



**CENTRAL
HAWKE'S BAY**
DISTRICT COUNCIL



Finance and Planning Committee Meeting Agenda

Thursday, 25 February 2021

9.00am

Council Chamber, 28-32 Ruataniwha
Street, Waipawa

Together we Thrive! E ora ngātahi ana!

Order Of Business

1	Karakia.....	3
2	Apologies	3
3	Declarations of Conflicts of Interest.....	3
4	Standing Orders.....	3
5	Confirmation of Minutes.....	3
6	Report Section	10
6.1	Finance and Infrastructure Committee Monitoring Report	10
6.2	Resolution Monitoring Report	14
6.3	Funding Assistance Rate Rebate - NZTA.....	17
6.4	Adoption of Sustainable Water Management Plan	24
6.5	Preferred Option for Design and Construction of Kairakau Water Upgrade	69
6.6	Waipukurau Second Water Supply - Project Update	132
6.7	Key Project Status Report - BigWaterStory	141
6.8	Key Project Status Report - BigWastewaterStory	171
7	Date of Next Meeting	186
8	Time of Closure.....	186

- 1 **KARAKIA**
- 2 **APOLOGIES**
- 3 **DECLARATIONS OF CONFLICTS OF INTEREST**
- 4 **STANDING ORDERS**

RECOMMENDATION

THAT the following standing orders are suspended for the duration of the meeting:

- 21.2 Time limits on speakers
- 21.5 Members may speak only once
- 21.6 Limits on number of speakers

And that Option C under section 22 General procedures for speaking and moving motions be used for the meeting.

Standing orders are recommended to be suspended to enable members to engage in discussion in a free and frank manner.

5 CONFIRMATION OF MINUTES

Finance and Infrastructure Committee Meeting - 8 October 2020

RECOMMENDATION

That the minutes of the Finance and Infrastructure Committee Meeting held on 8 October 2020 as circulated, be confirmed as true and correct.

**UNCONFIRMED MINUTES OF CENTRAL HAWKES BAY DISTRICT COUNCIL
FINANCE AND PLANNING COMMITTEE MEETING
HELD AT THE COUNCIL CHAMBER, 28-32 RUATANIWHA STREET, WAIPAWA
ON THURSDAY, 8 OCTOBER 2020 AT 09:00AM**

PRESENT: Mayor Alex Walker
Cr Tim Aitken
Deputy Mayor Kelly Annand
Cr Gerard Minehan
Cr Brent Muggeridge
Dr Roger Maaka
Cr Kate Taylor
Cr Exham Wichman

IN ATTENDANCE: Joshua Lloyd (Group Manager, Community Infrastructure and Development)
Monique Davidson (Chief Executive)
Doug Tate (Group Manager, Customer and Community Partnerships)
Nicola Bousfield (People and Capability Manager)

KARAKIA AND WAIATA – DR ROGER MAAKA

INTRODUCTION NEW STAFF MEMBER – MICHAEL KILDUFF

1 APOLOGIES

APOLOGY

COMMITTEE RESOLUTION

Moved: Cr Kate Taylor
Seconded: Cr Gerard Minehan

That the apologies for absence from Cr Jerry Greer be accepted.

CARRIED

2 DECLARATIONS OF CONFLICTS OF INTEREST

NIL

3 STANDING ORDERS

COMMITTEE RESOLUTION

Moved: Mayor Alex Walker
Seconded: Deputy Mayor Kelly Annand

THAT the following standing orders are suspended for the duration of the meeting:

- 20.2 Time limits on speakers
- 20.5 Members may speak only once
- 20.6 Limits on number of speakers

And that Option C under section 21 General procedures for speaking and moving motions be used for the meeting. Standing orders are recommended to be suspended to enable members to engage in discussion in a free and frank manner.

CARRIED**4 CONFIRMATION OF MINUTES****COMMITTEE RESOLUTION**

Moved: Cr Gerard Minehan
Seconded: Cr Exham Wichman

That the minutes of the Finance and Infrastructure Committee Meeting held on 13 August 2020 as circulated, be confirmed as true and correct.

CARRIED**5 REPORT SECTION****5.1 FINANCE AND INFRASTRUCTURE COMMITTEE MONITORING REPORT****PURPOSE**

The purpose of this report is to present to the Finance and Infrastructure Committee an update on key priorities.

COMMITTEE RECOMMENDATION

Moved: Deputy Mayor Kelly Annand
Seconded: Cr Exham Wichman

That, having considered all matters raised in the report, the report be noted.

5.2 RESOLUTION MONITORING REPORT**PURPOSE**

The purpose of this report is to present to the Committee the Finance and Infrastructure Resolution Monitoring Report. This report seeks to ensure the Committee has visibility over work that is progressing, following resolutions from Council.

COMMITTEE RESOLUTION

Moved: Cr Tim Aitken
Seconded: Cr Gerard Minehan

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

CARRIED

5.1 PGF PORANGAHAU TO WIMBLEDON PROGRAMME (PGG TERMS OF REFERENCE)**PURPOSE**

The matter for consideration by the Committee is the adoption of the terms of reference to form a project governance group (PGG) for the Porangahau to Wimbledon Road programme to support the commitment to increase the level of detail and oversight across the programme of works.

COMMITTEE RESOLUTION

Moved: Mayor Alex Walker

Seconded: Cr Gerard Minehan

That having considered all matters raised in the report:

- a) **That the Finance and Infrastructure Committee adopt the PGF Porangahau to Wimbledon programme terms of reference.**

CARRIED

The document Finance and Infrastructure Committee Meeting – Amended Reports was tabled, in amended reports:

PGF Porangahau To Wimbledon Programme (PGG Terms Of Reference)

The Chair acknowledged that the document is available to the public for review on request.

5.4 CHB WASTEWATER MANAGEMENT STRATEGY**PURPOSE**

The matter for consideration by the Council is to receive the Wastewater Strategy that sets the direction for the wastewater projects across the district.

COMMITTEE RESOLUTION

Moved: Cr Gerard Minehan

Seconded: Mayor Alex Walker

That having considered all matters raised in the report:

- a) That the Finance and Infrastructure Committee approves **Option One** – to adopt the strategy.

CARRIED

5.5 KEY PROJECT STATUS REPORT - BIGWASTEWATERSTORY**PURPOSE**

Following the conception of #thebigwaterstory, Council set about implementing the programme that makes up #thebigwaterstory. A programme manager was appointed and focus given to defining the projects that form the programme in greater detail.

The six wastewater plants form a significant programme of works themselves, and we have prudently decided to report on the progress of these six wastewater plants and their subsequent upgrades and re-consenting separately from #thebigwaterstory.

The purpose of this key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards against the larger programme objectives.

COMMITTEE RESOLUTION

Moved: Mayor Alex Walker

Seconded: Cr Gerard Minehan

That, having considered all matters raised in the report, the report be noted.

CARRIED

5.6 KEY PROJECT STATUS REPORT - BIGWATERSTORY**PURPOSE**

Following the conception of #thebigwaterstory, Council set about implementing the programme. A programme manager was appointed and focus given to defining the projects that form the programme in greater detail.

The purpose of this key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards against the larger programme objectives.

COMMITTEE RESOLUTION

Moved: Cr Brent Muggeridge

Seconded: Deputy Mayor Kelly Annand

That, having considered all matters raised in the report, the report be noted.

CARRIED

**5.7 WAIPUKURAU SECOND WATER SUPPLY - PREFERRED OPTION
RECOMMENDATION****PURPOSE**

The matter for consideration by the Committee is to endorse and approve project officers to proceed with Option Four as outlined in earlier updates given to this Committee on the Waipukurau Second Water Supply project in June 2020 and at an earlier workshop in April 2020.

COMMITTEE RESOLUTION

Moved: Cr Tim Aitken

Seconded: Mayor Alex Walker

That having considered all matters raised in the report:

- a) **That the Finance and Infrastructure Committee endorse officers to proceed with Option Four (the Waipawa / Waipukurau Link) to detailed design.**

CARRIED

6 DATE OF NEXT MEETING

It is noted that 2021 Committee meeting dates are yet to be set. The meeting schedule for 2021 will be circulated before the end of October 2020.

7 TIME OF CLOSURE

Karakia – Dr Maaka.

The Meeting closed at 10.46am.

The minutes of this meeting will be confirmed at the first meeting of the year on the 26th February 2021 .

.....
CHAIRPERSON

6 REPORT SECTION

6.1 FINANCE AND INFRASTRUCTURE COMMITTEE MONITORING REPORT

File Number: COU1-1410

Author: Monique Davidson, Chief Executive

Authoriser: Monique Davidson, Chief Executive

Attachments: Nil

PURPOSE

The purpose of this report is to present to the Finance and Infrastructure Committee an update on key priorities.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

SIGNIFICANCE AND ENGAGEMENT

This report is provided for information purposes only and has been assessed as not significant.

BACKGROUND

Following the 2019 Triennial Local Body Elections, Council took the time to reset Council priorities, and agree on priorities for Committees.

The role of the Finance and Infrastructure Committee is:

- To assist Council to oversee financial and non-financial performance, including the delivery of the Council's Capital Programme.
- To monitor Council activities and services performance against budget, Annual Plans, the Long Term Plan, Annual Reports and corporate and financial policies.
- The Finance and Infrastructure Committee also receives enforcement and compliance performance activity reporting to ensure financial and non-financial performance oversight of its regulatory functions.
- To provide governance oversight of Council's operational programmes, services, activities and projects related to infrastructural assets.
- To enable the progress of the Council's operational activities, projects and services.

The Finance and Infrastructure Committee has delegations to:

- Develop and adopt plans, projects and policies that advance the Council's vision and goals in relation to its key Financial Strategy and Infrastructure Strategy while complying with the purpose of the Local Government.
- Monitoring the financial and non-financial performance of the organisation with a particular emphasis on the delivery of the capital works programme. Implementation and effectiveness of strategies, plans and policies.
- Specifically monitor and provide oversight of significant projects, including reviewing business cases and agreed on next steps of significant projects.

- The Finance and Infrastructure Committee is responsible for assisting Council in its general overview of procurement and tender activity. The Committee will accept and consider tenders which exceed the Chief Executive's delegated authority to approve, for projects approved by Council through an Annual Plan or Long Term Plan. The Committee will make a recommendation to Council on the outcome of a tender process for resolution when above delegations.
- The Finance and Infrastructure Committee has delegation to approve or award contracts beyond the Chief Executive's delegated authority within the parameters of approved AP/LTP Budgets up to \$4 million.
- To establish a special committee, working group or community forum as needed.

The monitoring report which provides an update on the key priorities of the committee is below:

DISCUSSION

Key Priority	Responsible Officer	Progress Update
Lead and monitor the Wastewater Treatment Plan projects for across Central Hawke's Bay.	Darren de Klerk	On Track - A Specific Key Project Status Report on this project is included in the agenda.
Monitor the implementation of #thebigwaterstory	Darren de Klerk	On Track - A Specific Key Project Status Report on this project is included in the agenda.
Complete and lead the Rates Review	Brent Chamberlain	Completed - The committee have completed this work, following the adoption of the Revenue and Financing Policy in October 2020. The decisions from the Rates Review, will be implemented from 1 July 2021.
Monitor the implementation and progress of Provincial Growth Fund projects.	Darren de Klerk	On Track - A specific Key Project Status Report on these projects will be included in the Finance and Infrastructure Agenda for 21 April 2021.
Lead the review of the Financial Strategy and associated policies that input into the Long Term Plan 2021-2031.	Brent Chamberlain	Completed – Council have now adopted the Draft Financial Strategy for community consultation as part of the Draft Long Term Plan 2021 – 2031.
Review the current Treasury Policy – Investment, Debt and Liability Management policies.	Brent Chamberlain	Completed – Council have now adopted the Draft Treasury for community consultation as part of the Draft Long Term Plan 2021 – 2031.

Monitor the implementation of the non-rateable income strategic framework.	Monique Davidson	<p>On Track - Considerable effort continues to be given to the attraction of non-rateable income. The COVID-19 context has provided considerable opportunity for Council in the acceleration of capital investment to act as an economic stimulus. Council are actively working with the government on seeking external funding to deliver on Council and community priorities. At the time of writing this report, key achievements that align with this framework include funding for Mayors Taskforce for Jobs pilot and beyond, redeployment capital packages, water reform and PGF projects.</p> <p>Further work will continue over the coming months to assess key policies that form part of the non-rateable income strategic framework.</p>
Develop a Land Transport Strategic Framework and ensure governance input into the three-year business plan before NZTA submission.	Josh Lloyd	<p>Completed - The Land Transport Strategic Framework has been adopted and has been interpreted into the Draft Asset Management Plans developed for the Long Term Plan 2021- 2031 and the three-year business case submitted to NZTA.</p>

IMPLICATIONS ASSESSMENT

This report confirms that the matter concerned has no particular implications and has been dealt with in accordance with the Local Government Act 2002. Specifically:

- Council staff have delegated authority for any decisions made;
- Council staff have identified and assessed all reasonably practicable options for addressing the matter and considered the views and preferences of any interested or affected persons (including Māori), in proportion to the significance of the matter;
- Any decisions made will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses;
- Unless stated above, any decisions made can be addressed through current funding under the Long-Term Plan and Annual Plan;
- Any decisions made are consistent with the Council's plans and policies; and
- No decisions have been made that would alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or would transfer the ownership or control of a strategic asset to or from the Council.

NEXT STEPS

The Finance and Infrastructure Committee will receive an updated monitoring report on 22nd April 2021.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

6.2 RESOLUTION MONITORING REPORT

File Number: COU1-1410

Author: Monique Davidson, Chief Executive

Authoriser: Monique Davidson, Chief Executive

Attachments: 1. Finance and Infrastructure Committee Monitoring Report [↓](#)

PURPOSE

The purpose of this report is to present to the Committee the Finance and Infrastructure Resolution Monitoring Report. This report seeks to ensure the Committee has visibility over work that is progressing, following resolutions from Council.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

SIGNIFICANCE AND ENGAGEMENT

This report is provided for information purposes only and has been assessed as not significant.

DISCUSSION

The monitoring report is **attached**.

IMPLICATIONS ASSESSMENT

This report confirms that the matter concerned has no particular implications and has been dealt with in accordance with the Local Government Act 2002. Specifically:

- Council staff have delegated authority for any decisions made;
- Council staff have identified and assessed all reasonably practicable options for addressing the matter and considered the views and preferences of any interested or affected persons (including Māori), in proportion to the significance of the matter;
- Any decisions made will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses;
- Unless stated above, any decisions made can be addressed through current funding under the Long-Term Plan and Annual Plan;
- Any decisions made are consistent with the Council's plans and policies; and
- No decisions have been made that would alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or would transfer the ownership or control of a strategic asset to or from the Council.

NEXT STEPS

An updated Resolution Monitoring Report will be presented at the next Committee meeting on 22nd April 2021.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.



Finance and Infrastructure Committee Resolution Monitoring Report February 2021

Key	
Completed	
On Track	
Off Track	

Item Number	Item	Council Resolution	Resolution Date	Responsible Officer	Progress Report
5.30	Adoption of Land Transport Strategic Framework	a) That the Finance and Infrastructure Committee adopt with amendments the Land Transport Strategic Framework.	18/06/2020	Josh Lloyd	On Track Officers continue to work through the implementation of the framework. Most recently, key themes have been implemented into the Draft Regional Land Transport Plan with our focus on Safety (intersection improvements, speed limit review and school zone improvements).
5.40	Waipukurau Second Water Supply Project - status update	That work progresses on the Waipukurau Second Water Supply improvements, consistent with improvement options 2 and 4, noting that no final decision on a preferred option will take place until the outcome of the Crown Infrastructure Partners funding application is known to Council.	18/06/2020	Darren De Klerk	Completed As per item number 5.7 below – Option 4 proceeding with regular updates as planned for 25 th February 2021

5.50	Kairakau Water Upgrade - options report	That having considered all matters raised in the report 1) the Finance and Infrastructure Committee identify Option 2 as the preferred option — to upgrade the Kairakau water treatment plant to: i) meet Drinking Water Standards for New Zealand 2005 (revised 2018); ii) remove roof water from supplying potable water; iii) install restrictors to all properties to control peak demand; and 2) That the Finance and Infrastructure Committee endorse upgrading the Kairakau Water Treatment Plant to meet Drinking Water Standards for NZ while developing a Water Safety Plan and the review of the water bylaw. 3) That the Committee await formal adoption of an option until the completion of community engagement and review of the existing water bylaw.	18/06/2020	Darren De Klerk	On Track DDK 13/02/21 > Decision paper planned for committee meeting on 25 th February 2021
5.7	Waipawa / Waipukurau Link – Second Water Supply	That the Finance and Infrastructure Committee endorse officers to proceed with Option Four (the Waipawa / Waipukurau Link) to detailed design.	8/10/2020	Darren De Klerk	Completed Update on this planned for 25 th February meetings

6.3 FUNDING ASSISTANCE RATE REBATE - NZTA**File Number:** 1112**Author:** Shawn McKinley, Land Transport Manager**Authoriser:** Monique Davidson, Chief Executive**Attachments:** Nil**PURPOSE****PURPOSE**

The matter for consideration by the Committee is deciding where to apply the NZTA rebate of \$279,973 refunded from a miscalculation of the funding assistance rate by NZTA.

RECOMMENDATION FOR CONSIDERATION

That having considered all matters raised in the report:

- a) That the Committee allocate the rebated funds of \$279,973.00 to replenish the Adverse Events Contingency**

BACKGROUND

In the latest review of the Funding Assistance Rate (FAR) Waka Kotahi (NZTA) found that they had made a mistake in the CHB funding assistance provided, dating back to 2018. The mistake was in favour of Council by 1%. In 2018 Waka Kotahi had advised the Council that their FAR for the next 3 years would be set at 60%. In the recent review they found that the assistance rate should have been set at 61%. To rectify this error Waka Kotahi calculated that Council was due for a payment of the 1% difference which has amounted to \$279,973.00. This amount was included in the November 2020 Waka Kotahi claim and was paid to Council. The money claimed has been put into a holding account until such time as council decides what to do with the funds. As these funds are a repayment of the rates council contributed as their share of the land transport activity, they were rated and targeted to be spent on Land Transport.

DISCUSSION

Council has available funds of \$279,973.00 to use on land transport activities at its discretion. Officers have outlined below some existing priority areas for investment within the land transport activity identified through routine asset management planning processes or through other completed planning activities such as the Integrated Spatial Plan work. Officers have not presented options below for other ways to invest the money that have not already been flagged as a priority or need through other means.

Further, Officers note that there is an ability split the funding between options or to target the funding towards options that are not presented in this report.

RISK ASSESSMENT AND MITIGATION

Common risks associated with investment decision making apply to the options presented in this report. While the funds have been 'rebated' to Council and are not currently tagged to any specific investment programme, they must be used wisely and prudently. Officers consider the risks and mitigations in the table below to be applicable to this decision:

Risk	Description of Risk	Mitigation
Community perception	Potential loss of community confidence in decision	Transparency and robustness in decision making process

	outcome	and sound justification for outcome
NZTA scrutiny	NZTA will seek assurance as to where/how funds were utilised and alignment with normal network outcomes	Utilise funds to address network needs in alignment with existing plans, policies and strategies
Audit assurance	Routine audit processes will check that funds rated for transport activities are spent on transport activities	Utilise funds as per financial policies
Asset management outcomes	Potential loss of opportunity to address network/asset risk through effective investment	Ensure funds are used to address risk/opportunity in the network/asset

FOUR WELLBEINGS

An assessment of the various options contributions to the four wellbeing's is provided below:

	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>	<u>Option 4</u>
	That the funds be placed in the Adverse Events Contingency to replenish it	That the funds be used to remove dangerous trees across the network	That the funds be used to purchase property for roads in line with the spatial plan	That the funds be used to invest in the sealing of unsealed roads
Social	Will allow Council to continue to invest in road repairs following emergency events to ensure community and social resilience	There are no considered social benefits or risks of the increase roadside tree removal	Will allow community growth and social connections without placing costs on ratepayers or developers.	Council have received feedback from subsets of the community or small isolated communities about the negative impacts of dust in terms of safety and health among other things. Impacts on health can cause social strain.

Cultural	The culture of our rural communities who are most affected by roads in weather events is one of resilience and connectedness. This fund allows Council and these communities to maintain that part of their unique cultural identity.	Roadside trees have a long history in CHB with many planted purposefully by land owners and previous authorities. The trees have largely become a nuisance and hazard now to the wider rural community and there is strong support for their removal.	Cultural impacts and changes in community make-up were a key part of the ISP work. This proposal is in line with ISP outcomes and direction.	
Environmental	Will directly allow Council to continue to respond to environmental events impacting our roading assets.	Will allow Council to remove high risk trees that pose very little environmental benefit and are a greater risk than benefit. Works to be completed in line with best practice environmental management standards.	Will further support growth in Waipukurau with proposed development in the area to include environmental offset and enhancement measures such as parks and wetlands	Will directly allow Council to negate the negative environmental and health impacts of dust on a section of rural roads
Economic	All options allow Council to complete work that is not currently budgeted and would therefore need to be reprioritised from existing budgets or funded from ratepayers, private residents or developers.			

DELEGATIONS OR AUTHORITY

This funding is over and above what is typically spent by the Land Transport activity and above what was set out in the previous Annual Plan. Therefore, officers are seeking the endorsement and direction of the Committee to allocate the funding/rebate.

SIGNIFICANCE AND ENGAGEMENT

In accordance with the Council's Significance and Engagement Policy, this matter has been assessed as low significance.

OPTIONS ANALYSIS

Option 1 – That the funds be placed in the Catastrophic Events Fund and/or the Adverse Events Contingency

Council actively maintain two reserve funds to mitigate the financial impacts to Council of unforeseen events. Typically used to replace or rebuild infrastructure following weather events, the reserves have existed in Council for some years and are called upon most years as necessary. The two funds are described further below.

1. **The Adverse Events Contingency** - to provide funds to assist with the repairs to or to replace damaged council assets in the event of an unforeseen, major, short duration, natural event and should be maintained at a level of \$500,000

The adverse events contingency has \$156,000 in it presently and was last used extensively in 2019 to respond to storm events that damaged roading assets. Since at least 2008 this contingency has been used solely by the Land Transport activity but is set-up to be used by other departments for unforeseen events as needed also.

If used by land transport to respond to unplanned events, based on the rules around the NZTA Funding Assistance Rate (FAR), then any money used from the contingency is supplemented by a moving rate which starts at the normal FAR for the first 10% of the annual budget, then moves up by 20% after the 10% level is reached.

Determining the actual ability of the contingency to cover future events depends on the size of each event. Currently the only replenishment of the contingency is from the minor events activity within the land transport budget if it is not spent each fiscal year. The amount in the minor events is \$300,000 per annum of which the council's share is equal to their share of the FAR. In the last 2 years the minor events funding has been spent so no replenishment of the catastrophic events fund has taken place.

2. **The Catastrophic Events Fund** - to provide funds for the financial protections of the district in the event of an unforeseen catastrophic natural event and should be maintained at a level of \$2,000,000

The catastrophic events contingency currently has approximately \$2,906,000 in it. This fund was last used in 2019 also to support work to rebuild damaged roading assets. There is currently no planned or routine mechanism to replenish this fund.

Option 2 – that the funds be used to remove dangerous trees across the network on a case by case basis where they are specifically damaging vehicles or causing vehicles to take evasive action

Council has a large number of problem trees on roadsides that pose a risk to road assets and to traffic. Last counted comprehensively in 2018 the number of trees exceeded 100,000. The Trees also have a negative impact on resilience and reliability of our network.

Council routinely remove and plan for the removal of at risk trees within existing budgets however these budgets fall well short of the volume of work. Approximately \$125,000 per year is currently targeted to address trees within existing budgets. In 2020 an injection of funds from MBIE to deploy workers affected by COVID and Drought gave Council an opportunity to address many more trees than would normally be achievable in a year. The majority of this money was spent targeting large areas of small wilding pines, predominantly in coastal areas, that would become a high risk in time as they grow.

To invest more in trees, Council would need to reprioritise other budget.

Vegetation management is an emerging priority for Council and work is in progress to formalise Council's approach to managing the work. An update of information/data on trees is required and a simple means of prioritising work is being developed to further understand the size of the risk and work required. This work will allow Council to better inform investment decisions and internal priorities for budget in the future and will form a part of future submissions to NZTA through the routine 3yearly planning cycle or by special engagement as necessary.

Option 3 – that the funds be used to purchase property for roads in line with the Integrated Spatial Plan.

The Integrated Spatial Plan project has prioritised areas for growth in our urban centres. Of particular relevance to roading infrastructure is the targeted growth cell in Waipukurau between Porangahau and Tavistock Roads. Planning for this development is in the early stages with early landowner engagement commencing late in 2020. There are several transport/connection options but some obvious ones have been identified where land would need to be purchased by Council to create new roading assets.

An opportunity exists to put the funds/rebate available now into a reserve to purchase land at the right time to build roading assets into this growth cell.

While planning is in the early stages and has not been formalised in any form, it is difficult to predict the exact nature of any future development/growth in terms of design and timing. By placing the funds into a reserve to be used for land purchase when needed this allows Council to manage risk of unknowns now and if plans change, the funds could be removed from the reserve and used for another purpose at a future date.

Option 4 – that the funds be used to invest in the sealing of unsealed roads

In 2019 Council modified its existing Dust Suppression Policy on the back of a growing number of requests from road users to seal unsealed roads to control dust. The modified policy (adopted in 2019) set out an approach to how Council would work with property owners to manage unsealed roads with specific regard to dust. Importantly, the 2019 policy diverged from the previous policy in that it gave room for Council to contribute financially to sealing to control dust which was ruled out in the previous policy.

Central Hawke's Bay District Council	POLICY MANUAL	
	Document #	3.3
	Approved by:	
	Adoption Date:	
	Last Amended:	27-08-2001
	Review Date:	March 2019
	Page:	Page 1 of 1

DUST SUPPRESSION POLICY

Property owners with houses adjacent to metal roads may apply to Council for permission to form, pave and seal the road frontage adjacent to their property for a length of 200 metres.

Council will work with the property owner to determine the responsibilities for up-front construction and ongoing maintenance and the standard to which all works are undertaken.

Council will also work with the property owner to determine who will bear the costs of the works. Council will use a set of its own guidelines to inform its decision making process as to whether or not it contributes financially to the works.

Council remain aware of several areas on the network where dust remains an issue. Non-seal methods have been trialled in many of these areas with varying degrees of success. Since the adoption of the Policy Council has not invested in the sealing of any roads to control dust as budget has not been able to be prioritised from other areas within the land transport activity and no external funding streams have been clearly available.

Council has invested funds to determining the extent of dust issues and known priority areas and to working with NZTA to understand their criteria for contributing under the FAR process.

At a rough-order estimate of \$250,000/km for sealing, Council could utilise the available funding rebate to seal at least 1 km of unsealed road. These figures are widely variable and largely dependent on the type, width, condition and use of the road chosen.

	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>	<u>Option 4</u>
	That the funds be placed in the Adverse Events Contingency to replenish it	That the funds be used to remove dangerous trees across the network	That the funds be used to purchase property for roads in line with the spatial plan	That the funds be used to invest in the sealing of unsealed roads
Financial and Operational Implications	Provides financial relief during times of contingency or emergency. Will not impact operational work programmes	Enables an increase in vegetation-related operational work programmes without financial impact on residents	A strategic purchase to acquire land for growth without burdening ratepayers or developers.	Funds do not currently exist to seal unsealed roads for the purpose of dust control. Any funds made available would allow work that is not currently planned to be completed without impacting existing budgets or ratepayers.
Long Term Plan and Annual Plan Implications	All options are in line with existing plans but afford Council the opportunity to complete extra work without impacting existing work programmes or budgets.			
Promotion or Achievement of Community Outcomes	Ensures continued resilience of roading assets and Councils ability to respond quickly when things happen	Enhances the safety of our road users and reduces the impact and number of road closures	Contributes to connectivity, access and growth of our communities	Council have received a small number of repeated direct requests to seal roads to manage dust in isolated locations for small communities

Statutory Requirements	There are no direct statutory requirements governing the spending of the available funds/rebate other than the requirement that they be spent on land transport activities. It is expected that NZTA will at some time review the investment and expect it to be in line with existing plans and programmes of work.			
Consistency with Policies and Plans	Consistent with the Special Fund Accounts Policy that sets out the intent and use of the two listed funds / contingencies	Consistent with risks identified in Council's Land Transport Asset Management Plan. Further work is being completed to formalise the management of vegetation on the network.	Funds would be used to support growth consistent with the Integrated Spatial Plan	Councils Dust Suppression Policy provides room for Council to invest its own money in the sealing of roads and will give preference to sites where external funding is also available.

Recommended Option

This report recommends **Option 1 – That the funds be placed in the Adverse Events Contingency to replenish it** for addressing the matter.

NEXT STEPS

Following the adoption of any of the listed options, Officers will complete necessary work to transfer funds to the appropriate budget or reserve. Officers will also begin to plan for the completion of physical works if options 2 or 4 are chosen and will report back to this Committee on progress of that work through regular reporting.

Should a combination of options be chosen or an option not listed here be chosen then Officers will work as per the direction of Committee to carry out necessary work.

RECOMMENDATION

Option 1 – That the funds be placed in the Adverse Events Contingency to replenish it

6.4 ADOPTION OF SUSTAINABLE WATER MANAGEMENT PLAN

File Number: 001

Author: Darren de Klerk, 3 Waters Programme Manager

Authoriser: Monique Davidson, Chief Executive

Attachments: 1. Sustainable Water Management Plan [↓](#)

PURPOSE

The matter for consideration by the Council is to adopt the Sustainable Water Management Plan.

RECOMMENDATION FOR CONSIDERATION

That having considered all matters raised in the report:

- a) **The Finance and Infrastructure committee endorse and adopt the sustainable water management plan for implementation.**

EXECUTIVE SUMMARY

The Sustainable Water Management (SWM) Plan (2021) has been developed to demonstrate Council's programme for managing water demand such that the potential effects on the water takes are minimised. The SWM Plan identifies how the Council and the Community will improve water-use efficiency and reduce water loss in operations using a range of techniques that are consistent with industry practice and supports Council's desire to become an efficient user of this valuable resource.

BACKGROUND

Hawke's Bay Regional Council (HBRC) require a Water Management Strategy as part of the resource consent which demonstrates how demand for water from the water supply bore will be minimised at times of low flows in the Rivers.

As a requirement of the consents for Johnson Street, Waipawa (WP030817T), Tikokino Road, Waipawa (WP030818T), and State Highway 2, Waipukurau (AUTH-113708-03) the Central Hawke's Bay District Council is required to submit a water management strategy to the HBRC.

In response to these requirements, the following Sustainable Water Management (SWM) Plan (2020-2023) has been developed to demonstrate Council's programme for managing water demand such that the potential effects on the water takes are minimised. The SWM Plan identifies how the Council and the Community will improve water-use efficiency and reduce water loss in operations using a range of techniques that are consistent with industry practice and supports Council's desire to become an efficient user of this valuable resource.

DISCUSSION

Purpose of this Plan

The purpose of our SWM plan is to highlight our activities and those areas where we are promoting water sustainability.

Our approach to water sustainability can be grouped into four key areas/ themes:

- engaging with our customers
- Ensuring environmental vitality and sustainability through our way of working
- improving our assets
- working with our stakeholders.

To ensure we value our most natural resource, water, our focus is on reducing leakage, working with our customers to use water wisely and in a sustainable manner and using the most appropriate ways to store and distribute water to ensure a reliable and consistent supply of water.

We are aware that the effects of water efficiency activities are difficult to measure (even where good demand component measurement is in place); however, we are committed to exploring water efficiency opportunities.

While the SWM Plan has been developed to meet consent conditions, it also serves as a base document for the implementation of Council's long-term strategic direction and District Plan which identifies the sustainable management of natural and physical resources and the social, economic, environmental and cultural well-being of the community

RISK ASSESSMENT AND MITIGATION

The plan supports the wider holistic water management plan approach outlined in bylaws currently planned for engagement in May 2021.

FOUR WELLBEINGS

Alignment with Council's strategic framework:

- **Social and Cultural – A health, safe place to live:** Risks to public health are identified and appropriately managed
- **Economic – A place with a thriving economy:** Central Hawke's Bay District has an efficient and affordable water infrastructure
- **Environmental – A place that is environmentally responsible:** Central Hawke's Bay plans and manages water use to minimise the effect on the environment

Introduction

To achieve a holistic and integrated approach to three waters management in the District that is consistent with Council's District Plan, other Policies, Plans, Strategies and Objectives and also reflect the principles of the Te Mana o Te Wai. The following overarching purposes has recently been set for all four water services bylaws (Water Supply, Stormwater, Wastewater and Trade Waste).

The Sustainable Water Demand Management Plan is an enabling tool to support the management of water demand in the district and complements the water supply bylaw whilst link to the plans and purposes below.

1. Integrated Approach

Adopt an integrated and holistic approach to the Three Waters (water supply, wastewater including trade waste and stormwater) that recognises the interconnections between each of the waters and promotes their sustainable use and management.

2. Environmental Responsibilities

Facilitate environmentally responsible practices by raising awareness of how the Three Waters interact and effect the District's natural environment. Additionally, ensure that Council meet its own responsibilities in terms of resource consent requirements set by the Hawke's Bay Regional Council.

3. Sustainable Practices

Encourage and incentivise the community and businesses to adopt practices that lead to the enhancement of the environment and the sustainable management of water resources including water and product stewardship, rainwater harvesting,

waste minimisation and cleaner production.

4. Support Sustainable Growth

Support the sustainable provision of three waters infrastructure to enable future growth while minimising impacts on the environment.

5. Achieve Project Thrive Values

Develop and implement Three Water Bylaws to give effect to 'Project Thrive' values in particular trust, honesty, respect, innovation, and valuing people.

6. Te Mana o Te Wai

Recognise the fundamental concept of Te Mana o Te Wai as prescribed under the National Policy Statement for Freshwater Management 2020 and in particular the need to restore and preserve the balance between the water, the wider environment, and the community.

7. Tangata Whenua Status

Recognise the status of tangata whenua as Kaitiaki.

8. Durable Infrastructure

Develops and maintain durable and resilient infrastructure that achieves Council's levels of service in an efficient and cost-effective manner.

DELEGATIONS OR AUTHORITY

Council has been involved in the approval process and this item has been workshopped with Council, the SWM plan also supports the bylaws that are currently being refreshed.

SIGNIFICANCE AND ENGAGEMENT

In accordance with the Council's Significance and Engagement Policy, this matter has been assessed of some significance and has been engaged on as part of the Long Term Plan pre-engagement in August 2020. Further engagement will take place as part of the Water Supply Bylaws in March 2021 as this plan supports the Bylaw.

OPTIONS ANALYSIS

Option 1 – Adopt the Sustainable Water Management Plan

Option 2 – Reject the Sustainable Water Management Plan and provide guidance.

	<u>Option 1</u>	<u>Option 2</u>
	Adopt the Sustainable Water Management Plan	Reject the Sustainable Water Management Plan and provide guidance
Financial and Operational Implications	No additional impact – built into LTP	Additional resource time to make amendments

Long Term Plan and Annual Plan Implications	Consistent with plan objectives	Not consistent
Promotion or Achievement of Community Outcomes	Promotes and support outcomes	Does not support future focussed outcomes
Statutory Requirements	Meets resource consent requirements	Continue to operate on old strategy from 2012.
Consistency with Policies and Plans	Consistent and supportive	Not consistent and working on outdated strategy.

Recommended Option

This report recommends **Option One** to Adopt the Sustainable Water Management Plan for addressing the matter.

NEXT STEPS

A work-stream approach has been adopted to deliver 'The Plan'. The output will be consolidated into our Water Asset Management Plans which over time will inform the development of this document from an initial statement of strategic intent to a fully mature business approved Plan.

To implement the SWM Plan include requires making changes to our existing assets and practices; enhancing existing practices or delivering new activities. Regular reviews will monitor the success of each work-stream as presented in the action plan and the resulting impact on our demand assessment and predicted savings.

The individual projects identified as part of the Action Plan. Council intend to review the plan on a three-yearly cycle and will assess the timing and need for individual projects based on the success of pilots, trails and the available funding to support implementation.

RECOMMENDATION

To endorse and adopt the sustainable water management plan for implementation.



Sustainable Water Management Plan 2021 - 2024

February 2021



Central Hawke's Bay District Council Sustainable Water Management Plan

Sustainable Water Management Plan 2021-2024

E ora ngātahi aha!

DOCUMENT OVERVIEW

Document Status

Version	Comments	Status	Date
001	First Version	Draft – Awaiting Approval	13-02-2021

Document Purpose

The Sustainable Water Management (SWM) Plan (2021) has been developed to demonstrate Council's programme for managing water demand such that the potential effects on the water takes are minimised. The SWM Plan identifies how the Council and the Community will improve water-use efficiency and reduce water loss in operations using a range of techniques that are consistent with industry practice and supports Council's desire to become an efficient user of this valuable resource.

Document Audience

This Policy applies to all Council staff and contractors.

Document Contributors

Contributor	Name and Title	Approval Date
Creator	Daniel Johnson, Water Group Manager - WSP	
Reviewer	Ian Cover, 3 Waters Operations Manager, CHBDC Wayne Termaat, Outcomes Manager, Veolia	
Authoriser	Darren de Klerk, Director Projects and Programmes - CHBDC	16-02-2021
Approver	CHBDC Finance and Infrastructure Committee	25-02-2021

Related References

Documents Informing Asset Management Strategy and Direction, and informing this Sustainable Water Management Plan;

- Water Safety Plans
- Water Supply Bylaws 2018
- DRAFT Water Supply Bylaw 2021
- Organisational Values
- Project THRIVE Documentation
- Infrastructure Strategy 2021
- Long Term Plan 2018-21
- DRAFT Long Term Plan 2021-2031
- Draft District Plan
- Spatial Plan
- Environmental and Sustainability Strategy
- Water Asset Management Plan 2018
- DRAFT 3 Waters Asset Management Plan 2021

Table of Contents

Purpose of this Plan	2
Water Supply Schemes	3
Consents and Regulative Requirements.....	8
Demand: Current and Future.....	11
Water Demand & Availability	11
Leakage.....	14
New Zealand Benchmarking.....	17
Current Approach.....	20
Engagement and Public Education	20
Plans and Policies.....	20
Conserve Water Measures.....	21
Previous Water Management and Conservation STRATEGY (2012)	27
Strategic Objectives	28
How Do We Get There?.....	29
Action Plan	29
Plan Implementation	31
Ownership – Roles and Responsibilities	32
Measure of Success	32
Plan Review	32
Risks and Mitigation.....	32

Action Plan

A1: Engaging with Our Customers	3
A2: Improving our Assets	4
A3: Working with our Stakeholders	6

Sustainable Water Management Plan 2021-2024

E ora ngātahi ana!

