowmeters and FAC/pH analyser).
- Online Monitoring
    - Design, installation, and commissioning of a remote telemetry unit (RTU) at both WTPs to store instrument output data, which is uploaded to a cloud-based dashboard via cellular IoT network.
- Waitangi WTP Building Improvements
    - Replacement of the existing building roof, siding, and access door to provide a watertight and vermin proof shelter, protecting the existing and new water treatment assets.

All the proposed works were completed.

The Water Safety Improvements Project benefitted from an integrated programme of works using both 3Ws Stimulus funds and Council Co-Funding (Ministry of Health grant). An increase in CIC's buying power allowed more work to be completed and offered economies of scale by grouping the works together, as opposed to having several smaller projects. This also resulted in fewer site visits, and hence cost. All works were delivered on time and under budget, due in large part to planning and cost sharing between the 3Ws Stimulus and MoH grants. A cost saving of approximately $60,000 was achieved for Project 2, and reallocated to Project 1 to help offset some of the observed cost escalation.

The upgrades to the Waitangi and Kaingaroa WTPs improved their respective compliance with Taumata Arowai's Drinking Water Quality Assurance Rules (Rules). The required key treatment processes are in place and operating as required. However, additional GAC filters are required at the Kaingaroa WTP to provide additional reliability and reduce the frequency of GAC media replacements. The GAC filters were sized based on data collected from a bench scale test which provides an approximation of on-site performance.

There are still additional works required to meet the monitoring requirements outlined in the Rules. The additional monitoring requirements provides additional data to validate of the safety of the water, but do not provide any treatment action like a UV reactor. Online UV Transmittance (UVT) monitoring at both WTPs would help address compliance monitoring requirements and provide an indication of when the GAC media should be replaced.

Project 3 – Water Resilience

CIC's overall objectives for the water resilience projects were to improve the availability of water supply for communities, particularly during peak summer periods. To achieve these objectives, the following works were proposed:

- Waitangi customer isolation valve and flow meter replacement (minimise leakage and water losses)
    - Design, procurement, and installation of replacement isolation valves, flow meters, and toby boxes for all connections in Waitangi.
- Kaingaroa community rainwater collection scheme for non-potable use (encourage use of potable water for potable water purposes only)
    - Design, procurement, installation, and commissioning of a community-based rainwater collection scheme for the residents of Kaingaroa.
- Backflow preventers (minimise contamination risk)
    - Design, procurement, and installation of backflow preventers on known high risk users: Hospital, CIC office building, WWTP, Morgue, Café, and wharf.

The toby valves in Waitangi were installed at property connections in 2005 and are at the end of their serviceable life. Several are leaking and some can no longer be closed. New toby valves for all houses in Waitangi were purchased, with approximately 15 installed as part of this funding, with the balance due to be installed as part of the day-to-day O&M contract funding. Due to the funding time constraints and contractor resource availability, only the highest priority isolation valves (leaking) were replaced.

The water levels at Lake Rangitai have been consistently low during the summer months for several years, which has been due to the drought conditions that have been endured on the Chatham Islands. When the community is advised to conserve water, or the on-site tanks run low, some residents collect raw water directly from the lake, particularly for stock water. These activities introduce a contamination risk and reduces the lake level. A community rainwater harvesting scheme has been installed in Kaingaroa for residents and the wider area for non-potable use (e.g., crayfish pot washdown, stock water), particularly during the drier summer months. The site was selected since a business operator had just replaced its roof and spouting. It has a suitable level area to site the tanks, it is on the main road near the edge of town, and has good vehicle access for the water filling point. In addition to providing non-potable water, it is hoped it will help to educate the community about the need to conserve the Island's limited freshwater resources and to use potable water for potable uses.

Backflow preventers have been installed on all proposed connections except for the wharf. The wharf predominantly relies on rainwater collection for their potable water uses. The wharf is also located at an elevation below its connection point. Consequently, the backflow risk was identified as low, and installation of a backflow preventer at the wharf was abandoned. The surplus piping and fittings have been stored as spare parts.

Project 4 – 2020 DIA RfI and Mayoral Forum Response (by Substitution Request)

Project 4 was not part of the original Delivery Plan, but the November 2020 addendum released by the DIA allowed the reallocation of funds up to $60,000 to support the response to the RfI. The RfI was intended to assist with decision making on reform options by the Steering Committee, local government elected members, and Minsters. For CIC, it served as a place to document the current understanding of their 3Ws systems based on the best available information at the time. This was seen as important for 3Ws reform given the absence of a 3Ws AMP for CIC.

The level of effort required to respond to the RfI and Mayoral Forum were not well defined at the time of writing of the Delivery Plan, and it was assumed that this work could be completed using CIC's available budget. $30,000 from both Project 2 and Project 3 were reallocated to Project 4 (i.e., total of $60,000). The actual cost for the RfI response was approximately $32,000; the outstanding $28,000 was reallocated to Project 1.

3.0 Programme Shortfalls and Challenges

The greatest risks to our programme were similar to those experienced by Councils on mainland New Zealand, with the added challenge of working in a remote location. Our key risks were as follows:

- O&M Contractor and Subcontractor / Service Provider availability
- Material and equipment availability
- Cost escalation
- Shipping delays – due to global supply chain issues as well as weather delays and shipments bumped due to priority from mainland New Zealand to the Chatham Islands
- COVID-19 – National Alert Levels and travel restrictions

All planned capital works had to be constructable, easily operated, and easily maintained on the Chatham Islands by the O&M contractor and within current O&M budget. All planned works had to be completed before the expiry date of the funding grants as CIC did not have any additional money from other budgets to complete the works if time ran out.

Unlike mainland New Zealand, COVID-19 did not arrive in the Chatham Islands until March 2022. These cases were not associated with CIC's 3Ws stimulus programme, but every effort was made to reduce the risk of importing COVID-19 to the Chatham Islands for the entire duration of the programme.

Project 4 suffered from the lack of details provided and thus, we did not have the ability to plan appropriately for DIA's RfI, which was initially submitted in December 2020 and resubmitted in February 2021. On several occasions, including a webinar hosted by DIA on 8 June 2021, CIC was notified that a subsequent RfI from DIA would be issued before March 2022. While this did not eventuate, the unspent amount of $28, 000 remained in Project 4 until October 2021.

The unspent funds from Project 4 could have been transferred to Project 1 earlier to complete capital works sooner (i.e., March 2021 vs October 2021) had notification been provided by DIA. While this may not have impacted most Councils, this significantly delayed progress on the Balance Tank replacement project due to budget availability. Had notification been provided, it would have enabled the initiation of the Balance Tank contract much earlier which would have reduced the risk of shipping delays and our ability to complete the work before the 30 June deadline. Since notification was not provided, CIC decided to complete the capital works on time at the risk of not having sufficient budget to respond to the second RfI.

Other programme challenges are detailed in Section 2.0.

4.0 Three-Waters Stimulus and LTP Cashflow Expenditure

We note that the figure below illustrating CIC's "Cumulative LTP spend" and Reviewer Commentary making reference to "CIC CAPEX programme" was entirely externally funded by a grant provided by the Ministry of Health. We note that CIC does not have any CAPEX budget for 3Ws in its Annual Plan or LTP.

Green

Government funding risk

Reviewer commentary (Government funding spend)

The $640k allocation has been fully expended.

Government funding spend by project type

Project type	Apr-Jun'22	Actual PTD	Budget PTD	Programme lifetime	PTD %	Actual vs Budget %
Wastewater Treatment Plant upgrades	$107K	$390K	$240K	$390K	100%	162%
Water Treatment Plant upgrades	$8K	$129K	$220K	$129K	100%	58%
Raw water storage	$11K	$89K	$180K	$89K	100%	50%
Preparation for reform		$32K		$32K	100%	
Total	**$126K**	**$640K**	**$640K**	**$640K**	**100%**	**100%**

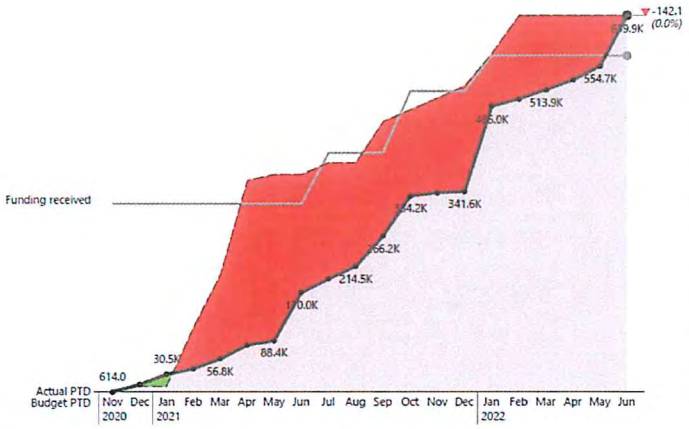
Summary cash position

Funding received at 30 June 2022	$571K
Spend to date	$640K
Funding remaining at 30 June 2022	($69K)
Forecasted spend next quarter to 30 June 2022	
Funding required in July 2022	
Funded until	

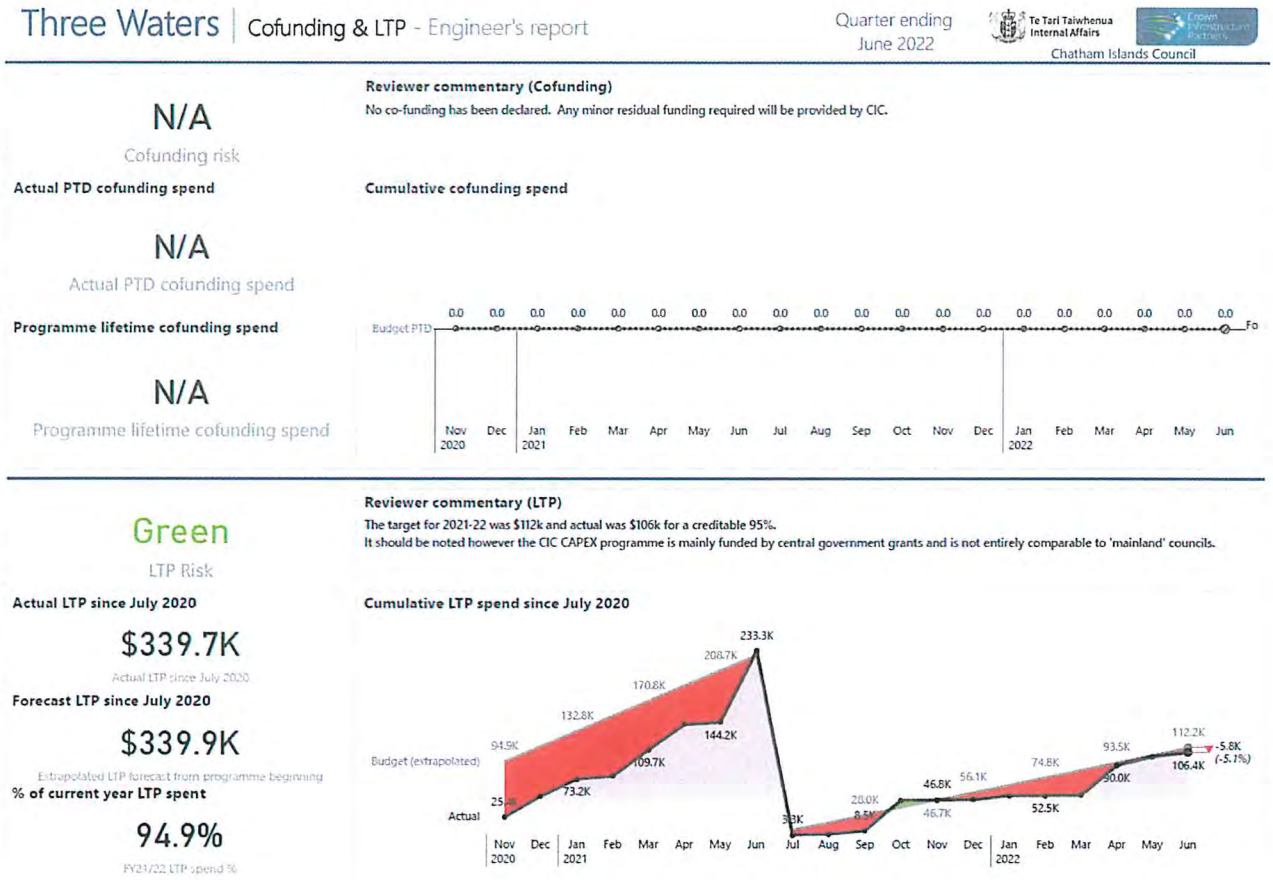
Spend statistics

LQ Forecast spend	$120K
LQ Actual spend	$126K
LQ Achieved %	105%
LQ Released	$0K
NQ Forecast spend	
NQ/LQ run rate %	

Cumulative government funding spend



Please see Appendix 1 for full list of all government funding spend information and PTD progress



5.0 FTEs and Programme Metrics

CIC's FTE estimate that was included in the Delivery Plan was determined using DIA's default settings.