Purpose of this Plan

Hawke's Bay Regional Council (HBRC) require a Water Management Strategy as part of the resource consent which demonstrates how demand for water from the water supply bore will be minimised at times of low flows in the Rivers.

As a requirement of the consents for Johnson Street, Waipawa (WP030817T), Tikokino Road, Waipawa (WP030818T), and State Highway 2, Waipukurau (AUTH-113708-03) the Central Hawke's Bay District Council is required to submit a water management strategy to the HBRC.

In response to these requirements, the following Sustainable Water Management (SWM) Plan (2021-2024) has been developed to demonstrate Council's programme for managing water demand such that the potential effects on the water takes are minimised. The SWM Plan identifies how the Council and the Community will improve water-use efficiency and reduce water loss in operations using a range of techniques that are consistent with industry practice and supports Council's desire to become an efficient user of this valuable resource.

Purpose of this Plan

The purpose of our SWM plan is to highlight our activities and those areas where we are promoting water sustainability.

Our approach to water sustainability can be grouped into four key areas/ themes:

- engaging with our customers
- Ensuring environmental vitality and sustainability through our way of working
- improving our assets
- working with our stakeholders.

To ensure we value our most natural resource, water, our focus is on reducing leakage, working with our customers to use water wisely and in a sustainable manner and using the most appropriate ways to store and distribute water to ensure a reliable and consistent supply of water.

We are aware that the effects of water efficiency activities are difficult to measure (even where good demand component measurement is in place); however, we are committed to exploring water efficiency opportunities.

While the SWM Plan has been developed to meet consent conditions, it also serves as a base document for the implementation of Council's long-term strategic direction and District Plan which identifies the sustainable management of natural and physical resources and the social, economic, environmental and cultural well-being of the community

Alignment with Council's strategic framework:

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Sustainable Water Management Plan 2021-2024

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Relationship with other plans

<p>Introduction</p> <p>To achieve a holistic and integrated approach to three waters management in the District that is consistent with Council's District Plan, other Policies, Plans, Strategies and Objectives and also reflect the principles of the Te Mana o Te Wai. The following overarching purposes has recently been set for all four water services bylaws (Water Supply, Stormwater, Wastewater and Trade Waste).</p> <p>The Sustainable Water Demand Management Plan is an enabling tool to support the management of water demand in the district and complements the water supply bylaw whilst link to the plans and purposes below.</p>
<p>1. Integrated Approach</p> <p>Adopt an integrated and holistic approach to the Three Waters (water supply, wastewater including trade waste and stormwater) that recognises the interconnections between each of the waters and promotes their sustainable use and management.</p>
<p>2. Environmental Responsibilities</p> <p>Facilitate environmentally responsible practices by raising awareness of how the Three Waters interact and effect the District's natural environment. Additionally, ensure that Council meet its own responsibilities in terms of resource consent requirements set by the Hawke's Bay Regional Council.</p>
<p>3. Sustainable Practices</p> <p>Encourage and incentivise the community and businesses to adopt practices that lead to the enhancement of the environment and the sustainable management of water resources including water and product stewardship, rainwater harvesting, waste minimisation and cleaner production.</p>
<p>4. Support Sustainable Growth</p> <p>Support the sustainable provision of three waters infrastructure to enable future growth while minimising impacts on the environment.</p>
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<p>6. Te Mana o Te Wai</p> <p>Recognise the fundamental concept of Te Mana o Te Wai as prescribed under the National Policy Statement for Freshwater Management 2020 and in particular the need to restore and preserve the balance between the water, the wider environment, and the community.</p>
<p>7. Tangata Whenua Status</p> <p>Recognise the status of tangata whenua as Kaitiaki.</p>
<p>8. Durable Infrastructure</p> <p>Develops and maintain durable and resilient infrastructure that achieves Council's levels of service in an efficient and cost-effective manner.</p>

Water Supply Schemes

The provision of systems for the extraction, treatment and distribution of water is a function of Council's permitted activities and governed by the Local Government Act 2002 and the Health Act 1956.

There are five potable water supply schemes that are operated and maintained by Council:

- **Waipukurau** – an on-demand scheme servicing the Waipukurau township. Water is sourced from four bores located at the foot of Pukeora Hill (approximately 4 km west of Waipukurau). The bores are hydraulically connected to the Tukituki River. Water is pumped to a reservoir on Pukeora Hill and treated with UV and chlorination. The supply to the reticulation comprises two 'zones'. Most connections are supplied in the high-pressure zone, which is serviced by the Pukeora reservoir, with the smaller Mangatara Road tank at the east end of the scheme supplying a small number of houses during high demand (back-feed).

Sustainable Water Management Plan 2021 - 2024

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Hunter Park reservoir, which is located on top of Hunter Memorial Park, is fed from the Pukeroa reservoir and supplies the low-pressure zone area (central north area of township). There is also a small offtake (Shand booster pump) after the Pukeora reservoir. This supplies some high elevation connections via a gravity supply from the Shand reservoir.

- **Waipawa-Otane** – an on-demand scheme servicing the two townships of Waipawa and Otane. Water is sourced from a bore on Tikokino Road which is pumped to two reservoirs approximately 4.5 km on Abbotsford Road. A second bore located in Johnson Street supplements the supply and pumps into a low-pressure zone of the network. The bores are hydraulically connected to the Waipawa River. Water from the Abbotsford Road reservoir gravitates into the Waipawa township reticulation. A dedicated main from the Abbotsford reservoir also fills the Otane reservoir which gravity supplies the Otane township. The Otane township is also supplied from a second connection to the Waipawa reticulation via a pressure reducing valve.
- **Takapau** – an on-demand scheme servicing the Takapau township, with some farm connections being metered. Water is sourced from a deep bore located in Meta Street, treated for manganese and iron removal (ultrafiltration) and chlorinated before being stored in seven tanks. Water is pumped from the tanks to the reticulation, also filling the SH2 (Sydney Street) reservoir on the west side of the network.
- **Porangahau-Te Paerahi** – an on-demand scheme servicing the Te Paerahi Beach and Porangahau settlements. Water is sourced from a bore located off Beach Road and treated for manganese and iron removal (green sand filtration) and chlorinated (UV and chlorine). Ion exchange has recently been installed to soften the water. Booster pump stations supply the stored treated water to the township and Te Paerahi Beach networks. There is further storage in the Porangahau township network in the form of three treated water reservoirs on the hill next to the township.
- **Kairakau** – a scheme servicing the Kairakau domestic properties, public toilets and camping ground. Water is sourced from a spring and a bore. Raw water is chlorinated and then pumped to the network via a series of treated water reservoirs. The campground has its own dedicated reservoir, with a further three supplying the community. Each property has an onsite rainwater collection tank (minimum volume 1,800 L) which is also supplemented by the Council supply.

In addition to the above, there are further water supply activities within the District that Council considers as part of the over-arching approach to sustainable water management:

- **Pourerere Campground** – a Council water supply servicing the Pourerere camping ground, public toilet block and two houses. Water is taken from a spring in Gibraltar Road and supplied via a 20 mm diameter pipe.
- **Russell Park / Waipukurau Sports Fields** – Council has a consent to take as use water from the Tukituki River for the purpose of irrigating 17.5 ha of sports field at Russell Park in Waipukurau.

Table 1 provides an overview of the potable water supply schemes serviced by the Council. *Error! Reference source not found.* Table 1: Potable Water Supply Scheme Overview

Water Supply	Supply Type	Population	No. Connections	Length of Mains (km)	Source	Treatment	Storage	Pump Station
Waipukurau	On-demand	3,666	2,249	79.1	5 bores	UV, Chlorination	Pukeroa Hill - 2,700 m ³ Hunter Park - 900 m ³ Mangatarata Rd tank 20 m ³ Shand Rd - m ³	1 no.
Waipawa-Otane	On-demand	2,355	966 + 326	77	3 bores	UV, Chlorination	Abbotsford Rd - 400 m ³ + 700 m ³ (treated) Johnson Street – 210cm ³ Otane – 2 x 150 m ³ (treated)	
Takapau	On-demand	570	278	16.4	1 bore	UV, Greensand, Ozone	Meta St – 240 m ³ SH2 – 230 m ³	
Porangahau-Te Paerahi	On-demand	160	133 + 110	16.2	1 bore	UV, Greensand, Ion Exchange	Beach Rd - 96 m ³ (raw) + 264 m ³ (treated) New treated storage – 180 m ³	1 no.
Kairakau	On-demand to rainwater tanks	83	84	3.3	1 spring, 1 bore	Chlorination	4 x 25 m ³ (raw) 3 x 25m ³ + 20m ³ (treated)	1 no.

Central Hawke's Bay District Council Sustainable Water Management Plan

4

Sustainable Water Management Plan 2021 - 2024

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RETICULATION

In terms of the reticulation network the water supply schemes have a range of pipe materials and age (0 – 113 years). A high-level assessment of 'age based' condition was undertaken for each water supply as shown in Figure 1.

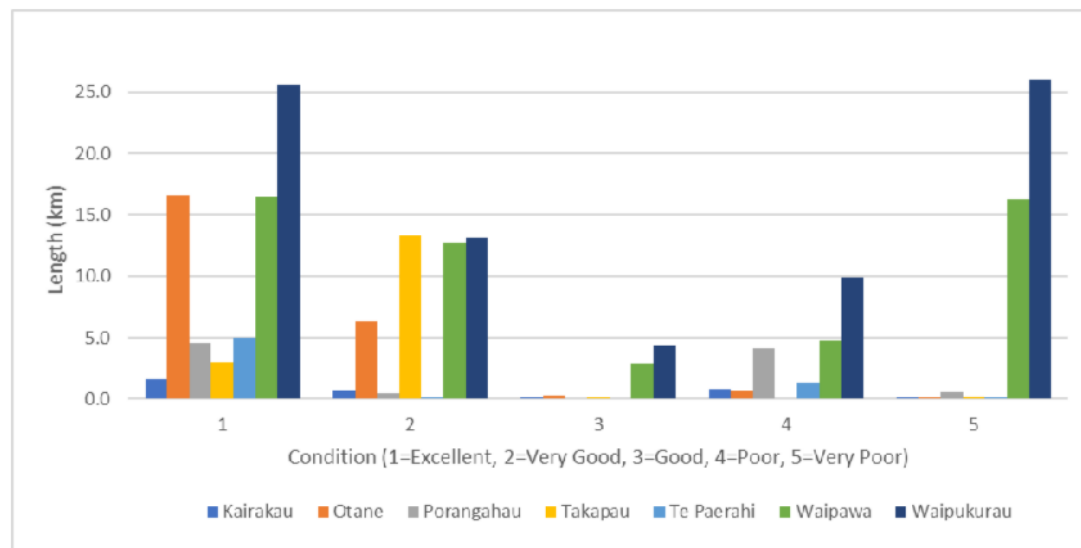


Figure 1: Water Supplies Pipe Age Based Condition

Observations – Pipe Age Based Condition

- Waipukurau (36km, 46%), Waipawa (21 km, 40%) and Porangahau (4.7 km, 48%) are estimated to have > 40% of pipes that are assessed as being in poor to very poor condition.
- Pipe condition assessment and development of a strategic renewals programme will enable the Council to prioritise and target pipe renewals as part of an over-arching water loss management strategy (refer 'Leakage' section).

STORAGE – RESILIENCE

The optimal volume of treated water storage for a water supply usually comprises a balance between considering resilience (climate change, planned and unplanned interruptions), water quality and demand. Generally, more than one day of storage at peak day demand could be considered the minimum required to help mitigate the effect of any supply interruption and allow Council time to initiate a response (e.g. repairs, conserve water communication). A general assessment of the CHBDC water supplies against current peak day and average day demand is shown in Table 2.

Table 2: Water Supply Treated Water Storage No. Days for Peak Day and Average Day Demand

Water Supply	Treated Water (m³)	Peak day demand (m³/day)	No. hours storage	Average day demand (m³/day)	No. hours storage
Waipukurau	3,600	6,480	13 hours	4,277	20 hours
Waipawa-Otane	1,600	3,513	10 hours	1,872	9 hours
Takapau	470	686	14 hours	378	13 hours
Porangahau-Te Paerahi	464	399	16 hours	151	42 hours
Kairakau	95	42	54 hours	24	95 hours

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!**Observations – Treated Water Storage**

- All the water supplies, except for Kairakau, have less than one day of storage a current peak day demand.
- Further assessment of storage is required that considers resilience scenarios and considers the impact of future demand.

PRESSURE

Council has a legal requirement to ensure that an adequate and continuous supply of water is provided at a pressure that enough for user activities and firefighting purposes. Figure 3 show the maximum pressure contours predicted by the current hydraulic models for Waipukurau and Waipawa-Otane. Generally, pressures vary from 75 m down to 20 m in Waipukurau, with the lower pressures evident in the low-level area supplied by the Hunter Park Reservoir. There are higher pressures in excess of 90 m evidenced in the Waipawa-Otane water supply with pressures in the Waipawa network being dictated by the pumping required to supply the Abbotsford Reservoir. The Otane network is already fed through a PRV on the incoming main from Waipawa.

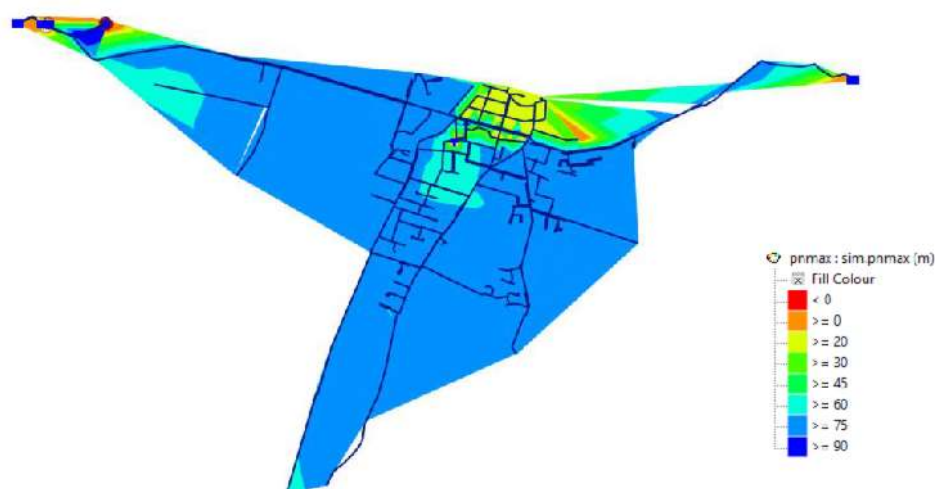


Figure 2 – Waipukurau Peak Day Maximum Pressure Contours, AZP = 68.6m

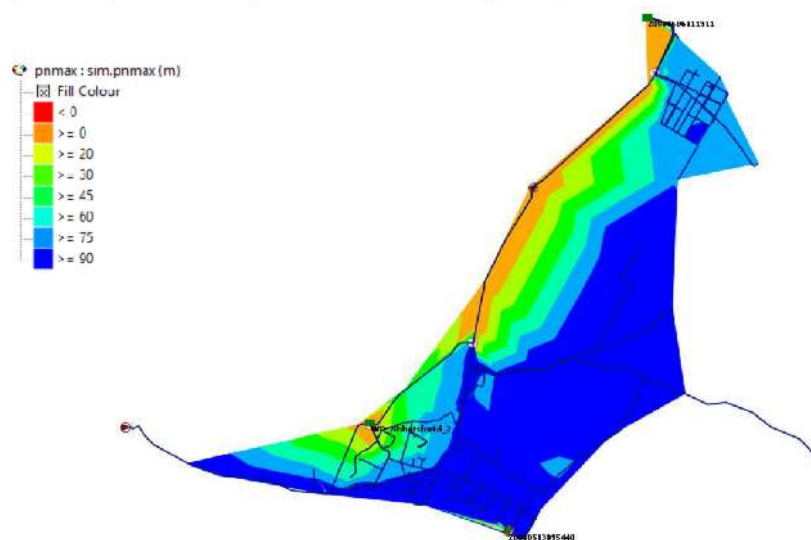


Figure 3: Waipawa-Otane Peak Day Maximum Pressure Contours, AZP = 62.5 m

Sustainable Water Management Plan 2021 - 2024***E ora ngātahi ana!***

In terms of the Takapau water supply pressures are dictated by the WTP pump station operating to the Sydney Street reservoir on the west side of the network. The pressures in the network vary depending on whether the WTP pump station is operating. The head difference between the pump station and reservoir is approximately 18 m, which suggests network pressures are already low.

Pressure reduction (management) is a key component of an over-arching water loss management strategy in terms of 'squeezing the box' (refer 'Leakage' section). Council investigated the opportunity to implement a form of pressure reduction for the low-level zone in the Waipukurau water supply as part of an overall firefighting capacity assessment (Waipukurau Detailed Modelling Output, WSP, July 2016). The assessment with the hydraulic model determined that using a Pressure Reducing Valve (PRV) was feasible but could potentially add a risk in terms of achieving fire flow during the event of a fire if the valve was not set up operate correctly.

Observations – Pressure

- There may be further opportunity for pressure reduction as part of an over-arching leakage reduction strategy in the Waipukurau and Waipawa-Otane water supplies. However, this may be limited by the need to maintain fire fighting capacity.
- Pressure reduction in the other water supplies is unlikely to be feasible.

Consents and Regulative Requirements

CONSENTS

This section is to confirm the requirements which the Council water supplies must be operated under, particularly during river low flows and peak water use. The consents set out the water take and restriction limits on when this can be taken.

Table 3: Water Supply Permits – Current

Water Supply System	Source Number	Consent Number (Hyperlink)	Max. Consented Take	Restriction Limits	Expiry Date
Waipukurau	Well No.s 15107, 5617, 5676, 16892, 16893 (SH2)	AUTH-113708-03	All Wells and / or a Cumulative rate of 100 litres per second. 60,480 m³ 7-day period 3,144,960 m³ in 12-month period	Tukituki River Level 1: 3,000 L/s @ Taipairu Rd Level 2: 2,300 L/s @ Taipairu Rd	31-May-2028
Waipawa-Otane	Well No. 2402 (Johnson St)	WP030817T	35 litres per second 21,168 m³ 7-day period	Waipawa River Level 1: 3,700 L/s @ SH2 Level 2: 2,300 L/s @ SH2	31-May-2028
	Well No.s 5618, 5619 (Tikokino Rd)	WP030818T	55 litres per second 33,264 m³ 7-day period	Waipawa River Level 1: 3,700 L/s @ SH2 Level 2: 2,300 L/s @ SH2	31-May-2028
Takapau	Well No. 1762 (Meta St)	WP140534T	19.0 litres per second 31,600 m³ per 28-day period 410,800 m³ in 12-month period	N/A	31-May-2035
Porangahau-Te Paerahi	Well No. 4993 (Beach Rd)	WP090150T	10.2 litres per second 6,169 m³ per 7-day period	N/A	31-May-2034
Kairakau	Well No. 3130 (Brodie Pl)	WP090153T (Bore)	1 Litre per second 605 m³ per 7-day period	N/A	31-May-2029
	Spring (Brodie Pl)	WP090166T (Spring)	0.7 Litres per second 420 m³ per 7-day period	N/A	31-May-2029
Pourerere Campground	Spring	WP010510T	0.25 Litres per second	N/A	31-May-2022
Waipukurau Sports Fields	Well No. 1461 (Russell Park)	AUTH-125279-01	6 Litres per second 7,120 m³ per 28-day period Not exceeding 173 m³/day if flow at Taipairu Rd and Red Bridge measuring sites are below low flow triggers levels	Tukituki River 2,300 L/s @ Taipairu Rd 4,300 L/s @ Red Bridge	31-May-2039*

*recently renewed – 10 February 2021

Sustainable Water Management Plan 2021 - 2024

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CONSENT CONDITIONS

In terms of the potable water supplies Waipukurau, Waipawa-Otane and Takapau water supply sources have consent conditions that require public education and 'Water Management Strategy' to be in place. These are implemented when low flow trigger levels are recorded in the Tukituki, Waipawa and Tukipo rivers respectively. Table 3 presents an overview of the low flow triggers and Water Management Strategy requirements.

Table 4: Water Management Strategy (WMS) conditions in consents

Water Supply, Consent & River	Monitoring Site	Flow Triggers	Required
Waipukurau WP030775T Tukituki River	Taipairu Rd #23207	1) at or < 3,000 L/s implement public education as per WMS 2) at or < 2,300 L/s = implement demand mang & water conservation as per WMS	Purpose of Water Management Strategy (WMS): a) statement of purpose b) commitment to demand management and water conservation measures during low flows in Tukituki River. c) confirm bylaws for non-compliance of water use restrictions or water use directions. d) when HBRC advise flow is at or below 2,300 L/s – implement demand management and water conservation measures as set out in the WMS e) when HBRC advise flow is at or below 3,000 L/s – implement public education as set out in the WMS e) document water conservation measures as part of annual monitoring report f) within 5 yrs. of consent issue a report including up to date population projections
Waipawa – Otane WP0308 Waipawa River	SH2 #23211	1) at or < 3,700 L/s implement public education as per WMS 2) at or < 2,300 L/s = implement demand mang & water conservation as per WMS	Purpose of Water Management Strategy (WMS): a) statement of purpose b) commitment to demand management and water conservation measures during low flows in Waipawa River. c) confirm bylaws for non-compliance of water use restrictions or water use directions. d) confirm public education programme to communicate the need for efficient water use at times of low flow during the Waipawa River. d) when HBRC advise flow is at or below 2,300 L/s – implement demand management and water conservation measures as set out in the WMS e) when HBRC advise flow is at or below 3,700 L/s – implement public education as set out in the WMS e) document water conservation measures as part of annual monitoring report f) within 5 yrs. of consent issue a report including up to date population projections
Takapau WP140534T Tukipo River	1 - Red Bridge #23201 2 - Tapairu Rd #23207 3 - Ashcott Rd #23213 up to 30 June 2023	1) at or < 4,300 L/s 2) at or < 2,300 L/s 3) at or < 1,043 L/s	Develop and implement a Water Conservation and Demand Management Strategy (WDCMS) to include, but not limited to the following: - Purpose of strategy - Commitment to the implementation of a range of demand management and water conservation measures to minimise consumption at times of low flows and which may include water use restrictions, water use direction, pressure management and reduction, leak detection, metering and education
	1 - Red Bridge #23201 2 - Tapairu Rd #23207 3 - Ashcott Rd #23213 from 1 July 2023	1) at or < 5,200 L/s 2) at or < 2,500 L/s 3) at or < 1,043 L/s	A detailed explanation of how the WDCMS will be implemented. Ensure that the WDCMS is implemented when the low flow triggers are reached and continue to be implemented until flow return to be in excess of the trigger limits.

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ano!

CLIMATE CHANGE

WSP have undertaken a review of how climate change may affect demand, or impact and limit supply for the Waipukurau Second Water Supply Project (Demand Analysis and Future Supply Security, WSP, February 2020). In terms of climate changes, the following observations and comments were made:

- In the Hawkes Bay Region, it is projected that, compared to 1995 data, temperatures are likely to be between 0.7°C to 1.1°C warmer by 2040 and 0.7°C to 3.1°C warmer by 2090 (MfE 2018).
- Changes in rainfall will vary across the district, however at present downscaled models are not refined enough to directly attribute projected changes to specific catchments. The seasonal distribution of rainfall is projected to change the most; with winter rainfall projected to decrease by up to 13% in Napier by 2090. Summer and autumn rainfall, however, are expected to increase (MfE 2018).
- According to the most recent projections (MfE 2018), the frequency of extreme rainfall days is not expected to increase in the Hawke's Bay District as a result of climate change.

The main impacts of climate change on the water supplies will be:

- Demand for residential irrigation during periods of drought is likely to increase due to increasing soil moisture deficits. A theoretical assessment (WSP, 2020) indicates the increase in demand associated with climate change could be about 460 m³/day. The degree to which this additional demand occurs will depend on the effectiveness of our water management strategies and the community's future attitude to water use.
- Changes in river flows and hydrology - while increases in rainfall volume are projected over summer periods, some models suggest that this increase will come from more extreme, less frequent events. This will lead to flashier rivers flows, with higher suspended sediment loads, interspersed by longer periods of drought and lower river levels. For example analysis estimates that the Tukituki River (refer Figure 4) mean flow may decrease by up to 2% by 2090 with median flows decreasing by 8% by 2040 and 13% by 2090 (WSP, 2020). This will likely increase the average number of days where flows fall below the current consented limit of 2,300 L/s, which will increase the duration of time CHBDC must implement after conservation and demand management measures. Subsequently community supplies reliant on water from primary sources (i.e. rivers and streams) will be affected.

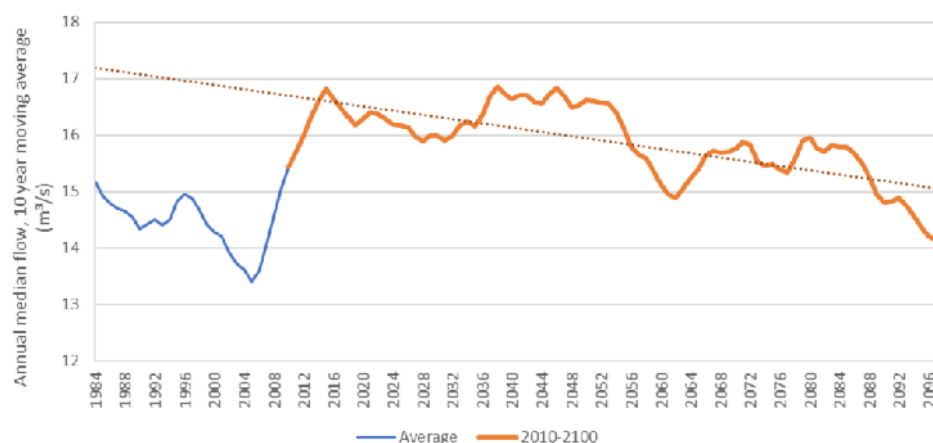


Figure 4: Trend in Tukituki River at Tapairu flow record (10 year moving average of annual median)

Observations – Consents and Impact of Climate Change

- Drier and longer summers means there is likely to be longer periods of restrictions required across the district as demand increases and river flows decrease
- Restrictions may need to be put in place if more extreme storm events result in increased degradation of raw water quality over time which cannot be treated by the current water treatment plants.
- Effective communication (and escalation) of conservation of water and increasing user awareness will play an important role in managing demand.
- The focus on water consumption and management may increase with enforcement of greater restrictions on takes and river flows.

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Demand: Current and Future

WATER DEMAND & AVAILABILITY

Historic Water Demand

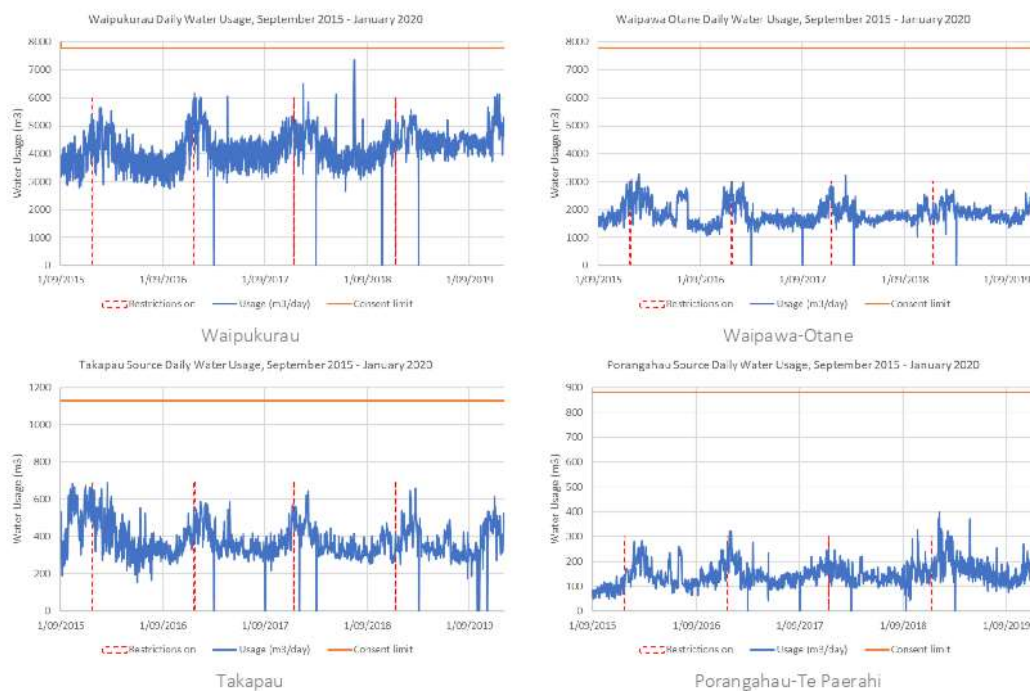
Table 5 presents the historical peak day and average day source demand recorded for the water supplies based on daily volume totals. Kairakau demand has been assessed using monthly volume totals. Peak day demands have been identified in red.

Table 5: Historical Peak Day and Average Day Demand (m³/day)

7Year	Waipukurau		Waipawa - Otane		Takapau		Porangahau – Te Paerahi		Kairakau
	Peak Day	Average Day	Peak Day	Average Day	Peak Day	Average Day	Peak Day	Average Day	Monthly Average
2015-16	5,647	3,944	3,268	1,967	686	417	283	131	-
2016-17	6,172	4,151	2,972	1,728	586	369	323	145	-
2017-18	6,480	4,224	3,214	1,808	640	364	252	146	42
2018-19	5,588	4,397	2,693	1,888	678	356	399	172	35
2019-20*	6,130	4,671	3,513	1,968	613	381	271	159	32*

*2019-20 is for period 1 September to 31 December 2019, *2019-20 is for period September to December 2019

The following graphs show the historical trend for the five water supplies. These are based on daily totals recorded at the source, except for Kairakau which is based on monthly totals.



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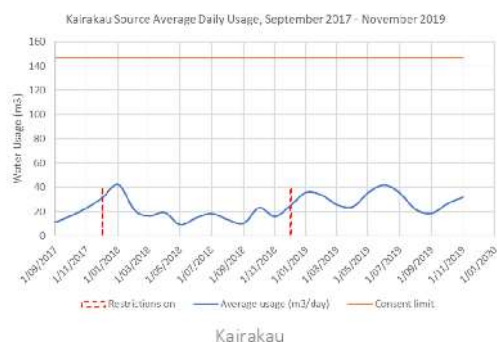
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Figure 5: Historical Demand Profiles, Restriction on and Consented Volumes

Observations – Demand and Availability

- Peak day usage occurs around the December – January period, coinciding with the Christmas and school holiday periods.
- The estimated peak day demands for the water supplies have not accounted for reservoir turnover.

In terms of the impact of restrictions on demand a comparison of Waipukurau water supply over the December to March period for years 2015-2018 shows (refer Figure 6Error! Reference source not found.). Restrictions were put in place on the following dates:

- 23 December 2015
- 20 December 2016
- 11 December 2017
- 10 December 2018



Figure 6: Comparison of Waipukurau Demand and Impact of Restrictions

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Observations – Restrictions

- Generally, there is a lag in demand decreasing. This could be attributed to the time for the conserve water messaging to be received and implemented by customers.
- Demand does appear to decrease for a period before flattening out / increasing.
- Overall it is difficult to determine how effective water restriction measures are currently.

Water Availability (Consents) vs Demand (Current & Future)

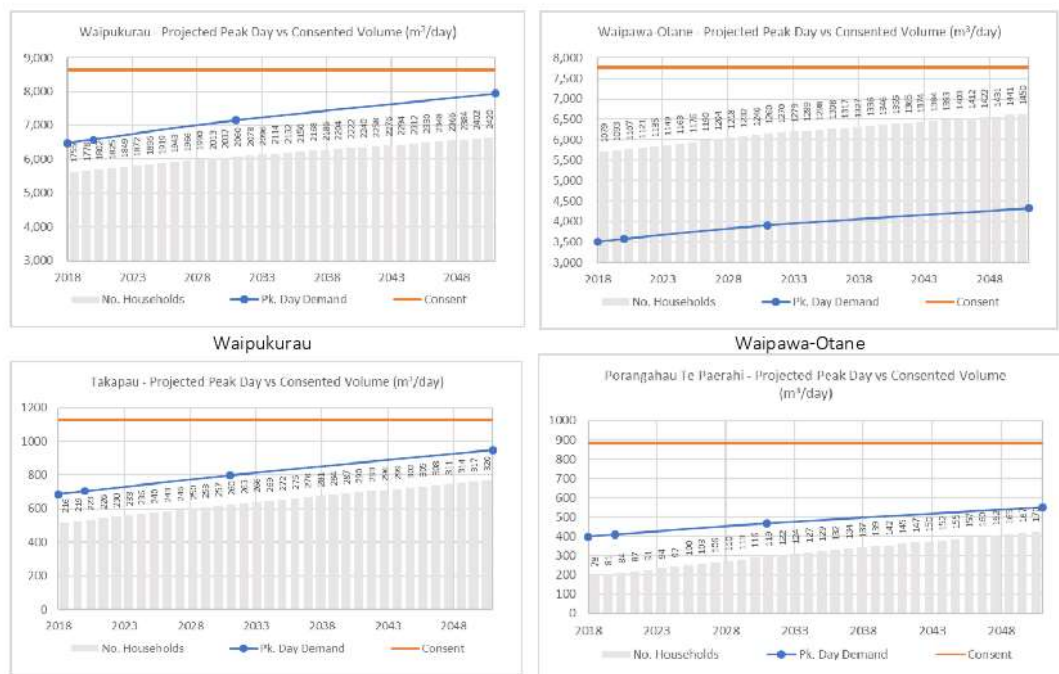
A review of future peak day demand has been undertaken using the 2020/21 'medium' growth projections for number of households for townships and the district proposed for the 2021 Long Term Plan.

Table 6: Historical Peak Day and Average Day Demand (m³/day)

Year	Waipukurau	Waipawa - Otane	Takapau	Porangahau – Te Paerahi	Kairakau
2015-16	5,647	3,268	686	283	-
2016-17	6,172	2,972	586	323	-
2017-18	6,480	3,214	640	252	42
2018-19	5,588	2,693	658	399	36
2019-20*	6,480	3,513	613	271	32
Current consented maximum take (m ³ /day)	8,640	7,776	1,128	881	146
Current peak day (m ³ /day)	6,480	3,513	686	399	42

*2019-20 is for period 1 September to 31 December 2019, *2019-20 is for period September to December 2019,

A review of future peak day demand has been undertaken using the 2020/21 'medium' growth projections for number of households for townships and the district proposed for the 2021 Long Term Plan (refer Figure 7).



Central Hawke's Bay District Council Sustainable Water Management Plan

13

Sustainable Water Management Plan 2021 - 2024

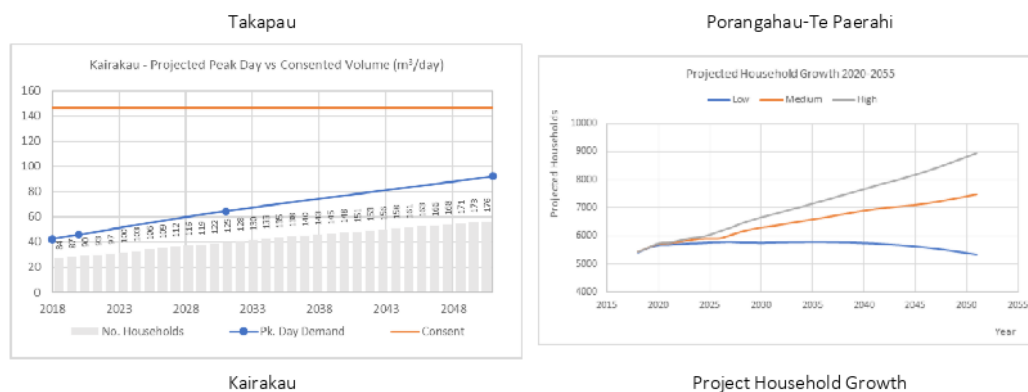
E ora ngātahi ana!

Figure 7: Projected Future Demand & No. Households vs Consented Volume

Observations – Water Availability

- The projected growth forecasts and equivalent increase in the water demand for the water supplies indicates that there is still enough headroom in terms of consented volumes for the existing sources and estimated future peak day demand in 2051.
- This assessment has not considered additional commercial / industrial growth or tourism. Future projections and demand forecasting should be aimed at understanding what the likely trends will be in relation to these growth areas.

LEAKAGE

As the water supply system ages, there is a tendency for a natural rate of rise of Real Losses (leakage) through new leaks and bursts, some of which will not be reported to the Council. This tendency is controlled and managed by some combination of the four primary components of Real Losses Management shown by the arrows in Figure 8.

- Pressure management
- Speed and quality of repairs
- Active leakage control
- Pipeline asset management

The International Water Association (IWA) Water Loss Task Force (WLTf) have examined the relationships between pressure, burst frequency and background losses and developed a theory regarding water loss management which they describe as 'squeezing the box'. This theory is demonstrated by Figure 8. The 'Squeezing the box' approach is now widely used internationally to demonstrate the essential principles for effective management of Real Losses. The volume of Current Annual Real Losses (CARL) from a distribution system is represented by the large box. The CARL volume exhibits a continual trend to increase as new leaks and bursts occur, and the distribution system deteriorates with age, but it can be constrained and reduced by an appropriate combination of pressure management, speed and quality of repairs, active leakage control (to locate unreported leaks and bursts), and pipeline and assets management.

Real losses cannot be eliminated totally. The lowest technically achievable annual volume of real losses for well-maintained and well-managed systems is known as unavoidable annual real losses (UARL).

Using the four methods of leakage management real losses can be controlled, but (at the current operating pressure) cannot be reduced any further than the UARL. However, although the UARL represents the minimum level of real losses that could technically be reached, for most utilities it will not be economic to reduce real losses to this level. There will be some intermediate economic level of real losses which it is appropriate for a utility to achieve.

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The best practice performance indicator for the technical efficiency of Real Losses is the Infrastructure Leakage Index (ILI). This is the non-dimensional ratio of CARL divided by UARL. In order to calculate the ILI a water supplier needs to know and have confidence in significant range of data and parameters:

- Water balance – standard components of demand for a top down water balance that requires leakage, minimum night flow estimates, demand types and equivalent volumes for metered / non-metered and residential / non-residential customers
- Network data – pipe length (by type and material), number of billed properties, number of service connections, service connections by material type, average zonal pressure (AZP), average zonal night pressure (AZNP).