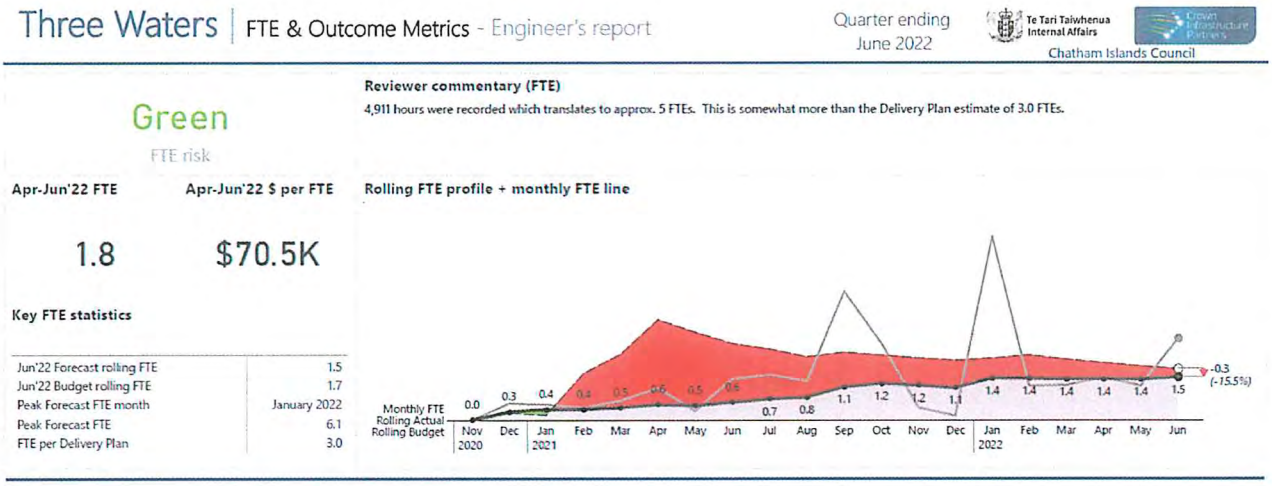
Four permanent staff from Stantec and Fulton Hogan were involved on a day-to-day basis on this programme. This included the Programme Delivery Lead, Design Engineer, O&M Contract Manager, and 3Ws Operator. All individuals contributed to this programme on a part-time basis. The broader project team included CIC's CEO, Operations Manager, and financial services team, as well as a Corporate Accountant at Environment Canterbury.

Notable subcontractors and nominated service providers that contributed towards CIC's 3Ws stimulus, include: FILTEC, ConnectM2M, and Reliant Solutions.

Two Project Substitution Requests were submitted for CIC to enable full delivery of the programme:

- The first was submitted on 17 September 2021 requesting the transfer of funds from Project 2 and Project 3 to create Project 4 to respond to DIA's 2020-2021 RfI. This aligned with DIA's addendum to the Three Waters Stimulus Grant Delivery Plan (Item 9 and 10). CIC did not have any other available funding available to cover this cost. This was approved.
- The second was submitted on 23 June 2022 requesting the transfer of funds from Project 2 and Project 3 to Project 1. Savings realised in Project 2 and 3 were needed to be transferred to Project 1 to cover

unforeseen price escalation. CIC did not have any other available funding available to cover this cost. This was approved.



Project type	Apr-Jun'22	Actual PTD	Budget PTD	Forecast Programme lifetime	Budget Programme lifetime	PTD %	Actual vs Budget %	Forecast vs Budget Programme lifetime %
WATER - Water Treatment Plant upgrades	$0.0M	$0.1M	$0.2M	$0.1M	$0.2M	100%	58%	58%
WATER - Raw water storage	$0.0M	$0.1M	$0.2M	$0.1M	$0.2M	100%	50%	50%
WASTE - Wastewater Treatment Plant upgrades	$0.1M	$0.4M	$0.2M	$0.4M	$0.2M	100%	162%	162%
REFRM - Preparation for Reform		$0.0M		$0.0M		100%		New project

6.0 Health and Safety Measures

There were no health and safety incidents reported during the course of CIC's programme of works. All Contractors, Subcontractors, and service providers completing work on the Chatham Islands must complete a full induction process to Fulton Hogan's health and safety standards, practices, and policies prior to commencing any 3Ws works. Audits of Fulton Hogan's health and safety procedures and policies are completed regularly. All project procedures are managed in accordance with Fulton Hogan's health and safety policy.

7.0 Risk Management

Programme risks, refer to Section 3.0, were mitigated through careful planning, scheduling, and honest communication between all contributing parties.

Monthly meetings were held with the O&M Contract Manager throughout the programme of works to confirm progress, identify and resolve issues, and confirm the programme schedule. Separate from this meeting was a monthly meeting with CIC's CEO and Operations Manager to provide an update of project progress, schedule, and obtain approval to make changes (i.e., confirmation, key design decisions, minor project deviations, substitution requests). In addition to these scheduled meetings, addition correspondence was had within the Team during key project phases (e.g., coordination of site visits with estimated equipment delivery dates). The Stantec Team also provides monthly progress reports to document progress and planned works to CIC. This is in addition to the quarterly reports submitted to DIA.

8.0 Support for the Territorial Authority

Adequate support was provided by Crown Infrastructure Partners (CIP) representative in terms of required reporting and documentation for the grant funding.

To minimise the risk of importing COVID-19 to the COVID free Chatham Islands (until March 2022), a site visit during the course of the programme was not carried out by the either the CIP representative or Stantec. This did not detract from the successful delivery of CIC's 3Ws programme, and Stantec's planned travel costs were reallocated to the delivery of capital works.

Without the DIA/CIP funding agreement provision for 50% of grant funds available up-front, CIC would not have been able to deliver the programme as there were no other funds available to commence work (i.e., design, initial deposits, milestone payments).

Actions DIA could have taken to further assist CIC, include:

- Additional funds – the allocation received by CIC was not sufficient to enable any of our significant unfunded projects in the current LTP to be delivered. However, we were able to complete many smaller projects that materially contributed towards public health and environmental improvements.
- Greater notice of funding deadline extensions – CIC had no other available funds to complete the works. If further notice had been provided we would have been able to reduce the number of site visits by subcontractors / service providers, and hence able to deliver more capital improvements.

9.0 Summary of Media, Marketing and Community and Iwi Engagement

Chatham Islands Councilors were involved in the development of the programme, and updated over the duration of the programme at monthly Council meetings.

10.0 Conclusions and Summary of Lessons Learnt

Overall, we have made material improvements to the public health of Chatham Islands residents, and reduced the environmental impacts of 3Ws systems.

Our key lessons learned include:

- Development of an integrated programme of works
    - This allowed us to maintain flexibility in the programme and make adjustments to the schedule quickly, while still achieving our intended objectives.

- Combine procurement of projects
    - Procuring the majority of the works under the existing O&M Contract reduced timeframes, had cost savings, and enabled the Contractor to move between projects quickly and re-prioritise timing when required (e.g., one project delayed and another fast-tracked).
- Collaborative project team
    - A small project team was effective and efficient at delivering the programme of works. Having honest and open lines of communication with a team member with the authority to make decisions (i.e., CIC CEO) was critical.

11.0 Executive Sign-off

Declaration

I declare that the information contained in this report is a true and correct account of the projects and programmes undertaken as part of the Three-Water Stimulus Package and that:

i) the Three-Waters Stimulus Fund has only been used to complete the expenditure projects and programmes described in the Delivery Plan or as amended by Project Substitution Requests approved by CIP/DIA.
ii) all contractual agreements have provided value-for-money and have not given rise to any Conflict-of-Interest.

Chief Executive
Chatham Islands Council

Appendices

Appendix A Summary of Outcome Metrics

Three Waters | Appendix 2 - Engineer's report

Quarter ending June 2022

Te Tari Taiwhenua Internal Affairs

Crown Infrastructure Partners

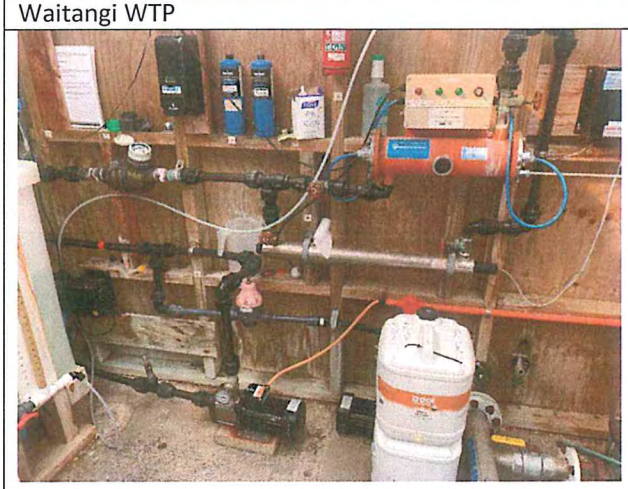
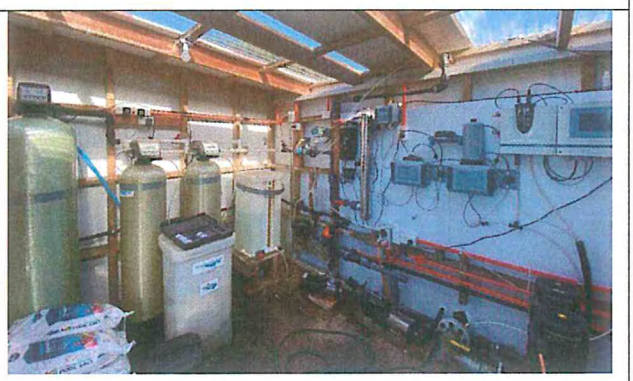
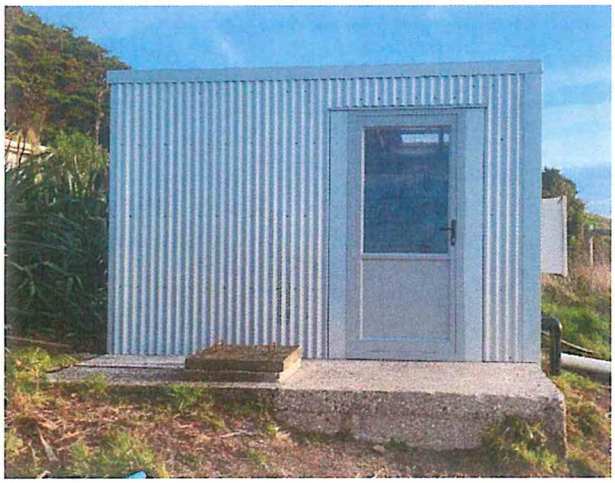
Chatham Islands Council