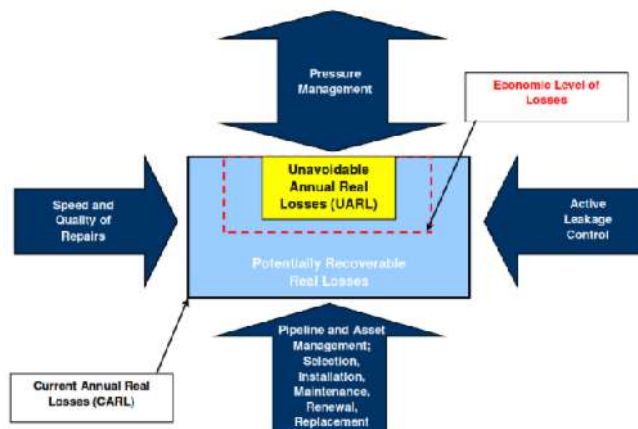


Figure 8: The 4 Components Approach to Management of Real Losses

- Burst data – reported bursts and unreported bursts (number and type of reported bursts, typical run times categorised by type), including cost and frequency of ALC for unreported bursts, burst flow rates, natural rate of rise of bursts.

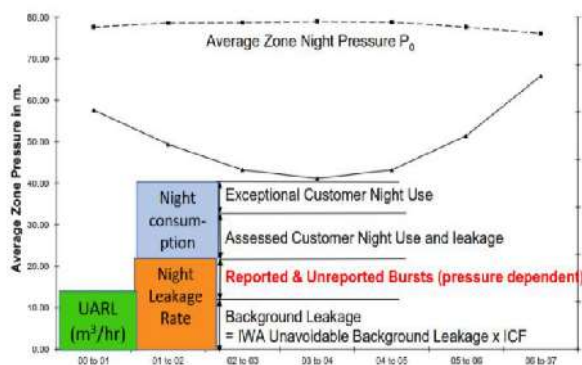


Figure 9: Snapshot ILI

As an alternative the Snapshot ILI was developed by the IWA Water Loss Group to assist water authorities to target zones for Active Leakage Control (ALC) interventions. The snapshot ILI is a function of the night leakage rate (MNF – legitimate use) divided by the UARL, it provides a simpler approach for targeting ALC across water supplies. Figure 9 shows the components required to calculate the snapshot ILI.

The ILI can be used to categorise performance in real losses into one of four bands, as shown in Table 7. MNF calculations are reliant on estimating the legitimate night usage in order to define the level of leakage.

Table 7: World Bank Institute Bands for Leakage Management in Developed Countries

Band	ILI Range	Guideline Description
A	<2	Further loss reduction may be uneconomic unless there are shortages; careful analysis needed to identify cost-effective improvement
B	2 to < 4	Potential for further improvements; consider pressure management, better active leakage control practices, and better network maintenance
C	4 to < 8	Poor leakage record; tolerable only if water is plentiful and cheap; even then, analyse level and nature of leakage and intensify leakage reduction efforts
D	8 or more	Very inefficient use of resources; leakage reduction programs imperative and high priority

The snapshot ILI is particularly useful where it is not easy to calculate the CARL and annual ILI such as:

- Where residential properties and some non-residential properties are unmetered, resulting in significant uncertainties with the assessment of CARL; and

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- Where continuous MNF data is unavailable.

A review of the availability and quality of data for the CHBDC water supplies has identified that the snapshot ILI approach is the current best approach for leakage benchmarking purposes. Table 8: Snapshot ILI Parameters presents the input parameters required to deliver the ILI and estimated / assumed values.

Table 8: Snapshot ILI Parameters

Water Supply	Waipukurau	Waipawa - Otane	Takapau	Porangahau - Te Paerahi	Kairakau
System Input - AD	4,277	1,872	378	151	24
System Input - PD	6,130	3,770	686	399	42
Total Length of mains [km]	79.1	77.0	16.4	16.2	3.3
Total number of connections	2,173	1,254	272	243	84
AZP (m)	64	65	18	40	17
AZNP (m)	65.7	66.0	18.4	40.8	17.3
Min Night Flow (m ³ /hr)	72.0	41.8	5.4	4.9	1.7
Including Unavoidable Annual Real Losses (UARL) [m ³ /hr]	10.8	7.8	0.5	1.0	0.2
Legitimate Usage - 4L/conn/hr (m ³ /hr)	8.7	10.0	2.2	1.9	0.7
Total Leakage Rate (m ³ /hr)	63.3	31.7	3.3	2.9	1.0
Average Day Use (L/conn/day)	1,269	886	1,102	333	-2
Average Day Use (L/person/day) *assume occupancy rate of 2.8	453	316	394	119	-
Peak Day Use (L/conn/day)	2,122	2,399	2,234	1,354	212
Total Leakage (L/prop/day)	699.2	607.2	288	288	288

It should be noted that the negative average day use for the Kairakau water supply is due to all customers having rainwater tanks which are supplemented by the Council's water supply. The estimated ILI and predicted band for the CHBDC water supplies is presented in Table 9.

Table 9: Estimated ILI for CHBDC Water Supplies

Water Supply	Snapshot ILI	Band	Confidence	Key Assumptions and Data Limitations
Waipukurau	6.7	C	Average	System input based on average day demand from 5 years of historical daily totals. No. of connections obtained from 2018 AMP figures. Length of mains based on GIS. MNF obtained from hydraulic model.
Waipawa-Otane	5.3	C	Average	System input based on average day demand from 5 years of historical daily totals. No. of connections obtained from 2018 AMP figures. Length of mains based on GIS. MNF obtained from hydraulic model.
Takapau	11.6	D	Low	System input based on average day demand from 5 years of historical daily totals, of which for 1-year restrictions were in place. No. of connections obtained from 2018 AMP figures. Length of mains based on GIS. MNF estimated based on similar NZ water supplies using a 'per connection' approach. AZP derived from average static head estimate using approximate elevations at pump station / reservoir and across water supply.

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Water Supply	Snapshot ILI	Band	Confidence	Key Assumptions and Data Limitations
Porangahau-Te Paerahi	5.0	C	Low	System input based on average day demand from 5 years of historical daily totals, of which 1-year restrictions were in place. No. of connections obtained from 2018 AMP figures. Length of mains based on GIS. MNF estimated based on similar NZ water supplies using a 'per connection' approach. AZP derived from average static head estimate using approximate elevations at pump station / reservoir and across water supply.
Kairakau	10.2	D	Low	System input based on monthly totals from 2 years of historical data, both of which restrictions were in place. System input based on average day demand from 3 years of historical daily totals. No. of connections obtained from 2018 AMP figures. Length of mains based on GIS. MNF estimated based on similar NZ water supplies using a 'per connection' approach. AZP derived from average static head estimate using approximate elevations at pump station / reservoir and across water supply.

Observations - Leakage

- The snapshot ILI estimates indicate that there is opportunity for Council to implement strategic leakage management and active leakage control across all the water supplies.
- At the same time Council should focus on improving the overall understanding and confidence in the key parameters that underpin successful leakage management – data improvement areas include billing information, number and type of customers, metered and non-metered customers

NEW ZEALAND BENCHMARKING

The Infrastructure leakage index is a non-dimensional performance indicator used for comparing the operational management of real water losses. It is the ratio of Current Annual Real Losses to Unavailable Annual Real Losses.

Figure 10 shows the Average daily residential water use (Litres/person/day). Bars are colour coded according to the proportion of the network that has residential water metering.

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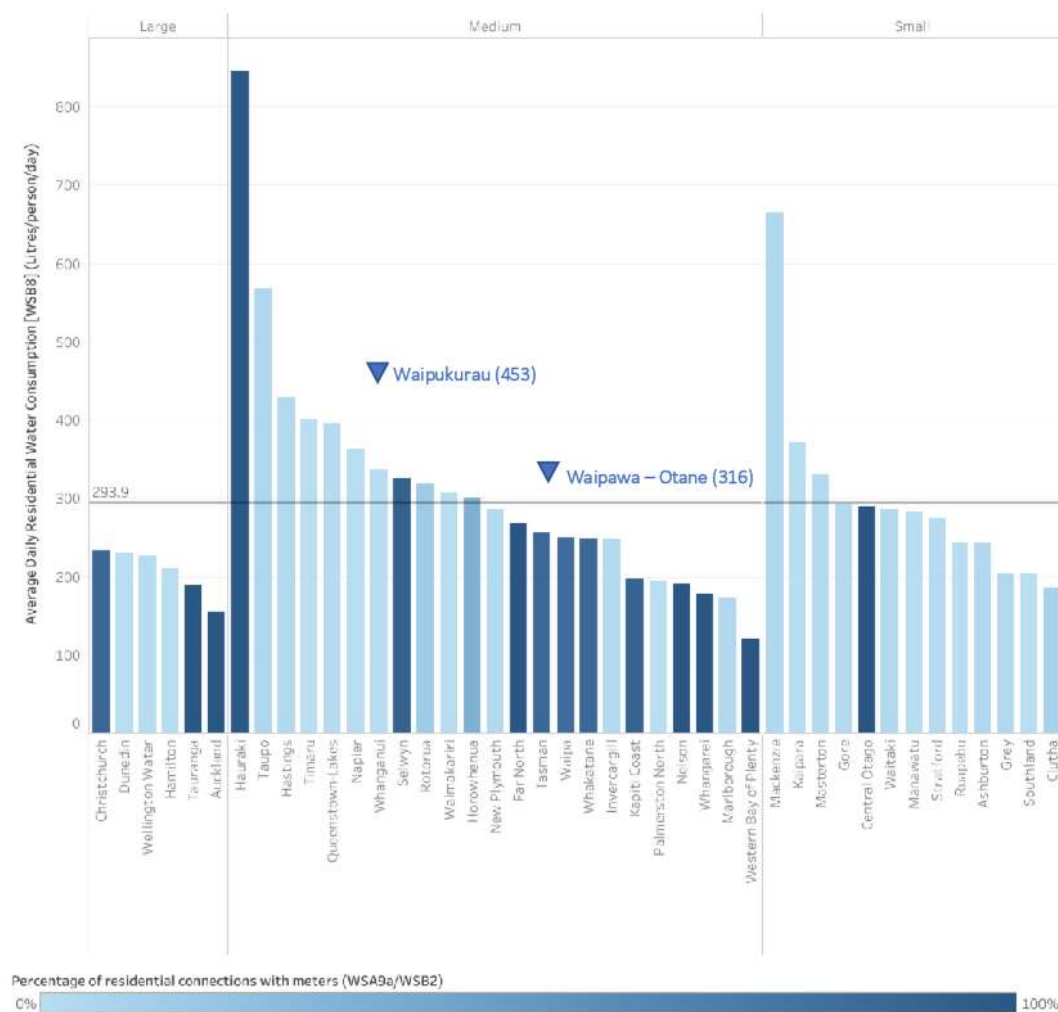
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Figure 10: Average Daily Residential Demand (Litres/person/day)

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Figure 11 shows the Infrastructure Leakage Index (sourced Water New Zealand – Residential Water Efficiency) Figures shown on bars, have been colour scaled based on levels of residential metering, as this affects the accuracy of water loss calculations.

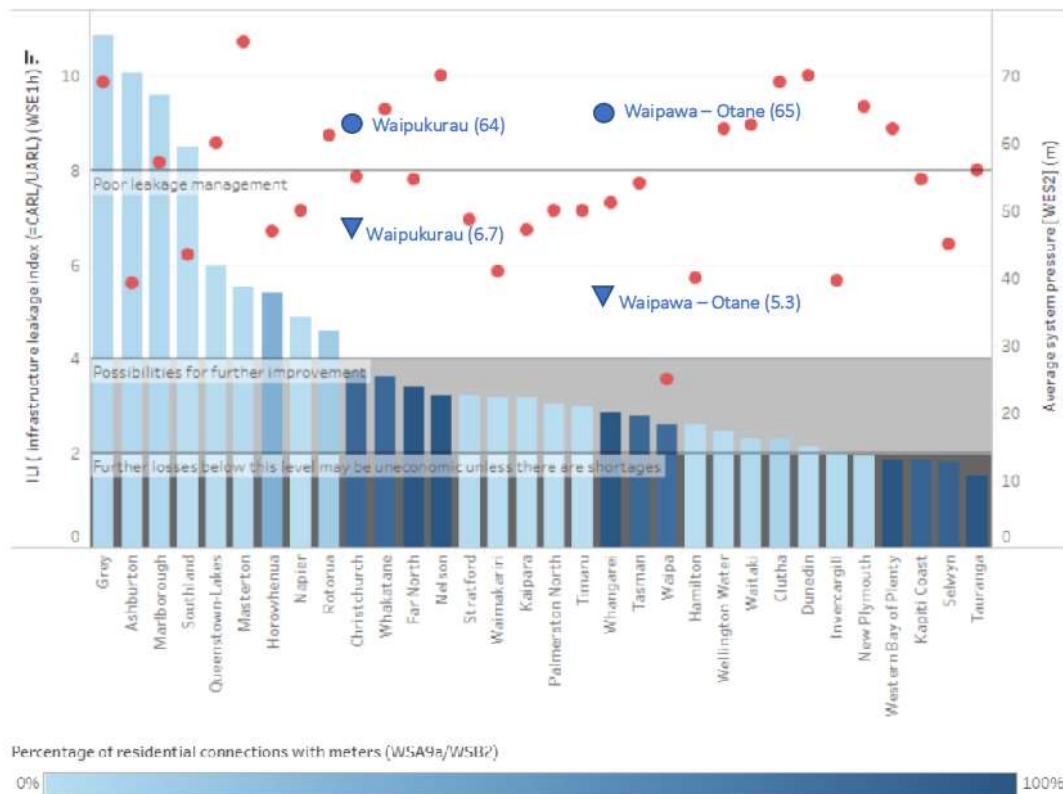


Figure 11: ILI FY2019 (Average system pressure, in m head, represented by red dots)

Average daily residential water use (Litres/person/day). Bars are colour coded according to the proportion of the network that has residential water metering.

Observations – Benchmarking

- Water consumption and leakage rates vary considerably throughout New Zealand. Those supplies with residential metering typically have the lowest average daily residential usage and ILI, which clearly highlights the benefits of residential customer metering.
- The benefits from pressure management are unclear from the data provided, however the use of other metrics such as burst frequency (number of mains breaks) will likely provide a more informative measure with benefits such as a reduction in breaks, and a reduction in demand and water loss.
- Tauranga and Nelson City Councils have seen a reduction in residential consumption to <200 L/per/d with the rollout of universal metering city wide, compared to Waipukurau (453 L/per/d) and Waipawa – Otane (316 L/per/d) which demonstrates the potential for significant reduction in demand.
- Target measures for residential consumption and water loss should be set based on achievable targets that can be reduced through the implementation of the plan. At this time, it is recommended that New Zealand TLAs are continued to be benchmarked against.

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Current Approach

Current Sustainable Management Practices

ENGAGEMENT AND PUBLIC EDUCATION



In 2016 Council implemented a new consultation and engagement activity called Project Thrive. The aim of Project Thrive was to increase visibility of Council's strategic direction and aspirations for the District to the community, and thereby support decisions on investment into infrastructure.

One of the key focus areas in this engagement for Council was elevating the importance of water for the future of the District. Council has

continued to invest in raising the profile of investment decisions in three waters infrastructure through their #bigwater story, which included seeking feedback from the community on support for the capital works delivery programme.

#bigwater story will continue to be an important tool for Council as part of establishing further improvement measures, undertaking investigations and implementing demand management strategies to underpin the future approach to sustainable water management in the District:

- Incorporating 'smart growth' into the objectives for the management of the water supplies.
- Developing clear 'road maps' for water activities so that both communities and Council are clear on the priorities and directions.
- Ensuring 'planning for tomorrow' is considered as part of 'future-proofing' and undertaking 'environmentally responsible' decision making.

Council also undertakes a public education programme focused at a school level throughout the District. Year 3 through to Year 8 children participate in a water awareness programme in the classroom and are provided with water education and water conservation information brochures.

Observations – Engagement

Council have set up a responsive and collaborative engagement tool through Thrive and the #Big Water Story. These activities are already seeing the benefits of an elevated and transparent messaging to the community on why certain decisions are being made for the water supplies. It is recommended that the improvements and action plan identified in this Plan are presented to the community using the Thrive and #Big Water Story engagement platforms so that the community can understand why it is important for Council to continue to invest in infrastructure and sustainable management activities for the water supplies.

PLANS AND POLICIES

Council has several plans and policies that include provisions for the promotion of sustainable water management practices. These include the District Plan, Water Services Bylaw, Long Term Plan, Environmental and Sustainability Strategy and the Engineering Code of Practice.

As well as seeking to ensure that future development is appropriately accommodated for, the District Plan's intention is to underpin the Resource Management Act requirements by encouraging sustainable water management of the district's sources. For example:

- The resource consents relating to Council's taking of water are considered as part of district wide matters and activities.
- Part C Section 6 of the draft 2019 District Plan sets out the use of water efficient landscaping / planting and water saving devices for developments.
- Part D Section 15 of the draft 2019 District Plan outlines that Council is required to manage the effect of the operation, maintenance and upgrading / development of the water supplies on the environment, whilst balancing the social, cultural and economic wellbeing of the communities.

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Council's Water Bylaw 2018 is made under the authority of the Local Government Act 2002, and Council can:

- Erect, construct, and maintain any public work, which in the opinion of the Council may be necessary or beneficial to the District
- Consult with communities
- Complete assessments of water services within the District
- May make bylaws with regards to water services within the District.

In terms of demand management 708.7.3 of the Water Bylaw currently states that *"The customer shall comply with any restrictions which may be required by Council to manage high seasonal or other demands. Such restrictions shall be advised by public notice. Even when such restrictions apply Council shall take all practicable steps to ensure that an adequate supply for domestic purposes is provided to each point of supply"*.

In terms of emergency restrictions 708.7.4 of the Water Bylaw currently states that *"During an emergency Council may restrict or prohibit the use of water for any specified purpose, for any specified period, and for any or all of its customers. Such restrictions shall be advised by public notice. Council may enact penalties over and above those contained in these conditions to enforce these restrictions. The decision to make and lift restrictions, and to enact additional penalties, shall be made by Council or any officer authorised to exercise the authority of Council"*.

In terms of flow meter installation 708.12.1 of the Water Bylaw currently states that *"Meters for on demand supplies, and restrictors for restricted flow supplies, shall be supplied, installed and maintained by Council, and shall remain the property of Council. Where on demand supplies are not universally metered, Council where it considers water use is unusually high, reserves the right to fit a meter at the customer's cost, and charge accordingly"*.

Observations – Policies and Plans

The current source capacity versus demand assessments in this Plan indicate that there is capacity between consented water volumes and forecasted growth projections for the water supplies. However, it is likely as consents come up for renewal that further conditions could be imposed as a result of increased scrutiny on the impact of climate change on local river flows, the need for sustainable water management practices to be implemented and freshwater management objectives. A review is needed on how best to integrate demand management targets (e.g. leakage reduction, per property consumption, customer metering) into Council's policies such as the District Plan and Long-Term Plan with further support via the water bylaw. By building in some achievable targets over the next 10 years this would help offset any constraints that come from the reduction in consented take volumes and allow the District's economy to continue to grow.

CONSERVE WATER MEASURES

Historically Council have had to put in sustainable water measures (restrictions) due to river levels falling below the trigger levels for demand management to apply. Restrictions are set at four levels as detailed in Table 10:

Table 10: Current Council Sustainable Water Measures

Sustainable Water Measure Detail	Levels
Level 1 – Please conserve water at all times	LEVEL 1 CONSERVATION
Level 2 – Sprinklers and hoses on alternative days <ul style="list-style-type: none"> • Even numbered houses on even days of the month (i.e. if you live at number 10, you may use a sprinkler or hose on the 2nd, 4th, 6th... of the month) • Odd numbered houses on odd days of the month (i.e. if you live at number 11, you may use a sprinkler or hose on the 1st, 3rd, 5th... of the month) Watering gardens: <ul style="list-style-type: none"> • Odds and evens apply (odd numbered houses on odd days of the month and even numbered houses on even days). • Sprinklers can only be used for 1 hour, before 9am and after 5pm • Hoses fitted with a trigger nozzle can be used before 10am and after 4pm and cannot be left running unattended • Watering cans and buckets permitted • Washing of vehicles and/or buildings 	LEVEL 2 SPRINKLERS AND HOSES ON ALTERNATE DAYS

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Sustainable Water Measure Detail	Levels
<ul style="list-style-type: none"> Washing of vehicles and/or buildings permitted only with a hose fitted with a trigger nozzle Swimming pools - permitted to top up swimming pool or spa Hard surfaces - no hosing of hard surfaces as part of general cleaning. Spot cleaning permitted for health, safety or emergency reasons only. 	
Level 3 - Watering gardens <ul style="list-style-type: none"> Odds and evens apply (odd numbered houses on odd days of the month and even numbered houses on even days). Sprinklers are not permitted at any time. Hoses fitted with a trigger nozzle can be used before 10am and after 4pm and cannot be left running unattended Watering cans and buckets permitted. Washing of vehicles and/or buildings Washing of vehicles and/or buildings permitted only with a bucket and sponge, or at a commercial carwash. <p>Swimming pools - permitted to top up a pool or spa using a hose fitted with a trigger-nozzle, watering can or bucket for a maximum of 15 minutes per day.</p> <p>Hard surfaces - no hosing of hard surfaces as part of general cleaning. Spot cleaning permitted for health, safety or emergency reasons only.</p>	LEVEL 3 HAND HELD HOSES ONLY ON ALTERNATE DAYS
Level 4 - No outdoor use, except in the case of an emergency	LEVEL 4 TOTAL OUTDOOR WATER BAN

Education and Communication



Water Restrictions Brochure

Water Restrictions

What does each level mean for you?**LEVEL 1****CONSERVATION**

Please conserve water at all times

LEVEL 2**SPRINKLERS AND HOSES ON ALTERNATE DAYS**

- Even numbered houses on even days of the month
- Odd numbered houses on odd days of the month

Watering gardens

- Odds and evens apply (odd numbered houses on odd days of the month and even numbered houses on even days)
- Sprinklers can only be used for 1 hour, before 9am and after 5pm
- Hoses fitted with a trigger nozzle can be used before 10am and after 4pm and cannot be left running unattended
- Watering cans and buckets permitted

Washing of vehicles and/or buildings

- Washing of vehicles and/or buildings permitted only with a hose fitted with a trigger nozzle

Swimming pools

- Permitted to top up swimming pool or spa

Hard surfaces

- No hosing of hard surfaces as part of general cleaning. Spot cleaning permitted for health, safety or emergency reasons only

LEVEL 3**HAND HELD HOSES ONLY ON ALTERNATE DAYS****Watering gardens**

- Odds and evens apply (odd numbered houses on odd days of the month and even numbered houses on even days)
- Sprinklers are not permitted at any time
- Hoses fitted with a trigger nozzle can be used before 10am and after 4pm and cannot be left running unattended
- Watering cans and buckets permitted

Washing of vehicles and/or buildings

- Washing of vehicles and/or buildings permitted only with a bucket and sponge, or at a commercial carwash

Swimming pools

- Permitted to top up a pool or spa using a hose fitted with a trigger-nozzle, watering can or bucket for a maximum of 15 minutes per day

Hard surfaces

- No hosing of hard surfaces as part of general cleaning. Spot cleaning permitted for health, safety or emergency reasons only

LEVEL 4**TOTAL OUTDOOR WATER BAN**

No outdoor water use, except in the case of an emergency

For information on water restrictions:www.chbdc.govt.nz/services/water/water-restrictions**For water saving tips at home:**www.chbdc.govt.nz/services/water/using-water

Together we Thrive! E ora ngātahi ana!
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**CENTRAL
HAWKE'S BAY**
DISTRICT COUNCIL

SAVING H₂O
IS THE WAY TO GO

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*E ora ngātahi ana!***Mandating Rainwater Tanks**

Currently properties in the Kairakau water supply have 1,800 L rainwater tanks installed which are supplemented by the Council water supply reticulation.

Rain water tanks will provide relief to the potable water network in times of peak demand, and allow people to continue watering their gardens when and if water restrictions are imposed. In addition, there is also a benefit from the retention of rain water in terms of reducing the amount of water entering the storm water network during rainfall events (refer storm water Bylaw relating to storm water retention devices).

In terms of the benefits of rainwater tanks in the District as a means of supporting sustainable water use practices and reducing demand on the consented water sources the following comments / observations are made:

- If a secondary objective of the rainwater tanks is to provide attenuation of stormwater, rain tanks can be useful.
- In terms of compliance with Drinking Water Standards New Zealand and provision of a potable water supply, rainwater tanks should either be used for non-potable purposes (e.g. garden irrigation) and on a separate piped system, or if used for drinking water fitted with a compliant potable treatment device. For existing houses this could be cost-prohibitive, for new builds this may be reasonable.

Expansion of Water Meters

Our water is precious, and a range of tools are needed to manage its use. Meters are a valuable tool by which Council can measure how much water is being used; identify unaccountable water loss, provide information to users on how much water they are using; indicate to Council how it can plan for water use in the future.

Councils existing bylaw provides for the installation of meters to manage high users only. Council wish, to expand the ability to meter where required for other water management criteria such as demand management, information capture, loss management etc. The proposed 2021 bylaw does not mandate the installation of meters on any property at any time but provides Council with the ability to where necessary.

Education

Central Hawkes Bay District Council will manage information in the form of education tools, tips and information on its website alongside physical education sessions it holds.

<https://www.chbdc.govt.nz/services/water/using-water/>

<https://www.chbdc.govt.nz/services/water/water-restrictions/>

Resilience

Council are implementing a programme of infrastructure projects for the Waipukurau and Waipawa water supply schemes to:

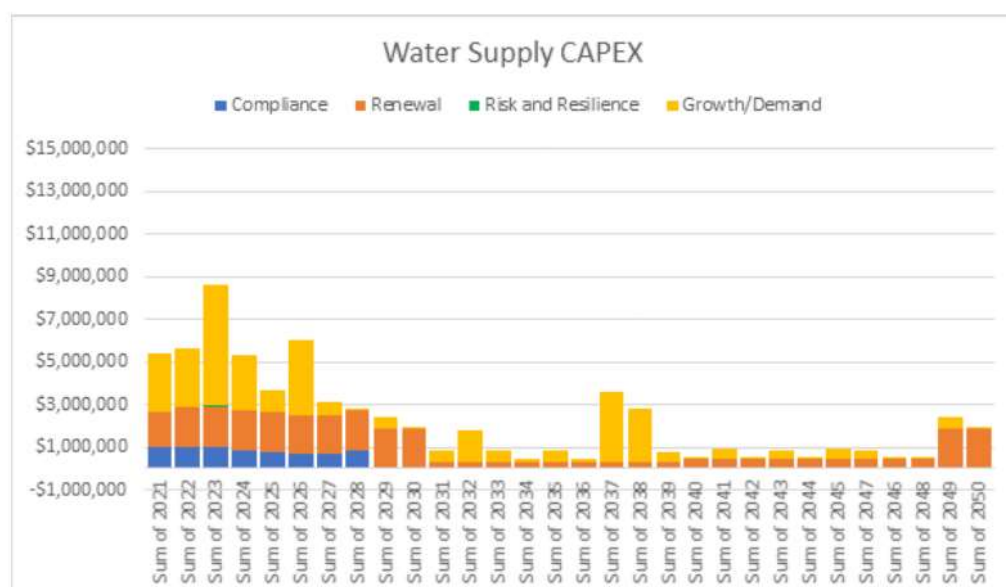
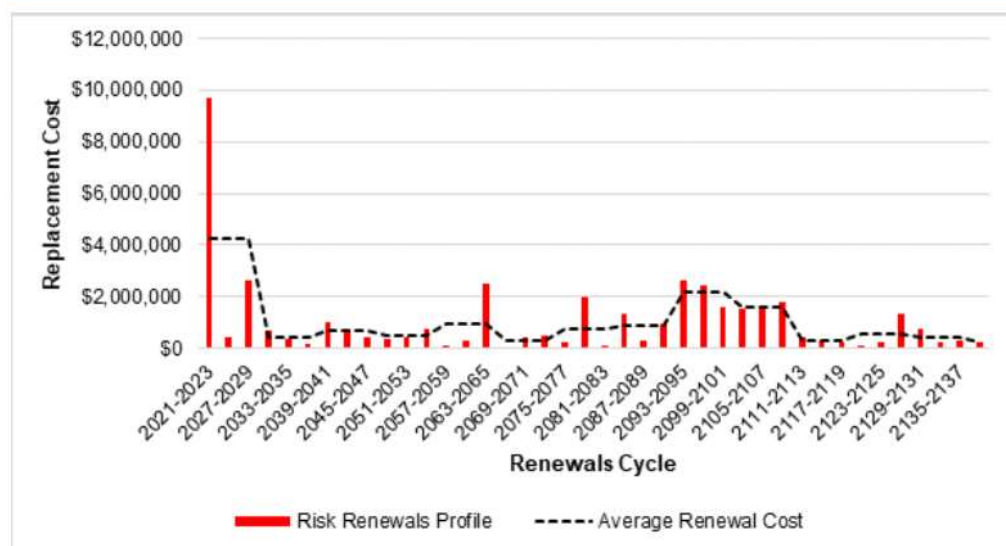
- Enhance the resilience of the water supply through connecting the supplies
- Ensure the supply can reliably meet demand and levels of service
- Improve the ability to service growth

A key project to improve the resilience of Waipukurau and Waipawa, is the link project whereby the Waipawa borefield may feed a central reservoir that feeds the Waipukurau town in addition to its existing supply. This project in the first instance may in cases of emergency turn around and feed the Waipawa community. Longer term plans will be to have the supplies feeding in both directions.

Renewals

There is a significant portion of assets that have already exceeded their theoretical useful lives and this is represented in the large spike in costs for the first period of the draft Long Term Plan 2021. Budgets are presented in three year periods. The dotted line provides the renewal budget average of three of these periods (i.e. nine years).

Sustainable Water Management Plan 2021 - 2024

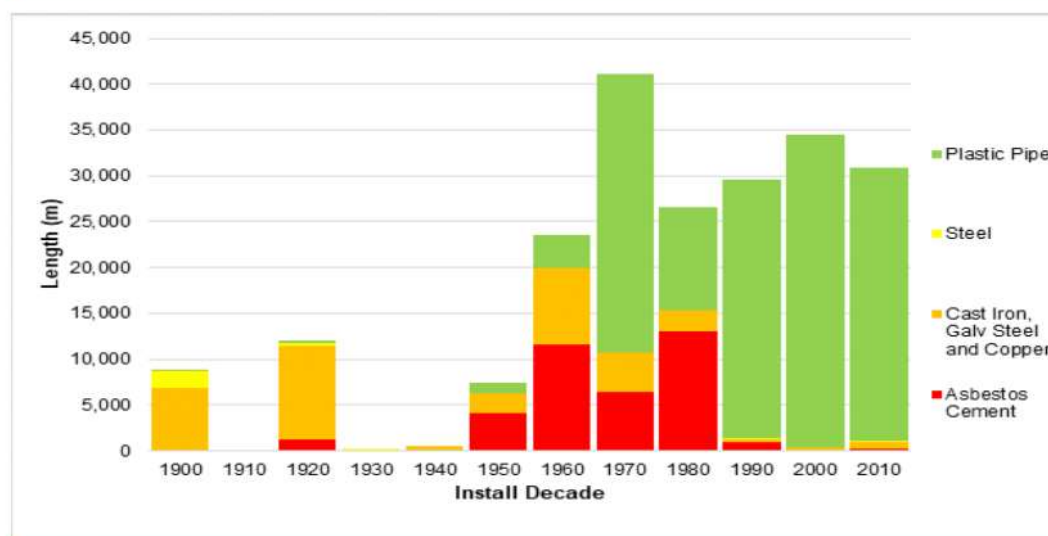
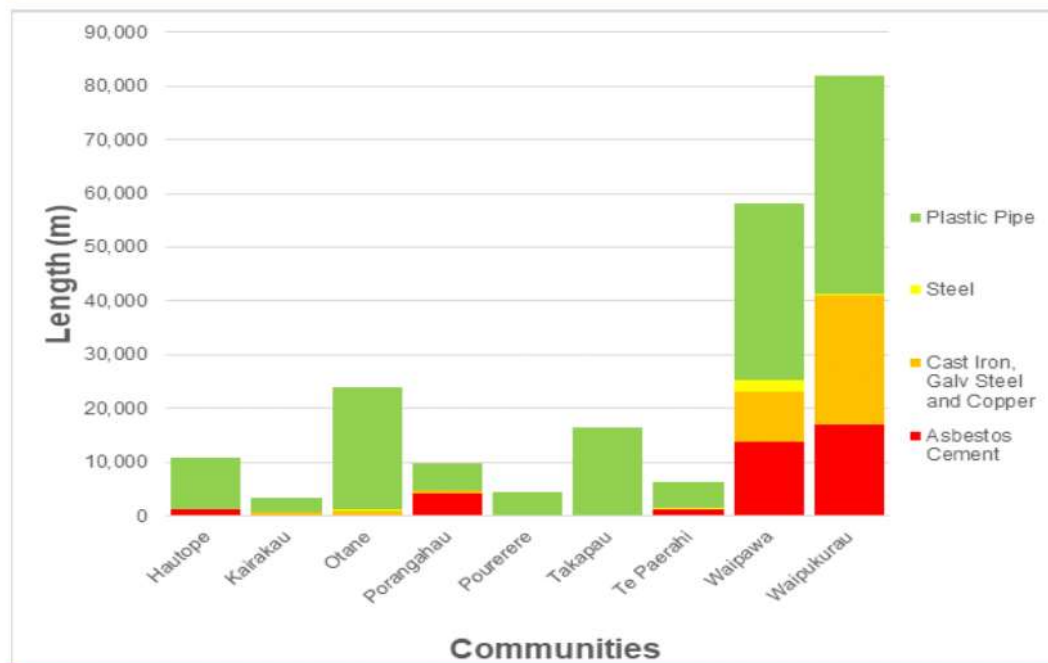
E ora ngātahi ana!

The adopted renewal budget determines the rate that pipes are renewed and therefore the time period for addressing pipes with a very high failure risk.

Pipes that are candidates for renewal are selected as part of the following process:

- Assign a renewal priority to each pipe in the database using risk scores
- Map the location of high and very high risk pipes across the district
- Determine discrete projects to cost effectively address the high risk pipes in each location, taking into account:
 - Opportunistic renewal of pipes in the vicinity
 - Interaction with Council's road surfacing programme
 - Interaction with growth and demand or level of service drivers

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PREVIOUS WATER MANAGEMENT AND CONSERVATION STRATEGY (2012)

Council's current Water Management and Conservation Strategy (June 2012) identified CHBDC's requirement under the resource consents for Waipukurau and Waipawa water supplies to have a water management strategy. The purpose of the 2012 Water Management and Conservation Strategy were:

- To demonstrate the financial efficiencies that could be made from conserving water through lower operating costs, reduction / deferring of capital costs and efficiencies and economies through shared water use responsibility by consumers.
- To provide linkage of the Water Activity to the social, cultural, economic and environmental community outcomes for the District, and thereby feed into the 2012-2022 LTP with the aim of supporting Council's demand management target areas.
- To recognise that there were statutory mechanisms in place, such as the Water Services Bylaw, that can enable a stronger regulatory approach to be employed by Council where necessary to manage consumer demand and water supply activities.

The 2012 Strategy also detailed Council's current approach to demand management activities:

- **Integrated Planning** – promoting water management and a more sustainable approach to water management through ensuring development is appropriately designed and engineered, and consistent standards are adopted. This included consideration of appropriate network upgrades to accommodate future pressure management.
- **Environment** – consideration of the predicted impact of future climate trends in the District. Rainwater harvesting was raised as an option for further investigation as part of the District Plan review.
- **Demand Management** – the use of restrictions to manage water use during high periods of demand, and the need for all customers to comply with the restrictions.
- **Asset Management / Reticulation Renewals** - \$462,213 was budgeted for in the 2011/2012 Annual Plan for Council to continue to maintain a proactive maintenance and renewal programme, with priorities given to areas of network where evidence of high leakage is observed.
- **Targeted Growth** – at the time of writing the 2012 Strategy, Council had capped the amount of growth around the outer extents of the water supply networks due to limited capacity and low pressure. Instead growth was encouraged in the central township areas where there is more capacity. It was noted that if water management is successful in reducing demand that the cap could be reviewed in the future.
- **Zone Management** – an increase in the number of zones in the water supplies was proposed to aid Council's management of water usage, leakage and other operations and maintenance issues.
- **Leak Repairs** – an overview of Council's maintenance contract is provided with Council aiming to respond to and repair significant leaks within the CBD within six hours. Lower priority leaks have a response time of up to seven days. For leaks on private properties Council visits or contacts property owners with a request to repair the leak within seven days. It was noted that private leakage is known to be an issue particularly with lifestyle and farm properties where pipes and troughs are poorly installed and maintained. Council's bylaws enforced to ensure leaks are repaired.
- **Leak Detection Policy** - Council monitor the reticulation and stormwater drains on a regular basis to identify water leaks. Leakage detection is also undertaken with a focus on trunk main leakage, critical mains and vulnerable areas.
- **Water Metering** – extra-ordinary customers are metered (>300m³ per household per year) and charged for consumption over 300m³ per year (meters read quarterly). Meters are read monthly for consumers with trade waste accounts and larger water consumers.
- **Ordinary Water User Policy** – under this policy, Council can install a water meter and charge accordingly if a domestic property is using a volume of water that is more than what is deemed reasonable. An extra-ordinary user is any user that is not considered to be a standard domestic property using a typical volume of water, which may be subject to specific conditions and limitations.
- **Extra-ordinary Water Users** - It was noted that over the 10-year cycle of the current LTP, Council have a meter installation programme for un-metered commercial properties if the water usage is deemed to warrant a meter being fitted (e.g. consumption is > 300 m³ per year). Further conditions and definitions on what are deemed an extra-ordinary water user are also in place (e.g. domestic swimming pools or spas in excess of 10 m³). All new extra-ordinary connections are automatically metered.
- **Metering Tariff and Trade Waste** – standard water use and water meter tariffs are in place. It was noted that the application of trade waste charges was an important tool to encourage water use efficiencies by large users.
- **Hydrant Usage** – Council use hydrants to carry out mains flushing which is important for keeping water mains clear of debris build up. Mandatory testing of hydrants is also required by Council. Where possible these activities are programmed to avoid summer and drought periods. The NZ Fire Service are also given access to fire hydrants for training and testing purposes. Council has two dedicated and full metered water tanker filling points which are accessed via hydrants by authorised users. These dedicated filling points help to reduce excessive use and wastage of water from indiscriminate hydrant use.
- **Council Water Use** – irrigation of Council's parks and reserves requires significant water use. Council is working to put in place more efficient irrigation practices to manage the impact of irrigation during peak water usage periods and the load on treatment plants. Where practical drought resistant grasses on sports fields and plants that require minimal watering are used.
- **Water Conservation and Public Education Programme** – refer to section 'Engagement and Public Education'
- **Water Supply Bylaw** – refer to section 'Plans and Policies'.

Sustainable Water Management Plan 2021 - 2024

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Strategic Objectives

The Sustainable Water Management Plan will provide the means to deliver change in how we think of and value water, resulting in efficient use of water throughout community.

The SWM Plan needs to be aligned to Our Communities Strategic Outcomes, namely:



Environmentally Responsible

He Whaaro nui ki te taiao

Central Hawke's Bay is home to a unique and beautiful landscape. We celebrate and work together to enhance our local natural wonders and resources.

The management of the 3 waters systems meets growth needs to best serve the community while ensuring the effective use of the limited water resource and protecting the natural environment.



Durable Infrastructure

He hanganga mauroa

We aim to provide sound and innovative facilities and services that meet the needs of our communities today. Our infrastructure is fit for purpose and future proofs our thriving district for tomorrow.

The provision of a 3 waters system in the most cost effective and sustainable way by using the latest technologies and looking for outside the square opportunities and of a quality and quantity that meets the consumers demands, while ensuring any risk to Public health is eliminated.



Connected Citizens

He Kirirarau whau hononga

Our citizens can connect easily with each other and with those outside of our District. We all have access to everything Central Hawke's Bay has to offer and enjoy these great things together.

By delivering 3 water services outcomes in a way that protects and enhances the uniqueness of the Central Hawke's Bays identity.



Prosperous District

He rohe tonui

Our is a thriving District that is attractive to businesses. Central Hawke's Bay is enriched by the households and whanau that are actively engaged in, and contribute to our thriving District.

The provision of 3 waters to the consumer will help promote and ensure a thriving community.



Proud District

He rohe poho kererū

Central Hawke's Bay is proud of its identity and place in our region and nation. We hold our head high on the national and international stage, celebrating our unique landscape from the sea to the mountains.

By delivering 3 water services outcomes in a way that protects and enhances the uniqueness of the Central Hawke's Bays identity.

By 2025 we aim to:

- Reduce residential consumption by 10%
- Maintain less than 1.80m3 average consumption of drinking water per day per water connection
- Reduce water loss by 20% / Target ILI < 4 within 5 years
- Implement and deliver the renewals campaign as set out in the Long term Plan and Asset Management Plans
- Regular, concise and clear education programmes run regularly to promote this plan

By 2035 we aim to:

- Reduced residential consumption by 20% through universal metering and volumetric charging
- Maintain less than 1.50m3 average consumption of drinking water per day per water connection
- Reduced and maintained water loss to ILI < 2 within 10 years
- Reduce water loss by 40% / Target ILI < 3 within 10 years

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

How Do We Get There?

This section describes our plans to deliver a sustainable water management plan. Many of these activities will lead towards more aspirational long-term objectives and the Plan should be updated on a cyclical basis to create a rolling 3-year plan that stretches us to achieve the aspirational targets.

Our approach to water efficiency can be grouped into three key areas as listed below and detailed in the follow section:

- Engaging with our customers
- Improving our assets
- Working with our stakeholders

For each key activity listed the expected outcome is defined with a priority action to determine the appropriate timing. Three categories have been assigned; **Immediate** within the next 1-3 years, **Investigate** within 3-6 years, and **Future** 6+ years.

ACTION PLAN

This section details the options that are identified as 'immediate' actions and include those actions we are already doing or will provide the greatest benefit to save large water volumes of water in the short term.

Table 11: Engaging with Our Customers

Key Area	Key Activity	Expected Outcome	Action
Engaging with our customers	Residential education and awareness campaigns	Customers value water and are aware of the benefits of saving water through reducing their own use	Immediate
	Non-residential customer education and awareness campaigns	Work with customers to demonstrate how water can be saved through efficient practices and benefits such as financial incentives.	Immediate
	Review and update water restrictions policy to reduce irrigation / outdoor use	Seasonal policy to implement 'Sustainable Water Use Measures' which the community embraces	Immediate
	Large water consumers water efficiency review and option for savings	Target water savings within non-residential users	Investigate
	School education programme	A water-wise educational programme for schools to educate future water users about why and how to reduce our water demand	Investigate
	Working in partnership with relevant organisations (Regional Council, Water NZ) either with joint campaigns and/ or on-line promotions	Our engagement programme will appear integrated and customers demonstrate satisfaction with the information and support they are receiving	Investigate
	Finding innovative ways to engage with our customers in water efficiency.		
	Universal metering and volumetric charging - Potable water and wastewater	Informed understanding of water use behaviour to support water resource planning and meeting consenting requirements Frequent reading and billing Fair pricing scheme across the district (e.g. peak pricing, block tariff)	Investigate
	Use of rainwater tanks to substitute water demand during peak demand	Determine if rainwater tanks are beneficial to support potable water use and/or outdoor use for existing customers and new builds	Investigate
	Planting restrictions to ensure only native plants that are appropriate for the local climate are used in new developments / replacement	Water efficient landscaping policy and incentives to support new developments and replacement	Investigate

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

Key Area	Key Activity	Expected Outcome	Action
Improving our Assets	Identify 'champions' for Sustainable Water Management (SWM) within Council and define their role of promoting SWM within the community and within the Region.	Specific roles to be defined and assigned to lead and promote sustainable water management within Council and the wider community Set financial operational budget for SWM	Immediate
	Implement a bulk meter management system to ensure accuracy of measurement and reporting (Telemetry System)	Improve our understanding and analysis of demand	Immediate
	Develop a Non-Revenue Water Strategy to reduce leakage levels	Proactive leakage detection programme to reduce leakage, reduce burst frequency, and to provide continuous minimum night flow reporting	Immediate
	Establishment of District Metered Areas (DMA) or Pressure Management Areas (PMA) to provide	To monitor demand and leakage in manageable areas for informed decision making as part of the wider SWM plan	Immediate
	Data audit of existing customer metering	To account for legitimate usage and improve our understanding of water consumption by user category	Immediate
	Develop Standard Operating Procedures (SoPs) to capture fault data (breaks, complaints), flushing / repairs, etc..	To minimise and account for legitimate water usage when operating the network To capture performance data for informed decision making e.g. pipe breaks	Immediate
	Targeted renewals / rehabilitation programme to reduce leakage and burst frequency	Effective renewals programme resulting in a reduction in number of pipe breaks	Investigate
	Review water use within treatment processes and operational e.g. recycled effluent at WWTP	Demonstrate sustainable use of resources including water within water and wastewater treatment processes	Investigate
	Investigate alternative sources and provide cost benefit analysis e.g. greywater	Alternative water resources to reduce demand	Future
Working with our stakeholders	Develop a policy to ensure sustainable water use within the Council facilities and operations e.g. Park irrigation use	Water efficient buildings and recycling of potable water in operational use	Immediate
	Use of water efficient fixtures for key stakeholders such as Education and Kāinga Ora (Homes and Communities)	A programme to implement cost-effective water saving measures in schools, public buildings, community housing etc.	Immediate
	Provide incentives for developers to adopt water efficiency measures in new and refurbished housing and be fully engaged with the community	Engaged with private developers and housing associations to identify the most practical and appropriate specification for maximising practical water efficient new housing.	Investigate
	Drive the implementation of water efficiency policy and standards in development plans including those relating to new-building specification	New build legislation to ensure new homes or businesses are designed to meet low per capita consumption	Future
	Planting restrictions to ensure only native plants that are appropriate conditions	Promote water efficient landscaping	Future

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

Plan Implementation

A work-stream approach has been adopted to deliver 'The Plan'. The output will be consolidated into our Water Asset Management Plans which over time will inform the development of this document from an initial statement of strategic intent to a fully mature business approved Plan.

To implement the SWM Plan include requires making changes to our existing assets and practices; enhancing existing practices or delivering new activities. Regular reviews will monitor the success of each work-stream as presented in Figure 12 and the resulting impact on our demand assessment and predicted savings.

The individual projects identified as part of the Action Plan are presented in Figure 12 based on the proposed timing of each initiative grouped by work-stream. Council intend to review the plan on a three-yearly cycle and will assess the timing and need for individual projects based on the success of pilots, trials and the available funding to support implementation.

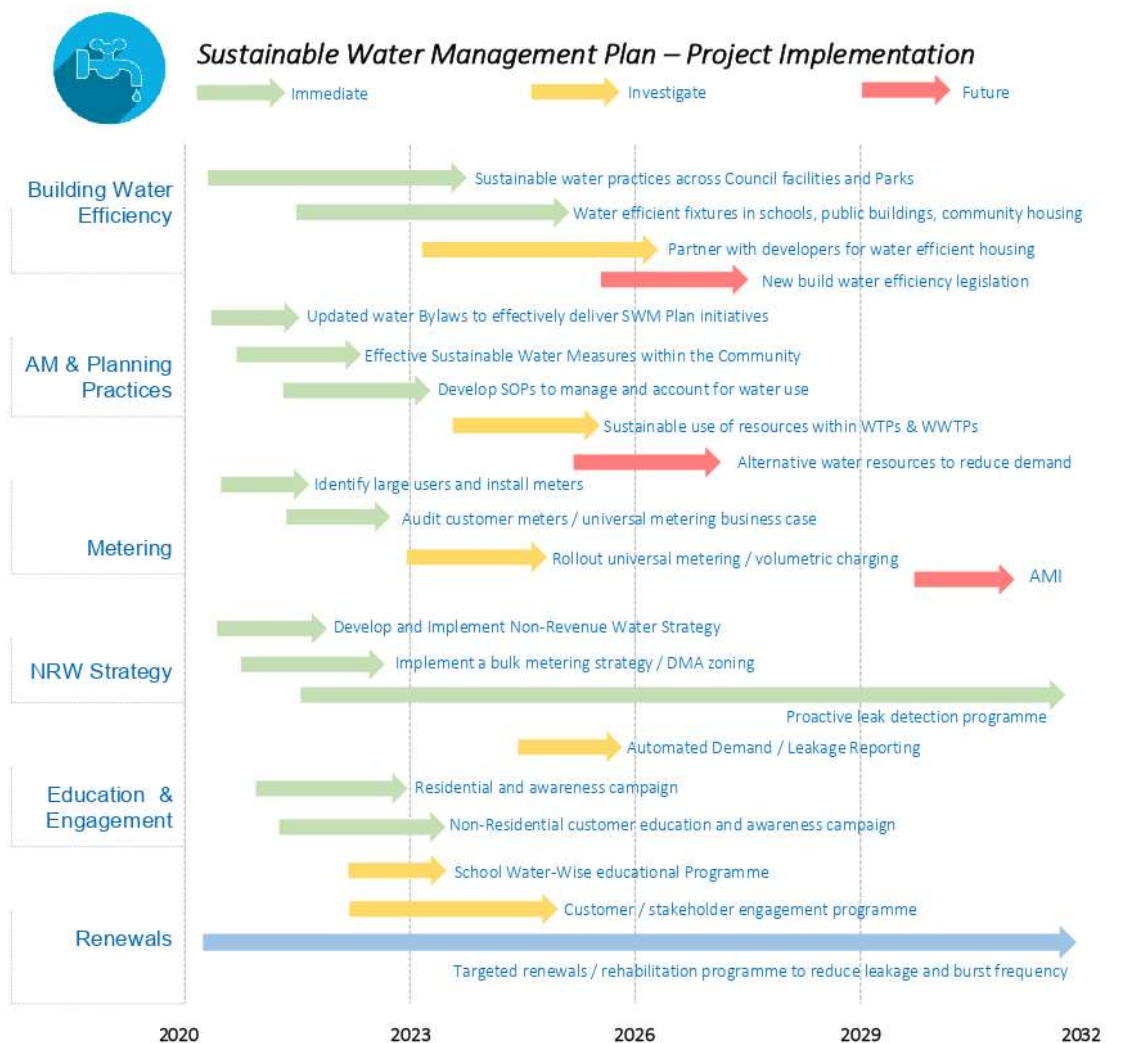


Figure 12: Sustainable Water Management Plan – Implementation Project Timeline

The options that are identified as 'immediate' actions which includes those which Council are already doing or will provide the greatest benefit to save large water volumes of water in the short term are presented in Appendix A.

Sustainable Water Management Plan 2021 - 2024

*E ora ngātahi ana!***OWNERSHIP – ROLES AND RESPONSIBILITIES**

Ownership of the SWM Plan will need to be assigned along with champions to lead the various work-streams. Defining ownership to individuals or departments within Council will drive progress and bring success.

Roles and responsibilities are required for implementation, ongoing monitoring, analysis and reporting for individual projects / work-streams.

It is recommended that an overall team or individual is assigned responsible for Council to own and deliver the plan. This will include responsibility for providing updates Council and its stakeholders on progress, levels of success and next steps.

MEASURE OF SUCCESS

The process of monitoring and evaluation is important and will be used to refine SWM strategies in the longer term to ensure cost-beneficial options are being implemented and savings are being achieved.

Establishing targets to measure progress will be essential with detailed assessment and pilot programmes to determine the benefits against implementation and maintenance costs. Results will support future updates to the plan and the rollout of successful practices across the district.

There is uncertainty in calculating the demand for water from customers. Key uncertainties will arise from the influence of climatic variations, economic impacts, estimates of population and the lag between implementation of water efficiency measures and when they take effect. The reporting of performance will take account of these uncertainties by inclusion of a tolerance band around targets and these will continue to be refined in future updates for inclusion in performance assessments.

Council will measure and report on the performance of options on a regular basis such as quarterly or as appropriate. For each option key performance indicators (KPIs) will be developed at the start of the project, including; water saving and cost information, with other relevant objectives. This information will support the development of the cost benefit analysis and future updates to the plan.

PLAN REVIEW

The SWM Plan is the start of a journey for Council, its stakeholders and its customers. It involves changes to behaviour, new technologies and different management practices. Council proposes to review this plan on a three-yearly cycle in line with the Asset Management Plans and as part of Council's continuous improvement process.

The review will focus on:

- Progress of implementing sustainable water management initiatives
- Effectiveness of implemented initiatives to meet targets
- Status of pilots and investigations into other potential options
- Identifying additional options/ funding that may need to be implemented to meet future targets

The review of this Plan will enable Council to identify the water sustainable management measures that will ensure customers save water in the most cost-effective manner.

RISKS AND MITIGATION

Several risks to the Plan have been identified but we will mitigate these risks, where at all practicable.

- Failure to engage customers with our water efficiency message and in trials/ pilots – work with the region and industry partners like Water New Zealand to help us meet customer expectations.
- Lack of legislative support/ no appetite from external stakeholders/ conflicting views on how to proceed – fully engage with external stakeholders from the start of the process.
- Changing customers' behavioural legacy – ensure we engage fully with the customer and invest in market research/ focus groups to understand the barriers to water efficiency.
- Longevity of the effects of water efficiency has not been proven – through the water efficiency trial, we will be creating a local regional case.
- Effects of reported reduced consumption not seen at water source – careful analysis of results including distribution Input data, per capita consumption monitor data and other operational activity to allow us to interpret the effects of water efficiency on Distribution Input.
- In terms of measurement of national campaign activities, these are very difficult to quantify. Other factors may also be influencing demand such as leakage improvement work in the area. By developing customer awareness, we proactively take steps to inform our customers in how they can use water sustainably which will hopefully in turn influence their water usage behaviours and will be seen, over time, a reduce in per capita consumption.

Sustainable Water Management Plan 2021 - 2024***E ora ngātahi ana!***

- Climate change has the potential to introduce substantial strategic risk and uncertainty. This could lead to significant capital expenditure if results are fully incorporated into schemes. However, where possible new strategic assets must be future proofed as far as is reasonably practicable.

Sustainable Water Management Plan 2021 - 2024

E ora, ugātahi ana!

Appendix A – Three Year Action Plan

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

A1: Engaging with our Customers

Activity	Expected Outcome	Building Blocks	Ownership / Year	Budget \$
Review and update water restrictions policy to reduce irrigation / outdoor use	Seasonal policy to implement 'Sustainable Water Use Measures' which the community embraces	<ul style="list-style-type: none"> Review current water restrictions and develop 'sustainable water measures' that can be easily adopted and understood by customers Promote 'seasonal' sustainable water measures within the community to emphasise the importance of how we use water and the impact small changes can make Monitor daily usage (per person) vs targets with daily updates across local news / Council website (front page) – make it engaging and interesting Assess the effectiveness of seasonal water use measures and engage with the community of the effectiveness 	Council / 2021	\$15,000
Residential education and awareness campaign	<p>Customers value water and are aware of the benefits of saving water through reducing their own use</p> <p>To provide a better understanding of how customer behaviour responds to metering versus other water efficiency measures</p>	<ul style="list-style-type: none"> Review our current water efficiency material and how we can make it more accessible to the community i.e. social media. Campaign to promote simple tips on how we can all use water wisely in and around our homes and gardens to save water, save energy and money off energy bills, whilst benefitting the environment Seasonal promotions to highlight the importance, Labour day, Christmas/New Year and Easter Establish a water efficiency trial to understand how our customers use water and what drives them to water efficiency behaviours: <ul style="list-style-type: none"> Metering – How providing customers with their consumption data changes behaviour and demand Education – how education and customer information influences customer demand Devices – how the use of water efficiency devices/ appliances influence customer demand 	Council / 2021-24	\$15,000 per annum Efficiency Trial - \$35,000
Non-residential customer education and awareness campaign	Work with customers to demonstrate how water can be saved through efficient practices and benefits such as financial incentives.	<ul style="list-style-type: none"> Work with non-residential customers to provide water sustainable measures 	Council / 2021-24	\$60,000

Central Hawke's Bay District Council Sustainable Water Management Plan

Sustainable Water Management Plan 2021 - 2024

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A2: Improving our Assets

Activity	Expected Outcome	Building Blocks	Ownership / Year	Budget \$
Identify 'champions' for Sustainable Water Management (SWM) within Council and define their role of promoting SWM within the community and within the Region.	Specific roles to be defined and assigned to lead and promote sustainable water management within Council and the wider community	<ul style="list-style-type: none"> Define role and responsibility, level of commitment to implement and manage SWM plan Raise the profile and priority of the SWM Plan across Council departments to achieve the objectives of the plan Promote Council as a leading example of water efficiency Identify future opportunities for water efficiency within Council 	Council / 2021-24	TBC
Implement a bulk meter management system to ensure accuracy of measurement and reporting (Telemetry System)	<p>Improve our understanding and analysis of demand</p> <ul style="list-style-type: none"> Ensure there is confidence in the flow data observed at existing bulk meter locations Identify where there are clear data discrepancies which may require a meter to be replaced or further investigation; and Identify new locations where bulk meters should be installed to provide greater confidence in the network performance 	<ul style="list-style-type: none"> Review bulk meter data and develop bulk meter improvement plan to improve meter accuracy and allow a water demand balance to be developed, this will comprise: <ul style="list-style-type: none"> Identifying meter location, type, condition/age, status Review of historical flow/pressure data Develop and implement an improvement plan for the installation of new bulk meters and replacement of existing meters as part of Asset Management Plan Review telemetry system and reporting tools for suitability to integrate with other systems and provide dynamic reports i.e. daily demand /leakage summary Update / replace telemetry system and establish operational reports Develop meter specification / tender / install new bulk meters and commission 	Council & Industry Partner / 2021-23	\$250,000 – estimate (subject to number of meters and communication requirements)
Develop a Non-Revenue Water Strategy to reduce leakage levels	Proactive leakage detection programme to reduce leakage, reduce burst frequency, and to provide continuous minimum night flow reporting	<p>NRW (Water Loss) is dependent on the accuracy and availability of the source data used in the water balance calculation, therefore improving the source data is key to improving confidence, targeting and reducing leakage levels.</p> <ul style="list-style-type: none"> Establish leakage targets / base rates across water supplies / DMAs for intervention Leakage reporting / systems to track leakage levels, natural rate of rise (NRR) Burst frequency – unreported / unreported bursts Establish Active leakage control process Resources – roles / responsibilities / partners 	Council & Industry Partner / 2021+	\$100,000 – (2021) \$45,000 (2022-23) (excl repairs)

Central Hawke's Bay District Council Sustainable Water Management Plan

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

Activity	Expected Outcome	Building Blocks	Ownership / Year	Budget \$
Establishment of District Metered Areas (DMA) or Pressure Management Areas (PMA) to provide	To monitor demand and leakage in manageable areas for informed decision making as part of the wider SWM plan	<p>The focus will be on the establishment of Zones or District Metered Areas (DMA) that will allow consumption and leakage to be measured in manageable areas for informed decision making as part of the wider water resource management.</p> <ul style="list-style-type: none"> Define objectives and concept design Proof of Concept and DMA Rollout PRV detailed design and commissioning DMA maintenance - Training and support DMA System reporting - leakage monitoring and reporting (daily, monthly, annual, DIA) 	Council / Industry Partners 2021-23	TBC
Data audit of existing customer metering	To account for legitimate usage and improve our understanding of water consumption by user category	<ul style="list-style-type: none"> Analyse and Validate existing data / billing to determine a single source of truth whilst identifying inconsistencies Review and align with Council stakeholders (3 Waters, Business Information Systems, Finance and Customer Services) a run list for field audit of meters. This will include all water supplies both domestic and non-domestic Desktop and field audit of meters against a run list. This may involve auditing most connections to identify customer meter location, type, condition, status, etc... Cleanse existing data stores with single source of truth Produce a project completion report based on the audit of meters Provide an installation programme for new customers (missing) / replace non-working meters – focus initially on non-residential customers, high residential users i.e. properties with swimming pools Update asset management / finance systems 	Council / Industry Partners 2021-22	\$150,000
Develop Standard Operating Procedures (SoPs) to capture fault data (breaks, complaints), flushing / repairs, etc..	<p>To minimise and account for legitimate water usage when operating the network</p> <p>To capture performance data for informed decision making e.g. pipe breaks</p>	<ul style="list-style-type: none"> Define a list of practices / actions that are carried out to manage the network and assess performance. Identify gaps to be updated Review and update existing SoPs with respect to water use / efficiency Develop new SoPs as required Review Council systems ability to capture performance data and provide reporting 	Council / Veolia / Industry Partner	\$60,000

Central Hawke's Bay District Council Sustainable Water Management Plan

Sustainable Water Management Plan 2021 - 2024

E ora ngātahi ana!

A3: Working with our Stakeholders

Activity	Expected Outcome	Building Blocks	Ownership / Year	Budget \$
Develop a policy to ensure sustainable water use within the Council facilities and operations e.g. Park Irrigation use	Water efficient buildings and recycling of potable water in operational use	<ul style="list-style-type: none"> • Data review and audit of water use within Council facilities, identify high usage and opportunities to reduce or use of re • Carry out audits to identify water re-use practices at WTPs and WWTPs • Install sub-metering during upgrades to help identify leaks or water wastage within processes • Develop KPIs for continuous monitoring for reporting 	Council / Veolia 2021-22	\$25,000 - initial scoping / audit TBC – Audits
Use of water efficient fixtures for key stakeholders such as Education and Kāinga Ora (Homes and Communities)	A programme to implement cost-effective water saving measures in schools, public buildings, community housing etc.	<ul style="list-style-type: none"> • Identify and work with organisations to develop a water sustainable approach to water use • Develop an assessment tool to identify water saving opportunities for different building use • Confirm number and types of buildings to be audited • Carry out pilot study and install water saving devices • Report benefits / savings and prioritise plan for rollout across district • Present benefits and identify future opportunities for new buildings / technology partners 	Council / Stakeholder Partners	TBC

6.5 PREFERRED OPTION FOR DESIGN AND CONSTRUCTION OF KAIRAKAU WATER UPGRADE

File Number: 000123

Author: Darren de Klerk, 3 Waters Programme Manager

Authoriser: Monique Davidson, Chief Executive

Attachments: 1. Kairakau Water Upgrade - Options Assessment [↓](#)

PURPOSE

The matter for consideration by the Council is to provide Council with an update on the Kairakau Water System Upgrade and request approval from Council to progress with the options and recommendations developed following analysis of technical reviews, public and Iwi consultations.

RECOMMENDATION FOR CONSIDERATION

That having considered all matters raised in the report:

- a) The Finance and Infrastructure Committee approve Option 1 to upgrade and construct a water treatment plant to meet DWSNZ and safeguard ongoing water supply.**
- b) The Finance and Infrastructure Committee approve to locate the new treatment plant on land outlined in Scenario 2 – being to lease the existing Manawarakau Trust land neighbouring the existing spring and raw water storage.**
- c) The Finance and Infrastructure Committee approve to increase the project budget to \$850,000 using existing waters budgets and/ or Tranche One – 3 Waters stimulus funding while ensuring no impact on rates.**

EXECUTIVE SUMMARY

Officers have analysed 3 options from the updated concept design report against 5 treatment plant location scenarios. Following a multi criteria assessment adjudicated by the project team, officers recommend proceeding with upgrading and constructing a new treatment plant to meet drinking water standards whilst negotiating an adjusted lease on the current Brodie Place spring location for placement of the treatment plant.

Officers recommend deferring works related to post boundary compliance (mixing of roof water and council supply) and addressing water hardness pending further regulatory law changes and policy updates from the Taumata Arowai review.

The treatment plant upgrades will add much needed treatment to the existing supply in the form of additional disinfection and filtration and improve compliance monitoring and automation of the existing system. The project will also maximise onsite storage and add additional if required.

Officers have highlighted the need to increase the project budget to \$850,000 to address the new treatment plant and land location and propose to manage this within existing waters budgets and/ or Tranche One - 3 Waters stimulus funding while ensuring no impact on rates.

Officers consider this phased approach to align with the principles of Councils Asset Management Policy and intent of the Big Water Story. While not physically 'digging once' the phased approach ensures continued and targeted progression towards a future outcome of ensured compliance and improvement in drinking water for the residents of Kairakau. It is with this end goal in mind that the project steps outlined in this paper are recommended. By phasing the project while committing to a long-term view, Council is ensuring efficient investment over time and removing the need for rework.

progressing the project now as per the recommendations within this report allows progression

towards a clear end goal and also allows Council and community to meet its shorter term objectives of having a compliant supply by Summer 2021/22.

BACKGROUND

Kairakau is a small coastal town in Central Hawke's Bay, approximately 35 km south of Hastings. The town comprises primarily holiday homes, with some permanent residents; and a small camping ground. It is also a popular recreational destination for day visitors. There are approximately 11 permanent residents in the town, with up to 1,000 residents during peak holiday seasons.

The Kairakau water supply scheme was installed in the mid 1950's, upgraded in the 1970s and expanded in 1993 to include the subdivision in Mananui street, Kapiti place and Brodie place. A new subdivision was added in 2007 on John Ross Place. Originally, the scheme only serviced the camping ground and the adjoining (original) holiday homes as a supplement to roof water collection. Expansion of the scheme occurred as a result of pressure for development in the area.

The scheme currently supplies 83 properties and the camping ground (approximately 20 sites). Water is pumped from two sources at the base of an adjacent hill; a shallow bore off Kapiti place, and a spring off Brodie place. Water is stored in raw water tanks, located next to the spring on Kapiti place, before it is dosed with liquid chlorine and pumped up to four treated water tanks on the hillside above 21 Kapiti place. Water is fed to the town via gravity mains from three treated water tanks which service the general consumers, and a fourth tank which supplies the campground exclusively. Each property has its own on-site storage tank which is typically connected supplied by roof water and the water supply scheme.

Finance and Infrastructure Committee endorsed the reallocation of the project from Year 5 of the 2018 Long Term Plan to Year 3 at a meeting on the 27th February 2020, the project commenced following this meeting.

Finance and Infrastructure Committee received an initial options report in June 2020, endorsing upgrading the Kairakau water treatment plant to meet Drinking Water Standards (DWS) NZ while developing a water safety plan and the review of the water bylaw.

Finance and Infrastructure Committee received a progress update in November 2020 meeting pending a decision paper early in 2021. This would be inclusive of an updated options report and final recommendation for council to endorse on the upgrade option to be taken to design and construction following community engagement, compliance review and bylaw review into the options presented and considered.

Officers have identified a majority interest from the community for the retention of the water supply with significant concern placed on the location of any treatment plant. There is also an interest in addressing water hardness especially if rainwater is disconnected from the tanks so the houses are only fed from town supply. To assist decision making a multi criteria assessment (MCA) by the project team has been performed. The community has also requested a further engagement meeting following the council decision. This is planned for mid-March 2021 to coincide with Long Term Plan engagement.

DISCUSSION

Officers requested expediting budget in early 2020 to allow officers to develop this project due to issues with the existing infrastructure during summer 2019/2020, and to support an application for funding as part of the Tourism Infrastructure Fund, unfortunately due to COVID-19 the fund was

cancelled a few days before applications were due in March 2020. In June 2020, officers presented an options report to the Finance and Infrastructure Committee to propose taking an option to design. Council requested further community engagement take place and the compliance issues around dual tanks be investigated further.

Following the options report presented in June 2020, and the update paper presented in November 2020 a formal Community meeting was held 6th December 2020. The Community raised concern on full reliance of the town supply due to the Water Hardness with discussion on treatment of this and any requirements under the DWSNZ. In addition, the location of any treatment plant, loss of reserve amenity and effects on adjacent properties was a significant topic.

Compliance Requirements - Further review of the requirements under the DWSNZ has been performed within an updated options report developed (refer enclosed). Clarification from WSP suggests that currently Council is responsible for the quality of supply at property boundaries under the DWSNZ.

The regulatory requirements with respect to the parts of the water supply system located on private properties is less clear. The existing Building Act 2004 and amendments provides for property owners to be responsible for water within their property, which would normally entail:

- Using a mains supply if available for drinking and food preparation
- Providing a filtration / treatment system for drinking water if no mains supply is available
- Avoiding contamination of the water supply system (backflow).

Advice sought from the DHB provided a reserved comment pending the new regulatory guidance. Regulatory law changes and policy from the Taumata Arowai review are yet to be published. With the potential for regulatory guidance assisting Councils on post boundary installations retrospectively, recommendations are to pause this aspect until such time as regulatory law changes become clear. Community messaging on the potential risks of cross contamination of Council and rainwater supplies may support the community in the interim.

Water Hardness – The existing Spring Supply and Bore Water provide very hard raw water, near 3 times higher than the typically accepted threshold for hard water. Hardness is deemed an aesthetic rather than health issue and treating water hardness is not a current requirement of DWSNZ.

The current Council supply dilutes with water collected from through roofwater, making the issue of Council supply hardness somewhat manageable for residents. However, separation of supplies identifies the Community require further engagement on potable water delivery (Rain water or Council).

In order to address hardness, a further treatment addition would be required, involving discharge design, management and ongoing operational costs. Options considered to address this discharge include;

1. Piping to the private sewerage system requiring a study on the effect of the sewerage treatment plant and associated consents,
2. Holding in additional tanks onsite and weekly removal by a sucker truck and tankering to a local wastewater plant in Waipawa or Otane.
3. Onsite treatment inside the boundary of each rate-payers address. We expect options to address this to require a full community study of all property configurations and developing agreement on responsibility for post boundary equipment. Given the complexities and pending regulatory guidance this is not presently analysed into the MCA or recommended at this stage.

Updated WSP Options Report 21 December 2020 – This has been developed considering the above following further investigations at the community and under the existing DWSNZ legislation.

For reference, the four options originally presented supply were;

1. **Option 1:** Upgrade water treatment plant to meet DWSNZ; retain roof water as potable supply; install restrictors to all properties to control peak demand.
2. **Option 2:** Upgrade water treatment plant to meet DWSNZ; remove roof water; install restrictors to all properties to control peak demand. - possibly add bore and storage to meet increased peak demands (To be further investigated)
3. **Option 3:** Decommission existing supply and put all properties on roof water only.
4. **Option 4:** Decommission existing supply and put all properties on roof water only including adding additional storage and adding point-of-entry treatment.

Of the four options previously consulted on with the community the updated December options report identifies three with the previous option 1 being discarded pending regulatory guidance.

1. **Option 1:** Upgrade water treatment plant to meet DWSNZ and safeguard ongoing water supply; and address 'on-property' tanks to the 'extent required' (previously option 2, to be developed during design stage).
2. **Option 2:** Decommission the existing Council supply and put all properties on roof water only (previously option 3).
3. **Option 3:** Decommission existing supply and put all properties on roof water only including adding additional storage and adding point-of-entry treatment.

Recommendation – Officers have recommended within the executive summary proceeding with **Option 1** including developing the extent of changes required to on-property tanks on the land location outlined in **Scenario 2** below.

Land Location Options

Five land location scenarios have been shortlisted and assessed by the project team.

- **Scenario 1:** Current Kapiti Place Local Purpose (recreation) Reserve positioned treatment plant adjacent to existing Bore.
- **Scenario 2:** Current Manawarakau Charitable Trust Inc land (protected by QEII Covenant) Brodie Place positioned treatment plant adjacent to existing Spring (on land held by Council) under new lease with Trust.
- **Scenario 3:** Current Manawarakau Charitable Trust Inc land (protected by QEII Covenant) positioned treatment plant adjacent to existing Spring (on land held by Council) under acquisition.
- **Scenario 4:** New Bore located on the Kairakau Legal Road. (not progressed pending response from Tangata Whenua).
- **Scenario 5:** Existing Council Kairakau Bush Recreation Reserve positioned treatment plant below current treatment tanks (Recreation Reserve, Lot 23 Deposited Plan 10063 – Crown land vested to District Council).

There are concerns from the community on the effect of placement of any expanded treatment plant - making no location ideal. All feedback received was consistent in respect of concerns on plant noise, aesthetics', road access and loss of any reserve amenity's.

Officers have assessed that scenario 2 provides the best outcome for the project, with the lowest risks on land and lowest community impact. The ongoing risk for council is highlighted within the lease arrangement proposed for the positioning of the plant.

In addition, this provides an additional community benefit in respect of supporting the QE ii bush reserve. The Manawarakau trustees have also identified they are willing to negotiate a new lease arrangement with council and also take a fair and reasonable approach to negotiating an annual rental under the new lease, but are not prepared to sell any land to council, only the grant of a lease and easements as proposed under this option.

A summary of the assessment of land location is below;

Location	Directly affected landowners	Assessed risk of community, challenge
Scenario 1: Kapiti place local purpose (recreation) reserve	6nr + community amenity reduced	High
Scenario 2&3: Brodie place (Manawarakau charitable trust inc)	2nr note QEiiii covenant over entire property	Medium
Scenario 5: alternative Kairakau bush reserve parcel	7nr	High

Scenario 4: Alternative bore location – the district plan identifies a designation on the road reserve of Te Apiti road, around the headland.

This opportunity was identified in the 19 May 2020 options report and requires a test bore investigation as may offer better water quality. Presents issues being the road reserve does not appear to follow the current formed road, so a location survey and discussion with Kairakau lands trust (on behalf of tangata whenua) has begun and requires progressing.

Land stability in the location also needs investigating as a 2012 storm created significant slips. In addition, the adjacent stream has been highlighted of cultural significance to iwi. Should this option be pursued we expect significant iwi consultation will be required who have presently expressed concern at the placement of the treatment plant in this location. A further easement for the supply pipe may be required to bring water back to a treatment plant location (scenario's 1,2,3 or 5).

Funding

Council set aside funding of \$549,000 in Year 5 of the 2018 Long Term Plan, this was reallocated to Year 3 of the 2018 Long Term Plan by Council at a meeting in early 2020.

Following the work undertaken to date, officers have highlighted to complete the project to meet compliance requirements and community needs – the original budget of \$549,000 is not sufficient, officers are requesting that the project budget be increased to \$850,000.

Officers are proposing to work within wider water project budgets and/ or Tranche One of the 3 Waters Stimulus funding to meet this additional budget need. This project was set aside as a backup project in the Tranche One 3 Waters Stimulus and can be called upon if another project(s) budget is reduced.

The reason for the additional budget relates to the need to implement a treatment plant that meets DWSNZ standards whilst managing a new land requirement be it lease or own. Contingency has been built into the cost increase to manage the current risk in the market that there are minimal contractors showing interest in Treatment plant type work.

The newly set budget for Kairakau is comparable to the Takapau and Porangahau projects where budgets were \$850k for Takapau and Porangahau at \$1.2m.

RISK ASSESSMENT AND MITIGATION

Compliance with Drinking Water Standards - The project aims to address the final water supply in the Council district that has not been upgraded to improve the ability to meet compliance

requirements. This risk will increase if the project does not proceed to address the need to be compliant with drinking water standards.

Community views - In the discussion section above officers have addressed the process undertaken to engage with community on this project. There are still risks associated with community views on the project and these are planned to be managed through ongoing and consistent communication.

Land confirmation – An existing discussion and relationship built through the project with the preferred land location minimises the risk of not confirming the land for the site, along with a fair valuation through an independent party.

Budget and Funding – while budget needs to be increased to meet the project requirements, this can be managed within existing budgets.

Future phases – Risk lies in the work needed in future phases, if and when they are needed to be implemented, these phases relate to separation of the hybrid onsite tank system, the water hardness and the need to increase storage and ability to meet demand. This will be managed through future planning and asset management identifying when these phases may be required.

Current compliance risk – The risk carries through the following key areas;

- Ability to supply consistently during peak periods
- Visibility on the system through the lack of automation and transparency.
- The basic treatment process and the robustness of the manual processes
- Current compliance with the drinking water standards.

FOUR WELLBEINGS

Cultural – officers have engaged with Iwi on the project to date and provided updates on the options being investigated, whilst no additional water source and no significant change in location, Iwi interest remains low.

Social – The improvement in the treatment system will allow for more consistent supply to the community which we would expect in turn to have social benefits. There will need to be directly affected landowner engagement to minimise any effects and mitigate any negative aspects from the installation of a treatment plant on a neighbouring property.

Economic – an upgraded treatment plant expects to have a positive economic impact on the community.

Environmental – Improving onsite stormwater management and construction activities will be managed to ensure the project introduces environmental benefits, the footprint of the site will be managed through the next steps of design.

DELEGATIONS OR AUTHORITY

The project is within the Chief Executives delegations, but due to the public interest and committee engagement on the project to date. Officers continue to bring the project to the Finance and Infrastructure committee for decision making as committed to in previous papers in June and October 2020.

SIGNIFICANCE AND ENGAGEMENT

In accordance with the council's significance and engagement policy, this matter has been assessed of some significance, engagement has been performed with the community by email, letters to all ratepayers, facebook, direct door to door visits and a community meeting.

Additional engagement is taking place with directly affected landowners.

Initial engagement with local iwi via the Kairakau lands trust has taken place and will continue early in the design phase to ensure we align, provide opportunity and meet any cultural requirements.

Upon endorsement of an option, council officers will commence further engagement planning alongside the design works, to ensure the community is involved and any directly affected residents are involved in and have the ability to provide input into aesthetic design as the project develops.

OPTIONS ANALYSIS

Option 1 - Construct a new water treatment plant to meet drinking water standards, locate on Manawarakau trust land via a lease, and increase project budget to \$850,000.

Option 2 - Continue with the Status Quo.

Option 3 - Decommission existing water supply and consider supporting all properties to be safe and sufficient on roof water.