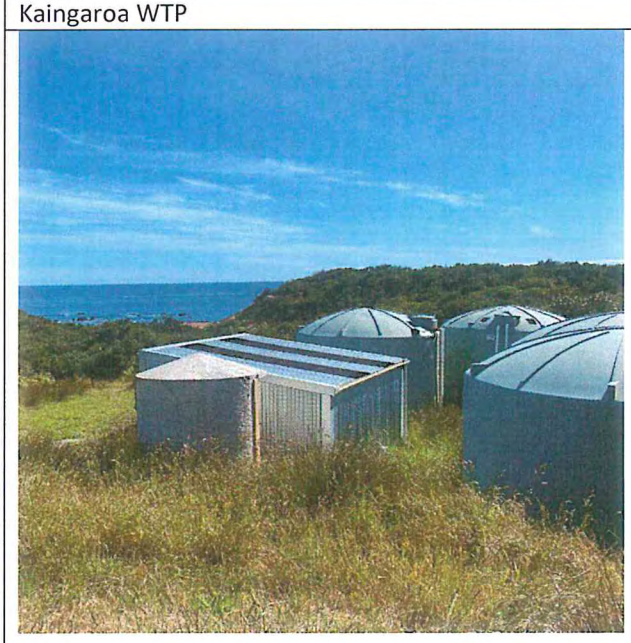
Outcome metrics overview

Outcomes metrics	Apr-Jun'22	Actual PTD	Budget PTD	Forecast Programme lifetime	Budget Programme lifetime	PTD %	Actual vs Budget PTD %	Forecast vs Budget Programme lifetime %
WATER - Water Treatment Plant upgrades - Physical works % complete	10%	100%	100%	100%	100%	100%	100%	100%
WATER - Raw water storage - Physical works % complete	30%	100%	100%	100%	100%	100%	100%	100%
WASTE - Wastewater Treatment Plant upgrades - Physical works % complete	30%	100%	100%	100%	100%	100%	100%	100%
WASTE - Wastewater Treatment Plant upgrades - Number WWTP upgrades #		1	1	1	1	100%	100%	100%
REFRM - Preparation for Reform - % complete				100%		100%		New metric

Appendix B Project Photos and Attachments

Before	After
Waitangi WWTP	
	
	

Before	After
Waitangi WTP	
	
	

Before	After
Kaingaroa WTP	
	  

Appendix H CCP AND BACKGROUND

This Appendix includes the following:

- Waitangi Water Supply – CCP for UV disinfection and chlorination.
- Kaingaroa Water Supply – CCP for UV disinfection and chlorination.
- Background information on water quality parameters monitored in water supplies.

Waitangi Water Treatment Plant

Critical Control Point Process Control Summary – UV Disinfection

Process objectives:

1. Provide a **primary disinfection Critical Control Point** to inactivate bacterial, viral, and protozoan pathogens that may have entered upstream of dosing point.

Operational day-to-day monitoring of control process:	
What	• **UV dose** in mJ/cm^2 • **Turbidity** in NTU • **Flow** restricted to 37 L/min
When	• Manually recorded at least **5 days per week** from the instrument displays. • UV dose and turbidity data logged **continuously** to a local RTU and uploaded to a cloud-based platform at regular intervals (weekly)*.
Where	• UV reactor display (COMMcenter module) • UV outlet turbidity instrument display (Hach SC200)
How	• UV dose calculated and displayed by COMMcentre using UVI and maximum rated flow (based on flow restrictor) (Trojan UVMax Pro50). • NTU measured by turbidimeter and displayed on transmitter (Hach 1720E/SC200).
Who	• Water Treatment Plant Operator
Records	• Logbook hard copy kept at the WTP. Contract Manager inputs data straight away into WaterOutlook, a proprietary database that the Water Engineer can access remotely. • All monitoring data is uploaded automatically at regular intervals to a cloud-based platform via local RTU. There are alarm setpoints that will notify Operator by text message when the water quality does not comply. *

Process performance criteria at monitoring point:		***Correction if performance criteria are not met:***
Target Range:	• UV dose: 40-100 mJ/cm^2 • NTU: <1.0 (Treated Water) o NTU Operational Target: <0.3	• Operator to check filters are operating normally **(Multimedia, Softener)**; filters backwash automatically based on run time. • Perform **UV reactor sensor and lamp check** during routine inspections. • Check UV dose and turbidimeters.
Action Limits:	• UV dose: <40 mJ/cm^2 • NTU: 1.0-2.0 (>15 min) Alarm sent to Operator via text message to carry out corrective actions (Tier 2 Alarm). *	• Operator to check alarm condition of the UV reactor and rectify if required. • Operator to check filter pressures and turbidity instruments. • Operator to **manually backwash filters (Multimedia, Softener)** to achieve the target UV dose and turbidity. • Operator to **notify Contract Manager** • **Review online data***.
Critical Limits:	• UV dose: <40 mJ/cm^2 • NTU: >2 (>3 min) Alarm sent to Operator via text message to shut down plant (Tier 1 Alarm). *	• Operator to **shut down network pump.** • Operator to undertake troubleshooting identified in 'Action Limits' above and then restart plant. If issues are not resolved, shutdown WTP. • Operator to **notify Contract Manager** • Contract Manager to **notify Water Engineer.** • Water Engineer to **notify CEO and DWA** if water outside of critical limits needs to be supplied or has been supplied and follow Contingency Plan 3: Failure of Treatment Process in the Water Safety Plan. • **Review online data***.

Notes:

* Once cellular service is available

Supporting programs:

1. **Monthly analysis** for **E. coli** and **total coliforms by accredited laboratory of raw, treated, and distribution network grab samples, and UVT of the treated water only.** Laboratory reports sent directly to Contract

Manager and Water Engineer. Water Engineer reports monthly to CEO, and Water Engineer reports exceedances as soon as practicable to CEO and DWA if results are outside DWSNZ.

2. **Annual WTP servicing by service agent (FILTEC)**, which includes instrument servicing and equipment maintenance.
3. **Annual refresher training** of Operator in operation, maintenance and troubleshooting of treatment process units and instrumentation (i.e., calibrations) by service agent (FILTEC).
4. **Monthly monitoring instrument checks** and calibration by Operator.
5. ECan quarterly raw water chemistry sampling programme.
6. Flow Restrictor on UV unit limits process flow so hydraulic design capacity is not exceeded.
7. Minimum six-monthly water meter reading frequency.

Planned programs:

1. Upgrade of Waitangi Water Supply, including a new bore, new treatment plant, and modifications to the network.
2. Install telemetry and cloud-based reporting system for monitored parameters. Reliant on provision of cell phone coverage to Chathams via the government's rural connectivity project.

Waitangi Water Treatment Plant

Critical Control Point Process Control Summary – Residual Chlorination

Process objectives:

1. Provide a **primary disinfection Critical Control Point** to inactivate bacterial and viral pathogens that may have entered upstream of dosing point.
2. Provide **residual disinfection Control Point** to help inactive pathogens entering downstream of the dosing point.

Operational day-to-day monitoring of control process:	
What	• Free Available Chlorine (**FAC**) mg/L • **pH** in pH units. (Note: pH is not able to be adjusted if outside ideal range) • **Turbidity** in NTU
When	• Manually recorded at least **5 days per week** from the instrument displays. • FAC, pH, and turbidity data logged **continuously** to a local RTU and uploaded to a cloud-based platform at regular intervals (weekly)*.
Where	• Treated Water Reservoir outlet FAC and pH instrument (Depolox 400M display) • UV outlet turbidity instrument (Hach SC200)
How	• FAC and pH measured and displayed by instrument (Depolox 400M with FC2 and pH sensors). The instrument corrects the FAC at pH unit range of 6-8.75. • NTU measured by turbidimeter and displayed on transmitter (Hach 1720E/SC200).
Who	• Water Treatment Plant Operator
Records	• Logbook hard copy kept at the WTP. Contract Manager inputs data straight away into Water Outlook, a proprietary database that the Water Engineer can access remotely. • All monitoring data is uploaded automatically at regular intervals to a cloud-based platform via local RTU. There are alarm setpoints that will notify Operator by text message when the water quality does not comply. *

Process performance criteria at monitoring point:		***Correction if performance criteria are not met:***
Target Range:	• FAC: 0.2 - 0.5 mg/L • pH: 6-8 • NTU: <1.0 (Treated Water) o NTU Operational Target: <0.3	• Operator to **adjust chlorine dosing** system to achieve target range. • Operator to check filters are operating normally and **manually backwash filters (Multimedia, Softener)** as required; filters backwash automatically based on run time. • Check turbidity, FAC and pH instruments during routine inspections.
Action Limits:	• FAC: < 0.2 mg/L or > 0.6 mg/L • pH: 6-8 • NTU: 1.0-2.0 (>15 min) Alarm sent to Operator via text message to carry out corrective actions (Tier 2 Alarm). *	• Operator to **adjust chorine dosing** to within targets. • Operator to undertake **troubleshooting** (e.g., dosing pump function, age of solution, filters, pressure, turbidity, chlorine, and pH check/calibration). • Operator to **manually backwash filters (Multimedia, Softener)** and **reduce flow** to achieve the target NTU. • Operator to **notify Contract Manager.** • **Review online data***.
Critical Limits:	• FAC: < 0.1 mg/L or > 1 mg/L • NTU: >2 (>3 min) • pH: >8 Alarm sent to Operator via text message to shut down plant (Tier 1 Alarm). *	• Operator to **shut down network pump** and **adjust chlorine level.** • Operator to undertake troubleshooting identified in 'Action Limits' above and then restart plant. • If issues are not resolved, shutdown WTP. • Operator to **notify Contract Manager.** • Contract Manager to **notify Water Engineer.** • Water Engineer to **notify CEO and DWA** if water outside of critical limits needs to be supplied or has been supplied and follow Contingency Plan 3 in the Water Safety Plan. • **Review online data***.

Notes:

* Once cellular service is available

Supporting programs:

1. **Monthly analysis** for **E. coli** and **total coliforms by accredited laboratory of raw, treated at the WTP, and distribution network grab samples.** Laboratory reports sent directly to Contract Manager and Water Engineer. Water Engineer reports monthly to CEO, and Water Engineer reports exceedances as soon as practicable to CEO and DWA if results are outside DWSNZ.
2. **Annual WTP servicing by service agent (FILTEC)**, which includes instrument servicing and equipment maintenance.
3. **Annual refresher training** of Operator in operation, maintenance and troubleshooting of treatment process units and instrumentation by service agent (FILTEC).
4. **Monthly monitoring instrument checks** and calibration by Operator. FAC/pH to also be crossed-checked using a handheld meter (eXact Micro 20 Photometer)
5. ECan raw water chemistry sampling programme.
6. Flow Restrictor limits process flow so hydraulic design capacity is not exceeded.
7. Minimum six-monthly water meter reading frequency.

Planned programs:

1. Upgrade of Waitangi water supply, including a new bore, new treatment plant, and modifications to the network.
2. Install telemetry and cloud-based reporting system for monitored parameters. Reliant on provision of cell phone coverage to Chathams via the government's rural connectivity project.

Kaingaroa Water Treatment Plant

Critical Control Point Process Control Summary – UV Disinfection

Process objectives:

1. Provide a **primary disinfection Critical Control Point** to inactivate bacterial, viral, and protozoan pathogens that may have entered upstream of dosing point.