	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
	Construct a new water treatment plant to meet drinking water standards, locate on Manawarakau trust land via a lease, and increase project budget to \$850,000.	Continue with the Status Quo	Decommission existing water supply and consider supporting all properties to be safe and sufficient on roof water.
Financial and Operational Implications	Increased financial implications, but managed within existing budgets, so no impact.	Lower financial implication, but continued higher operational impact and compliance risk.	Within budgets, but not delivering an outcome for the community.
Long Term Plan and Annual Plan Implications	Consistent with 2018 LTP	Inconsistent with 2018 LTP intentions.	Inconsistent with 2018 LTP intentions.
Promotion or Achievement of Community Outcomes	Achieves community outcomes and aligns with THRIVE objectives.	Does not promote, achieve or enhance any community outcomes.	Does not achieve community outcomes, as council moves away from the role of supplying water.

Statutory Requirements	Will meet the current statutory requirements (DWSNZ) and set the supply up to adapt to future requirements.	Will not meet the current statutory requirements and Council may be at risk of challenge	Risk with Statutory Requirements –in particular Section 130 and Section 131 of the LGA 2002
Consistency with Policies and Plans	Meets with 2018 and 2021 Long Term Plan objectives – Consistent with THRIVE values of durable infrastructure.	Not consistent with the 2018 or the 2021 Long Term Plan objectives. Inconsistent with THRIVE values of durable infrastructure.	Inconsistent with THRIVE values of durable infrastructure.

Recommended Option

This report recommends **option number one** to Construct a new water treatment plant to meet drinking water standards, locate on Manawarakau trust land via a lease, and increase project budget to \$850,000 for addressing the matter.

NEXT STEPS

Upon approval of the recommended option, officers will;

- Develop Scenario 2 – develop lease discussions with the Manawarakau Trustees and progress discussions with QEII including actions required to conclude actual lease costs and regularisation of existing easement anomalies.
- Develop WSP option 1 into full design including identifying whether further changes are recommended to on-property tanks. One conclusion of land discussions and agreement is reached, plan to commence construction.
- Defer significant post boundary works until regulatory guidance is provided.
- Defer developing treatment for water hardness whilst mixing of supplies continues and the supply is manageable.
- Defer the need to increase water supply until water potable supply is solely from the council supply.
- Continue to engage with directly and indirectly affected community members.

RECOMMENDATION

This report recommends **option number one** to Construct a new water treatment plant to meet drinking water standards, locate on Manawarakau trust land via a lease, and increase project budget to \$850,000 for addressing the matter.

Project Number: 3-C2144.01

Kairakau Water Supply Options Assessment

21 December 2020

CONFIDENTIAL



Contract #C-1069





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Revision	Details
01	Initial release
02	Updated following CHBDC feedback
03	Following community consultation
04	Reflecting Council comments on R3



Contents

Executive Summary	1
1 Introduction	3
1.1 General	3
1.2 Background	3
2 Current Scheme	3
2.1 Background	3
2.2 Current Usage	5
3 Issues and Options	6
3.1 Sources - Bore and Spring	6
3.2 Storage	8
3.3 Pumping Stations and Rising Mains	10
3.4 Treatment	10
3.5 Monitoring	11
3.6 Reticulation	11
4 Community Consultation	13
5 Regulatory Requirements	14
5.1 Government Guidance	14
5.2 Pending Law Changes and Policy (as indicated from Taumata Arowai)	16
6 Upgrade Options	18
6.1 Options Overview	18
6.2 Option 1 – Upgrade treatment plant to meet DWSNZ	18
6.3 Option 2 – Decommission existing supply and put all properties on roof water only	25
6.4 Option 3 – Decommission existing supply and put all properties on roof water only; provide point-of-use/entry treatment and storage	25
7 Cost Estimates	26
8 Recommendations	28
Disclaimers and Limitations	29

List of Figures

Figure 2-1 : Location of Key Kairakau Water Supply Elements	4
Figure 2-2 : Schematic of Kairakau Water Supply	4
Figure 3-1 : Existing bore and pump shed	6
Figure 3-2 : Existing spring	7
Figure 3-3 : Raw water tanks, spring and pumping station	8



Figure 3-4 : Damaged treated water tank.....	9
Figure 3-5 : Concrete treated water tank which supplies campground.....	9
Figure 6-1 : Map of proposed locations of new treatment plant and raw water tanks.....	20
Figure 6-2: Indicative layout of new treatment building and relocated raw water tanks for Option 1a.....	21

List of Tables

Table 2-1 : Water usage data for Kairakau for 2017/18 and 2018/19.....	5
Table 2-2 : Estimated average water demand for Kairakau for 2017/18 and 2018/19 including estimated rainwater collection.....	5
Table 2-3 : Estimated average water demand for Kairakau for 2017/18 and 2018/19 including a growth allowance of 20%.....	5
Table 7-1 : Preliminary cost estimate for Options 1a and 1b.....	26

Project Number: 3-C2144.01
Kairakau Water Supply

Executive Summary

Central Hawke's Bay District Council (CHBDC) has engaged WSP to undertake an assessment of potential upgrade options to the Kairakau water supply. The objectives of this upgrade are to:

- Provide a safe water supply for residents that meets regulatory requirements.
- Provide a water supply which balances reliability, cost-effectiveness, and ease of operation.
- Increase the resilience of the supply and any benefits to the surrounding area generally, e.g. facilitating future growth.

The purpose of this report is to present our assessment, and to provide recommendations and cost estimates for the proposed upgrades.

Kairakau is a small coastal town in the Hawke's Bay, and primarily comprises of holiday homes with approximately 20 permanent residents, and a camping ground. It can have up to 1,000 people present during peak holiday season.

Under the current scheme, water is drawn from two separate sources, a bore and a spring. It is stored in raw water tanks before it is dosed with chlorine and pumped up to treated water tanks on the side of the hill above the town. It is then fed into the town via gravity mains. Each property has an onsite storage tank which is fed by rainwater and supplemented by the Council supply scheme.

In order to supply safe drinking-water to the residents which meets the objectives above, there are a number of items to be addressed. These are summarised below.

- The current reliable yield of both sources in summer conditions is not well understood. Council has reported that Kairakau has historically run short of water, often during summer periods, until water restrictions were introduced and the bore was redeveloped.
- In terms of water quality, the bore and spring are considered equivalent to a surface water, so treatment is required to meet drinking-water standards. Further monitoring of the turbidity of these sources will be needed to confirm the viable treatment solutions to meet DWSNZ.
- According to recent testing, the raw water is very hard (over 300 mg/L as CaCO₃) with *E. Coli* present, but without long-term data it is not known if this is representative of the typical water quality. There is also very little data available regarding the turbidity of the water, which affects the selection and cost of treatment options.
- There is no continuous monitoring of water quality parameters to assess the current level of compliance with DWSNZ, nor an alarm system to indicate faults or failures of the supply.
- A site visit has been undertaken. From initial inspections it appears there are some upgrades required to the spring well head and an existing concrete treated water tank.
- The location of the raw water tanks is on private property which presents an ongoing access risk, and the bore and treated water tank sites are not currently secured which makes them more vulnerable to tampering and/or vandalism.
- Connections to individual properties are unrestricted and controlled by a ballcock in the onsite tank, which may result in peak demands that could overwhelm the capacity of the Council scheme.

Project Number: 3-C2144.01
Kairakau Water Supply

- Some of the onsite tanks are connected to roof water collection systems as well as the Council supply. Roof water may be contaminated by bird and vermin droppings, paint, leaf litter, and sea spray from the adjacent coast.
- There may be some direct connections to the Council supply before the tanks, which is non-compliant with the Water Bylaw, and which poses a risk that contaminated backflow could affect the wider water supply.

Three options have been identified and assessed to upgrade the Kairakau water supply. Note, there were originally four options presented in this report. Options 1 and 2 were variants and have been combined into Option 1 to simplify. The only difference between these options was the disconnection of the rain water tanks which has now been included as an additional item under Option 1. These are:

- **Option 1:** Upgrade the water treatment plant to meet DWSNZ, and address on-property tanks to the extent required.
- **Option 2:** Decommission the existing Council supply so that all properties are supplied by roof water only.
- **Option 3:** Decommission the existing Council supply so that all properties are supplied by roof water only; and add point-of-entry treatment and storage at each connected property.

During preparation of this report, Council suggested investigation of a potential new water source on Te Apiti Road. Based on the data available, there is enough water available from the existing sources to meet projected demand, however, there remains some uncertainty over the reliable summer yield from the existing sources, the reliable contribution from rainwater, and the hardness of the existing water. We suggest that Council considers whether it should investigate whether an alternative water source with more favourable water quality is available, before committing to upgrading the treatment plant. We note that based on the typical limestone geology we consider it relatively unlikely that softer groundwater would be found nearby.

In our view, Option 1 can meet the principles of safe drinking-water subject to resolving appropriate works on the on-property tanks, and Option 2 does not meet a key project objective to provide safe drinking-water for the community. We note that there are significant uncertainties regarding for the implementation of Options 2 & 3, as it requires that the LGA consultative process be followed; and the point-of-entry treatment devices would need to be maintained to meet the project objectives.

Based on our assessment of the options, we recommended that Council proceed with Option 1, which includes deciding whether changes are required to the on-property tank configuration.

Project Number: 3-C2144.01
Kairakau Water Supply

1 Introduction

1.1 General

Central Hawke's Bay District Council (CHBDC) has engaged WSP to undertake an assessment of potential upgrade options to the Kairakau water supply. The objectives of this upgrade are to:

- Provide a safe water supply for residents that meets regulatory requirements.
- Provide a water supply which balances reliability, cost-effectiveness, and ease of operation.
- Increase the resilience of the supply and any benefits to the surrounding area generally, e.g. facilitating future growth.

The purpose of this report is to present our assessment, and to provide recommendations and cost estimates for the proposed upgrades.

1.2 Background

Kairakau is a small coastal town in the Hawke's Bay, approximately 35 km south of Hastings. The town comprises primarily holiday homes, with some permanent residents; and a small camping ground. It is also a popular recreational destination for day visitors. Council's draft water safety plan tells us there are approximately 20 permanent residents in the town, with up to 1,000 people present during peak holiday periods.

2 Current Scheme

2.1 Background

The Kairakau water supply scheme was installed in the mid-1950s, upgraded in the 1970s and expanded in 1993 to include the subdivision in Mananui Street, Kapiti Place and Brodie Place. A new subdivision was added in 2007 on John Ross Place. Originally, the scheme only serviced the camping ground and the adjoining (original) holiday homes as a supplement to roof water collection. Expansion of the Council scheme occurred as a result of pressure for development in the area.

The scheme currently supplies 83 properties and the camping ground (which has approximately 20 sites). Water is pumped from two sources at the base of an adjacent hill; a shallow bore off Kapiti Place, and a spring off Brodie Place. Water is initially stored in raw water tanks, located next to the spring on Kapiti Place, before it is dosed with liquid chlorine and pumped up to four treated water tanks on the hillside above 21 Kapiti Place.

Water is then supplied into the town via gravity mains from three treated water tanks which service the general consumers; the fourth tank supplies the campground exclusively. Each property has its own on-site storage tank which is sometimes supplied by both roof water and the Council scheme. Refer to Figure 2-1 for a layout of the key scheme components and Figure 2-2 for a schematic of the scheme.

CHBDC's Water Bylaw (2017) requires the supply to be configured as follows:

"708.4.7 Supply at Kairakau Water will be supplied at Kairakau from Council's supply only through a connection to an on-site water storage tank at each premise. This supply may be used as an "on demand" supply for "ordinary use". The water storage tank shall be of minimum volume of 1,800 litres. The supply pipe from the point of supply must be connected to the water tank and include a ball cock or similar device in the tank to prevent overflow of the water in the tank. No connections shall be taken off the supply pipe, and all plumbing on the premises must be fed from the water tank."

Project Number: 3-C2144.01
Kairakau Water Supply



Figure 2-1 : Location of Key Kairakau Water Supply Elements

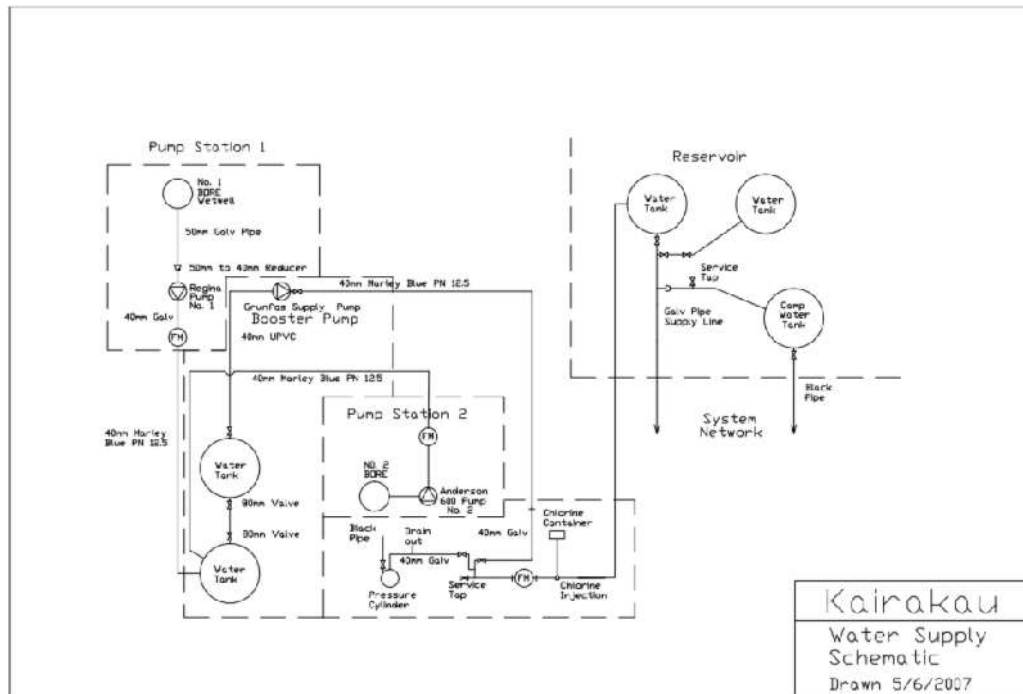


Figure 2-2 : Schematic of Kairakau Water Supply

Project Number: 3-C2144.01
Kairakau Water Supply

2.2 Current Usage

Total water consumption from the scheme is measured by a water meter. This data is summarised for the past two years in the table below.

Table 2-1: Water usage data for Kairakau for 2017/18 and 2018/19

Year	Avg Daily Demand (m ³ /day)	Avg Summer Demand – Dec -Feb (m ³ /day)	Avg Daily Demand During Peak Month (Jan) (m ³ /day)	Total Year Demand (m ³)
2017/2018	20	32	42	7,215
2018/2019	28	35	36	10,267
Average	24	34	39	8,741

This level of water consumption is considered to be low for a residential area. Based on typical figures, we would expect a peak daily water consumption in the order of 50 m³/day for a town this size.

There are a number of reasons which may explain Kairakau's apparent low water consumption:

- All properties have on site storage which is also supplied by rainwater.
- There is a high proportion of holiday homes which are unoccupied most of the year.
- Water restrictions are usually applied from early December until after Easter.

The volume of rainwater contributing to the supply at each individual property is unknown and is likely to be highly variable. We estimate that the rainwater contribution to the system is in the order of 20% of the current total usage.

Based on rainwater contribution of approximately 20%, a more reasonable estimate of daily demand is summarised in the table below.

Table 2-2: Estimated average water demand for Kairakau for 2017/18 and 2018/19 including estimated rainwater collection

Year	Avg Daily Demand (m ³ /day)	Avg Summer Demand – Dec -Feb (m ³ /day)	Avg Daily Demand During Peak Month (Jan) (m ³ /day)	Total Year Demand (m ³)
Average	29	41	47	10,489

One objective of the upgrade project is to facilitate some growth without compromising the reliability of the supply. Allowing for growth of 20%, the estimated daily demands are summarised in the table below.

Table 2-3: Estimated average water demand for Kairakau for 2017/18 and 2018/19 including a growth allowance of 20%

Year	Avg Daily Demand (m ³ /day)	Avg Summer Demand – Dec -Feb (m ³ /day)	Avg Daily Demand During Peak Month (Jan) (m ³ /day)	Total Year Demand (m ³)
Average	35	49	56	12,589

Project Number: 3-C2144.01
Kairakau Water Supply

3 Issues and Options

3.1 Sources - Bore and Spring

The catchment which feeds the aquifer that the bore and spring draw water from has not been studied in depth by Council, and is not well documented. A previous assessment of the catchment indicates it is pastoral, and classified it as requiring 4-log credit protozoa removal under the Drinking-water Standards for New Zealand (DWSNZ). Council has an annual testing regime in place for the raw water, and the latest results from November 2019 show that the raw water is very hard and contains low levels of *E. coli*.

The bore and pump station are located at the bottom of the hill on Council reserve off Kapiti Place, as shown in Figure 2-1. Access to the bore is through Council reserve, and the site is currently not fenced off, so it can be accessed by the public.

The bore is consented to take up to 605 m³ over a 7-day period at a maximum rate of 1 L/s. The bore was redeveloped in January 2020, and information available suggests that it has a sustainable yield of 0.7 L/s.



Figure 3-1 : Existing bore and pump shed

The spring, raw water tanks and pump station are located on an area of land behind 13 Brodie Place as indicated in Figure 2-1. The spring and pump station are located on Council land, but the raw water tanks are located on private property currently leased by Council. Access to the site is through private land and the site is currently fully fenced. The apron around the spring does not appear to be in good condition which may allow contamination of the spring from the surface.

The spring has consent to take up to 420 m³ in a seven-day period at a maximum rate of 0.7 L/s. A step drawdown test was undertaken for the spring in January 2020 and it suggested that the spring can be pumped reliably at a rate of up to 1.2 L/s.

In order to meet the projected average daily demand of 56 m³/day during the peak month of January (including estimated rainwater collection and a 20% growth factor), the spring and bore would both need to operate for approximately 12 hours at a rate of 0.7 L/s (total of 1.4 L/s). Either

Project Number: 3-C2144.01
Kairakau Water Supply

could meet the demand independently, noting that the spring is limited more by the lower consent limit.



Figure 3-2 : Existing spring

Based on the data available there is enough water available from the existing sources to meet demand. However, there remains some uncertainty over the reliable summer yield from these sources, and the contribution from rainwater. If there is insufficient water supply from these two sources, an additional bore may be required.

3.1.1 Issues with current source

- The current reliable yield of both sources in summer conditions is unknown. Council has reported that Kairakau historically ran short of water during summer periods until water restrictions were introduced and the bore was redeveloped.
- In terms of water quality, the bore and spring are considered equivalent to surface water, so treatment is required to meet drinking-water standards.
- According to recent testing, the raw water is very hard (over 300 mg/L as CaCO₃) with *E. Coli* present, but without long-term data it is not known if this is representative of typical water quality. The community has advised that the hardness adversely affects appliances, general use and taste. Some residents use bottled water for drinking.
- The turbidity of the existing water sources is not known, and this may affect the treatment requirements.
- The bore head and spring well head have not been assessed to determine if they provide satisfactory protection from surface contaminants or the ingress of shallow groundwater. The bore was recently refurbished, but the available photographs suggest that the spring may require improvements.
- The bore site is not currently fenced allowing access by the public.
- It is understood there are some surface water drainage issues around the spring site.

Project Number: 3-C2144.01
Kairakau Water Supply

3.1.2 Options for consideration

- Confirm the reliable yield of current sources in summer conditions.
- Confirm the treatment requirements to meet the current DWSNZ, and upgrade the treatment plant accordingly to provide the community with safe drinking-water. Council's previous assessment of the catchment indicated that 4-log protozoa removal may be required which requires a two-stage treatment process. Following DWSNZ changes in 2018, this could be reduced to 2-log removal if the wellheads are considered secure; or protozoa monitoring could be used to confirm the log credit requirement. Either option almost certainly confirm a maximum of 3-log protozoa removal which could be met using UV disinfection alone if the turbidity is acceptable. This would require monitoring of the turbidity, particularly after rainfall, to confirm that UV treatment is viable.
- Improve the security of the sources by fencing off key components and ensuring stormwater and other surface contaminants cannot enter.
- Decommission the supply and place town on rainwater tanks with potential for point-of-entry treatment and additional on-property storage.
- Undertake drainage improvement works at the spring site.

3.2 Storage

There are four 25 m³ tanks which store raw water from both the spring and the bore, giving a nominal 100 m³ of raw water storage in total. These raw water tanks are located next to the spring, on private land leased by Council, and access to them is through private land. The site is fully fenced, albeit with a low level of security.



Figure 3-3 : Raw water tanks, spring and pumping station

There are four treated water tanks including three 25 m³ plastic tanks located on the side of the hill above 21 Kapiti Place which service general consumers, and one nearby 20 m³ concrete tank which is located further down the hill that supplies the campground exclusively. Access is limited, via a narrow farm track, and the site is currently not fenced off. These tanks provide a nominal 95 m³ of treated water storage; however, one of the plastic tanks has been damaged so only two of the plastic tanks are currently operational, so there is only 70m³ of treated storage available at present.

Project Number: 3-C2144.01
Kairakau Water Supply



Figure 3-4 : Damaged treated water tank



Figure 3-5 : Concrete treated water tank which supplies campground

The current combined nominal storage capacity is 170m³ and, based on current usage data, it would provide just over three days' of storage during peak summer demand in January. If the damaged treated water tank is replaced, this will increase the total storage to 195 m³.

3.2.1 Issues with current storage

- The storage capacity is presently reduced as one of the treated water tanks is damaged.
- The condition of the concrete tank is unknown and concrete tanks of this age tend to leak. They can also provide a contamination path as the lid detailing often does not exclude stormwater.
- The location of the raw water tanks is on private property which could cause Council access issues in the future if the lease is not renewed, and the land can't be acquired.

Project Number: 3-C2144.01
Kairakau Water Supply

- The storage volume may not be enough to meet short-term demand peaks from on-demand connections during peak summer periods.

3.2.2 Options for consideration

- Replace the damaged treated water tank to restore the storage capacity.
- Assess the condition of concrete tank and repair/replace if necessary to eliminate a source of leakage, and to eliminate a potential contamination path.
- Relocate the raw water tanks onto the Council reserve next to the bore site to address future access risks.
- If Kairakau does continue to run short of water during short-term peak demand periods, add more storage. Note that a changing to a restricted supply is likely to be a more effective solution to this issue, and is discussed in subsequent sections.

3.3 Pumping Stations and Rising Mains

A site visit has been undertaken to the spring, bore and tank sites. From initial observations the spring shed and equipment look to be in poor condition and the bore shed and equipment look to be in fair condition. It is also noted that the rising mains connecting the infrastructure are currently sitting above ground. The Council's online GIS indicates the following rising mains:

- Bore to raw water tanks: 40 MDPE rising main.
- Spring to raw water tanks: 50 MDPE rising main.
- Raw water tanks to treated water tanks: 40 MDPE rising main.

This information suggests that these pipelines are relatively new and are unlikely to be a significant problem in terms of capacity or water quality.

3.3.1 Issues with current pumping stations and mains

- Spring shed and equipment are in poor condition.
- Rising mains are currently sitting above ground which means they are exposed to UV and there is potential for them to be tampered with.

3.3.2 Options for consideration

- Confirm working condition of equipment in spring and bore shed and any upgrades that may be required so the system can operate efficiently and reliably.
- Bury or sleeve existing rising mains to protect them from UV exposure and tampering.

3.4 Treatment

Currently, water from the raw water tanks is chlorinated before it is pumped up the hill to the treated water reservoirs. Water is chlorinated using sodium hypochlorite solution injected by a peristaltic dosing pump. The dosing rate is manually calculated and set by the operator.

3.4.1 Issues with current treatment

- The treatment for this supply does not presently comply with DWSNZ as it does not provide protozoa removal.
- The existing chlorine dosing system is manually set and operated, and there is no system to monitor the chlorine dose or to alert the operator if it is too high or too low.
- Dosing using high-strength hypochlorite solution is often unreliable due to gas-locking, and the solution strength degrades rapidly so is more difficult to maintain an accurate dose.

Project Number: 3-C2144.01
Kairakau Water Supply

3.4.2 Options for consideration

- Upgrade the treatment plant upgrade to meet DWSNZ and provide the community with safe drinking-water.
- Should chlorine be used for treatment, improve the dosing system to an automated system with alarm, which monitors and adjusts dosing rate to meet a setpoint.
- Use low-strength (1%) hypochlorite to improve the reliability and safety of the dosing system. We do not recommend the use of gas chlorination systems in residential areas.

3.5 Monitoring

Council carries out sampling of water quality throughout the system, but the monitoring regime does not meet the DWSNZ requirements, and the supply is unregistered.

3.5.1 Issues with current monitoring

- Monitoring does not comply with DWSNZ requirements and there is no continuous monitoring of critical parameters or alarm system to indicate if the water is not safe to drink.

3.5.2 Options for consideration

- Provide monitoring systems to suit the treatment plant upgrade to meet DWSNZ requirements. Implement a reticulation sampling regime in accordance with DWSNZ to identify any public health risks that arise downstream of the treatment plant.
- Register the supply.

3.6 Reticulation

Water is supplied to properties in Kairakau via gravity mains from the treated water tanks. The condition of the reticulation mains is unknown. Council's GIS system indicate that there are a combination of galvanised iron and PVC pipes. Older galvanised iron pipes are often a source of leakage and can adversely affect water quality and capacity as a result of internal corrosion.

Each property has an on-site tank ranging in size from 1,200 L – 3,000 L. Some of these tanks are believed to be supplied with roof water as well as the on-demand supply from the Council scheme via a ballcock. Council's requirements for these tanks are that there are to be no connections between the main and the tanks, and that the properties are to be fed solely from these tanks with a customer-supplied pump system.

3.6.1 Issues with current reticulation

- The condition of the reticulation infrastructure is unknown, so areas where the pipes are in poor condition are not known.
- The flow to each property is unrestricted, so peak-hour demands may draw storage levels down rapidly.
- Some tanks are connected to roof water sources along with the Council supply. Roof water is subject to contamination from bird and possum droppings, paint, wind-blown material, and sea-spray (we note that one resident reported a "salty taste" to the water).

3.6.2 Options for consideration

- Identify critical areas where pipe upgrades or renewals are required to improve the reliability of the reticulation system and address any related water quality complaints.
- Assess the leakage rates and undertake further leak detection if required to identify high leakage areas. Repair or replace leaking pipelines to decrease water lost through leakage.

Project Number: 3-C2144.01
Kairakau Water Supply

- Install flow restrictors on properties to limit the peak flowrate into each property. This will reduce the risk of depleting scheme storage during peak demand times and provide equitable distribution of water to all properties.
- Disconnect the property tanks from the roof water sources to eliminate a potential contamination path, or require onsite treatment of the roof water sources.

Project Number: 3-C2144.01
Kairakau Water Supply

4 Community Consultation

Over the past several months CHBDC has engaged with the Kairakau community regarding the options for upgrading the water supply to meet regulatory requirements.

This engagement included:

- A brochure which was distributed via email and letter drop with information on the four options presented in the previous revision of this report, including cost estimates. This included a feedback slip which could be filled out and posted back to CHBDC, and a link to the online feedback form.
- A door-to-door survey in Kairakau to speak to residents and gain verbal feedback.
- Preparation and distribution of the Kairakau Water Supply Update Engagement Feedback Questions and Answers information sheet.
- A community meeting held in Kairakau on Sunday 6th December 2020.

A summary of the main feedback themes is given below:

- A majority of respondents supported keeping the Council water supply and upgrading it to meet drinking-water standards.
- There were a number of respondents opposed to locating the treatment building on reserve land.
- A majority of respondents are willing to have a restrictor installed on their property.
- Respondents would like the Council to address the issue of water hardness.
- Respondents would like the current water supply's low pressure to be addressed. (Note that the scheme bylaw only requires that potable water is delivered to a household tank, and that the property owners are responsible for providing water pressure at the property, typically using a small pump). Any issues noted with the pressure of Council's supply system implies that there are direct connections upstream of the tanks, which are not permitted under the Water Bylaw, mainly because it creates a backflow risk which is another compliance issue.
- Concerns were raised regarding potential operational noise from the new treatment plant and other upgrades.
- Some respondents would not like water usage to increase as it may affect groundwater levels.
- The majority of respondents want to keep their roof water supply.

Following this consultation, the options outlined in Section 6 of this report have been updated to reflect feedback and further consideration of various matters.

Project Number: 3-C2144.01
Kairakau Water Supply

5 Regulatory Requirements

5.1 Government Guidance

In New Zealand, drinking-water safety is managed through legislation. In the case of roof water tanks at properties connected to a community supply, the key laws include:

- Health Act 1956 which governs community drinking water supplies and
- Building Act 2004 that provides law on drinking water in buildings.

The demarcation of responsibilities related to these laws is depicted in figure 1.

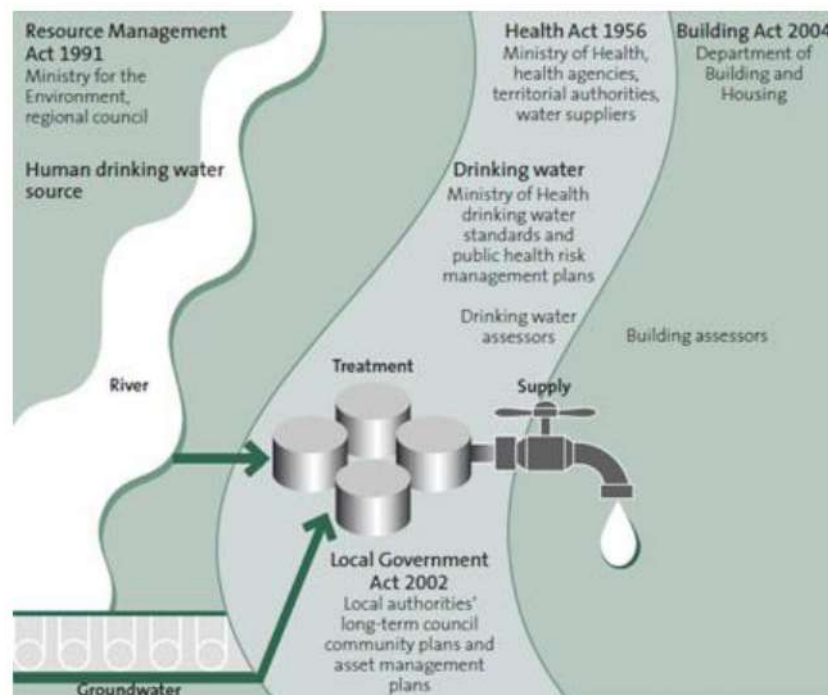


Figure 5.1: NZ Drinking Water Legal Framework

Kairakau is an unusual case where some houses are supplied partly from the Council scheme and partly by roof water. We are not aware of any clear guidance regarding Council and property owner responsibilities in this situation. We have interpreted possible requirements based on a number of sources below, however we recommend that Council seeks advice to confirm respective responsibilities.

Where a Council provides drinking-water to a community, it has a responsibility to make sure the water is safe to drink (potable) under the Health Act 1956 up to the point of supply, which is normally the property boundary. Council fulfils this responsibility through complying with the Drinking-water Standards of New Zealand (DWSNZ), with ongoing compliance monitored against a Water Safety Plan agreed with the Ministry of Health Drinking-water assessor.

Within the property boundary, the building owners/occupiers have a responsibility to make sure that they don't contaminate drinking-water within their buildings, or cause the community supply to become contaminated. This can happen when the mains supply pressure drops, and dirty or contaminated water can flow back into the mains supply (backflow).

Project Number: 3-C2144.01
Kairakau Water Supply

We are unaware of guidance regarding on-property responsibilities for a mixed supply like this. However, there is guidance for tank water supplies **not connected to a municipal supply**, described as an individual household drinking water supply. The Ministry of Health¹ describes individual household drinking water supplies as:

"An individual household drinking-water supply is a stand-alone system that is not connected to a community drinking-water supply. Individual household supplies have a responsibility to produce safe (potable) drinking-water as described in the Building Act 2004 and its amendments.....Bathing, showering, and toilet flushing can use non-potable water such as salt water or stream water, provided it is not detrimental to health. Under section 39 of the Health Act 1956, it is illegal to let or sell a house unless there is a supply of potable water."

The Ministry of Health recommends that:

- where mains water supply is available, it is used for drinking and food preparation
- where no mains supply is available, a water filtration system and/or treatment for drinking-water should be specified.

This is reinforced by the Building Research Association of New Zealand (BRANZ) that outlines the requirements under the New Zealand Building Code (NZBC).

The Building Code requires that homes are provided with an adequate potable (drinkable) water supply for consumption, oral hygiene, utensil washing and food preparation. This potable water supply must be protected from contamination, and must not contaminate the water supply system or source. This can be achieved through the use of devices to prevent cross contamination (backflow preventers), installation of separate plumbing for potable and non-potable water, and installation of point-of-use treatment devices.

Any roof water system that is connected to a mains water supply must be designed to minimise the risk of contamination of the mains water supply by including an air gap or backflow prevention device. Acceptable Solution G12/AS12 requires that the air gap must be the greater of 25 mm, or twice the diameter of the supply pipe. The system must also be designed to minimise the risk of contamination to rainwater intended for household use.

Our interpretation of the various legal obligations are summarised below:

- Council is responsible for supplying safe water complying with DWSNZ to the point of supply, normally defined as the property boundary. Compliance is administered through a Water Safety Plan agreed with the Ministry of Health
- Property owners are responsible for water within their property, which would normally entail:
 - Using a mains supply if available for drinking and food preparation
 - Providing a filtration / treatment system for drinking water if no mains supply is available
 - Avoiding contamination of the water supply system (backflow)

We are unsure of the extent to which these requirements apply to an historic situation. We recommend that Council seeks specialist advice on these points before determining a course of action with respect to the on-property components of the supply.

¹ Guidelines for Drinking-water Quality Management for New Zealand; Chapter 19: Small, Individual and Roof Water Supplier - May 2019

² New Zealand Building Code: G12 Water supplies; June 2019: Ministry of Building Innovation and Employment

Project Number: 3-C2144.01
Kairakau Water Supply

We have not inspected every property but based on anecdotal evidence we expect there is a level of non-compliance with modern building code requirements and the Water Bylaw. Where houses are using roof water for drinking and food preparation there is a risk of contamination. There may also be non-compliant air gaps in the tanks and/or direct connections to Council's system before the tanks which is a contamination risk for the wider system. This issue is further discussed in the options assessment.

5.2 Pending Law Changes and Policy (as indicated from Taumata Arowai)

There are a number of pending regulatory and law changes proposed under the Water Services Bill which is being worked on by Central Government. Noting that the changes it will bring are yet to be confirmed, we expect that it may include the following:

- Extended coverage to include smaller drinking-water supplies. All suppliers (except individual domestic self-suppliers) are to be part of the regulatory system, and to provide safe drinking water on a consistent basis. This means an additional 2000 suppliers would be brought in to the regulatory system over time, including larger self-suppliers, such as schools and other education facilities, prisons, and defence facilities, as well as small rural supplies, and small community schemes that serve fewer than 25 people.
- Authorised organisations - operators must be authorised to operate a drinking-water supply. Some organisations will need to be authorised to operate a drinking water supply under competency requirements, such as having systems and processes or employees that meet professional skill or qualification requirements. All territorial authorities and council-controlled organisations will be required to become authorised or have their drinking water services delivered by an authorised supplier, within 5 years of the commencement of the Bill.
- Give effect to Te Māna o te Wai³. Te Mana o te Wai refers to the vital importance of water. Any resource consent application must demonstrate how it will ensure that freshwater is managed in a way that prioritises (in this order): the health and well-being of water, the health needs of people.
- Acceptable solutions⁴ are to be issued by Taumata Arowai.
 - *These will be used as a method to establish compliance with legal requirements.*
 - *They will be designed for implementation according to scale, complexity and risk (not "one size fits all"). Population thresholds are not fit for purpose, so will be removed. Complex metropolitan supplies will be regulated differently to smaller supplies (marae, town halls, community). Templates, acceptable solutions (from Building Act) are intended to provide a safe harbour for a supplier to comply with simple rules.*
 - *Point of Entry/Use treatment will require to be validated as part of an Acceptable Solution.*
 - *For backflow prevention, a code of practice is being developed with WaterNZ with the NZBC/G12 currently providing the framework for in-property backflow prevention. Assessment of compliance will be different, as a part of an audit.*
- A water safety plan is required to be prepared.

³ Changes to Freshwater NPS –2017: Te Mana o te Wai: Ministry for the Environment: 2017

⁴ Acceptable Solutions are used in the NZ Building Code and give specific construction details, often for commonly used building materials, systems and methods. A similar principal is sought to be used in drinking water.

Project Number: 3-C2144.01
Kairakau Water Supply

- Maintain the New Zealand Drinking-water Standards.
- Greater emphasis on source water protection.
- Increased personal responsibility.
- Expansion and clarification of the duties of drinking-water suppliers.
 - *The regime will apply to all suppliers except domestic self-suppliers.*
 - *Under this the supplier, must ensure drinking-water is both safe and compliant, must take remedial action, warn consumers and notify Taumata Arowai. Safety focus is expected continual, including looking for emerging contaminants actively.*

In summary, we expect that these changes will mean:

- CHBDC will have a greater obligation to manage risks to drinking-water safety in supplies which will be extended to encompass smaller supplies, including Marae and schools. This will include supplies with their own water collection tanks.
- Kairakau would need to be operated in a similar way to other, larger, CHBDC supplies, with a greater level of documentation and monitoring to demonstrate that the supply meets the standards required.
- Drinking water authorities will require authorization to maintain and operate drinking water supplies. This will impose a need to maintain high standards in keeping drinking water supplies safe and managing risks to those supplies. Where uncontrolled hazards are introduced that may impact the quality of the drinking water to consumers, an authority operator must address these in order to maintain its authority.
- There is likely to be less tolerance by health authorities of the hybrid supply arrangement in Kairakau, unless the roof water supplies are able to provide a demonstrably low risk of contamination. This will be effected using increased legal pressure on property owners, Council staff, and operators, with a higher level of regulatory oversight.
- The introduction of acceptable solutions provides tools to a water supplier to manage the safety of the drinking water supply. This includes the ability to use point of use treatment at homes.
- A water supplier will retain a duty to prepare water safety plans and to meet the New Zealand Drinking Water Standards. The introduction of uncontrolled water sources connected to the supply will need to be managed through this process. This is a current obligation also.

Please note that these are indicative changes based on the current contents of the Water Services Bill. This is subject to change.

Project Number: 3-C2144.01
Kairakau Water Supply

6 Upgrade Options

6.1 Options Overview

Three options have been developed to upgrade the Kairakau water supply. Note, there were originally four options presented in R1 and R2 of this report. Options 1 and 2 were variants of each other and have been combined into Option 1 to simplify. The only difference between these options was the disconnection of the rain water tanks which has now been included as an additional item to consider under Option 1. These are:

- **Option 1a/1b:**
 1. Upgrade the water treatment plant to meet DWSNZ (sub-options a and b refer to alternative treatment plant locations);
 2. Address the potential capacity issues, either through managing demand by installing restrictors to all properties, or by increasing the supply capacity by adding a bore and extra storage;
 3. Address water hardness (if required)
 4. Address on-property tank connections, to an extent to be agreed.
- **Option 2:** Decommission the existing Council supply and put all properties on roof water supply only.
- **Option 3:** Decommission existing supply and put all properties on roof water only; and add point-of-entry treatment and storage.

6.2 Option 1 – Upgrade treatment plant to meet DWSNZ

6.2.1 Treatment plant

Option 1 involves upgrading the existing treatment plant to deliver water that meets DWSNZ to the point of supply (property boundaries).

Although there is limited information available regarding water quality, we expect that this will require one of the following:

- **Up to 3-log credits, low turbidity:** Install UV disinfection to address the protozoa risk. This needs to be supported by either having secure wellheads for the bore and spring, or sufficient protozoa monitoring data to show that no more than 3-log removal is required. It also requires that the turbidity of the source water is acceptably low (<1 NTU for 95% of the time, and does not exceed 2 NTU for any 3-minute period).
- **Up to 3-log credits, high turbidity:** If the turbidity requirements stated above cannot be met, then the turbidity will need to be reduced to acceptable levels using a filter upstream of the UV system. Typically, a cartridge filter provides the most cost-effective solution for a small supply such as this. This will increase the operating costs and space required.
- **4-log credits:** If the previous catchment assessment is used, or the protozoa monitoring detects high levels of protozoa (very unlikely), then a 2-stage treatment process is required. This would typically be met using a cartridge filter that is validated by the MOH plus UV disinfection. The validated cartridge filter will introduce additional compliance, maintenance, and monitoring requirements.

It is recommended that a cartridge filter is included as a provisional item in case turbidity mitigation is required in any case.

Project Number: 3-C2144.01
Kairakau Water Supply

Note that the use of UV on hard water will most likely require a self-cleaning device and increased maintenance to address the issue of scaling on the sleeves.

A new chlorine dosing system will also be provided. This will use a dosing pump to deliver 1% sodium hypochlorite solution into the water using an automated dosing system to maintain a consistent dose. This will provide systemic protection against recontamination in the network (including some mitigation of contamination from roof water collection if this remains).

The treatment plant will require a new building (e.g. a prefabricated garage). Water will be pumped from the two sources into the raw water tanks (as the current scheme is), before it is treated and pumped up into the existing treated water tanks. It will then be distributed to the community through the existing gravity mains.

We suggest that the water treatment plant is designed for a flow rate of at least 2 L/s. This will have little impact on the cost of the upgrades, but will give capacity to provide for future growth.

In order to meet the monitoring requirements of the drinking water standards, a number of parameters must be monitored and recorded. For a 3-log UV treatment system with chlorination, these parameters include flow, turbidity, UV intensity, UVT, lamp outage, and free available chlorine. Some of this monitoring needs to be continuous (recorded at 1 minute intervals), and additional monitoring of things like tank levels, bore levels and pump operation/fault will facilitate improved operation and management of the supply. A data path for this monitoring system to transmit back to Council needs to be identified and confirmed, and this aspect requires further investigation.

In addition to the treatment plant upgrade, there are a number of other items to be included which will increase the overall reliability and operation of the system. These are:

- Replace the damaged treated water tank to restore the storage capacity.
- Assess the condition of concrete tank and repair/replace if necessary to eliminate a source of leakage, and to eliminate a potential contamination path.
- If Kairakau does continue to run short of water during short-term peak demand periods, add more storage. Note that a changing to a restricted supply is likely to be a more effective solution to this issue, and is discussed in subsequent sections.
- Fully fence the bore site and treated water tank site to prevent unauthorised access and protect assets from vandalism.
- Bury or sleeve existing rising mains to protect them from UV exposure and tampering.
- Confirm working condition of equipment in spring and bore shed and any upgrades that may be required so the system can operate efficiently and reliably.

There are also a number of additional items which the Council should consider including as part of this upgrade. These are:

- Identify critical areas where pipe upgrades are required to improve reliability of the reticulation system.
- Assess the leakage rates and undertake further leak detection if required to identify high leakage areas. Repair or replace leaking pipelines to decrease water lost through leakage.
- Relocate the raw water tanks onto the Council reserve to address future access risks.
- Drainage improvements at the spring site on Brodie Place.
- Screening/planting at both the spring and bore sites to increase the aesthetic value for neighbouring property owners

Two potential treatment plant locations have been identified. The physical works cost of developing at each site is similar, and Council will need to determine the best site based on community views, planning requirements, land ownership, tenure and cost.

Project Number: 3-C2144.01
Kairakau Water Supply



Figure 6-1 : Map of proposed locations of new treatment plant and raw water tanks

Project Number: 3-C2144.01
Kairakau Water Supply

Option 1a – involves constructing the treatment plant on the Council reserve on Kapiti Place between 4 Brodie Street and 15 Kapiti Place. The site proposed would occupy the full width of the reserve (17m) and approximately 18m from the end boundary, and would be fully fenced. Access would be required through the reserve of Kapiti Place for service vehicles on an occasional basis.



Figure 6-2: Indicative layout of new treatment building and relocated raw water tanks for Option 1a

Project Number: 3-C2144.01
Kairakau Water Supply

Option 1b – involves constructing the treatment plant on the Manawarakau Charitable Trust land at 15 Brodie Place as an extension of the existing site. A treatment plant would be added to the south end of the site and the site, including the spring and raw water tanks, would be fully fenced. Access would be required through the current route adjacent to 13 Brodie Place for service vehicles.

Note that this report does not consider the feasibility of using the land (at either site) and that this will be considered separately by Council.



Figure 6-3: Indicative layout of new treatment building and existing raw water tanks for Option 1b

Project Number: 3-C2144.01
Kairakau Water Supply

6.2.2 Addressing potential capacity issues

The system appears to have sufficient capacity to supply the forecast demand (Section 2.2); however, there remains some uncertainty regarding the reliable summer yield from the sources. The demand may also increase when the water is treated if hardness is addressed or if the rainwater connections are removed. There may be a need to either:

Manage demand by installing restrictors on each property to limit them to a daily flow of 1 cubic metre (or other volume as agreed/decided by Council). We note the Water Bylaw designates Kairakau as an 'on-demand' scheme which may impact Council's ability to install restrictors unless the bylaw is changed first. We note the Bylaw is currently being updated and it could therefore be changed if required.

Increase supply capacity by adding an additional bore and extra treated water storage. For the purposes of this options assessment we have included the one additional bore and one extra 20 m³ storage tank. We note that this may still result in occasional supply shortages if on-demand connections are retained.

Restrictors, or a bore and tank, have been included as optional items in the cost estimates.

6.2.3 On-property tanks

While no detailed inspection of the on-property tanks has been carried out, based on anecdotal evidence there is likely to be a degree of non-compliance with the requirements of the Building Act and the Water Bylaw (refer Section 5). Where roof water is being used as potable water there is a risk of contamination from vermin and bird droppings, lead based paint, or spray/dust deposited on the roof. There may also be non-compliant air gaps and/or direct connections to the Council system before the tanks, both of which pose a backflow risk.

The extent to which this must be addressed, and who has legal responsibility, is unclear and we recommend that Council seeks specialist advice. Council may also consider whether improvements should be made given the increased focus on drinking water safety in New Zealand, irrespective of any legal responsibility. We understand that the community generally wishes to retain its roof water supplies for various reasons, including sustainability, and the hardness of the Council supply.

If Council is required to (or elects to) reduce the risks associated with the on-property tanks, we recommend the following, in order of importance:

1. Check all on-property tanks to ensure that there are no upstream connections, and that a suitable air-gap or other backflow prevention device is in place to protect the remainder of the Council supply system. While it would be easier to fit a backflow preventer at the boundary, there is unlikely to be sufficient pressure in the system for this to work.
2. Disconnect roof water from the on-property tanks [we expect that Kairakau consumers will expect the hardness in the Council supply to be addressed before they will accept this solution (refer to Section 2.2.4)], or fit point-of-use treatment devices to address the potential contamination risk of using roof water. The cost, responsibility, and ongoing maintenance of these are issues that would need to be agreed with the community.

6.2.4 Hardness

The raw water sample results provided indicates that the water is very hard - over 300 mg/L as CaCO₃. This level of hardness is around 3 times higher than the typically accepted threshold for hard water. Hardness is an aesthetic concern only, i.e. it does not present a health risk, but it causes a number of undesirable effects such as scaling, water spotting, poorer performance of soaps and detergents and sometimes taste (at very high levels as appears to be the case in Kairakau).

Project Number: 3-C2144.01
Kairakau Water Supply

It has become apparent from the community consultation process that this is one of the major concerns with the Council-supplied drinking-water.

Due to the mixing of rainwater and Council water, and the variation of plumbing at individual properties, there is a wide variation of consumer experience – e.g. some houses only use the Council water supply for outdoor use.

Below are three potential options Council could undertake to address the hardness in the water.

6.2.4.1 Option i – Alternative water source

Hardness is comparatively difficult and expensive to remove, so it is common to seek an alternative water source which may require less onerous treatment. In the case of Kairakau, it may be possible to find a new groundwater source and bring this into service. However, hardness is commonly caused by underground geology so there may not be an alternative source nearby which does not suffer a similar problem. This view is supported by one of the local well drillers.

There may be a surface water source that could be used, but that will require additional treatment (e.g. full time turbidity removal plus UV) and may require a more sophisticated treatment plant.

We recommend Council considers whether it should investigate whether another more favourable water source exists before committing to upgrading the existing supply.

6.2.4.2 Option ii – Install water softener at treatment plant

A water softener using an ion-exchange process is usually the most cost-effective way to reduce hardness. This would be installed in the treatment building and would consist of duty/standby softeners, associated pipework and a brine water tank. The building size currently outlined in Options 1 and 2 will likely be sufficient to house this equipment if required (this would need to be confirmed during detailed design phase).

A softening plant will produce a strong waste stream which will either need to be discharged to a wastewater system, or be stored on-site and trucked away for disposal into a municipal sewer. This results in high operational costs, and is the primary drawback with an ion-exchange water softener.

There are other softening technologies available including membranes processes to reduce hardness without producing as strong a waste stream, but these have a very high capital costs which offsets their somewhat reduced operational costs.

Kairakau does not have a Council wastewater system, but there is a private wastewater treatment system which is owned by some of the residents. If CHBDC were allowed to discharge the brine waste to this system, the feasibility of this would need to be investigated as it may affect the treatment processes and prevent it from working properly.

6.2.5 Option iii – Install softening unit at each individual property

For this option Council would still supply potable water to the boundary, but a softening unit would be installed at each individual property. These could then be arranged so that they only treated the water used for drinking and other uses that are affected by hardness.

The cost and ongoing maintenance of these devices is an issue that would need to be resolved – if Council was to retain a role in this, then access arrangements would need to be agreed for all properties. The waste stream from the softeners could potentially go to septic tanks.

Project Number: 3-C2144.01
Kairakau Water Supply

6.3 Option 2 – Decommission existing supply and put all properties on roof water only

In this option Council would decommission their supply and move all properties to roof water supply only. One of the issues that will likely arise from this is they will not provide a reliable enough supply. The contribution of rainwater to the system is unknown, but it is unlikely that it will not meet the full demand for each property, and will probably be highly variable. We believe this is why the Council supply was originally implemented.

Another potential issue is that this may not be well-received by the community, given they currently have an on-demand Council supply. Section 131 of the Local Government Act (LGA) regulates how a public water supply can be shut down. This process can be protracted if challenged.

The specific requirements to close down a small water source are:

1. The supply must service 200 or fewer persons who are ordinarily resident in the district, region, or other subdivision.
2. The Council must have consulted on the proposal with the Medical Officer of Health for the District.
3. Council must make the following information publicly available in a balanced and timely manner:
 - (i) The views of the Medical Officer of Health; and
 - (ii) The information it received in the course of undertaking a review of the effects of the closure, and an assessment of the costs of providing an appropriate alternative service (Section 134(a) and (b) of LGA).
4. The proposal must be supported in a binding referendum by at least 75% of the votes cast.

While this LGA process is being undertaken, it is likely that Council will still be under pressure to meet DWSNZ requirements.

In our view, this option does not meet the project objective of providing safe drinking-water for the community.

6.4 Option 3 – Decommission existing supply and put all properties on roof water only; provide point-of-use/entry treatment and storage

Council would decommission their supply and all properties would use a roof water supply only, and point-of-use/entry treatment would be installed at each dwelling. This would involve works on individual properties. Each property would need to have their storage requirements assessed and larger tanks may need to be installed at some properties. If Council were to provide funding for this, there would need to be some agreement reached with the community regarding any ongoing obligations.

This option would also need to follow the LGA consultative process outlined in Option 2.

The operation of the camping ground would also need to be considered under this option as rainwater harvesting may not be viable for this, in which case Council may still need to supply the camping ground. This could potentially become a non-potable supply.

Project Number: 3-C2144.01
Kairakau Water Supply

7 Cost Estimates

A preliminary estimate of costs is outlined below. A full breakdown is included in Appendix A.

These cost estimates are capital costs only and do not include ongoing operating costs, any consenting requirements, land costs and professional fees. All costs are GST exclusive.

Table 7-1 : Preliminary cost estimate for Options 1a and 1b

<i>Option 1: Upgrade water treatment plant to meet DWSNZ;</i>	
Preliminary and General	\$50,000
Treatment plant upgrade	\$283,000
Relocate raw water tanks or ground works/reconfigure tanks	\$25,000
Upgrade chlorine dosing system	\$20,000
Fencing around Spring or bore	\$4,000
Screening/planting	\$3,000
Allowance for investigations, consents and professional fees	\$150,000
Contingency (15%)	\$80,000
TOTAL	\$615,000

Table 7-2: Preliminary cost estimate for additional items to address capacity issues, on property tanks and hardness

Additional Items	
<i>Addressing potential Capacity issues</i>	
Installation of restrictors on all properties	\$63,000
Additional Storage (One 30,000L tank)	\$14,000
Additional Bore	\$50,000
<i>Addressing on-site tanks</i>	
Disconnect houses from rainwater tanks (allow ~\$500/property for plumbing)	\$42,000
Install point of use treatment devices (filter & plumbing on each property - \$1,100/property)	\$92,000
Separate plumbing for potable and non potable supply (allow ~\$1,000/property for plumbing)	\$83,000
<i>Addressing Hardness</i>	
Hardness Option i – Investigate alternative water source	\$20,000
Hardness option ii - Install softening unit at treatment plant	\$170,000
Hardness Option iii – Install softening unit at each individual property (unit and plumbing ~\$2,100/property)	\$180,000

Notes:

1. The treatment plant upgrade includes civil (incl. access and fencing around plant), mechanical, electrical and testing and commissioning. Included as provisional items are the cartridge filters, replacing the damaged treated water tank and remedial work on the concrete tank.
2. The cost estimate assumes a simple facility consistent with the size of the township, including a coloursteel building, plastic tanks, basic siteworks and gravel entry.
3. The cost of additional bore would be largely dependent on how deep it is and how far away it is located. This estimate is based on it being similar in depth to the existing bores and located

Project Number: 3-C2144.01
Kairakau Water Supply

within 200m of the treatment building. Estimate includes an allowance for a small shed surrounding bore.

Table 7-3: Preliminary cost estimate for Option 2

Option 2: Decommission existing supply and put all properties on roof water only. 83 properties + campground.	
Preliminary and General	\$12,000
Disconnect each property from Council supply (excavate, plug service, reinstatement in grass - \$600/property)	\$51,000
Allowance for investigations, consents and professional fees	\$90,000
Contingency	\$22,000
TOTAL	\$175,000

Table 7-4: Preliminary cost estimate for Option 3

Option 3: Decommission existing supply and put all properties on roof water only; add point of entry treatment and storage. 83 properties.	
Preliminary and General	\$60,000
Disconnect each property from Council supply (excavate, plug service, reinstatement in grass - \$600/property)	\$50,000
Treatment at each property (filter & plumbing on each property - \$1,100/property)	\$92,000
New tank on each property (tank & installation - \$4,000/property)	\$332,000
Campground – disconnect from Council supply (as above), treatment (as above) and two new 30m ³ storage tanks.	\$19,000
Allowance for investigations, consents and professional fees	\$90,000
Contingency	\$50,000
TOTAL	\$693,000

Exclusions:

- GST
- Land purchase or leasing
- Council costs
- Operating costs
- Escalation.

Project Number: 3-C2144.01
Kairakau Water Supply

8 Recommendations

We recommend that Council:

1. Considers whether it should investigate the existence of a more favourable water source with softer water, before committing to upgrade treatment on the existing water source. We consider it unlikely that a better source exists close by.
2. Assuming a more favourable water source is not available, proceed with a treatment plant upgrade for the existing source, including:
 - (i) Monitoring the performance and turbidity of the bore and spring during summer to confirm whether they can supply enough water to meet demand, and to confirm what level of turbidity removal (if any) may be required.
 - (ii) If it becomes apparent that the existing spring and bore cannot meet the forecast demand, install restrictors on each property (assuming the Bylaw will allow) or investigate options for adding another bore and additional storage.
 - (iii) Upgrade the existing water treatment to meet DWSNZ requirements
3. Consider options for reducing hardness (i.e. centralised softening vs. point-of-use softeners). If centralised treatment is preferred, it would be efficient to wrap it into this project.
4. Improve security around the various facilities by fencing or other barriers to prevent casual access.
5. Replace the damaged treated water tank to restore the system storage capacity.
6. Assess, and if necessary repair or replace, the concrete tank to improve security of treated water.
7. Relocate the raw water tanks to Council land to eliminate a future access risk.
8. Assess the leakage rates within the reticulation network and undertake further leak detection if required to identify high-leakage areas and/or areas that require renewal to maintain performance and reliability.
9. Consider whether the roof water supplies need to be addressed, including seeking specialist advice regarding its obligations. If Council decides to address the roof water supplies, we recommend addressing backflow risk as a priority, and either disconnecting roof water from the tanks, or adding Building Code compliant point-of-use/entry treatment to improve the safety of the water supply.

Project Number: 3-C2144.01
Kairakau Water Supply

Disclaimers and Limitations

This report ('**Report**') has been prepared by WSP exclusively for [Central Hawke's Bay District Council] ('**Client**') in relation to [Kairakau Water Supply Upgrade] ('**Purpose**') and in accordance with the [Short form Agreement with the Client dated 12/03/2020]. The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('**Client Data**') provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

A large graphic with a light blue background and a white curved shape on the right side. The text "Appendix A Preliminary Costing" is written in red.

Appendix A Preliminary Costing

Options 1a & 1b - Upgrade water treatment plant to meet DWSNZ

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<i>Treatment Plant Upgrade</i>					
1	Civil				
1.1	Access including fence, gate and accessway	LS	1	\$ 6,000.00	\$ 6,000.00
1.2	Treatment building 6x4m	LS	1	\$ 30,000.00	\$ 30,000.00
1.3	Site pipelines	LS	1	\$ 10,000.00	\$ 10,000.00
1.4	Backwash disposal	LS	1	\$ 25,000.00	\$ 25,000.00
1.5	Refurbish spring including apron and new casing	LS	1	\$ 6,500.00	\$ 6,500.00
1.6	Drainage improvements at spring	LS	1	\$ 10,000.00	\$ 10,000.00
1.7	Sleeve or bury existing PE rising mains	LS	1	\$ 20,000.00	\$ 20,000.00
1.8	Upgrades to pump sheds at spring and bore	LS	1	\$ 10,000.00	\$ 10,000.00
					\$ 117,500.00
2	Mechanical				
2.1	Booster pumps	LS	1	\$ 12,000.00	\$ 12,000.00
2.2	UV Plant	LS	1	\$ 15,000.00	\$ 15,000.00
2.3	Pipework and valves	LS	1	\$ 10,000.00	\$ 10,000.00
2.4	Flowmeters	ea	2	\$ 8,500.00	\$ 17,000.00
2.5	Pressure transmitters	ea	3	\$ 3,000.00	\$ 9,000.00
					\$ 63,000.00
3	Electrical				
3.1	New control panel	LS	1	\$ 60,000.00	\$ 60,000.00
3.2	Site wiring	LS	1	\$ 10,000.00	\$ 10,000.00
3.3	Programming	LS	1	\$ 5,000.00	\$ 5,000.00
					\$ 75,000.00
4	Testing and Commissioning				
4.1	Subsystem Testing	LS	1	\$ 5,000.00	\$ 5,000.00
4.2	Systemic testing	LS	1	\$ 2,000.00	\$ 2,000.00
4.3	Commissioning	LS	1	\$ 2,000.00	\$ 2,000.00
4.4	As-built information	LS	1	\$ 1,000.00	\$ 1,000.00
					\$ 10,000.00
5	Provisional				
5.1	Cartridge filters	LS	1	\$ 10,000.00	\$ 10,000.00
5.2	Replace treated water tank - 25m3 plastic	LS	1	\$ 4,000.00	\$ 4,000.00
5.3	Concrete tank remedial work	LS	1	\$ 3,000.00	\$ 3,000.00
					\$ 17,000.00
Total					\$ 282,500.00
6	Other				
6.1	Relocate raw water tanks or groundworks/reconfigure tanks	LS	1	\$ 25,000.00	\$ 25,000.00
6.2	Upgrade Chlorine Dosing system	LS	1	\$ 20,000.00	\$ 20,000.00
6.3	Fencing around Spring or bore	LS	1	\$ 4,000.00	\$ 4,000.00
6.4	Screening/planting	LS	1	\$ 3,000.00	\$ 3,000.00
7	Contingency	CS	1	\$ 50,000.00	\$ 50,000.00
	Disconnect houses from rain water tanks - plumbing	ea	83	\$ 500.00	\$ 41,500.00
	Install point of use treatment on each property	ea	83	\$ 1,100.00	\$ 91,300.00
	Separate plumbing for potable and non-potable water	ea	83	\$ 1,000.00	\$ 83,000.00
	Additional Storage				
	Installation of restrictors on all properties	ea	83	\$ 750.00	\$ 62,250.00
	Tanks x1	LS	1	\$ 10,000.00	\$ 10,000.00
	Pipework	LS	1	\$ 4,000.00	\$ 4,000.00
				Total	\$ 14,000.00

Additional Bore					
Drill bore, install casing, bore head, concrete apron	LS	1	\$ 10,000.00	\$ 10,000.00	
Pump	LS	1	\$ 8,000.00	\$ 8,000.00	
Site pipework	LS	1	\$ 6,000.00	\$ 6,000.00	
Site security + Miscellaneous	LS	1	\$ 10,000.00	\$ 10,000.00	
Pipework to raw water tanks (40MDPE rising main)	m	200	\$ 80.00	\$ 16,000.00	
Subtotal Bore				\$ 50,000.00	
Hardness option ii - Install softening unit at treatment plant (provisional)			\$ 150,000.00	\$ 170,000.00	
Total				\$ 170,000.00	
Hardness Option iii – Install softening unit at each individual property (provisional)					
<i>Properties treatment and storage</i>					
Softening unit on each property (incl. campground)	ea	84	\$ 1,600.00	\$ 134,400.00	
Plumbing	ea	84	\$ 500.00	\$ 42,000.00	
Total				\$ 176,400.00	
Option 1 - Upgrade water treatment plant to meet DWSNZ; retain roof water; install restrictors to all properties to control peak demand.					
Preliminary and General				\$ 50,000.00	
Treatment Plant upgrade				\$ 283,000.00	
Relocate raw water tanks or groundworks/reconfigure tanks				\$ 25,000.00	
Upgrade Chlorine Dosing system				\$ 20,000.00	
Fencing around Spring or bore				\$ 4,000.00	
Screening/planting				\$ 3,000.00	
Allowance for investigations, consents and professional fees				\$ 150,000.00	
Contingency				\$ 80,000.00	
TOTAL OPTION 1				\$ 615,000.00	
Additional Items					
<i>Addressing Capacity Issues</i>					
Installation of restrictors on all properties				\$ 63,000.00	
Additional Storage				\$ 14,000.00	
Additional Bore				\$ 50,000.00	
Addressing on-site tanks					
Disconnect houses from rain water tanks - plumbing				\$ 42,000.00	
Install point of use treatment on each property				\$ 92,000.00	
Separate plumbing for potable and non-potable water				\$ 83,000.00	
Addressing hardness					
Hardness Option I - investigation alternative waer source				\$ 20,000.00	
Hardness option ii - Install softening unit at treatment plant (provisional)				\$ 170,000.00	
Hardness Option iii – Install softening unit at each individual property (provisional)				\$ 180,000.00	

Options 2 & 3 - Decommission Council Supply

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	General				
1.1	Disconnect each property from mains (digging, capping main, re	ea	83	\$ 600.00	\$ 49,800.00
1.2	Campground	ea	1	\$ 600.00	\$ 600.00
Total					\$ 50,400.00
2	Individual Properties				
2.1	<i>Properties treatment and storage</i>				
2.1.1	Treatment filter	ea	83	\$ 600.00	\$ 49,800.00
2.1.2	New 25m3 tank on each property	ea	83	\$ 4,000.00	\$ 332,000.00
2.1.3	Plumbing	ea	83	\$ 500.00	\$ 41,500.00
<i>Subtotal properties</i>					<i>\$ 423,300.00</i>
2.2	<i>Campground</i>				
2.2.1	Treatment filter	ea	1	\$ 1,000.00	\$ 1,000.00
2.2.2	New 30m3 tanks (x2) (tanks, prep, foundation)	ea	2	\$ 8,000.00	\$ 16,000.00
2.2.3	Plumbing	ea	1	\$ 2,000.00	\$ 2,000.00
<i>Subtotal campground</i>					<i>\$ 19,000.00</i>
3	Contingency	CS	1	\$ 10,000.00	\$ 10,000.00
	<i>Option 3: Decommission existing supply and put all properties on roof water only.</i>				
	Preliminary and General				\$ 12,000.00
	Disconnect each property from mains (digging, capping main, reinstatement)				\$ 51,000.00
	Allowance for investigations, consents and professional fees				\$ 90,000.00
	Contingency				\$ 22,000.00
TOTAL OPTION 3					\$ 175,000.00
	<i>Option 4: Decommission existing supply and put all properties on roof water only; add point of entry treatment and storage.</i>				
	Preliminary and General				\$ 60,000.00
	Disconnect each property from mains (digging, capping main, reinstatement)				\$ 50,000.00
	Treatment and plumbing				\$ 92,000.00
	Storage - new tank				\$ 332,000.00
	Campground				\$ 19,000.00
	Allowance for investigations, consents and professional fees				\$ 90,000.00
	Contingency				\$ 50,000.00
TOTAL OPTION 4					\$ 693,000.00



Appendix B

Copy of Bore and Spring Resource Consents



RESOURCE CONSENT

Water Permit

In accordance with the provisions of the Resource Management Act 1991, and subject to the attached conditions, the Hawke's Bay Regional Council (the Council) grants a resource consent for a discretionary activity to:

Central Hawkes Bay District Council
PO Box 127
Waipawa 4240

to take water from well no. 3130 (100 mm diameter) to provide a public water supply at Kairakau Beach.

LOCATION

Address of site
Brodie Place, Kairakau Beach

Legal description
Site of take: Lot 29 DP 20914
Site of use: Various

Map reference
Well 3130: V22 2845486 6132787

CONSENT DURATION
This consent is granted for a period
expiring on 31 May 2029.

LAPSING OF CONSENT
This consent shall lapse in accordance
with s.125 on 31 May 2014 if it is not
exercised before that date.



A handwritten signature in blue ink, appearing to read "Yolanda Morgan".

Yolanda Morgan
RESOURCE MANAGEMENT GROUP
Under authority delegated by Hawke's Bay Regional Council.
24th November 2009

Hawke's Bay Regional Council

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Page 1

Consent No. WP090153T

CONDITIONS

1. The rate of taking shall not exceed 1 litre per second.
2. The volume taken shall not exceed 605 cubic metres in any 7-day period (i.e. at the maximum rate authorised in condition 1, taking should normally be less than, and never exceed 168 hours per week).
3. A water measuring device shall be installed prior to the exercise of this consent, and maintained to measure the volume of water taken to an accuracy of +/- 5%. The device shall be installed at the point of take and in accordance with the manufacturer's specifications.
4. If any type of water measuring device other than a water meter is to be installed, the consent holder shall demonstrate to the Council (Manager Compliance), prior to installation, that the device will meet the required accuracy criteria once installed and at all times when water is being taken.
5. If a water meter is installed it shall have an international accreditation or equivalent New Zealand calibration endorsement for use with an electronic recording device.
6. The meter must be supplied from a manufacturer compliant with Australian Standard/New Zealand Standard (AS/NZS) 9001 – Quality Management Systems.
7. For the purpose of testing the accuracy of a water measuring device using a portable flow meter, all water taken shall pass through a straight length of pipe. The straight length of pipe should be immediately before or after the water measuring device. The length of the pipe shall be no shorter than the equivalent of 15 times the pipe diameter or a shorter length with approval from Council (Manager Compliance) (See advice note 2).
8. The water measuring device, installed as required by condition 3, must be capable of interfacing with a data storage device, that can either:
 - a) record the volume of water used every 15 minutes; or
 - b) record a date/time stamp every 10m3 of water taken.
9. From the date the consent is first exercised the water measuring device shall be read at 7-day intervals throughout each year.
10. The consent holder shall provide the Council with a record of:
 - a) the meter reading (in cubic metres).
 - b) the volume of water taken in each 7-day period (in cubic metres).
 - c) the date and time of each reading.
11. For the period 1 October to 31 May each year, the consent holder shall provide the information listed in condition 11 no later than 7 days after the end of each month. (See advice note).
12. For the period 1 June to 30 September, the consent holder shall provide the information listed in condition 11 no later than 7 days after the 30 September.

Hawke's Bay Regional Council

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Page 2

Consent No. WP090153T

13. The consent holder shall undertake all operations in accordance with any drawings, specifications, statements of intent and other information supplied as part of the application for this resource consent. In the event that there is conflict between the information supplied with the application and any consent condition(s), the condition(s) shall prevail.

REVIEW OF CONSENT CONDITIONS BY THE COUNCIL

The Council may review conditions of this consent pursuant to sections 128, 129, 130, 131 and 132 of the Resource Management Act 1991. The actual and reasonable costs of any review undertaken will be charged to the consent holder, in accordance with s.36(1) of the Resource Management Act.

Times of service of notice of any review: During the month of May, of any year.

- Purposes of review:
- To deal with any adverse effect on the environment which may arise from the exercise of this consent, which it is appropriate to deal with at that time or which became evident after the date of issue.
 - To modify any monitoring programme, or to require additional monitoring if there is evidence that current monitoring requirements are inappropriate or inadequate.
 - To ensure that the volume of water authorised by the consent is consistent with actual water needs and is physically able to be taken.
 - To require, if necessary, the installation of a backflow prevention device to ensure that no contaminant can enter the aquifer through the bore.

REASONS FOR DECISION

The activity will have minor actual or potential adverse effects on the environment and is not contrary to any relevant plans or policies. The activity is also consistent with the purpose and principles of the Resource Management Act 1991.

ADVICE NOTES

Water meter installation

1. Fittings required on well headworks such as water meters and backflow preventers require straight lengths of pipe either side in order to function properly. Please refer to the manufacturer's specifications for the specific dimensions necessary for each device before any modifications are made to well headworks.
2. The required length of pipe for compliance testing of water measuring device accuracy should, preferably, be above ground and located immediately 'upstream' of the water measuring device. If this is not practical, the length of pipe could be located below ground or immediately 'downstream' of the water measuring device and other fittings. If located underground, the consent holder will be required to excavate a hole around the pipe on receiving notice of any compliance testing.

Hawke's Bay Regional Council

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Page 3

Consent No. WP090153T

Water take records

3. Where no water is taken over a long period (say more than 3 months) the Manager Regulation may authorise that records be provided at intervals exceeding one month.

Wellhead construction

4. To minimise the risk of contaminants entering groundwater, well headworks are required to be constructed to ensure that there are no openings through which contaminants might enter the well. This would include ensuring that there are no gaps around pipework and cables at the wellhead.

MONITORING NOTE**Routine monitoring**

Routine monitoring inspections will be undertaken by Council officers at a frequency of no more than once every year to check compliance with the conditions of the consent. The costs of **any** routine monitoring will be charged to the consent holder in accordance with the Council's Annual Plan of the time.

Non-routine monitoring

"Non routine" monitoring will be undertaken if there is cause to consider (e.g. following a complaint from the public, or routine monitoring) that the consent holder is in breach of the conditions of this consent. The cost of non-routine monitoring will be charged to the consent holder in the event that non-compliance with conditions is determined, or if the consent holder is deemed not to be fulfilling the obligations specified in section 17(1) of the Resource Management Act 1991 (RMA) shown below.

Section 17(1) of the RMA 1991 states:

Every person has a duty to avoid, remedy, or mitigate any adverse effect on the environment arising from an activity carried on, by or on behalf of that person, whether or not the activity is in accordance with a rule in a plan, a resource consent, section 10, section 10A, or section 20.

Consent Impact Monitoring

In accordance with section 36 of the RMA (which includes the requirement to consult with the consent holder) the Council may levy additional charges for the cost of monitoring the environmental effects of this consent, either in isolation or in combination with other nearby consents. Any such charge would generally be set through the Council's Annual Plan process.

DEBT RECOVERY

It is agreed by the consent holder that it is a term of the granting of this resource consent that all costs incurred by the Hawke's Bay Regional Council for, and incidental to, the collection of any debt relating to the monitoring of this resource consent shall be borne by the consent holder as a debt due to the Council, and for that purpose the Council reserves the right to produce this document in support of any claim for recovery.

Hawke's Bay Regional Council

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Page 4

Consent No. WP090153T

CONSENT HISTORY

Consent No. (Version)	Date	Event	Relevant Rule		
			Number	Plan	
WP090153T	24/11/09	Consent initially granted	55	Regional Management Plan	Resource
			34	Proposed Regional Environment Plan	Coastal

Hawke's Bay Regional Council

Safeguarding Your Environment + Kaitiaki Tuku Iho

Page 5



SPRING/well

Consent No. WP090166T

Brodie

RESOURCE CONSENT

Water Permit

In accordance with the provisions of the Resource Management Act 1991, and subject to the attached conditions, the Hawke's Bay Regional Council (the Council) grants a resource consent for a discretionary activity to:

Central Hawke's Bay District Council
PO Box 127
Waipawa 4240

to take water from a shallow spring fed well to provide a public water supply at Kairakau Beach.

LOCATION

Address of site

Brodie Place (off Kapiti Place),
Kairakau Beach

Legal description

Site of take: Lot 30 DP20914 BLK IV
Waimarama SD
Site of use: Various

Map reference

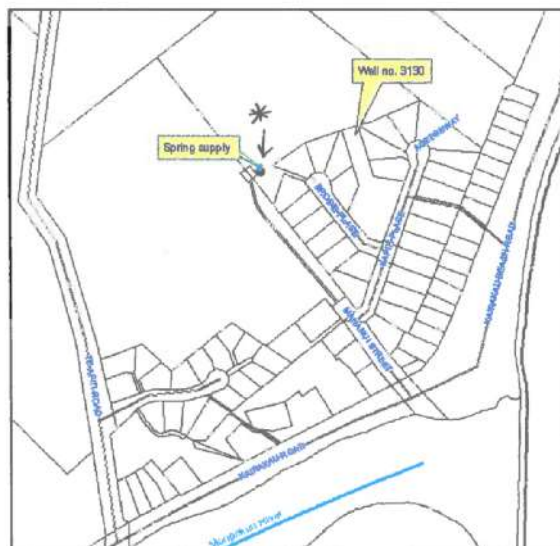
V22 2845391 6132741

CONSENT DURATION

This consent is granted for a period commencing and expiring on 31 May 2029.

LAPSING OF CONSENT

This consent shall lapse in accordance with s.125 on 31 May 2014 if it is not exercised before that date.



Yolanda Morgan

RESOURCE MANAGEMENT GROUP

Under authority delegated by Hawke's Bay Regional Council.

20 November 2009

Consent No. WP090166T

CONDITIONS

1. The rate of taking shall not exceed **0.7 litres per second**.
2. The volume taken shall not exceed **420 cubic metres in any 7-day period** (i.e. at the maximum rate authorised in condition 1, taking should normally be less than, and never exceed 167 hours per week).
3. The consent holder shall undertake all operations in accordance with any drawings, specifications, statements of intent and other information supplied as part of the application for this resource consent. In the event that there is conflict between the information supplied with the application and any consent condition(s), the condition(s) shall prevail.

REVIEW OF CONSENT CONDITIONS BY THE COUNCIL

The Council may review conditions of this consent pursuant to sections 128, 129, 130, 131 and 132 of the Resource Management Act 1991. The actual and reasonable costs of any review undertaken will be charged to the consent holder, in accordance with s.36(1) of the Resource Management Act.

Times of service of notice of any review: During the month of May, of any year.

Purposes of review: To deal with any adverse effect on the environment which may arise from the exercise of this consent, which it is appropriate to deal with at that time or which became evident after the date of issue.

To require the adoption of the best practicable option to remove or reduce any effects on the environment.

To require the installation and reading of a water-measuring device.

To modify any monitoring programme, or to require additional monitoring if there is evidence that current monitoring requirements are inappropriate or inadequate.

To ensure that the volume of water authorised by the consent is consistent with actual water needs and is physically able to be taken.

REASONS FOR DECISION

The activity will have minor actual or potential adverse effects on the environment and is not contrary to any relevant plans or policies. The activity is also consistent with the purpose and principles of the Resource Management Act 1991.

MONITORING NOTE**Routine monitoring**

Routine monitoring inspections will be undertaken by Council officers at a frequency of no more than once every 2 years to check compliance with the conditions of the consent. The costs of any

Consent No. WP090166T

routine monitoring will be charged to the consent holder in accordance with the Council's Annual Plan of the time.

Non-routine monitoring

"Non routine" monitoring will be undertaken if there is cause to consider (e.g. following a complaint from the public, or routine monitoring) that the consent holder is in breach of the conditions of this consent. The cost of non-routine monitoring will be charged to the consent holder in the event that non-compliance with conditions is determined, or if the consent holder is deemed not to be fulfilling the obligations specified in section 17(1) of the Resource Management Act 1991 (RMA) shown below.

Section 17(1) of the RMA 1991 states:

Every person has a duty to avoid, remedy, or mitigate any adverse effect on the environment arising from an activity carried on, by or on behalf of that person, whether or not the activity is in accordance with a rule in a plan, a resource consent, section 10, section 10A, or section 20.