Operational day-to-day monitoring of control process:	
What	• **UV dose** in mJ/cm^2 • **Turbidity** in NTU • **Flow** restricted to 37 L/min
When	• Manually recorded at least ***5* days per week** from the instrument displays. • UV dose and turbidity data logged **continuously** to a local RTU and uploaded to a cloud-based platform at regular intervals (weekly)*.
Where	• UV reactor display (COMMcenter module) • UV outlet turbidity instrument display (Hach SC200)
How	• UV dose calculated and displayed by COMMcentre using UVI and maximum rated flow (based on flow restrictor) (Trojan UVMax Pro50). • NTU measured by turbidimeter and displayed on transmitter (Hach 1720E/SC200).
Who	• Water Treatment Plant Operator
Records	• Logbook hard copy kept at the WTP. Contract Manager inputs data straight away into WaterOutlook, a proprietary database that the Water Engineer can access remotely. • All monitoring data is uploaded automatically at regular intervals to a cloud-based platform via local RTU. There are alarm setpoints that will notify Operator by text message when the water quality does not comply. *

Process performance criteria at monitoring point:		***Correction if performance criteria are not met:***
Target Range:	• UV dose: 40-100 mJ/cm^2 • NTU: <1.0 (Treated Water) o NTU Operational Target: <0.3	• Operator to check filters are operating normally **(Multimedia, Macrolite, Softener, GAC)**; filters backwash automatically based on run time. • Perform **UV reactor sensor and lamp check** during routine inspections. • Check UV dose and turbidimeters.
Action Limits:	• UV dose: <40 mJ/cm^2 • NTU: 1.0-2.0 (>15 min) Alarm sent to Operator via text message to carry out corrective actions (Tier 2 Alarm). *	• Operator to check alarm condition of the UV reactor and rectify if required. • Operator to check filter pressures and turbidity instruments. • Operator to **manually backwash filters (Multimedia, Macrolite, Softener, GAC)** to achieve the target UV dose and turbidity. • Operator to **notify Contract Manager.** • **Review online data*.**
Critical Limits:	• UV dose: <40 mJ/cm^2 • NTU: >2 (>3 min) Alarm sent to Operator via text message to shut down plant (Tier 1 Alarm). *	• Operator to **shut down network pump.** • Operator to undertake troubleshooting identified in 'Action Limits' above and then restart plant. If issues are not resolved, shutdown WTP. • Operator to **notify Contract Manager** • Contract Manager to **notify Water Engineer.** • Water Engineer to **notify CEO and DWA** if water outside of critical limits needs to be supplied or has been supplied and follow Contingency Plan 3: Failure of Treatment Process in the Water Safety Plan. • **Review online data*.**

Notes:

* Once cellular service is available

Supporting programs:

1. **Monthly analysis** for **E. coli** and **total coliforms by accredited laboratory of raw, treated, and distribution network grab samples, and UVT of the treated water only.** Laboratory reports sent directly to Contract

Manager and Water Engineer. Water Engineer reports monthly to CEO, and Water Engineer reports exceedances as soon as practicable to CEO and DWA if results are outside DWSNZ.

2. **Annual WTP servicing by service agent (FILTEC)**, which includes instrument servicing and equipment maintenance.
3. **Annual refresher training** of Operator in operation, maintenance and troubleshooting of treatment process units and instrumentation (i.e., calibrations) by service agent (FILTEC).
4. **Monthly monitoring instrument checks** and calibration by Operator.
5. ECan quarterly raw water chemistry sampling programme.
6. Flow Restrictor on UV unit limits process flow so hydraulic design capacity is not exceeded.

Planned programs:

1. Extend raw water intake into deeper water of Lake Rangitai.
2. Install telemetry and cloud-based reporting system for monitored parameters. Reliant on provision of cell phone coverage to Chathams via the government's rural connectivity project.

Kaingaroa Water Treatment Plant

Critical Control Point Process Control Summary – Residual Chlorination

Process objectives:

1. Provide a **primary disinfection Critical Control Point** to inactivate bacterial and viral pathogens that may have entered upstream of dosing point.
2. Provide **residual disinfection Control Point** to help inactive pathogens entering downstream of the dosing point.

Operational day-to-day monitoring of control process:	
What	• Free Available Chlorine (**FAC**) mg/L • **pH** in pH units. (Note: pH is not able to be adjusted if outside ideal range) • **Turbidity** in NTU
When	• Manually recorded at least **5 days per week** from the instrument displays. • FAC, pH, and turbidity data logged **continuously** to a local RTU and uploaded to a cloud-based platform at regular intervals (weekly)*.
Where	• Treated Water Reservoir outlet FAC and pH instrument (Depolox 400M display) • UV outlet turbidity instrument (Hach SC200)
How	• FAC and pH measured and displayed by instrument (Depolox 400M with FC2 and pH sensors). The instrument corrects the FAC at pH unit range of 6-8.75. • NTU measured by turbidimeter and displayed on transmitter (Hach 1720E/SC200).
Who	• Water Treatment Plant Operator
Records	• Logbook hard copy kept at the WTP. Contract Manager inputs data straight away into Water Outlook, a proprietary database that the Water Engineer can access remotely. • All monitoring data is uploaded automatically at regular intervals to a cloud-based platform via local RTU. There are alarm setpoints that will notify Operator by text message when the water quality does not comply. *

Process performance criteria at monitoring point:		***Correction if performance criteria are not met:***
Target Range:	• FAC: 0.2 - 0.5 mg/L • pH: 6-8 • NTU: <1.0 (Treated Water) o NTU Operational Target: <0.3	• Operator to **adjust chlorine dosing** system to achieve target range. • Operator to check filters are operating normally and **manually backwash filters (Multimedia, Macrolite, Softener, GAC)** as required; filters backwash automatically based on run time. • Check turbidity, FAC and pH instruments during routine inspections.
Action Limits:	• FAC: < 0.2 mg/L or > 0.6 mg/L • pH: 6-8 • NTU: 1.0-2.0 (>15 min) Alarm sent to Operator via text message to carry out corrective actions (Tier 2 Alarm). *	• Operator to **adjust chorine dosing** to within targets. • Operator to undertake **troubleshooting** (e.g., dosing pump function, age of solution, filters, pressure, turbidity, chlorine, and pH check/calibration) • Operator to **manually backwash filters (Multimedia, Macrolite, Softener, GAC)** and **reduce flow** to achieve the target NTU. • Operator to **notify Contract Manager.** • **Review online data***.
Critical Limits:	• FAC: < 0.1 mg/L or > 1.5 mg/L • NTU: >2 (>3 min) • pH: >8 Alarm sent to Operator via text message to shut down plant (Tier 1 Alarm). *	• Operator to **shut down network pump** and **adjust chlorine level.** • Operator to undertake troubleshooting identified in 'Action Limits' above and then restart plant. • If issues are not resolved, shutdown WTP. • Operator to **notify Contract Manager.** • Contract Manager to **notify Water Engineer.** • Water Engineer to **notify CEO and DWA** if water outside of critical limits needs to be supplied or has been supplied and follow Contingency Plan 3 in the Water Safety Plan. • **Review online data***.

Notes:
* Once cellular service is available

Supporting programs:

1. **Monthly analysis** for **E. coli** and **total coliforms by accredited laboratory of raw, treated at the WTP, and distribution network grab samples.** Laboratory reports sent directly to Contract Manager and Water Engineer. Water Engineer reports monthly to CEO, and Water Engineer reports exceedances as soon as practicable to CEO and DWA if results are outside DWSNZ.
2. **Annual WTP servicing by service agent (FILTEC)**, which includes instrument servicing and equipment maintenance.
3. **Annual refresher training** of Operator in operation, maintenance and troubleshooting of treatment process units and instrumentation by service agent (FILTEC).
4. **Monthly monitoring instrument checks** and calibration by Operator. FAC/pH to also be crossed-checked using a handheld meter (eXact Micro 20 Photometer)
5. ECan raw water chemistry sampling programme.
6. Flow Restrictor limits process flow so hydraulic design capacity is not exceeded.

Planned programs:

1. Extend raw water intake into deeper water of Lake Rangitai.
2. Install telemetry and cloud-based reporting system for monitored parameters. Reliant on provision of cell phone coverage to Chathams via the government's rural connectivity project.

Background Information

E. coli and Total Coliforms

Coliform bacteria are abundant in the faeces of warm-blooded animals, but can also be found in the aquatic environment, in soil and on vegetation. DWSNZ compliance for bacterial quality of drinking water leaving the treatment plant and within the distribution is based on a prevalence of the coliform bacteria Escherichia coli (E. coli) of less than 1 MPN/100ml. For compliance testing, a method that enumerates E. coli and total coliforms is required. DWSNZ compliance for protozoal quality of untreated water from a 'secure' bore is currently based on the same criteria and so, whilst Tikitiki bore no longer has 'secure' status, results from the raw water provide some perspective on the public health risk.

Whilst the new DWSNZ require monitoring of total coliforms, they do not include maximum values. The Ministry of Health's summary of the DWSNZ changes notes: *"A high total coliform reading does not necessarily pose a risk to human health as the subset of faecal coliforms, and specifically E. coli, is recognised as the primary indicator that the drinking-water supply may be contaminated with pathogens. However, total coliforms are a useful indicator of drinking-water quality and may detect abnormalities and changes in quality over time. Monitoring total coliforms may provide warning to a water supplier that water quality is changing, such that further testing and assessment is appropriate."*[16]

In addition, the guidelines to the new DWSNZ[17] note:

- *"Total coliforms have limited interest in their own right, but with one important exception: when total coliforms are detected in the absence of E. coli, it is important that the source be investigated as their presence may be indicative of a barrier failure or biofilm development."* (Chapter 6.3.2)
- *"Frequently finding total coliforms in distribution system and service reservoir samples in the absence of E. coli suggests biofilm development, which tends to occur more often in the summer, or contamination from the environment... Maintaining a chlorine residual is an effective technique for controlling this problem, if not the cause."* (Chapter 5.3.2).

FAC, pH and Turbidity

Free Available Chlorine (FAC), pH and turbidity monitoring are not currently required for DWSNZ compliance under the approved WSP. However, at Waitangi WTP, these parameters provide an indication of the level of bacterial protection provided by residual chlorine in water leaving the WTP. At both water treatment plants turbidity also provides an indication of the effectiveness of the filtration processes at removing any turbidity in the raw water as well as the level of bacterial and protozoal protection provided by the UV disinfection process.

[16] Ministry of Health. 2018 *"Drinking-water Standards for New Zealand 2005 (Revised 2018): Summary of changes"*
[17] Ministry of Health. 2019. *"Guidelines for Drinking-water Quality Management for New Zealand"*

CREATING COMMUNITIES

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5. COMMUNITY SERVICES

5.1 Cemeteries

Date of meeting	8 June 2023
Agenda item number	5.1
Author/s	Colette Peni, Operations Manager

Purpose

Decision paper for Council to consider and approve the recommendations regarding Council owned Cemeteries.

Recommendation:

THAT

1. **The recommended charges for a Plot for cremated remains be considered and approved.**
2. **The contracting of Stantec to GPS and plan future Plots for Owenga and Kapito be approved.**
3. **The creation of a Policy in relation to Council owned Cemeteries be approved.**

Background

1. With the cost of transporting deceased people home to the Chatham Islands, the Council are receiving more requests for plots to place cremated remains.

   The Council charge for a Plot for a full casket burial is currently set at $663 for the 2022/2023 Financial year.

   A cost of $335 has been suggested for a Plot for cremated remains. This is based on charges from the Mackenzie and Grey District Council.

2. The Council to consider contracting Stantec to GPS and create a list of current Plots in Council owned Cemeteries at Kapito and Owenga, and to work with Manaaki Whanau O Wharekauri Trust to create a plan for future Plots for the two Kapito and Owenga Cemeteries.

3. A Policy regarding Council owned cemeteries to be created including guidelines for the depth of plots (to account for double Plots) and any other guidelines.

5. COMMUNITY SERVICES

5.2 Future of Memorial Hall and Former Office Building

Date of meeting	8 June 2023
Agenda item number	5.2
Author/s	Owen Pickles, chief Executive

Purpose

For Council to consider the content of the building report from Leith Weitzel and determine the future of the former Memorial Hall and Council office building.

Recommendation:

THAT:

1. **The report from Leith Weitzel be received; and**
2. **Council consider the future of the Memorial Hall and associated buildings.**

Background

Attached is a report from Leith Weitzel on the current condition of the buildings with an indication of cost to repair with qualifications attached. Leith will be available to answer questions.

To recap, Council's current position –

1. The entire building has been approved for removal. This decision was made when the proposed new building was to have been built on the same site.

2. There is the boundary issue that exists between the site and the adjoining Hotel site. This was to have been resolved with a land swap following the removal of the building.

With the building of the new complex on the adjoining property, Council can revisit the future of the old buildings. The Weitzel report will assist with these deliberations.

At a previous meeting there was talk of seeking the community's views.

PO Box 172
Waitangi
Chatham Islands 8942
Ph 027 6870631
Email buildit.nz@gmail.com

Chatham Island Council
Attn: Owen Pickles
Waitangi
Chatham Islands 8942

RE: Chatham Islands memorial hall and old council buildings

Please see my completed report which I encourage you to read in its entirety.

Attached with this report is the following.

*Various photos of the buildings and some problematic areas
*Floor plan categorising what areas I am referring to in the report

This property report is not a guarantee that all defects (and/or future defects) have been identified. The inspection is carried out solely on a visual basis. All efforts have been made to identify possible defects (and/or future defects). The property report is not a guarantee that the building meets all the requirements under the Building Act at the time of construction and/or under the Building Act at the time of inspection.
The purpose of the report is to identify areas of interest/concern, and to provide solutions to these problems. The purpose of the inspection is to provide an impartial, technically knowledgeable, and visually thorough account of the buildings general state.

Costing estimates have been included with the report to give you an idea of the costs to repair the faults and damage identified on the buildings. Please note that this includes extra costs that would not be factored in for mainland NZ such as shipping costs of materials to the Chatham Islands. These costings are estimates only and are subject to change depending on the tradesmen who carry out the work. It does not include flights or accommodation etc for tradesmen if this was required.

Plumbing, Drainage, Gas, Electrical, Heating have all not been included in the estimated costings below however could be included or discussed if required.

If you require any clarification or wish to discuss any details of the report with me, please do not hesitate to contact me. If you require a more detailed discussion, re the inspection, this can be arranged with a one hour, face to face meeting onsite which will be free of charge. By accepting this report, it will be taken you have read the report in its entirety including this cover letter, the Limitations and the about the report sections and that you understand and accept these conditions.

Yours sincerely

Leith Weitzel
Buildit.nz@gmail.com
LBP NO: 118559

Chatham Islands Memorial Hall and Council buildings, Tuku Road, Waitangi, Chatham Islands

CERTIFICATE OF PROPERTY INSPECTION in accordance with NZ Standard 4306:2005

Date: 20th April 2023

Client: Chatham Island Council

Site Address: Tuku Road, Waitangi, Chatham Islands 8942

Property Inspector: Leith Weitzel

Position: Owner/Operator

Date of Inspection: 10th April 2023

The following areas of the Property have been inspected:

Site, Subfloor, Exterior, Interior, Roof Exterior, Roof Interior

Any limitations to the coverage of the Inspection are detailed in the Written Report.

CERTIFICATE

I hereby certify that I have carried out the PROPERTY INSPECTION of the site at the above address in accordance with NZS 4306:2005 Residential Property Inspection – and I am competent to undertake this Inspection.

Leith Weitzel

Chatham Islands

LBP No: 118559

An inspection carried out in accordance with NZS4306:2005 is not a statement that a property complies with the requirement of any Act, regulation, or bylaw, nor is the report a warranty against any problems developing after the date of the property report. Refer NZS4306:2005 for full details.

LIMITATIONS OF THIS REPORT Disclaimer

NO ASBESTOS TESTING OF ANY KIND HAS BEEN UNDERTAKEN. I WAS NOTIFIED BY THE CHATHAM ISLANDS COUNCIL THIS HAS ALREADY BEEN CARRIED OUT

(a)This is a report of a visual only, non-invasive inspection of the areas of the building which were readily visible at the time of inspection. The inspection did not include any areas or components which were concealed or closed in behind finished surfaces (such as plumbing, drainage, heating, framing, ventilation, insulation, or wiring) or which required the moving of anything which impeded access or limited visibility (such as floor coverings, furniture, appliances, personal (property, vehicles, vegetation, debris, or soil).

(b)The inspection did not assess all compliance in electrical, plumbing, gas, or heating. However, some compliance issues in these areas have been pointed out

(c) The purpose of the inspection was to assess the general condition of the building based on the limited visual inspection described in this report and may not identify all past, present, or future defects. Descriptions in this report of systems or appliances relate to existence only and not adequacy or life expectancy. Any area or component of the building or any item or system not specifically identified in this report as having been inspected was excluded from the scope of the inspection.

(d) This report has been prepared based on a visual inspection of the building works using normal readily available access, and without testing of components for the assessment of the overall structural condition of it and associated items, and without recourse to construction drawings.

(e) This report is based on experience and reasonable opinion however is not a guarantee against moisture ingress at the time of inspection or in the future. This inspection has been done to the writer's best ability with all reasonable care taken using visual and non-invasive testing with meters as noted. This report is a guide only (as per NZ Standard) and not a guarantee against moisture ingress or structural failure and is to be accepted as such by the owner.

(f) It is confirmed that no detailed geotechnical investigation has been included in this brief. An investigation of the condition and location of underground drainage and services and of electrical, gas and plumbing (except as otherwise may be described in this report) is not included in this brief.

(g) No warranty can be given as to other defects, not apparent to visual inspection at the time, inclusive of underground services, waterproofing, soil stability or the moisture content in partitions or exterior claddings.

(h) Weather conditions can affect moisture found e.g., long dry spells, driving rain in certain directions which can cause localised leaks and may only occur three to four times per year. Guidelines as below, flashings, ground levels, etc. This stresses the importance of flashings, ground levels, etc., which may be highlighted in this report.

(i) This property report does not include the structural, electrical, plumbing or gas piping and fitting, and heating state of the premises

(j) This report does not include any positioning of building or improvements in relation to site boundaries or provide any guarantee whatsoever those items surveyed will not fail at some later date, and information herein pertains strictly to observations the day of inspection and accessibility only.

(k) If the property is controlled by a Body Corporate or similar it would be recommended prior to purchase a copy of the minutes be obtained from the Corporate Secretary to establish the history of the inspected property or other properties under such Body Corporate. This inspection has been untaken on this sole dwelling and does not extend to remainder of complex, or common areas. The inspection is confined to the above property only and does not cover structural integrity of the entire complex.

(l) This document and information contained within is intended only for the use of the addressee named above

Description of Dwelling and Site

Area 1 - Hall Area including civil defence offices, kitchen, bathrooms and stage area – 265m2

Area 2 – Kitchen/Staffroom area and toilets – 65m2

Area 3 - Council offices including council chambers – 146m2

Area 4- Museum area – 60m2

The entire structure is all connected but has been built onto and renovated in stages over the years since the Hall was first established on the site. I have split these sections up into different areas so I can better identify them for you and so it is easier to understand what part of the building I am referring to in the report. This is also labelled on the attached floor plan with the report

Roof – All areas 1 to 4

The current roof is a combination of materials. The main roofing material installed is corrugated colorsteel which looks to be about 20 plus years old to most of the building. This is in very poor condition.

It has various parts where it is leaking into the ceiling space. There are areas which the nails are pulling out and various areas where the workmanship has been done to a poor standard. There is inadequate flashings to stop water getting into the building.

The reception area, GM office, and council chambers have a product which is called Onduline. This is a corrugated product made of bitumen saturated organic fibres. It has a very short lifespan of 15 years and has also had various weathertightness issues and product failures on buildings it has been installed on.

The roof framing itself looks to be good in most areas however there are areas where it is clear to see sagging and bowing in the timber. As there are parts of the roof where water has been entering the building it wouldn't be a surprise if there was rot or serious water damage to the framing timber in some areas

Recommended repairs and improvements to be carried out

All roofing on all areas of the building will all need to be fully replaced if the buildings are to be continued to be used. All framing timber that has rot, water damage or is sagging or bowing will need to be replaced to strengthen the roof framing. How much framing that needs to be replaced or strengthened wouldn't be able to be determined until the roof has been removed and could vary in areas.

Exterior

Area 1 and 2

The cladding on these areas are James Hardie Froniter weather board also referred as “Hardi Plank”
The cladding is in very poor condition with many holes, gaps and cladding falling off in areas.
It is clear to see very little maintenance has been to the exterior of this building for quite some time.
There will multiple areas where water is entering into the building.
The glavanised nails are starting to rust out and will get worse as more time goes by
Both areas 1 and 2 would need completely recladding as they are it beyond repair. The cladding has also exceeded its durability period

Looking at the exterior walls of these areas there looks to be a lot of uneviness including sags and large bows in the walls. It is hard to determine without taking off the cladding what the cause for this is. Overall this is not a good sign and would need to strengthened and rectified if these areas were to be reclad
The windows and joinery are a combination of timber and aluminium single glazed joinery. They are all in very average condtion with some that don’t function well and some with broken latches and hinges.

Area 3 and 4

Another James Hardie product has been used in these areas which is called Linea bevel back weatherboard. This is in good condition and is a good durable product for conditions on the island
This is mainly on the front of area 3.
There is a small section of James hardie frontier weatherboard on the offices at the front entrance on the right hand side of the building. This is also in poor condition like the cladding on areas 1 and 2 however it could easily be replaced with linea weather board to match the remainder of the office area and to make weathertight.

Area 4 is masonry block which is filled with concrete. This looks to be in good condition with little signs of cracks or unevenness.

All of the cladding on areas 3 and 4 could do with painting in the next few years to maintain it’s weathertightness and keep it in good condition.

Recommended repairs and improvements to be carried out

The cladding on areas 1 and 2 will all need to be fully replaced with strengthening to the wall framing in many areas to bring the building back up to a good standard. This would be the best time to replace all the windows with new double glazed windows while doing this

The cladding in areas 3 to 4 is fine to remain and requires a small amount of remedial work.

Underfloor/Subfloor

Area 1 and 2

Please note I was unable to gain access under the floor in these areas due to not being able to locate a man hatch or find safe access to get under. If it is required or necessary at a later date, I would be happy to cut a hole to get under in a safe location with council permission. This may not be necessary as there are plenty of obvious defects and faults without looking underneath

These two areas would have the oldest foundations, subfloor, and flooring of the entire building. Without looking very hard It is easy to see the building has sunk in multiple locations around the perimeter ring foundation and in the middle of the floor. Some areas are quite significant and are of concern.
The floor is very springy and sagging in multiple places. It would lead me to believe that the piles have sunk in these areas and the bearers and joists could be slowly becoming inadequate.
The flooring is a combination of Matai/Rimu flooring boards and pynefloor/chipboard flooring. They have various types of floor coverings over the top of it with some areas that are bare. The flooring itself is good in some areas but average in others. There doesn't seem to be many soft spots from water damage or borer.
As the building is so low to the ground it would be extremely difficult to do any pile or subfloor repairs without removing all of the flooring to do so
I am unable to determine if any underfloor insulation has been installed however insulation is not required for buildings such as this.

Area 3 and 4

These areas are much newer than the previous areas and overall look much more sturdy and solid. The concrete block ring foundation is in good condition and looks to be very level around most of the building. A visual inspection of all the subfloor and flooring seems to show very little evidence of sagging or water damage to the floor.
I am unable to determine if any underfloor insulation has been installed

Recommended repairs and improvements to be carried out

Areas 1 and 2 the flooring will need to be fully removed to all areas so that the building can be fully re piled, new bearers and subfloor improvements are made. New flooring substrate would then have to be laid
The kitchen areas and bathroom areas in these areas would need to be replaced to accommodate making the necessary repairs to the floor

Areas 3 and 4 there are no improvements I can recommend at this time

Interior Roof space

All areas 1 to 4

Due to the roof having very little areas with a ceiling cavity it is hard to gain access to these areas. No visual inspection can be done internally on the framing timber or insulation in the ceiling cavity space.
Looking from the outside of the building as mentioned in the roof section it is clear to see there are a few areas where the roof framing is sagging or bowing but I am unable to determine why this is without removing the roof sheeting
Some areas in area 3 and 4 I could gain access through the flat ceiling. The framing and current insulation looked to be in good condition however this is only a very small part of the building I could inspect.