Consent Impact Monitoring

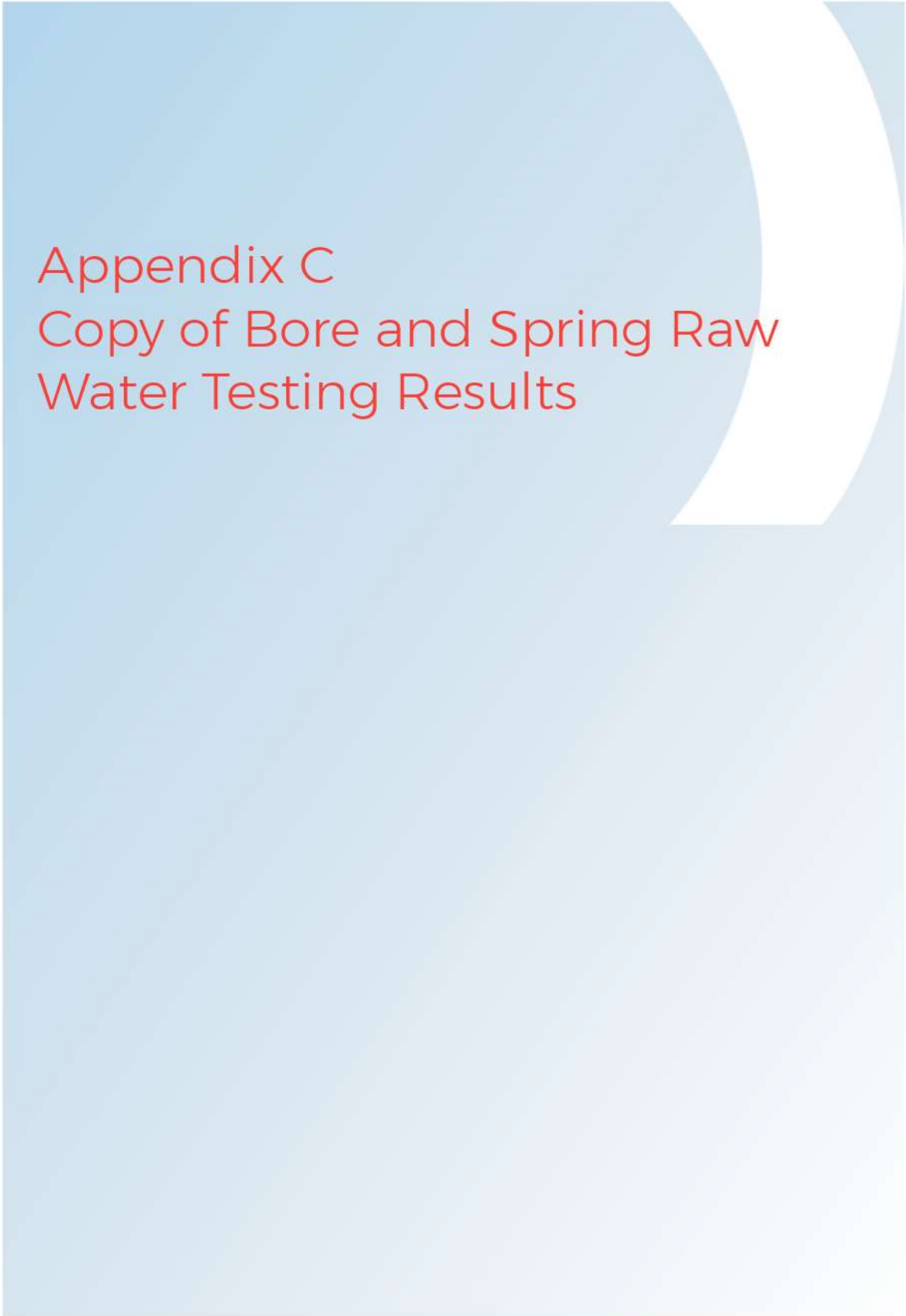
In accordance with section 36 of the RMA (which includes the requirement to consult with the consent holder) the Council may levy additional charges for the cost of monitoring the environmental effects of this consent, either in isolation or in combination with other nearby consents. Any such charge would generally be set through the Council's Annual Plan process.

Debt Recovery

It is agreed by the consent holder that it is a term of the granting of this resource consent that all costs incurred by the Hawke's Bay Regional Council for, and incidental to, the collection of any debt relating to the monitoring of this resource consent shall be borne by the consent holder as a debt due to the Council, and for that purpose the Council reserves the right to produce this document in support of any claim for recovery.

CONSENT HISTORY

Consent No. (Version)	Date	Event	Relevant Rule	
			Number	Plan
WP090166T	24/11/2009	Consent initially granted.	55	Regional Resource Management Plan
			34	Proposed Regional Coastal Environment Plan



Appendix C

Copy of Bore and Spring Raw Water Testing Results



Water Testing Hawkes Bay (2016) Ltd

Central Hawkes Bay District
Council
PO Box 127
Waipawa
4240
Attention: Karen Bothwell

Results Report

Batch Number: 19/16909

Issue: 1
14 November 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/16909-01	Potable Water		04/11/2019 09:30	04/11/2019 15:38	0
Notes: Kairakau Kapiiti PI Bore					
Test Code	Result	Units	Test Date	Comments	Validated By
H-1004	Temperature on arrival	7.7	Deg C	04/11/2019	Rowena Houghton KTP
H-M0414	Total Coliforms	78.2	MPN/100mL	04/11/2019	DWSNZ test
H-M0415	E. coli	1.0	MPN/100mL	04/11/2019	Fails MAV Limit of 0
HS-0002	Suspended Solids - Total	< 5 **	g/m ³		Eurofins Wg Import
HS-0040	Total (NP) Organic Carbon	0.9 **	g/m ³		Eurofins Wg Import
HS-0052	Alkalinity - Total	280 **	g CaCO ₃ /m ³		Eurofins Wg Import
HS-0055	Conductivity at 25°C	85.6 **	mS/m		Eurofins Wg Import
HS-0602	Chloride	79.0 **	g/m ³		Eurofins Wg Import
HS-0604	Bromide	0.25 **	g/m ³		Eurofins Wg Import
HS-0605	Nitrate - Nitrogen	0.75 **	g/m ³		Eurofins Wg Import
HS-0607	Sulphate	26.7 **	g/m ³		Eurofins Wg Import
HS-0701	Fluoride	0.098 **	g/m ³		Eurofins Wg Import
HS-0755B	Filtered Absorbance at 254 nm	0.03 **			Eurofins Wg Import
HS-1769	Iron - Total	0.026 **	g/m ³		Eurofins Wg Import
HS-6043	Total Hardness	285 **	g CaCO ₃ /m ³		Eurofins Wg Import
HS-6603	Arsenic - Total	< 0.002 **	g/m ³		Eurofins Wg Import
HS-6607	Boron - Total	0.06 **	g/m ³		Eurofins Wg Import
HS-6608	Cadmium - Total	< 0.001 **	g/m ³		Eurofins Wg Import
HS-6610	Calcium - Total	100 **	g/m ³		Eurofins Wg Import
HS-6618	Lead - Total	0.003 **	g/m ³		Eurofins Wg Import
HS-6620	Magnesium - Total	8.5 **	g/m ³		Eurofins Wg Import
HS-6621	Manganese - Total	< 0.001 **	g/m ³		Eurofins Wg Import
HS-6626	Potassium - Total	2.50 **	g/m ³		Eurofins Wg Import
HS-6631	Sodium - Total	63.1 **	g/m ³		Eurofins Wg Import
P1855B	Aqueous Total Metal Digestion	Completed **			Eurofins Wg Import

Comments:

** See attached Subcontracting Laboratory document

Sampled by customer using WTHB approved containers.

All samples analysed as we receive them. Delivery was within the correct time and/or temperature condition

Comments on Individual Test Results

Total Coliforms

Coliforms are a broad class of bacteria found in our environment, not all of which present a risk to public health. Total coliforms include bacteria that are found

Batch Number: 19/16909-1 WTHB

1105 Plunket Street St Leonards

Page 1 of 3

Hastings 4120 New Zealand

14 November 2019 16:00:28

Phone: (06) 870 6449 Fax:

Email: info@watertestinghb.nz Website: <http://www.watertestinghb.co.nz>

in the soil, in water that has been influenced by surface water, and in human or animal waste. The DWSNZ does not include a Maximum Value for total coliforms and a high total coliform reading does not necessarily pose a risk to human health. However, total coliforms are a useful indicator of drinking-water quality and may detect abnormalities and changes in quality over time.

E. coli

In the DWSNZ E. coli is used as an indicator organism for contamination of drinking water by faecal material. It is impractical to monitor water supplies for all potential human pathogens. Additionally, to be considered safe to drink the DWSNZ determine that water must not exceed Maximum Acceptable Values (MAV) for a range of chemicals. The standards also give Guideline Values (GV) for other chemicals, which if exceeded may impact on the taste, odour and colour of the water, but have no direct impact on the water safety.

Test Methodology:

Test	Methodology	Detection Limit
Total Coliforms	APHA 23rd Edition Method 9223B by Colliert Quantitray	1 MPN/100mL
E. coli	APHA 23rd Edition Method 9223B by Colliert Quantitray	1 MPN/100mL
Suspended Solids - Total	APHA 23rd Edition Online Method 2540 D	3 g/m ³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA 23rd Edition Online 5310B,C, ASTM D2579, D4839.	0.1 g/m ³
Alkalinity - Total	APHA 23rd Edition Online Method 2320 B	1 g CaCO ₃ /m ³
Conductivity at 25°C	APHA 23rd Edition Online Method 2510 B.	0.1 mS/m
Chloride	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m ³
Bromide	Ion Chromatography following USEPA 300.0 (modified)	0.02 g/m ³
Nitrate - Nitrogen	Ion Chromatography following USEPA 300.0 (modified).	0.01 g/m ³
Sulphate	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m ³
Fluoride	Ion Chromatography following USEPA 300.0 (modified)	0.005 g/m ³
Filtered Absorbance at 254 nm	In house method. Absorbance measured after filtration through 0.45micron	0.01
Iron - Total	ICP-OES following APHA 23rd Edition Online Method 3120 B (modified)	0.013 g/m ³
Total Hardness	ICP-MS following APHA 23rd Edition Online method 3125 (modified).	1 g CaCO ₃ /m ³
Arsenic - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.002 g/m ³
Boron - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.05 g/m ³
Cadmium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Calcium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Lead - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Magnesium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Manganese - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Potassium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Sodium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Aqueous Total Metal Digestion	Follows APHA 22nd Edition Method 3030E (modified) using nitric acid.	n/a

Onsite Observation Methodology:

Test	Methodology	Detection Limit
Temperature on arrival	Dedicated Thermometer following APHA 23rd Edition Method 2550 B	0.1 Deg C

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m³ is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

All test methods and confidence limits are available on request. This report must not be reproduced except in full, without the written consent of the laboratory.



Report Released By
Rowena Houghton

Batch Number: 19/16909-1 WTHB

14 November 2019 16:00:28

1105 Plunket Street St Leonards

Hastings 4120 New Zealand

Phone: (06) 870 6449 Fax:

Email: info@watertestinghb.nz Website: <http://www.watertestinghb.co.nz>

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Page 3 of 3



Water Testing Hawkes Bay (2016) Ltd

Central Hawkes Bay District
Council
PO Box 127
Waipawa
4240
Attention: Karen Bothwell

Results Report

Batch Number: 19/16753

Issue: 1
11 November 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/16753-01	Potable Water		31/10/2019 10:10	31/10/2019 15:20	0
Notes: Kairakau Brodie PI Well					
Test Code	Result	Units	Test Date	Comments	Validated By
H-1004	Temperature on arrival	4.0	Deg C	31/10/2019	Rowena Houghton KTP
H-M0414	Total Coliforms	> 200.5	MPN/100mL	31/10/2019	Rowena Houghton KTP
H-M0415	E. coli	5.3	MPN/100mL	31/10/2019	Rowena Houghton KTP
HS-0002	Suspended Solids - Total	< 5 **	g/m ³		Eurofins Wg Import
HS-0040	Total (NP) Organic Carbon	0.9 **	g/m ³		Eurofins Wg Import
HS-0052	Alkalinity - Total	281 **	g CaCO ₃ /m ³		Eurofins Wg Import
HS-0055	Conductivity at 25°C	83.5 **	mS/m		Eurofins Wg Import
HS-0602	Chloride	76.3 **	g/m ³		Eurofins Wg Import
HS-0604	Bromide	0.26 **	g/m ³		Eurofins Wg Import
HS-0605	Nitrate - Nitrogen	0.78 **	g/m ³		Eurofins Wg Import
HS-0607	Sulphate	16.1 **	g/m ³		Eurofins Wg Import
HS-0701	Fluoride	0.107 **	g/m ³		Eurofins Wg Import
HS-0755B	Filtered Absorbance at 254 nm	0.01 **			Eurofins Wg Import
HS-1769	Iron - Total	0.014 **	g/m ³		Eurofins Wg Import
HS-6043	Total Hardness	316 **	g CaCO ₃ /m ³		Eurofins Wg Import
HS-6603	Arsenic - Total	< 0.002 **	g/m ³		Eurofins Wg Import
HS-6607	Boron - Total	0.05 **	g/m ³		Eurofins Wg Import
HS-6608	Cadmium - Total	< 0.001 **	g/m ³		Eurofins Wg Import
HS-6610	Calcium - Total	113 **	g/m ³		Eurofins Wg Import
HS-6618	Lead - Total	< 0.001 **	g/m ³		Eurofins Wg Import
HS-6620	Magnesium - Total	7.9 **	g/m ³		Eurofins Wg Import
HS-6621	Manganese - Total	< 0.001 **	g/m ³		Eurofins Wg Import
HS-6626	Potassium - Total	1.80 **	g/m ³		Eurofins Wg Import
HS-6631	Sodium - Total	59.7 **	g/m ³		Eurofins Wg Import
P1855B	Aqueous Total Metal Digestion	Completed **			Eurofins Wg Import

Comments:

** See attached Subcontracting Laboratory document

Sampled by customer using WTHB approved containers.

All samples analysed as we receive them. Delivery was within the correct time and/or temperature condition

Comments on Individual Test Results

Total Coliforms

Coliforms are a broad class of bacteria found in our environment, not all of which present a risk to public health. Total coliforms include bacteria that are found

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Page 1 of 3

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Phone: (06) 870 6449 Fax:

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in the soil, in water that has been influenced by surface water, and in human or animal waste. The DWSNZ does not include a Maximum Value for total coliforms and a high total coliform reading does not necessarily pose a risk to human health. However, total coliforms are a useful indicator of drinking-water quality and may detect abnormalities and changes in quality over time.

E. coli

In the DWSNZ E. coli is used as an indicator organism for contamination of drinking water by faecal material. It is impractical to monitor water supplies for all potential human pathogens. Additionally, to be considered safe to drink the DWSNZ determine that water must not exceed Maximum Acceptable Values (MAV) for a range of chemicals. The standards also give Guideline Values (GV) for other chemicals, which if exceeded may impact on the taste, odour and colour of the water, but have no direct impact on the water safety.

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Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA 23rd Edition Online 5310B,C, ASTM D2579, D4839.	0.1 g/m ³
Alkalinity - Total	APHA 23rd Edition Online Method 2320 B	1 g CaCO ₃ /m ³
Conductivity at 25°C	APHA 23rd Edition Online Method 2510 B.	0.1 mS/m
Chloride	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m ³
Bromide	Ion Chromatography following USEPA 300.0 (modified)	0.02 g/m ³
Nitrate - Nitrogen	Ion Chromatography following USEPA 300.0 (modified).	0.01 g/m ³
Sulphate	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m ³
Fluoride	Ion Chromatography following USEPA 300.0 (modified)	0.005 g/m ³
Filtered Absorbance at 254 nm	In house method. Absorbance measured after filtration through 0.45micron	0.01
Iron - Total	ICP-OES following APHA 23rd Edition Online Method 3120 B (modified)	0.013 g/m ³
Total Hardness	ICP-MS following APHA 23rd Edition Online method 3125 (modified).	1 g CaCO ₃ /m ³
Arsenic - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.002 g/m ³
Boron - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.05 g/m ³
Cadmium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Calcium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Lead - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Magnesium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Manganese - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.001 g/m ³
Potassium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Sodium - Total	ICP-MS following APHA 23rd Edition Online method 3125 (modified)	0.1 g/m ³
Aqueous Total Metal Digestion	Follows APHA 22nd Edition Method 3030E (modified) using nitric acid.	n/a

Onsite Observation Methodology:

Test	Methodology	Detection Limit
Temperature on arrival	Dedicated Thermometer following APHA 23rd Edition Method 2550 B	0.1 Deg C

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m³ is the equivalent to mg/L and ppm.

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Page 3 of 3



wsp.com/nz

6.6 WAIPUKURAU SECOND WATER SUPPLY - PROJECT UPDATE

File Number: 000123

Author: Darren de Klerk, 3 Waters Programme Manager

Authoriser: Monique Davidson, Chief Executive

Attachments: Nil

Option Four **blue route** has been identified as preferred, with investigations under way to mitigate risks, work is underway at the Waipawa borefield to confirm sufficient water is available to meet project requirements.

Landowner engagements to date have been generally supportive with recommendations for significant due diligence requiring formal land access agreements, and DIA timeframe constraints placing acquisition and easement compensation negotiations as also needing developing. River crossing methodology is under investigation jointly with the wastewater project.

Following the concept design report these risks are better understood and will be developed further during the detailed design stages of the project and manageable within remaining hold points prior to construction to ensure the project does not proceed to a point of no return.

If successful, this option proceeds the greatest alignment to the original strategic assessment undertaken and is able to add resilience of storage and source to meet future demand, compliance requirements whilst aligning with council objectives of durable infrastructure, smart growth that allows the communities to prosper.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

PURPOSE

Further to the Finance and Infrastructure decision 8 October 2020, the matter for consideration by the Committee is to receive a progress update on the project and endorse continuation of developing the intended **Option Four Blue Route** (the Waipawa / Waipukurau Link) into land access, due diligence, landowner compensation negotiation and continued detailed design.

SIGNIFICANCE AND ENGAGEMENT

This report is provided for information purposes only and has been assessed as not significant.

BACKGROUND

In October 2020 Council endorsed officers to proceed with Option Four (the Waipawa / Waipukurau Link) to detailed design. This included 3 potential land routes from the Waipawa Bore Field through to the Waipukurau reticulation system.

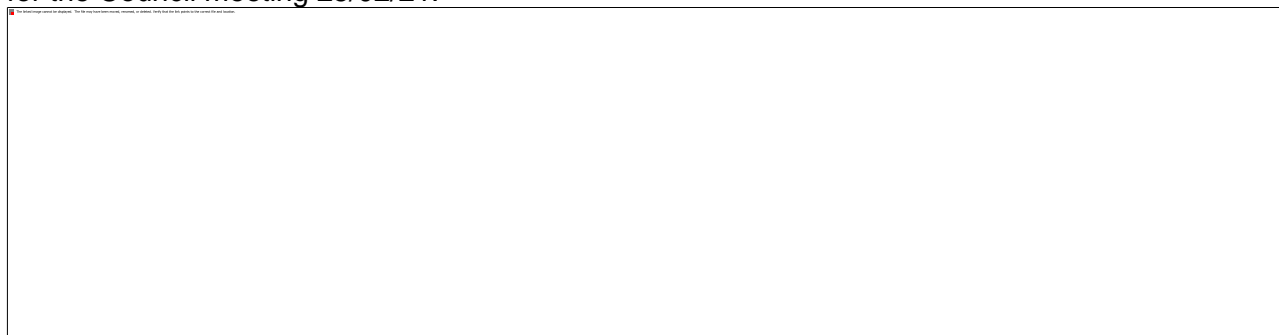
- **Blue Route** – Generally parallel to SH2, crossing Tuki Tuki River into James St reticulation.
- **Yellow Route** – Through middle country, crossing Tuki Tuki River into James St reticulation.
- **Red Route** – Along Lindsay Rd, crossing Tuki Tuki River into James St reticulation.

A route options comparison was undertaken in November analyzing physical route inspection, topography, elevations for reservoirs, desktop geology and pipeline lengths with the recommendation to proceed with **Option Four - Blue Route**.



Since the route options comparison, the following actions have been performed:

Water Source Validation – Investigation to validate a suitable supply at the Waipawa Bore field is in progress with a bore drilling contractor awarded under tender. A licence to occupy has been agreed with the landowners with the WSP Hydrologist guiding drilling locations. In addition, officers have engaged RDCL to perform geophysical services electrical resistivity tomography (ERT) providing 3D imaging to further assist refining drilling locations. Drilling work is expected to commence in February 2021. It is possible early detail on findings may be available for the Council meeting 25/02/21.



Pipeline route - Refinement has been made to avoid where possible poor geological conditions, known fault lines, utilise existing road reserves, avoidance of significant compensation through land parcels, identification of preferred river crossing positions and identification of preferred service road access to the reservoir location. Further refinement of this route will be completed following onsite due diligence currently being planned (refer enclosed report), in particular there are presently two possible crossing locations identified on the Tuki Tuki requiring further investigation development during detailed design.

Reservoir and Critical Land Locations – Service road access, geotechnical conditions, and the proposed reservoir land parcel acquisition have been discussed with directly affected landowner who offers general support for the project. Further associated easements north of this also require early agreements in place to allow capital works to commence meeting DIA timeframes.

Compulsory purchase under the Public Works Act (PWA) 1981 is an option, but the process could take up to 12months and is not Council's preferential land acquisition or easement

process, therefore developing relationships early and formally with landowners is required, enabling DIA funding constraints to be met.

Landowners – The remaining directly affected landowners' north of the Tiki Tuki River have all been contacted informally to discuss the intended project route, and any concerns they may have with easements or land acquisitions'. All have generally expressed support for the pipeline with a number of requests for extraordinary water supplies for stock to be drawn. Officers will identify a consistent design approach for this to include as part of the compensation package negotiation following Council direction. Allowances are included in project budgeting.

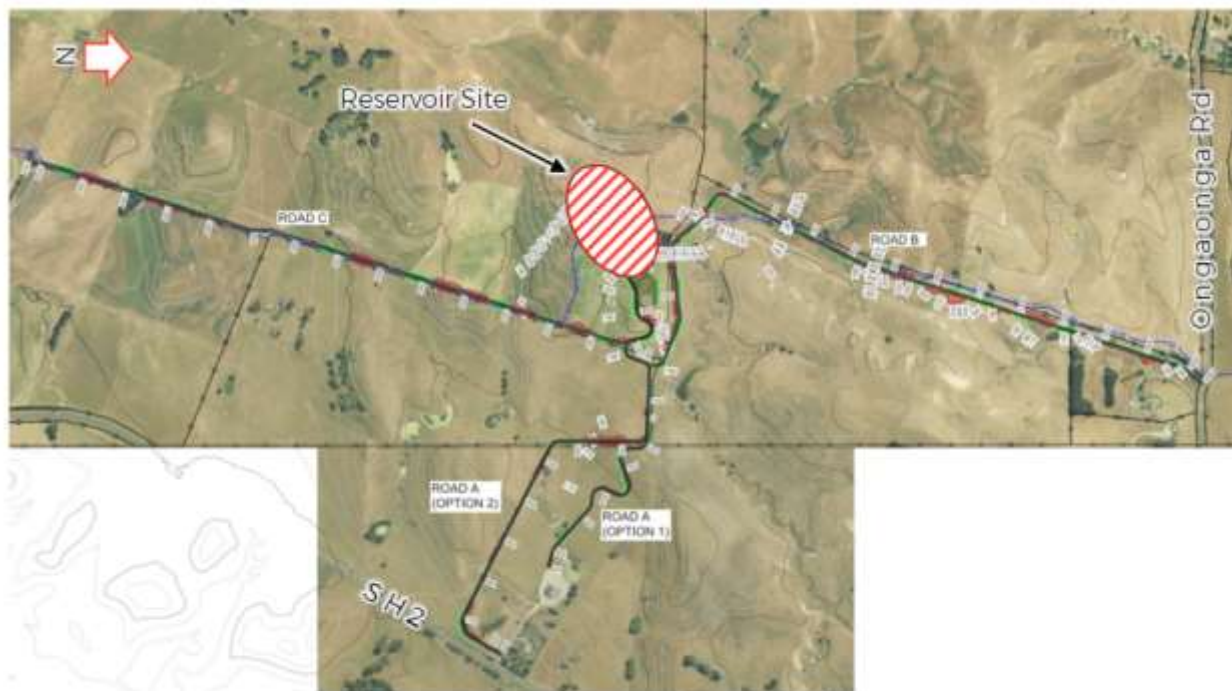


Figure 7-1 : Central Reservoir Access Road Options

Archaeological – A land route assessment including desktop and physical inspection along the proposed has been performed (refer enclosed). The land based assessment has highlighted no items of interest along the route at this stage other than a known hilltop pah away from the physical pipeline. Further study on the proposed river crossing locations is in progress and expected early March.

Communications and Engagement Strategy – Coordination with the intended due diligence, procurement and Land acquisition strategy has been developed to align external communications on the project with the natural design stage. Indirectly affected landowners adjacent to the intended pipeline route have received letter notification of the proposed pipeline with a copy of the project memo so they are aware of any contractors working alongside their properties. Wider engagement will proceed as the project develops in accordance with the developed strategy.

Engagements – Alongside directly affected Landowner engagement, initial contact has been made with iwi including a general project information pamphlet identifying timeframes, pipeline route, river crossing locations and the archaeological assessment in progress.

Budget – Officers continue to monitor, refine and assess budgets as the design develops.

Concept Report 'February 2021' – we have identified a number of aspects requiring investigation in order to progress design. Officers summarise key points as follow:

- **Geotechnical conditions:** The area traversed by the project contains a number of fault lines and areas of unstable land. This may affect choices for reservoir construction design. No invasive site investigations have been undertaken as require landowner permissions opening compensation discussions.
- **Water quality:** Assumption that the water quality from the expanded borefield will be suitable for UV treatment without requiring turbidity removal to meet drinking water standards. Turbidity removal plant is not budgeted.
- **River crossings:** Proposed crossing methodology is in development with further site investigations.
- **Planning:** There is the possibility that archaeological or contaminated land issues might arise. At this stage, it is not expected to be problematic.
- **Budget** – We continue to gain confidence in the budget as the design progresses and the risks are unravelled further.

The following design **assumptions** have been highlighted;

- Opportunistic replacement of existing AC pipe on Tikokino Rd.
- Additional 100L/s supply yield from Waipawa Bore site.
- 3ML Central reservoir capacity coupled with 3ML Pukeora providing 6ML total.
- Reverse flow into Waipawa is not included in concept.
- Direct drilling under rivers is possible without ducting /sleeve.
- Single reservoir construction type requires development, currently assumed as Concrete but steel needs development.
- Excludes work to rising mains, existing reservoirs or existing reticulation systems (outside of scope) as funded elsewhere.

Key **Risks** Identified in the Concept Report;

- Obtaining acceptable and timely land access/acquisition agreements to enable the scheme to proceed,
- Schedule – the project has a challenging schedule which is partly due to the use of Government stimulus funding. Council processes and negotiations/agreements with third parties are further stressors to programme,
- Chilean needle grass is known to be present on one of the properties to be crossed which will require additional management,
- Inability to obtain a satisfactory consent to take the additional water from the Waipawa borefield,
- Inability of the borefield to produce the desired yield,
- Bore-field water quality,
- Capital costs are higher than expected, especially given the busy construction market and COVID related supply chain interruptions,
- COVID-19 lockdown interrupts progress,
- Failure of other critical assets which divert resources from the project.

Value Engineering

Development of Value engineering relies on increasing levels of design in order to validate true value. WSP have identified a series of Value engineering workshops for each key element identifying compromises or opportunities to assist the project. These will be developed during the detailed design stage and alongside due diligence.

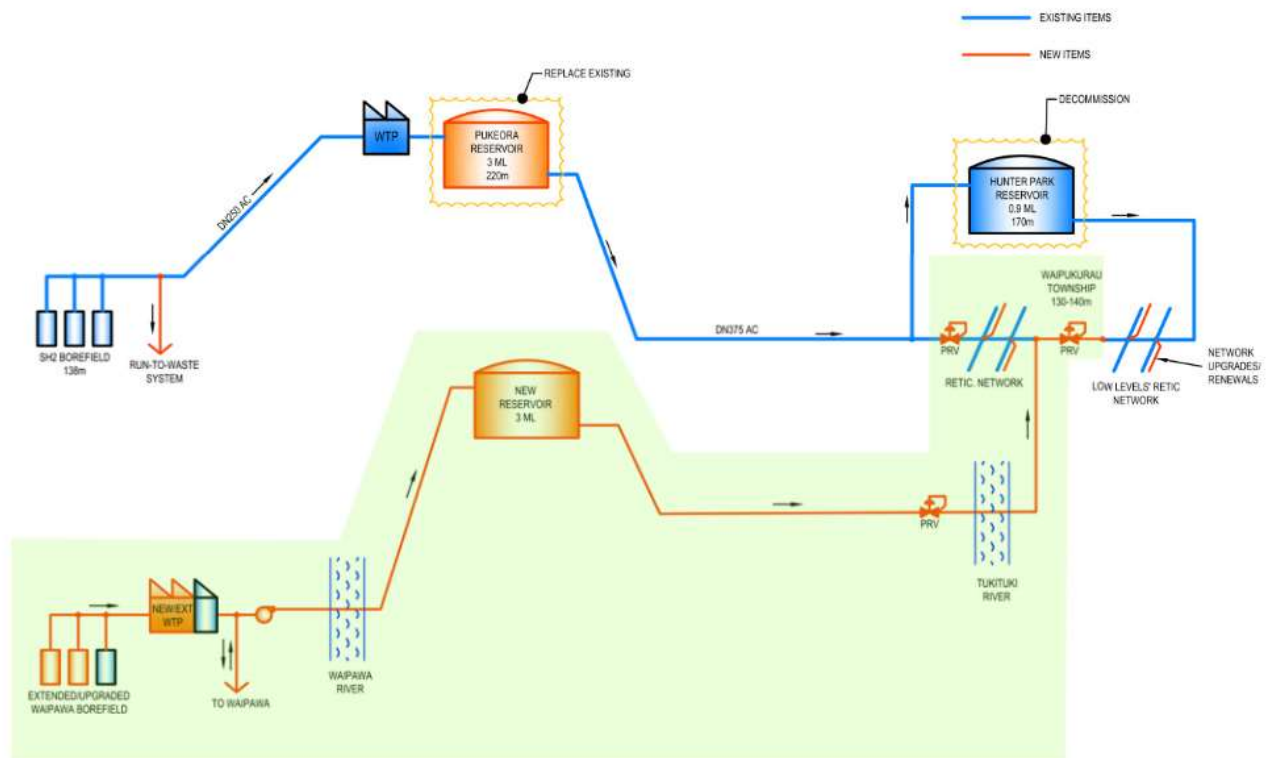


Figure 3-1 : Original Option 4 schematic with Waipawa Link shaded

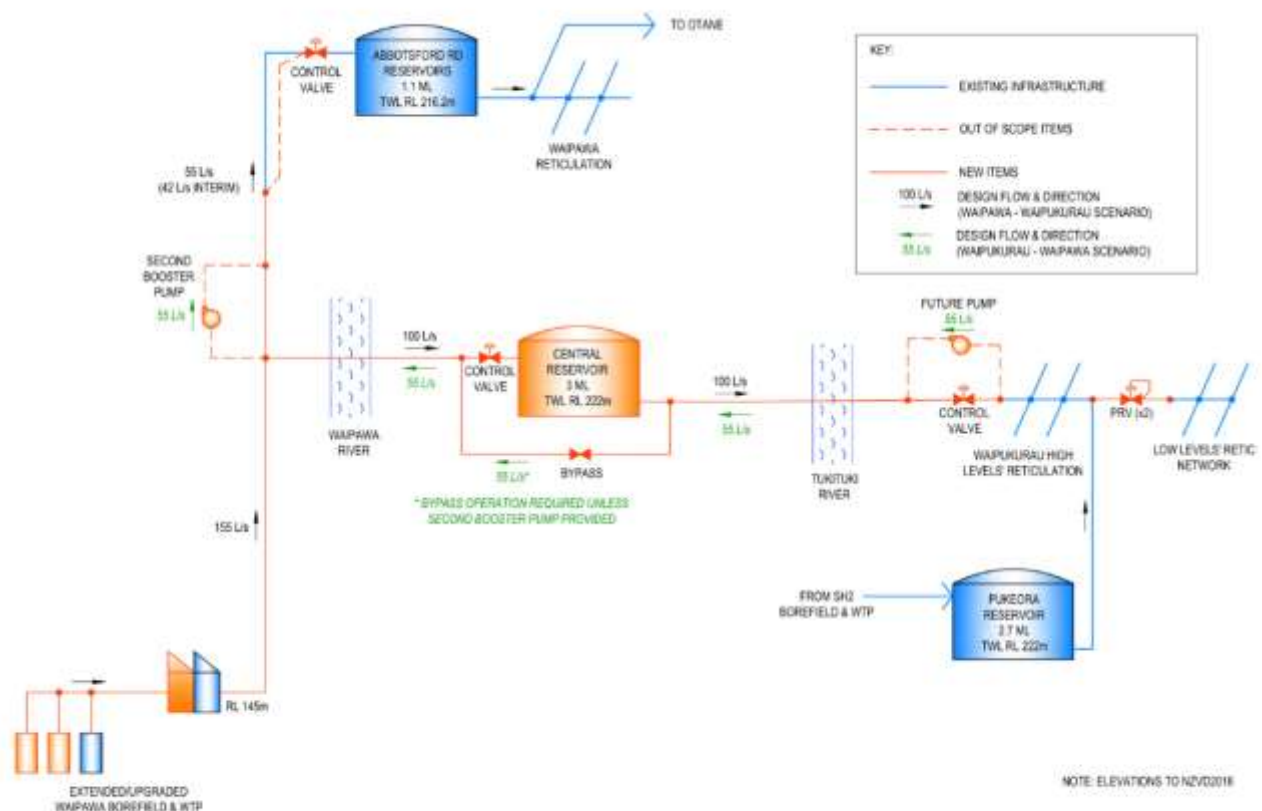


Figure 4-1 : Hydraulic Design Concept

DISCUSSION

Officers presented to this committee on the 8th October 2020, with the committee resolution endorsing officers to proceed with Option Four (the Waipawa / Waipukurau Link) to

detailed design. Offices have continued to refine the route in order to reduce where possible risks identified across the project.

Since October, there have been some further developments which may impact the project. Structural assessments have been completed by WSP for the existing Pukeora and Hunter Park reservoirs as well as the Abbotsford Road reservoirs. These concluded that all these structures provide between 15% and 34% of the current standard for new buildings. Structures less than 34%, triggers a legal obligation for these structures to be upgraded or replaced within seven years. The general condition of the Abbotsford road reservoirs identifies the requirement for significant remedial work. It is considered all will be uneconomic to strengthen, and that replacement and significant remedial work will be required.

The four reservoirs have been funded for with the current draft 2021 Long Term Plan and will be completed within the first six years of the plan. The reservoir replacements are reliant on another reservoir to be able to supply the towns while these reservoirs are replaced.

The project budget identified in the last committee meeting was \$11.5m over four years (FY18/19 through to FY23/24) – expecting completion by 30 June 2024. The budget is still based on preliminary work, and will be firmed up as the design progresses, but carries risk and opportunity related to market responses, onsite land investigations, geotechnical conditions, reservoir design, land acquisition and easement expenses.

The project currently identifies 7 directly affected landowners (5 Private, LINZ, HBRC) including 2 land parcels requiring acquisition. The potential for significant delay associated with any compulsory public works act (PWA) acquisition process may delay landowner access restricting physical site due diligence recommended by WSP. Officers highlight informal discussions are well progressed, with directly affected landowners appearing supportive in principal, however formal discussions including compensation negotiation needs time to allow landowners to consider proposals, engage with their mortgage lenders, and if required source any support entitled under the PWA. Informally the process is expected to take in the region of 4-6months to complete, with additional focus on 3 identified key landowners.

The formal PWA process would be in excess of 12 months. Access for due diligence and associated agreements is now required to allow further de-risking of this project for Council. Officers are therefore recommending proceeding with formal land negotiations to reduce the extent of risk to the DIA funding constraints for \$3.3m expenditure by 31 March 2022.

CHBDC is required to complete spend of the \$3.3m Tranche One allocation prior to March 2022. In order to complete this expenditure by March 2022 to meet the funding requirements associated with the grant, Officers will continue with due diligence investigations including conditional land negotiations to progress detailed design, value engineering and budget refinement.

The project team have highlighted a number of recommendations needing addressing before entering and furthering detailed design. Officers identify the key items as:

- Identifying suitable supply quality and yield from the Waipawa Test Bores and securing this under consent from HBRC. – *In progress.*
- Review of Concept report assumptions with internal stakeholders and refinement. – *In progress.*
- Land access agreements/ Acquisitions. – *Pending*
- CHBDC continue with ongoing and proposed investigation work and landowner negotiations to address the primary risks which may affect the feasibility of this project. – *Pending.*
- A series of value engineering workshops is held to refine potential design solutions for certain key elements of the project. – *Pending.*

Following from the 8th October F&I meeting we are proposing to establish hold points that if they do not develop suitably as planned would be opportunities to return to Council or committee for a further decision;

1. **Any deviation from existing budget or plans** with items in the design phase related to, but not subject to - landowner access, physical due diligence, preliminary design on reservoir, completion river crossing feasibility and formal landowner engagement expectations.
2. **Procurement Plan or Strategy** approval to outline final design packages for reservoir, access road, rising main, procurement planning including pre-contract materials ordering.
3. **Tender Outcome Report** – pre award of contracts – consistent with the process outlined in the pre-approved procurement plan for that contract.

RISK MANAGEMENT

The progress of option four and the project remains vital to ensure the risk of infrastructure failure is mitigated. Examples of recent concerns are highlighted below;

- Reservoirs failing structural assessments (largely due to age)
- Borefield concerns with producing water

System resilience concerns also highlighted below;

- One pipe from borefield to reservoir/ treatment plant that is Asbestos Concrete
- One pipe into Waipukurau town from treatment plant that is mostly Asbestos Concrete
- One Borefield and water source
- Limited storage (approx. 8 hours) and excessive water turnover

Project risks were highlighted with the **Option Four paper** in October 2020. The project team was requested to manage these as part of the design process, with the requirement to bring these risks back to Council in a decision paper outlining the option in greater detail and providing greater detail on the risks currently highlighted. Officers have developed the below measures to inform.