Report Summary

Looking at the condition of all areas of the buildings it isn't hard to tell that there is a massive amount of work to bring Area 1 and 2 up to safe and useable standard compared to Areas 3 and 4 This all comes down to Areas 1 and 2 being older and having very little maintenance being done to them. Areas 3 and 4 are much newer or a different type of construction than the older areas which is the reason why they are in much better condition.

All areas can be upgraded to a safe and useable standard. I have outlined the costs below. It is important to remember that these are estimates only. Some of the areas it is extremely difficult to give a fixed price as there are too many variables or unknowns at this stage

If you were to carry out the work you would have to start from the Floor and work your way up. The work could also be done in stages, but this would most likely end up costing much more in the long run rather than if you did it all at once.

To carry out the works a Structural engineer and draughts person will need to be engaged to draw up suitable plans and issue PS1 design and PS4 certificates. This is included in the costs below. Building consent would also be required for much of the work and this is included in the estimates below

ROOFING/ ROOF FRAMING REPAIRS AND REPLACEMENT

Area 1 and 2

*Remove all roofing product
*Inspect all timber framing
*Repair all necessary framing and strengthen where necessary
*Install new roofing underlay and colourseel MAXX corrugated roofing iron
*Insulation
*Replace fascia and spouting

$80,000.00 to $105,00.00 PLUS GST

Area 3 and 4

*Remove all roofing product
*Inspect all timber framing
*Repair all necessary framing and strengthen where necessary
*Install new roofing underlay and colour steel MAXX corrugated roofing iron
*Insulation
*Replace fascia and spouting

$65,000.00 to $80,000.00 PLUS GST

EXTERIOR FRAMING AND CLADDING

Area 1 and 2

*Remove all cladding
*Inspect any framing damage including rot, bows, sagging, missing timber or undersize framing members and replace with new
*Install new Rab board underlay on cavity batten with James hardie Linea cladding
*Install new double glazed windows
*Insulation
*Full paint job to exterior

$330,000.00 - $415,000.00 PUS GST

Area 3 and 4

*Clad right side of the front of building to match left side in linea weatherboard
*Small remedial work and patching to masonry block
*Paint entire areas

$50,000.00 PLUS GST

Repiling of subfloor and framing repairs

Area 1 and 2 only

*Remove all permanent fixtures such as kitchen, toilets, showers, sinks etc
*Remove all flooring from these areas so the subfloor area and piles can be accessed
*Repile all of the undefloor with new piles to level out building and stop it from sinking anymore
*Install new timber bearers to suit new piles
*Install new timber subfloor framing where required to strengthen up the existing framing and replace cut out members for the repiling work
*Install new Plywood or H3.1 Pynefloor flooring to entire area

$425,000.00 to $590,000.00 PLUS GST

Area 1 and 2 improvements and repairs estimate Sub Total $ 835,000.00 to $1,110,000.00 PLUS GST

Area 3 and 4 improvements and repairs estimate Sub Total $115,000.00 to $130,000.00 PLUS GST

PLEASE NOTE AS MENTIONED ABOVE THIS DOES NOT INCLUDE PLUMBING, GAS, ELECTRICAL OR HEATING INSTALLATION COSTS

DOES NOT INCLUDE FLIGHTS, ACCOMMODATION OR FOOD FOR TRADESMEN IF THEY ARE REQUIRED TO BE SOURCED FROM OFF ISLAND

Additional improvements for Area 1 and 2 to consider

*Reinstate toilets, bathrooms, and kitchen areas THEY WOULD HAVE BEEN REMOVED FOR WORK TO BE CARRIED OUT

$85,000.00 to $115,000 PLUS GST

*Tidy up of wall linings inside to make more presentable and to repair damaged or removed wall linings

$15,000.00 to $45,00.00 PLUS GST

*Install new floor coverings to all areas

$60,000.00 to $85,000.00 PLUS GST

Paint all the inside areas

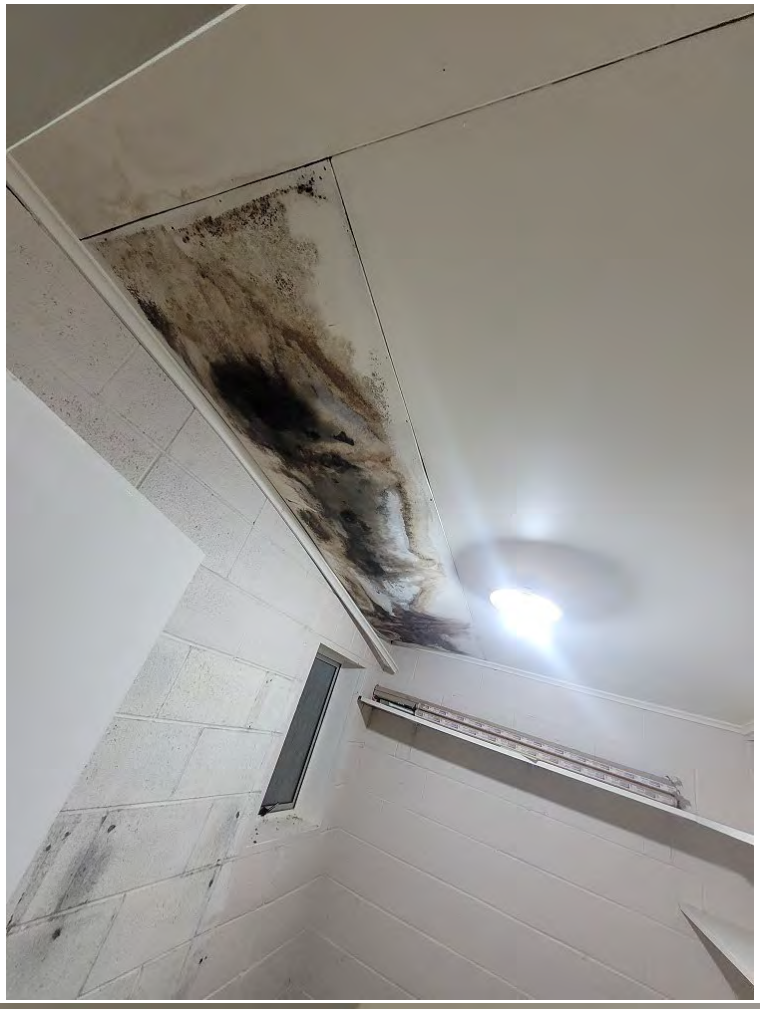
$45,000.00 PLUS GST

Sub Total $205,000.00 to $245,000.00 PLUS GST

CIC BUILDINGS INSPECTION PHOTOS


ESP873


NO SKATEBOARDING
NO CYCLING



8. Government

8.1 Report to the Department of Internal Affairs to 31 March 2023

Date of meeting	8 June 2023
Agenda item number	8.1
Author/s	Owen Pickles, Chief Executive

Purpose

Report to the Department of Internal Affairs in terms of Section 7 of the Deed of Funding, covering the 2018/19 financial year.

Recommendations

THAT Council receives the 'Report to the Department of Internal Affairs to 31 March 2023.

Attachments

1. Report to the Department of Internal Affairs to 31 March 2023

CHATHAM ISLANDS COUNCIL

Report to the Department of Internal Affairs

1st January 2023 to 31st March 2023

We have assumed that the 2018/19 funding deed will continue until 30th June 2023. This is therefore the nineteenth report in terms of Section 7 of that deed.

Crown Appropriation

During late 2021 McGredy Winder was employed by the Department of Internal Affairs to undertake a review of the Crown Appropriation which supports the operations of the Chatham Islands Council. This includes the contractual relationship it has with the Canterbury Regional Council.

It is pleasing to note that recommendation made by McGredy Winder will be included in a budget bid for the 2023 budget.

Democracy

The Council is **Mayor** Monique Croon, **Deputy Mayor** Keri-Lea Day, **Councillors** Celine Gregory-Hunt, Graeme Hoare, Amanda Horler, Greg Horler, Steve Joyce, Judy Kamo, Nigel Ryan.

The Council has appointed two standing committees

PARC: Mr Philip Jones (Independent Chairman), Monique Croon, Keri-Lea Day, Greg Horler and Steve Joyce.

CEO Recruitment Committee: Monique Croon, Keri-Lea Day, Amanda Horler, and Celine Gregory-Hunt

Prime Minister's Visit

The Prime Minister Rt Hon Jacinda Adern visited the Island on 25th November 2022 when she officially opened the Council Office and Museum building.

Minister for the Chatham Islands

The Hon Kieran McAnulty has offered to act as the Minister for the Chatham Islands

4 Entities

Hokotehi Moriori Trust, Ngati Mutunga O Wharekauri Iwi Trust, Chatham Islands Enterprise Trust and the Chatham Islands Council make up the 4 Entities. Meetings are held monthly with each taking a turn to host and chair.

The meetings provide an opportunity for all to be updated on what each is doing and to provide a collective view on Island issues.

Governance Review

There has been no activity during the reporting period.

Infrastructure Strategy

The Council supports the proposed development of an Island Infrastructure Strategy and looks forward to being involved with its preparation.

During December consultants Bruce Anderson, Chris Fry, and Daniel Williams from the Woods Group visited and held several meetings.

There is disappointment amongst the 4 entities with regards to the lack of follow up about this report. It was our understanding that a draft report would be produced for further consultation, which hasn't happened.

Council Building

The Council has been resident in its new building for over a year now. It has been good to see the amount of community use of facilities growing, especially for meetings.

The future of the previous building will be further considered by the Council into its new term.

A condition report on this building has been requested and should be available by the end of April.

Island Resilience

The current financial climate has had a magnified effect on the Chatham Islands with the cost of living reaching unsustainable levels. For low and fixed-income earners there is little relief, with relief offered by the Government not being fit for purpose on the Islands.

The biggest driver has been the cost of diesel which drives most of the Island including the power grid which resulted in electricity being as high as $1.37 per unit.

Petrol

With the closure of Waitangi Hardware, the Island was left without a petrol retailer. This has resulted in the Council importing petrol in 17,000 and 8000 iso tanks and selling through the Waitangi Hardware systems. This arrangement however is very temporary

Chathams Automotive and Marine are exploring the opportunities for the establishment of a retail petrol business with promising progress being made.

The future of petrol and diesel will hopefully be addressed in the infrastructure review as the costs of compliance around these commodities are prohibitive when compared to the volumes sold.

Power Supply

As mentioned above the price of electricity reached as high as $1.37 per unit. A recent reduction in diesel costs resulted in the price reducing to $1.27 per unit. Both are unaffordable for many households.

The Chatham Islands Enterprise Trust has been seeking Government support for over 2 years for a wind based renewable solution that will halve this cost but so far there doesn't seem to be a willingness on behalf of Government to support the initiative.

Shipping

It was great to see Government support for a shipping solution for the Chatham Islands.

The Council looks forward to working with the Chatham Islands Enterprise Trust and other stakeholders in determining what the right solution will be.

Council was pleased to meet with Ministry of Transport official's vis zoom in March to be updated about this project.

Airport

The airport project has progressed well with seemingly little time lost.

The Council will be working with the Contractors to make sure the quarry haul road is returned in the same condition it was prior to this project starting.

The runway construction is now finished with the contractors decanting back to mainland New Zealand.

The quarry haul road has been returned to the Council in good order.

From a Council view this project has gone well with environmental consent conditions being well managed and met.

Water Tanks

NEMA has advised that funding to provide some 50 water storage tanks has been approved. We still await the official confirmation and conditions that will be applied to this project.

The Prime Minister when visiting in November confirmed that this funding was available. $500k was paid into the Council's bank on the same day.

Council's Emergency Management staff are now working through the logistics of this programme.

Tanks and associated plumbing materials have been purchased and shipped to the Island as space permits. A tender process to secure plumbing services for tank installation is being run by E.Can recruitment .

Roading

The Council's procurement strategy has been endorsed by Waka Kotahi effectively providing permission to let its civil works contract for 10 years and professional services contract for 7 years (5+1+1) These will be up for renewal in 2025 and 2024.

A Partnership Charter with Council, Stantec, and Fulton Hogan is working well.

The bi-annual sealing programme was completed during November/December.

The 2021/22 major capital project the Whangamoe bridge replacement has been delayed due to land owners' consents being withheld on cultural grounds. A revised project within the existing road reserve will begin this year.

This has been further complicated with the passing of the land owner's representative.

Agreements with the land owners has been tentatively reached allowing construction to begin during April.

Three Waters

Water Supplies

The Council made good progress with water supply improvements at both Waitangi and Kaingaroa using a Ministry of Health grant and 3 waters reforms stimulus grants.

The Waitangi supply is still vulnerable during dry times when restrictions are applied to make sure demand meets supply.

An extension out into deep water at Lake Rangitai which feeds the Kaingaroa supply has been delayed due to there being too much water in the lake. A good problem to have.

Waste Water

Using the three waters reforms stimulus funds the essential repairs have been carried out on the Waitangi Waste Water system.

Like the Waitangi water supply the waste water system is nearing its capacity.

Storm Water

With little in the way of storm water reticulation the Council's major storm water activity is the monitoring and when required opening to the sea of Te Whanga. This is currently open.

When Treaty settlements are finalised, this will be managed jointly by Imi, Iwi, Council and DOC.

Three waters reforms

The Council has taken a neutral stand over the Government's proposed 3 waters reforms.

Chatham Islands has been included within entity C (Lower North Island top of South Island)

Many hours have been spent on responding to information requests from the 3 waters unit at DIA. And keeping up with the formation of entity C.

The Council has lodged its intentions application for the use of tranche one of the Better Off funds and looks forward to these being approved.

The Council's better Off tranche one application has been approved. Work on various projects is progressing. First reimbursement claim has been submitted.

The proposed **Affordable Water Reforms** will result in the Chatham Islands being a stand-alone entity supported by Crown funding using the existing Crown appropriation facility.

Waste Management

Fulton Hogan has continued to improve the waste management processes at Te One.

The sanitary landfill at Owenga is now fully operative.

The Ministry for the Environment is supporting two Waste Minz funded projects;

- The supply and establishment of a weighbridge $100,000
- The establishment of a new shed which will be used to store larger items of reusable waste $200,000

Both of these projects will begin in October and should be completed by March 2023.

Work on establishment of a bylaw to cover the waste management activity is progressing alongside developing a user pays pricing strategy.

Emergency Management

An independent review of the Emergency Management activity was carried out by C3 Consulting

This concluded that the activity is underfunded and under resourced due to the Council being a Regional Council and supporting a CDEM Group.

The report has been referred to DIA with the intention to have the extra funds needed being included in the next review of the Crown funding support.

As referred to in the water section above the NEMA Resilience fund will be supporting the provision and establishment of some 50 water tanks at properties outside of the reticulated areas.

A new emergency depot has been proposed for many years. This will provide a home the Council's emergency management activity, FENZ, St John, Corrections, and the civil works contractor.

The Council has the land for the development situated well away from any tsunami risk.

This project is currently on hold due to a lack of funds.

Harbours

Kaingaroa

Hunter Civil has been contracted to undertake works on the wharf with the intention to make it safe to use costing $300k These were substantially completed prior to Christmas.

The wharf has been subjected to several battering's by high seas and storm events in recent times.

A new wharf is being planned for 2024 but is subject to funding being achieved.

Owenga

Hunter Civil will be carrying out essential maintenance to the wharf estimated to cost $400k These works are expected to be completed by March 2023.

Funding for these wharf projects is part of the Councils 3 waters better off funding application which has been approved.

Regulatory

Building Control

Wellington City Council are contracted to provide building control services on the Island.

Public Health

Wellington City Council are contracted to provide public health services on the Island with food premises compliance being the focus.

Stock Control

A major problem (not new) is the increasing numbers of feral cattle and to a lesser degree feral horse. These are attracted to the warmth in the roads at night causing a dangerous traffic hazard.

Council is working with MPI and E. Can to find a solution with helicopter culling being the front runner.

Resource Management

There has been no significant activity.

A large amount of compliance work will go unattended until Council is funded to cover associated costs. This is mostly in relation to the introduction of National Policy Statements.

Tourism Support

The Council is providing an umbrella for the Chatham Islands Tourism Industry receiving several grants approvals for tourism related projects. These include public toilets, walkways, lookouts etc.

Heartlands

The contract with MSD for the provision of a Heartland Services office has been renewed with a significant funding increase.

The Coordinator has been very active assisting clients to deal with the high costs of living associated with living on the Chatham Islands. This is driven by high petrol and diesel prices which flows on to the cost of electricity. Chatham Islands Electricity tariff at $1.37 per unit is thought to be the highest in the world.

With a proposed new health facility there has been demand for an in care or respite facility for dependent elders.

Canterbury Regional Council

The Contract with the Canterbury Regional Council has been renewed for another year due to the uncertainty around the Council being funded to address the many responsibilities imposed by the National Environment Standards.

The Canterbury Regional Council continues to provide support for the Council over many activities as detailed in the enclosed report.

Finance

It is disappointing to advise that the audit of the Council's Annual Reports for 2020/21 and 2021/22 have been deferred until 2023. This is due to Audit New Zealand not having the resources available to complete these audit

The Mayor and PARC Chair have jointly written to the Auditor General expressing the Council's concerns about these delays.

Audit NZ has advised that the audits will commence during the week beginning 6th February with final adoption of audited reports planned for 27th April 2023

The financial reports up to 31 March 2023 are attached.

8. Government

8.2 Crown Appropriation

Date of meeting	8 June 2023
Agenda item number	8.2
Author/s	Owen Pickles, Chief Executive

Purpose

Information paper for Council.

Recommendations

1. THAT this information be received;
2. THAT Council continues to lobby for funding that allows it to meet its statutory obligations.

Background

On 18 May 2023 the Government released its annual budget which confirmed the level of Crown appropriation for the Chatham Islands Council to be $4.2m for the 2023/24 year. This is Year 4 of the determination confirm in 2020 which was –

2020/21	$ 3.77m	
2021/22	$ 4.35m	
2022/23	$ 4.37m	
2023/24	$ 4.20m	and out year (ad infinitum)

What is disappointing is that no account of the review that was undertaken by McGredy Winder at the Governments expense has been taken. This would have lifted the appropriation to $ 8m. This will result in non-compliance with the many RMA policies including Essential Freshwater initiatives unattended for another year.

Going forward the Council needs to continue with its lobbying of Government decision makers from the Minister of Local Government down with the aim of ensuring that funding allows the Council to meet its statutory obligations.

It should also be noted that affordable water funding is to be provided through this appropriation from July 2024.

8. Government

8.3 Covid-19 Response Recognition Award

Date of meeting	8 June 2023
Agenda item number	8.3
Author/s	Owen Pickles, Chief Executive

Purpose

Information paper for Council.

Recommendations

THAT the award be received.

Background

Council have received a Covid-19 Response Recognition Award which is attached to this report.

COVID-19 Response Recognition Award
Te Tohu Urupare KOWHEORI-19

Chatham Islands Council

In recognition of your service in support of the national COVID-19 response
Hei whakanui i tā koutou mahi tautoko i te urupare ā-motu ki te KOWHEORI-19

Rt Hon Chris Hipkins
Prime Minister of New Zealand

Te Kāwanatanga o Aotearoa
New Zealand Government

8. Government

8.4 LGNZ Membership - Free of Cost

Date of meeting	8 June 2023
Agenda item number	8.4
Author/s	Owen Pickles, Chief Executive

Purpose

Information for Council

Recommendations

THAT Council receives the information.

Background

LGNZ membership usually comes with a fee and although the Chatham Islands Council does not receive an invoice, LGNZ have shared information with us.

Attached to this report is a copy of LGNZ's vision and voice.

Local democracy's **vision and voice.**

OUR STRATEGY >

Our vision: To create the most active and inclusive local democracy in the world.

Our goals:

/ 01
More people value and participate in local government.

/ 02
Central government sees local government as a valued partner.

/ 03
Stronger Te Tiriti-based partnerships between local government and Māori.

Our priorities:

/ 01
Resetting the relationship with Central Government.

/ 02
Establishing stronger Te Tiriti-based partnerships with Iwi Māori.

/ 03
Campaigning for greater local decision-making and localism.

/ 04
Ramping up our work on climate change.

/ 05
Delivering and building on our core work.

We'll succeed through:

Advocacy
We champion the things that matter.

Inclusion
Everyone feels heard and valued.

Development
We build confidence and expertise.

Connection
We connect the best minds and ideas.

WHY BELONG?

Make meaningful connections across local government

Our networks sector and zone gatherings and must-attend conference connect you with peers who can offer advice and support – as well as advancing collective policy and advocacy work.

An impartial listening ear

Elected members call us when it gets tough and there's no one you can talk to internally. We're a confidential, listening ear – we've heard it all before and can help you find a way forward.

Tailored professional development

We run induction and courses designed specifically for elected members and the unique local government landscape. Whether you're newly elected or very experienced, you'll learn from our workshops and resources, which are tailored to your career journey.

Free counselling for elected members

All elected members can access free counselling and digital wellbeing resources through our confidential Clearhead portal.

Supporting diversity and inclusion

Networks like the Young Elected Members and Te Maruata (for Māori in local government) provide much-needed support and help people develop in their roles.

The local government glue

We bring everyone in local government together, whether you're a regional, unitary, metro, provincial or rural council – and whether you're an elected member or council staff.

Direct line to central government

LGNZ builds relationships with Ministers and officials that supports councils' own engagement at a political level. We're resolutely nonpartisan.

Louder together when it matters

When local government is united, central government listens. For example, when safety concerns were raised, LGNZ's advocacy resulted in the removal of residential addresses from campaign material.

Policy expertise on tap

We decode policy so that councils can quickly understand what it means for you. We share draft submissions and policy so you don't have to start from scratch.

Stronger together under pressure

LGNZ can galvanise and coordinate councils to support each other when you need it most. More than 35 councils signed up for our Adopt a Community initiative to help councils whose communities are suffering from the effects of Cyclone Gabrielle.

Collective policy feed into central government

We broker working groups that bring together elected members with the right expertise to feed into central government policy as it's developed.

Telling local government stories

LGNZ generates positive media that showcases the best of local government. We can also mediate potential media issues so they don't become news.

Jobs for young people

Mayors Task Force for Jobs has placed thousands of young people into work and training.

Supporting CE recruitment

We can lead and support recruitment of council chief executives.

Looking at the big picture

Our thought leadership pieces pull together expertise from all of local government to tackle the real issues. And we develop real solutions, including ideas like the Local Government Risk Agency (to pool resources to reduce risks and costs of disasters) or the Ratepayer Financing scheme (to support financially distressed ratepayers).

Scale benefits for councils

Members receive benefits from initiatives we develop. For example, our Street Lighting Profiles initiative, which means councils can be billed less for electricity if they are dimming their LED street lights. Or the Moata carbon portal, which allows embedded carbon to be measured and monitored across any capital works programme.

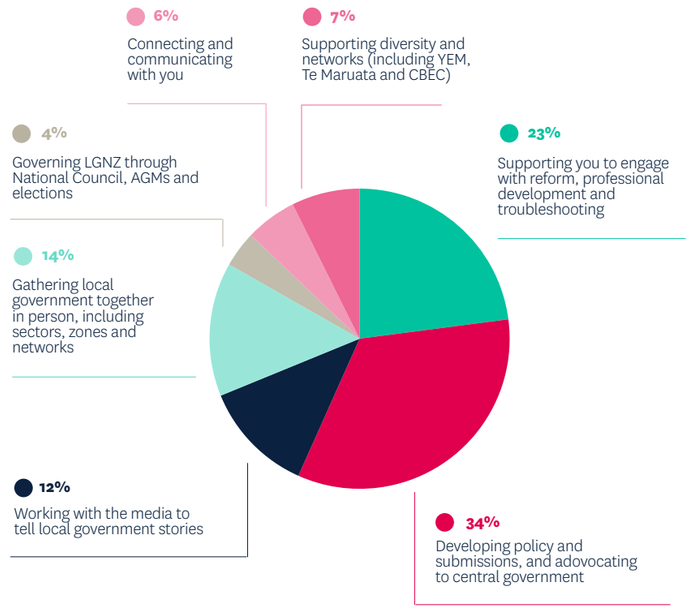
Templates and guides you can use

We develop documents that you can adopt or adapt: from standing orders to code of conduct templates. Experts like Dr Mike Reid are on hand for your tricky questions.

Campaigns that support local government

From Vote22 to mobilise votes for the local government elections last year, to localism and more, our national campaigns speak out on our behalf.

WHERE OUR DOLLARS GO >



chatham islands council

9. Chatham Islands

9.1 First Response Proposal

Date of meeting	8 June 2023
Agenda item number	9.1
Author/s	Owen Pickles, Chief Executive

Purpose

Decision paper for Council.

Recommendations

THAT a Council decision is required.

Background

Attached is a letter received from Bridget Preece detailing a proposal for emergency medical response on the Chatham Islands.

On receipt of this proposal I sought advice / comment from Brendan McInnes, the Group Operations Manager for St. John. This is also attached.

While I applaud what Bridget is attempting to do, I am also concerned that the proposal has the potential to compete with St. John for resources.

There is no doubt that more responders are required.

To whom it may concern,

The following proposal is about investing in the future of our community's wellbeing, on both Chatham and Pitt islands, by addressing a fixable gap in our health services.

Vision and Purpose

In an emergency, the Chatham Island community relies on one St John vehicle that is manned by two active personnel (one of whom is retirement age). Due to our environment, accidents are often serious, which makes time of the utmost importance. The present situation is increasingly worrying, and not helped when nurses and doctors are called out to cover such incidents, putting extra pressure on the hospital.

The vision of this proposal is to have first responders spread across both islands, who can attend a local emergency and deliver life-saving practices until secondary help arrives. First responders can be equipped with the tools that they need to attend the most serious events, with their kits either in their car or at home, enabling the best possible outcomes for our whānau and increasing tourist population. There is also a free mobile app, GoodSAM, that alerts first responders when a suspected cardiac arrest is nearby. They can then provide the necessary CPR or use an AED, if available, ahead of the arrival of the ambulance. (See attached leaflet.)

The purpose of this proposal is to seek the necessary funding to train up to 12 first responders. Each would gain a Certificate in Emergency Care (First Responder) (Level 3). I have so far spoken to six people keen to be of service to the community.

This proposal also stands as an opportunity to upskill our community and provide them with future job opportunities. (Discussed further below.)

The Qualification

The Certificate in Emergency Care (First Responder) (Level 3) is a 40-hour face-to-face course, with some self-directed learning. Prerequisites include a current first aid certificate,

and a portfolio of evidence that shows the applicant meets the 14 credit requirement. Graduates gain 40 credits.
This qualification also leads to the New Zealand Diploma in Ambulance Practice (Level 5). It is not just for the ambulance sector, however, with relevance to: outdoor recreation, marine, industrial and volunteer rescue industries.
Pro+Med — in the form of myself, along with another qualified instructor — would run the course on Chatham Island, removing travel costs for students. I would be on call to support future first responders.

Course topics:

- Revision first aid (if required)
- Anatomy and physiology
- Shock
- Resuscitation
- Oxygen therapy
- Trauma conditions
- Emergency medical conditions
- Patient assessment (in diagnostic equipment)
- Introduction to drugs
- Patient movement
- Scenarios

Graduates can:

- Assess and manage a scene of an emergency situation;
- Perform a primary survey to identify life threats;
- Perform a secondary survey;
- Demonstrate and apply knowledge of safe patient moving and/or techniques to manage patients in an emergency situation;
- Monitor patients and provide information in an emergency situation;
- Recognise signs of stress in self and apply appropriate strategies to mitigate effects; and
- Demonstrate and apply knowledge of requirements relating to patient information and documenting events.

Cost: $3500 + GST per student
Ongoing training and refresher courses are available through Pro+Med or St Johns. Pro+Med has also secured the first affordable Te Reo speaking defibs in New Zealand.

About Me
I am a first aid instructor with Pro+Med (NZ) Ltd. I have

worked for St Johns as an ambulance officer and have nine years' experience as a first aid tutor.

I look forward to your consideration and reply. As an island, I believe we have a social responsibility to deliver this long overdue service to all.

Regards

Bridget Preece
027 279 2797

The GoodSAM (Good Smartphone Activated Medics) app

FIRST AID GOODSAM APP

Promoting a community of lifesavers.

GoodSAM

Download the poster for your workplace here.

The GoodSAM app is now available in New Zealand, supported by St John, Wellington Free Ambulance and the National Cardiac Network. Imagine you were off-duty and someone near to you suffered a cardiac arrest. You were in a position to respond and help, but just needed to be alerted. Wouldn't you want to know? Well, now you can.

Outcomes from cardiac arrest are best when the patient receives immediate CPR and defibrillation within the first five minutes. Emergency services can't always arrive within five minutes, but it is likely that someone who knows how to perform CPR and use an AED is nearby and just unaware that they are close to a patient in cardiac arrest.

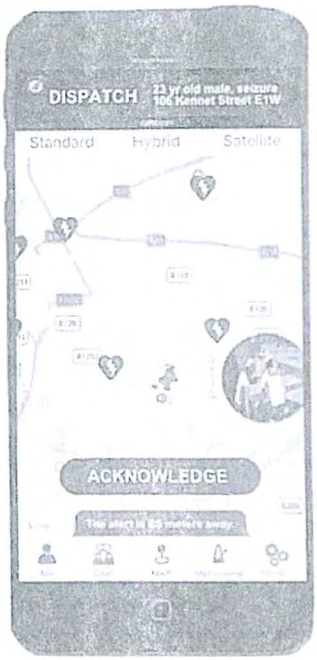
The GoodSAM app

The GoodSAM app is a free app that alerts people that a patient suspected to be in cardiac arrest is nearby, allowing them to possibly save a life by providing CPR and using an AED (if available) prior to emergency services arriving.

The app was developed in the United Kingdom and has been implemented by a number of ambulance services around the world.

How the app works

People who know how to perform CPR and use an AED, and who are prepared to voluntarily respond to a patient suspected to be in cardiac arrest, are able to register as a 'responder' on the website and download the app on their phone.



If a GoodSAM responder is within 1000 metres of a suspected cardiac arrest they will receive an alert via their phone giving them the opportunity to respond. The app also shows responders the location of the incident and the known closest AEDs.

The more people who download the app, the more coverage we will achieve across New Zealand and the more likely we are to improve outcomes from cardiac arrest.

How to sign up as a responder

1. Make sure you have a clear photo of your drivers license or passport for uploading.
2. Follow this link in your web browser: *https://www.goodsamapp.org/regResponder*
3. Under verifying organization select "**New Zealand: Public**".
4. By signing up you agree to the *Terms & Conditions*.
5. Download the responder app from *Google Play*, *Apple*, or *Microsoft* and use the email address and password that you have just registered with on the website to log-in.
6. Once you've been verified and are logged in successfully, update your profile.
7. If you own a Defibrillator, you can register this and its public access location in the "Defibrillator" section in the App.
8. Find more *FAQ's here*, or for further assistance please contact *Goodsam@stjohn.org.nz*
9. Find the user guide *here*

Owen Pickles

From: Brendan McInnes <brendan.mcinnes@stjohn.org.nz>
Sent: Wednesday, 5 April 2023 3:41 pm
To: Owen Pickles
Subject: RE: [EXTERNAL] FW: CI councillors, Monique croon

Kia Ora Owen.

I hope this letter finds you well. Thank you for sending me the information for commentary. We appreciate your interest in Hato Hone St John's commitment to improving pre-hospital emergency care in collaboration with Chatham Health Centre for the Chatham Island community.

Hato Hone St John is dedicated to building a plan for sustainability and growth on the Islands, which focuses on recruitment, training, infrastructure, and ongoing relationships with Chatham Health Prime service, Iwi, Imi and yourself.

Chatham Island Health Centre has a contract with Te Whata Ora to provide a Prime service, which is where we have facilitated and trained Nurses and Doctors as well as provided equipment to so that they can meet the obligation to respond directly to incidents in the community. This is alongside the Ambulance crew, allowing the community to have a high standard and 24/7 pre-hospital emergency care.

Hato Hone St John provides the Ambulance, equipment, and currently 3 trained First responders. They are trained to certify as New Zealand First Responder Level 3, which is funded through Hato Hone St John. Currently, via our Chatham Island Team leader Glenise, we are looking for recruits.

If there are, as indicated in the commentary of the letter, 6 people plus Bridget, making a total of 7 possible new people interested then we would invite them to become Hato Hone St John team members. Hato Hone St John would ensure that the recruits are introduced, inducted, and trained to New Zealand First responder level 3, as well as aware of the call-out procedures and working alongside allied agencies, including the Chatham Island Health Centre team.

We currently provide the service and training to the expected level of response and have a dedicated team that provides better coverage than some communities in New Zealand.

Together with the Chatham Island Health Centre, we could work with you to provide a better solution to spend what Bridget has indicated equates to $23,625 to support the health needs of the Chatham Island and Pitt Island community.

Again, thank you for bringing this to our attention. For any further information, please do not hesitate to reach out.

Ngā mihi

Brendan McInnes MStJ
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-----Original Message-----

Public Excluded Agenda

8 June 2023

Mayor to Move

I move that the public be excluded from the following part of the proceedings of the meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

Item No.	Minutes / Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under Section 48(1) for the passing of this resolution
1.	Chief Executive	Public Excluded Minutes 27 April 2023	Good reason to withhold exists under Section 7	Section 48(1)(a)
2.	Chief Executive	PARC Public Excluded Minutes 17 April 2023	Good reason to withhold exists under Section 7	Section 48(1)(a)
3.	Chief Executive	Stantec Contract	Good reason to withhold exists under Section 7	Section 48(1)(a)
4.	Mayor	CE Recruitment update	Good reason to withhold exists under Section 7	Section 48(1)(a)

This resolution is made in reliance on Section 48(1)(a) of the Local Government Official Information and Meetings Act 1987, and the particular interest or interests protected by Section 6 or Section 7 of that Act which would be prejudiced by holding the whole or relevant part of the proceedings of the meeting in public, are as follows:

Item Nos	
1.	Would be likely to prejudice the commercial position of the person or persons who are the subject of the information. 7(2)(b)(ii) To maintain legal professional privilege. 7(2)(h) To enable the Council holding the information to carry out, without prejudice or disadvantage, commercial activities. 7(2)(i)
2.	Would be likely to prejudice the commercial position of the person or persons who are the subject of the information. 7(2)(b)(ii) To maintain legal professional privilege. 7(2)(h) To enable the Council holding the information to carry out, without prejudice or disadvantage, commercial activities. 7(2)(i)
3.	Would be likely to prejudice the commercial position of the person or persons who are the subject of the information. 7(2)(b)(ii) To maintain legal professional privilege. 7(2)(h) To enable the Council holding the information to carry out, without prejudice or disadvantage, commercial activities. 7(2)(i)
4.	Would be likely to prejudice the commercial position of the person or persons who are the subject of the information. 7(2)(b)(ii) To maintain legal professional privilege. 7(2)(h) To enable the Council holding the information to carry out, without prejudice or disadvantage, commercial activities. 7(2)(i)

and that appropriate officers remain to provide advice to the Committee.