Project Risk	Update
Waipawa borefields ability to produce the additional water required to supply Waipukurau	Under investigation with geophysical services and test bores. Formal report is expected end of March 2021.
Consenting and groundwater take limitations	Discussion with HBRC modelling identifies consent availability of 100L/s. Consent risks remain pending lodgement which is subject to landowner agreement.
Land acquisition and landowners willing to work with council for easements and land sites.	Informal discussion with directly affected landowner held identifying a general willingness to work with CHBDC. Land parcels and easements require developed design and formal engagement in order to progress. Significant timeframes may extend from this subject to the formal engagement responses.
Project delays due to currently unknown factors like ground conditions, land access.	Due diligence strategy identifies recommendations for significant investigative tasks requiring land access and licences to occupy. Significant timeframes may extend from this subject to the formal engagement responses.
The tension between decision making to meet reform and grant funding objectives and making wise investment decisions	Project control group established including CHBDC operations, Design Consultant, Land Consultant and PMO office with PMO director oversight. Risk register developed as a control document.

Ground conditions including crossing two rivers	Early engagement in progress with specialist drilling contractor to identify a works methodology, investigations required will support consents.
Ground conditions implicating reservoir and geotechnical costs	The due diligence strategy identifies recommendations for investigative tasks requiring early land access and licences to occupy.
Additional Risks Identified	
Cost inflation and market conditions.	Identification of level of budgeting confidence at 80%. Value Engineering planned alongside design development to seek further opportunities'.
Procurement and Staging	CHBDC are developing a procurement strategy for review and approval. Officers have identified 3 hold points.

IMPLICATIONS ASSESSMENT

This report confirms that the matter concerned has no particular implications and has been dealt with in accordance with the Local Government Act 2002. Specifically:

- Council staff have delegated authority for any decisions made;
- Council staff have identified and assessed all reasonably practicable options for addressing the matter and considered the views and preferences of any interested or affected persons (including Māori), in proportion to the significance of the matter;
- Any decisions made will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses;
- Unless stated above, any decisions made can be addressed through current funding under the Long-Term Plan and Annual Plan;
- Any decisions made are consistent with the Council's plans and policies; and
- No decisions have been made that would alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or would transfer the ownership or control of a strategic asset to or from the Council.

NEXT STEPS

Officers will work to progress the design and value engineering of option four blue route, and open formal engagements with landowners on land access and compensation packages, as outlined within the above plans.

Continue to develop the sustainable water demand management plan. This plan is a long term action plan to improve sustainable water use. This project is at an early stage, and is likely to take several years to show any significant results. The plan will drive the actions the capital and operations team will make in the future and how we as Council sustainably manage and reduce water loss and use.

Through the design process, Council will continue to engage with the community including mana whenua to understand the impacts and considerations the project may have on them, including considerations on how this project will enable the vision of the spatial plan.

Officers propose to bring Option Four Blue Route back to the Committee at each of the identified hold points for decision to proceed.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

6.7 KEY PROJECT STATUS REPORT - BIGWATERSTORY

File Number: 0009

Author: Darren de Klerk, 3 Waters Programme Manager

Authoriser: Monique Davidson, Chief Executive

Attachments: 1. Key Project Status Report - Big Water Story [↓](#)
2. Oct - Jan 21 #thebigwaterstory Update #9 [↓](#)

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.

PURPOSE

Following the conception of #thebigwaterstory, Council set about implementing the programme. A programme manager was appointed and focus given to defining the projects that form the programme in greater detail.

The purpose of this key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards against the larger programme objectives.

SIGNIFICANCE AND ENGAGEMENT

This report is provided for information purposes only and has been assessed as not significant.

BACKGROUND

As part of Project Thrive, the importance of water to our community was one of the loudest messages. This, combined with a vision for growth and prosperity, environmental responsibilities, as well as strong and durable infrastructure, is how #thebigwaterstory began.

To deliver the improvements required, Council has developed a programme of upgrades and improvements to ensure that the drinking water, wastewater and stormwater infrastructure is able to meet the current and future needs of the community.

Following Project Thrive, creation of The Big Water Story brand, and adoption of the LTP in 2018, attention and focus have shifted from discussion and consultation to planning and delivery. Projects must be sequenced and prioritised based on several factors. This holistic approach to managing several interrelated projects to achieve a single promised outcome is referred to as Programme Management.

This is the ninth report since the development of #thebigwaterstory, with the last one presented in October 2020.

DISCUSSION

A quarterly report to summarise the activity across #thebigwaterstory – further content within the attached.

IMPLICATIONS ASSESSMENT

This report confirms that the matter concerned has no particular implications and has been dealt with in accordance with the Local Government Act 2002. Specifically:

- Council staff have delegated authority for any decisions made;
- Council staff have identified and assessed all reasonably practicable options for addressing the matter and considered the views and preferences of any interested or affected persons (including Māori), in proportion to the significance of the matter;

- Any decisions made will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses;
- Unless stated above, any decisions made can be addressed through current funding under the Long-Term Plan and Annual Plan;
- Any decisions made are consistent with the Council's plans and policies; and
- No decisions have been made that would alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or would transfer the ownership or control of a strategic asset to or from the Council.

NEXT STEPS

Continue to implement the programme, seek funding opportunities and deliver on community and stakeholder ambitions.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.



Key Project Status Report #9



PROJECT NAME	#theBigWaterStory Key Project Status Report		
Release Date	12/02/2021	Report #	9
Key Benefits	<p>The benefits of the Big Water Story were communicated to the residents of CHB through workshops and through the LTP process. The key benefits were to:</p> <ul style="list-style-type: none"> • Upgrade infrastructure so that it will last longer and we can maintain the service you have always relied on • Meet changing legislative and compliance requirements relevant to 3 waters assets • Build resilience in our waters infrastructure by having second supplies, firefighting capacity and right sized reticulation systems • Take on the learnings from the Havelock North water inquiry • Ensure we are providing for smart growth in the District including the rapidly growing number of new homes being built in our residential areas and forecast over the next 10 years • Supply those who are connected to Drinking Water with a safe, clean and reliable drinking water source in particular those smaller communities • Deal with wastewater and stormwater to ensure minimal impact on our rivers • Ensure we do not burden future generations with aging infrastructure 		
Project Delivery Objectives	<p>To deliver the capital projects in the allocated year/s that together form the Big Water Story to budget and quality whilst ensuring maximum community benefit from these projects.</p> <p>Communicate to the community on the programme and the progress of each project.</p> <p>Provide input through the design and improvement projects to future infrastructure works and asset management plans, to inform where future expenditure and improvements are targeted for the betterment of infrastructure in the district.</p>		



Key Project Status Report #9



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Report/ Document History

Report No.	Report Date	Report Frequency	Project Sponsor	Project Manager
1	28/07/2018	Bi-Monthly	Josh Lloyd	Josh Lloyd - Interim
2	27/08/2018	Bi-Monthly	Josh Lloyd	Darren de Klerk
3	16/11/2018	Bi-Monthly	Josh Lloyd	Darren de Klerk
4	01/02/2019	Bi-Monthly	Josh Lloyd	Darren de Klerk
5	15/08/2019	Bi-Monthly	Josh Lloyd	Darren de Klerk
6	14/02/2020	Bi-Monthly	Josh Lloyd	Darren de Klerk
7	05/06/2020	Quarterly	Josh Lloyd	Darren de Klerk
8	08/10/2020	Quarterly	Josh Lloyd	Darren de Klerk
9	12/02/2021	Quarterly	Josh Lloyd	Darren de Klerk

Sponsor's Project Delivery Confidence Assessment

 Appears Highly Likely	 Appears Probable	 Appears Feasible	 Appears In Doubt	 Appears Unachievable
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Key Project Status Report #9



INTRODUCTION

This report will provide regular information on the fixed objectives and dynamic progress and risks of the Big Water Story.

The report provides an introduction as well as background and contextual information on the Big Water Story and then becomes more detailed discussing programme and project progress and risk.

BACKGROUND

As part of Project Thrive, the importance of water to our community was one of the loudest messages. This, combined with a vision for growth and prosperity, environmental responsibilities, as well as strong and durable infrastructure is how **#thebigwaterstory** began.

To deliver the improvements required, Council has developed a programme of upgrades and improvements to ensure that the drinking water, wastewater and stormwater infrastructure is able to meet the current and future needs of the community.

Following project THRIVE, creation of The Big Water Story brand, and adoption of the LTP in 2018, attention and focus have shifted from discussion and consultation to planning and delivery. Projects must be sequenced and prioritised based on several factors. This holistic approach to managing several interrelated projects to achieve a single promised outcome is referred to as Programme Management.

OBJECTIVE

Following the conception of **#thebigwaterstory**, Council set about implementing the programme, a programme manager was appointed and focus given to defining the projects that form the programme in greater detail.

This key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards.

1. Overall Confidence Assessment

Programme Manager's Status Summary				
Key Questions Impacting on Project Objectives		No	Yes	Explanation & Proposed Resolution to Problem
1	Are there <u>Business Case Benefit</u> attainment problems?	✓	<input type="checkbox"/>	The business case is self-supporting and based on relatively simple science. The assets are proven to require replacement, upgrade or augmentation. By delivering the specified projects, the asset constraints will be mitigated and business case benefits realised.
2	Are there <u>Scope Control</u> problems?	✓	<input type="checkbox"/>	The scope of the Big Water Story is defined with listed projects. The scope will be better defined as each project progresses through design phases.
3	Will Target <u>Dates</u> be missed?	<input type="checkbox"/>	✓	There is greater confidence most projects will be delivered within timeframes, Waipukurau second supply is unlikely to be completed within the original two-year timeframe. This has been re-forecast to 30 June 2022, and will be re-evaluated as it progresses through its planning lifecycle.
4	Will <u>Project Costs</u> be overrun?	<input type="checkbox"/>	✓	Confidence has been given on majority of the listed projects. The SH2 borefield project has been highlighted and is likely to exceed original budget, but will be managed in the wider project/ programme budgets. The Kairakau water supply project is forecast



Key Project Status Report #9



				to run over original budget, further details relating to these projects are to be present to council in February
5	Are there Quality problems?	✓	<input type="checkbox"/>	The risk of poor quality outcomes (e.g. poorly constructed projects) is considered low. The quality of physical works is considered a non-negotiable and is managed through routine project management processes.
6	Are there Resource problems?	✓	<input type="checkbox"/>	As the programme has progressed this resourcing risk has been well managed internally, and through engaging a diverse external market to deliver physical and design services. The 3 Waters reform funding has enabled expansion of the project team with multiple new roles funded.
7	Are there Risk Management problems?	✓	<input type="checkbox"/>	No significant risk management problems perceived at present, risks will be identified below and managed as per project management practices. Safety in design workshops held for each project.
8	Are there Review and Approval problems?	✓	<input type="checkbox"/>	Governance and internal management structures for the review and approval of project and programme outcomes are sufficient to meet the requirements of the Big Water Story. Robust gateways in place, in particular for procurements.
9	Are there Teamwork problems?	✓	<input type="checkbox"/>	The team are engaged and enthusiastic about the progress of the Big Water Story.
10	Are there Stakeholder problems?	✓	<input type="checkbox"/>	Key affected stakeholders will be communicated with and managed as per defined stakeholder management and communication plans for each project.
11	Are there Iwi issues?	✓	<input type="checkbox"/>	Impact on Iwi considered to be minimal with little impact on land or changes in use of infrastructure planned as part of the majority of Big Water Story projects. Greater engagement with Iwi is ongoing in relation to the 2 nd Water supply project, particularly around the proposed river crossings.
12	Are there Communication problems?	✓	<input type="checkbox"/>	Communication Strategy for Big Water Story developed, website content regularly updated and templates developed for regular distribution on all projects in line with project specific communication and stakeholder plans.
13	Are there Change Management problems?	✓	<input type="checkbox"/>	Not at present, some change may be imminent in project scope - these will be managed through our design review, and approval process.
14	Are there Health & Safety issues?	✓	<input type="checkbox"/>	H&S management is another non-negotiable for the delivery of all Big Water Story projects. It is mandatory that robust H&S management plans and procedures are provided for each Big Water Story Project. This will develop further as construction progresses through with site specific Health and Safety Plans



Key Project Status Report #9



Project Manager's Progress Summary

Achievements/Activities since last status report

Project	Achievement	When
Waipukurau Second Water Supply	Preferred route identified and landowner engagement has begun. Formal negotiations to begin in March 2021. Iwi engagement has begun and will be ongoing. Investigation bore contractor engaged and mobilising to site in February.	Ongoing
Waipukurau Water SH2 Borefield Upgrade	Looking to issue Practical completion to contractor for works to date. Run to waste system and Gallery assessment being investigated	Sep – Feb 2021
Waipukurau Firefighting and Shortfalls project	Stages 1, 2 and 3 complete	Nov 2019- Oct 2020
Waipawa Firefighting	Stantec working on modelling and works programme	June 2020 to April 2021
Kairakau Water Supply Upgrade	Community engagement completed, iwi engagement ongoing. New option report issued by WSP. Paper to be reported to Council on Feb 25, 2021	Feb 2021
Nelson Street/Reservoir Road Water Main Renewal	Project scoped and designed in-house, Contractor Procured, start date Feb 22, 2021. Expected 6 month construction timeline.	Nov 2020 – July 2021
Johnson Street Pump Station Upgrade	Contractor procured, work commenced Feb 2021. Construction ahead of schedule, commissioning expected early March	Nov 2020 – March 2021

Issues/ Risks that have arisen since the last status report

This section will be expanded/ updated in subsequent quarterly Key Project Status Reports.

Project	Risk	Proposed Control
Waipukurau Second Water Supply	Failure of existing assets	Work commencing on mutually beneficial items now.
Waipukurau Second Water Supply	Meeting timeframes - Due to the amount of planning and cogs in the process, each activity takes time	Robust project plan and visibility on timeframes, thinking ahead and undertaking tasks simultaneously with another that adds value.
SH2 Borefield Upgrade	Budget risk	Bore assessment, robust planning and equipment planning, use of other projects.



Key Project Status Report #9



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Kairakau Water Supply	Engagement/Reputation risk	Thorough community engagement process with transparency throughout

Key Activities to be started/completed or in progress over the next 2-3 months

Project/ Item	Action/ Activity	Forecast Completion
Waipukurau Second Supply	Completion of investigation bore	March 2021
Waipukurau Second Supply	Land owner negotiations	End of 2021
Waipukurau Second Supply	Design due diligence/investigations	June 2021
Waipukurau Second Supply	Continued Iwi engagement	Ongoing
SH2 Borefield	Consultant engagement for Bore field Gallery assessment	April 2021
Kairakau Water	Community engagement and preferred option design identified	March 2021
Nelson Street/Reservoir Road Water Main Renewal	Commencement of works	July 2021
Johnson Street Pump Station Upgrade	Completion of physical works and commissioning	March 2021

General Comments

As outlined in the previous key project status report, the momentum had shifted to construction, but a number of projects have been completed and with the number under construction reduced, a large focus has turned to the planning and procurement of some smaller projects and the Waipukurau 2nd supply project.

We expect 2021 to be busy with construction again to meet 3 waters reform targets.



Key Project Status Report #9



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By Project Status Update



Overview of the 3-year programme to Sep 2021

Asset Type	Project Description	Status
Drinking Water	Waipukurau - Mackie, Mclean, Mt View	Complete
Drinking Water	Takapau Water treatment improvement	Complete
Drinking Water	Porritt Place Water Renewal	Complete
Drinking Water	Waipukurau Firefighting and Improvements (Stage 1 and 2)	Complete
Drinking Water	Porangahau water treatment improvement	Complete
Drinking Water	Otane Land Development (Water)	Complete
Drinking Water	Otane Alternative Water supply	Complete
Drinking Water	Kairakau water system upgrade	Planning/ Design
Drinking Water	Waipawa Firefighting and Improvements	Planning/ Design
Drinking Water	Waipukurau Second water supply	Planning/ Design
Drinking Water	Waipukurau Water SH2 Bore Upgrade	Execution
Drinking Water	Waipukurau Firefighting and Improvements (Stage 3)	Execution
Drinking Water	Waipukurau Renewals – Nelson St/Reservoir Rd	Execution
Drinking Water	Johnson Street Pump Station Upgrade	Execution
Stormwater	Rathbone to Bush Drain extension	Complete
Stormwater	SW Helicoil Upgrades – Tavistock/ Francis Drake	Complete
Stormwater	Waipukurau CBD Stormwater - Churchill / Woburn	Complete
Stormwater	Waipukurau CBD Stormwater improvements	Planning/ Design
Stormwater	SW Helicoil Upgrades – Tutaneke / Tavistock	Complete



Key Project Status Report #9



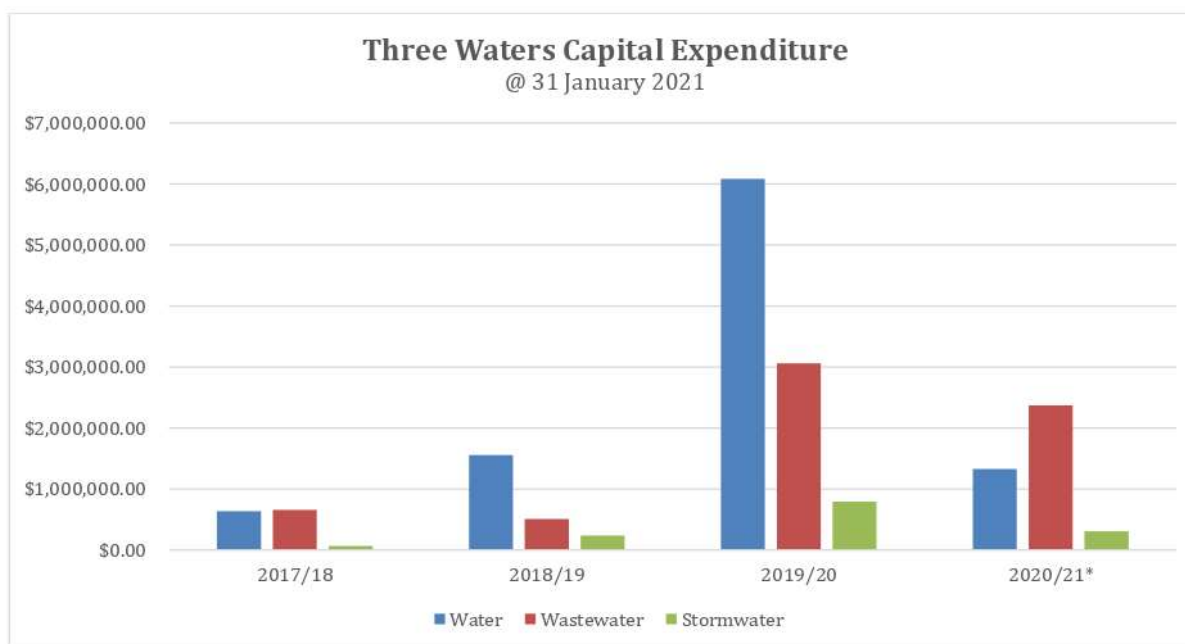
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Programme Financial Update

Financial management of Big Water Story projects requires creation internally of a project specific ID for each project. This allows for management of costs and understanding of progress against budget – further detail available on request

Programme Statistics	Expenditure	
	Whole Life (\$) 10 year	Current Year (\$) 2020/21
Approved Project Budget (Baseline)	37,966,321	14,135,509
Actual Spent to Date (as at 31/01/2021)	15,549,619	4,007,168
% Spend against budget (as at 30/09/2020)	42%	25%

Type	2017/18	2018/19	2019/20	2020/21*
Water	\$636,276.00	\$1,557,628.00	\$6,085,116.00	\$1,328,937
Wastewater	\$658,499.00	\$506,795.00	\$3,059,758.00	\$2,372,278
Stormwater	\$64,106.47	\$235,518.00	\$792,369.00	\$305,952
TOTAL	\$1,358,881.47	\$2,299,941.00	\$10,267,194.00	\$4,007,168.00





Key Project Status Report #9

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Financial Statistics by Project

Project	Budget	YTD Actuals	Commitments	Costs (incl. Commitments)	Variance (incl. Commitments)	Variance (excl. Commitments)
Storm Water	871,307	305,952	41,909	416,040	455,267	497,177
ST 19 District Remediation	68,993	0	0	6,913	62,080	62,080
ST 21 District Minor Renewals	225,619	68	0	68	225,551	225,551
ST 19 Waipukurau Ruataniwha St Flooding Solution	162,836	2,921	3,647	55,249	107,587	111,234
ST 20 Storm Water Waipukurau Model	83,886	0	0	0	83,886	83,886
ST 20 Waipukurau Tutaneke St Helicoll Replacement	329,973	302,964	38,262	353,810	-23,837	14,425
Waste water	8,381,583	2,372,278	800,966	6,395,278	1,986,305	2,787,271
WW 19 Waipukurau Waipawa Treatment Investigation	2,121,265	580,495	500,543	2,250,014	-128,749	371,794
WW 20 Wetlands for WPA WPK & OTN from OPEX	200,000	258,305	36,035	306,340	-106,340	-70,305
WW 21 District Minor Renewals	258,877	244,024	0	244,024	14,853	14,853
WW 20 Porangahau Upgrade	1,849,485	109,953	91,527	312,388	1,537,097	1,628,624
WW 18 Takapau Resource Consent	105,165	19,240	37,720	135,820	-30,655	7,066
WW 19 Takapau treatment upgrade	831,188	252,959	127,311	422,444	408,744	536,055
WW 19 Waipawa Main Trunk Renewal	1,782,871	66,934	7,830	1,570,933	211,938	219,768
WW 19 Otane Resource Consent Extension	40,000	0	0	15,141	24,859	24,859
WW 20 Otane to Waipawa Pipeline	1,192,732	840,367	0	1,138,174	54,558	54,558
Water Supply	11,566,405	1,328,937	360,359	5,760,124	5,806,281	6,166,640
WS 21 District Minor Renewals	671,135	337,603	5,447	343,050	328,085	333,532
WS 20 Water Supply Kairakau Upgrade	549,218	85,835	57,852	153,299	395,919	453,772
WS 19 Otane Alternative Water Supply	2,399,533	2,563	0	2,378,110	21,423	21,423
WS 20 Water Supply Te Paerahi Water Storage	301,440	877	0	302,317	-877	-877
WS 20 Water Supply Waipawa Model	52,429	5,487	36,513	42,000	10,429	46,942
WS 21 Waipawa Fire Fighting Stage 1	321,808	20,722	24,150	44,872	276,936	301,086
WS 21 Waipukurau Fire Fighting Stage 3	589,981	314,047	46,088	360,135	229,846	275,934
WS 17 Waipukurau SH2 Pump Station Upgrade	1,037,943	297,525	38,222	1,373,690	-335,747	-297,525
WS 18 Waipukurau Second Supply	5,642,918	264,278	152,087	762,651	4,880,267	5,032,354

Project Delivery Confidence Assessment Key

Overall confidence remains high, with attention required constant by the programme team to deliver on outcomes. There remains potential for issues/ risks to arise and some delays may be probable. Risks will be addressed through the project, and monitored through the project lifecycle.

The wastewater programme of projects have been split out to their own Key Project Status Report.



Key Project Status Report #9

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Key	Attention Required	Issues/Risks	Delivery
	Minimal	None	On Time
	Constant	Potential	Delays Probable
	Manage	Exist but resolvable	Delays Likely
	Urgent	Major	Delays
	Critical	Critical	Major delays. Re-scope/Re-assess

Project Photos

Below are photos of #thebigwaterstory projects in action.

Photo can also found on the council website: <https://www.chbdc.govt.nz/our-district/projects/>

Also appended is the most recent version of the Big Water Story Quarterly Programme Update

SH2 Borefield upgrade





Key Project Status Report #9

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Waipukurau – Waipawa Link (Pipeline Route)





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Programme Update #9 Oct 2020 to Jan 2021

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Waste Water Story**



PROGRAMME UPDATE

Updated: 20 Jan 2021

WATER						
PROJECT	STATUS	TIMELINE		PROGRESS	BUDGET	RISK LEVEL
		START	END			
Waipukurau Second Water Supply	Design	Aug 2018	June 2024	10%	\$11.5m	
Waipukurau SH2 Borefield Upgrade	Build	June 2018	June 2021	90%	\$1.4m	
Waipukurau Firefighting and Shortfalls Improvements (Year 4-7)	Investigation	July 2021	June 2025	0%	\$2.5m	
Kairakau Water Supply	Investigation	Mar 2020	Dec 2021	20%	\$550k	
Johnson Street Pump Upgrade	Build	Dec 2020	April 2021	20%	\$100k	
Services Upgrades (Reservoir Rd/Nelson St)	Build	Oct 2020	July 2021	20%	\$861k	
Waipawa Firefighting Improvements	Investigate and Design	May 2020	Dec 2021	10%	\$322k	
PROJECTS COMPLETED						
Otane Alternate Water Supply	Complete	Aug 2018	June 2020	100%	\$2.6m	
Waipukurau Firefighting and Shortfalls Improvements (Year 1-2)	Complete	Aug 2018	June 2020	100%	\$880k	
Porangahau Water Treatment Plant Upgrade	Complete	Nov 2018	Mar 2020	100%	\$1.079m	
Takapau Water Treatment Plant Upgrade	Complete	Nov 2018	Nov 2019	100%	\$680k	
Otane Land Development (Water and Wastewater)	Complete	March 2018	Dec 2018	100%	\$355k	
Waipukurau – Porritt Place Water Main Renewal	Complete	Dec 2018	Mar 2019	100%	\$65k	
Waipukurau – Mackie / Mclean St Water Main Renewal	Complete	Nov 2018	Aug 2019	100%	\$410k	
Waipukurau Firefighting and Shortfalls Improvements (Year 3)	Complete	Aug 2020	Oct 2020	100%	\$307k	
Te-Paerahi Water Storage	Complete	Sep 2019	March 2020	100%	\$302k	

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



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WASTEWATER						
PROJECT	STATUS	TIMELINE		PROGRESS	BUDGET	RISK LEVEL
		START	END		TOTAL	
CHB Wastewater Treatment Plants (Phase 2 Improvements, Design & Consent)	Investigation	Sep 2019	Jun 2021	20% 	\$2.1m	
CHB Wastewater Treatment Plants (Phase 3 - Build)	Not Started	Jan 2021	TBC	0% 	TBC	
Otane to Waipawa Wastewater Pipeline (Stage 1)	Build	June 2019	Mar 2021	90% 	\$1.293m	
Otane to Waipawa Wastewater Pipeline (Stage 2)	Build	Feb 2021	Jun 2021	10% 	\$1.8m	
Takapau Wastewater Treatment Plant Upgrade	Not Started	2019	2022	10% 	\$831k	
Porangahau/ Te Paerahi Wastewater Treatment Plant Upgrade	Not Started	2019	2022	10% 	\$1.85m	
CHB Caravan Wastewater Dump Stations	Procurement	Nov 2020	May 2021	20% 	\$165k	
PROJECTS COMPLETED						
Takapau Wastewater Resource Consent Extension	Part 1 - complete	Aug 2018	June 2021	100% 	\$100k	
Otane Wastewater Treatment Plant Upgrade	Re-Purposed	Apr 2018	Mar 2021	100% 	\$158k	
Otane Wastewater Infiltration and Inflow Study	Complete	Jan 2019	Feb 2020	100% 	\$92k	
CHB Wastewater Treatment Plants Project (Phase 1 - Engagement & Court)	Complete	June 2018	Sep 2019	100% 	\$300k To June 2019	
Te Paerahi Wastewater Pipeline– Beach Road Extension	Complete	Sep 2019	Dec 2019	100% 	\$132k	
CHB Floating Wetlands Review/Removal	Complete	April 2019	Dec 2020	100% 	\$270k	
Waipawa Trunk Sewer Main Renewal	Complete	Aug 2018	Nov 2020	100% 	\$1.553m	

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STORMWATER						
PROJECT	STATUS	TIMELINE		PROGRESS	BUDGET	RISK LEVEL
		START	END		TOTAL	
Waipukurau Stormwater Improvements • Ruataniwha Street – CBD Flooding	<i>Design</i>	Aug 2018	June 2022	20% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$500k	<div><div></div><div></div><div></div></div>
PROJECTS COMPLETED						
Waipukurau Stormwater Helicoil Upgrades • Francis Drake Street	<i>Complete</i>	Aug 2018	Aug 2019	100% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$280k	<div><div></div><div></div><div></div></div>
Waipukurau Stormwater Helicoil Upgrades • Jellicoe to Tavistock	<i>Complete</i>	Aug 2018	Aug 2019	100% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$219k	<div><div></div><div></div><div></div></div>
Waipukurau Stormwater Improvements • Savage/ Churchill/ Carpenter (Part 1) • Woburn/ Wilder (Part 2)	<i>Complete</i>	Aug 2018	June 2019	100% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$481k	<div><div></div><div></div><div></div></div>
Waipukurau Stormwater Helicoil Upgrades • Tutanakei Street	<i>Complete</i>	Sep 2019	Oct 2020	100% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$315k	<div><div></div><div></div><div></div></div>
Waipawa Stormwater Improvements • Rathbone to Bush drain	<i>Complete</i>	May 2020	Jul 2020	100% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$18k	<div><div></div><div></div><div></div></div>

SOLID WASTE						
PROJECT	STATUS	TIMELINE		PROGRESS	BUDGET	RISK LEVEL
		START	END		TOTAL	
Leachate to Landfill	<i>Build</i>	Sep 2019	May 2021	50% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$876k	<div><div></div><div></div><div></div></div>
Waipukurau Transfer Station – Glass Bunker	<i>Build</i>	Oct 2020	Mar 2021	20% <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	\$47k	<div><div></div><div></div><div></div></div>

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PROGRAMME OVERVIEW

2020 saw many projects through to completion, this has taken significant effort from the team and has started to provide meaningful impact on the community. The \$11.09m 3 Waters Reform grant has allowed for the formation of, and additional resources in the Project Management Office and has boosted our ability to deliver some of our larger projects.

The end of 2020 and start of the new year has seen several #TheBigWaterStory & #TheBigWastewaterStory projects moving swiftly through the planning and investigation stages with physical works due to commence early in 2021. Alongside these, some of our more sizeable projects require significant input prior to construction, our officers and external consultants are driving these forwards with investigations, design works, landowner and iwi engagements underway.

The following projects are currently underway:

- o Waipukurau Second Water Supply
- o Kairakau Water Supply Upgrade
- o Johnson Street Pump Station improvements
- o Waipukurau Water Renewals (Reservoir Road/Nelson Street)
- o Otane to Waipawa Wastewater Pipeline (Stage 2)
- o Caravan Wastewater Dump Stations
- o Takapau Wastewater Upgrade
- o Porangahau and Te Paerahi Wastewater Upgrade
- o Waipukurau, Otane, Waipawa Wastewater Upgrades
- o Leachate to Landfill Irrigation
- o Waipukurau Transfer Station – Glass Bunker
- o Waipukurau SH2 Borefield Upgrade
- o Waipawa Firefighting and Improvements

The following projects have been completed:

- o Wetlands Removal – Waipukurau, Waipawa, Otane
- o Waipawa Trunk Sewer Main – Stage 2 (Pumps and Power)
- o Otane to Waipawa Wastewater Pipeline (Stages 1)
- o Waipukurau Firefighting and Improvements (stage 3)
- o Otane Wastewater I&I study
- o Porangahau Water Treatment Upgrade
- o Te Paerahi Water Storage

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



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PROJECT UPDATES

PROJECT: Waipukurau Second Water Supply

STATUS	DESIGN	
TIMELINE	AUG 2018 START DATE	JUN 2024 END DATE
PROGRESS	10%	<div><div></div></div>
BUDGET	\$11.5m* TOTAL PROJECT	\$558k SPEND TO DATE
RISK LEVEL	<div><div></div><div></div><div></div></div> *subject to LTP	



SCOPE

To find and construct a new water source bore, pipe a rising main to a reservoir, provide treatment and gravity feed back into Waipukurau to supply a second water supply to the town.

ACHIEVEMENTS

An Archaeological study across the proposed pipeline route has been completed and we have spoken informally to all affected landowners, all have generally expressed support for the project. Currently in the process of awarding a contract to perform a series of test Bore's at the existing Waipawa bore location in order to identify the availability of suitable additional supply.

PLANNED

Undertaking detailed design investigation of conveyance route, reservoir site and access track. Iwi consultation and engagement has been started. Additional survey for placing the test bore at the Waipawa Bore site. Consenting for water take and river crossings are being planned as well as land acquisition. Construction sequencing and procurement planning to support design program

RISKS

- Power Supply to sites
- Approval for reservoir site/Timeframes to build reservoirs
- Water quality and flow from test bores
- Strategic assessment of project requirements
- Budget
- Land acquisition and easements
- River Crossings

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



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**PROJECT:** Waipukurau SH2 Drinking Water Bore Upgrade

STATUS	BUILD		
TIMELINE	AUG 2018 START DATE	JUNE 2021 END DATE	
PROGRESS	90%	<div><div></div></div>	
BUDGET	\$850k* TOTAL PROJECT BUDGET	\$1.34m SPEND TO DATE	\$1.4m EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>		

**SCOPE**

To upgrade the bores and electrical configuration at the SH2 water borefield source that supplies Pukeora reservoir and Waipukurau. The scope involves upgrading and refurbishing 3 bores, pipework configuration, the electrical components, transformer, fencing and a tank for surplus water. Additional components are to install flow and turbidity meters to contribute towards drinking water standard New Zealand (DWSNZ) compliance.

ACHIEVEMENTS

Two new bores drilled, new transformer installed and new pipework connected, bypass installed and some redundant pipework removed. 3 new pumps installed, pipework completed and electrical controls installed

**PLANNED**

New system to be commissioned and setting up a "run to waste system". This is currently being designed by consultants WSP. Investigation of Water gallery condition planned to be undertaken to assist the operations team in future management of the borefield.

RISKS

- Bore field operation and commissioning
- Run to waste design and cost
- Shutdown for electrical commissioning

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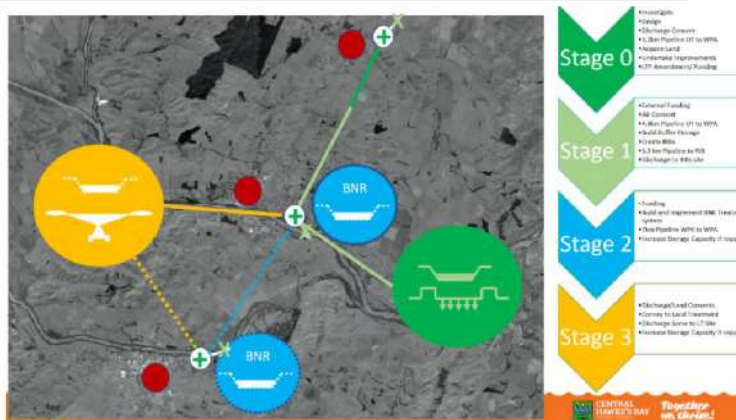
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#the BIG. Waste Water Story

#the BIG. Water Story

PROJECT: CHB Wastewater Treatment Plants Upgrade (Phase 2)

STATUS	INVESTIGATION	
TIMELINE	SEP 2019 START DATE	JUNE 2021 END DATE
PROGRESS	20%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
BUDGET	\$2.1m TOTAL PROJECT	\$1.68m SPEND TO DATE
RISK LEVEL	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	



SCOPE

Phase 1: To work with the community to set criteria and work towards a preferred solution or Best Practicable Option (BPO) for the future of Waipukurau, Waipawa and recently the introduction of Otane into the project scope.

Phase 2: To undertake improvements, and design, consent and fund the future works

Phase 3: To build and upgrade the plant(s)

ACHIEVEMENTS

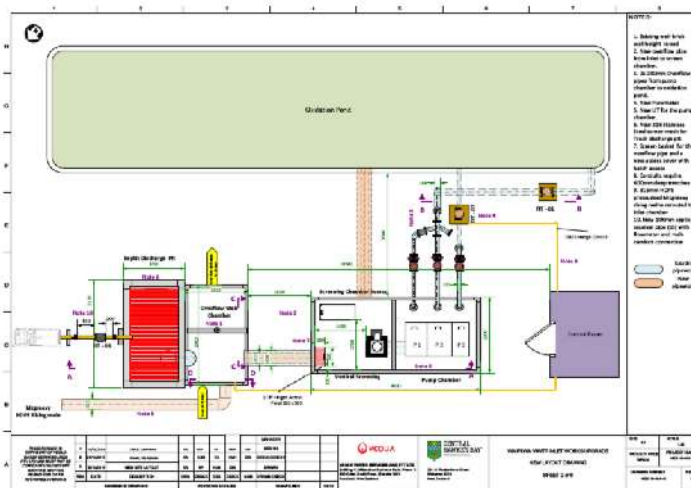
Currently in phase 2 where we are bringing together a package of works for LTP 2021, we are also working on improvements at Waipawa and Waipukurau wastewater plants involving some process and some physical improvements.

PLANNED

Minor improvement on plants to improve performance longer term continue with Veolia focussing on this in early 2020. 3 Waters Reform funding has set aside a further \$1.5m for design and improvements. Shortly a replacement filter treatment unit is planned to be installed at Waipawa. Consent applications are being prepared.

RISKS

- Community views
- Funding
- Ongoing compliance



If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



the BIG. Waste Water Story

the BIG. Water Story

PROJECT: Otane Wastewater Pipeline Stages 1 and 2 (Otane to Waipawa)

STATUS	BUILD	
TIMELINE	JULY 2020 START DATE	OCT 2020 END DATE
PROGRESS	50%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
BUDGET	\$3.093m TOTAL PROJECT	\$1.138m SPEND TO DATE
RISK LEVEL	<div><div></div><div></div><div></div></div>	

SCOPE

To investigate and design a new wastewater pipeline to convey wastewater from Otane to Waipawa.

ACHIEVEMENTS

Installation of stage 1 pipeline completed. Contractor awarded Stage two.

PLANNED

Awaiting supply of fittings from overseas to complete detail work (Air valves/scour valves) for Stage 1.

Stage 2 construction planned for March start date with contract awarded to Stage 1 contractor.



RISKS

The following risks have been developed;

- Pipeline route affecting landowners
- Staging of works
- Multi stage approach (treated to WPA discharge, treated to WPA Plant, raw to WPA plant)

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



**CENTRAL
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**PROJECT:** Leachate to Land Irrigation

STATUS	BUILD		
TIMELINE	JUNE 2019 START DATE	MAY 2021 END DATE	
PROGRESS	50%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
BUDGET	\$876k TOTAL PROJECT BUDGET	\$741k SPEND TO DATE	\$876k EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>		

**SCOPE**

Create a leachate to land irrigation project by building a leachate storage pond, pump station, irrigation pipeline and finishing a closed cell of the landfill to receive irrigated leachate.

ACHIEVEMENTS

Leachate pond is excavated, awaiting lining. The cap is now fully built and has this week been hydro seeded for the grass to grow. All stormwater pipework is in place. Some issues with high contaminant ground water paused the project. Resource consent granted in January 2021.

PLANNED

3 year short term consent granted – works expected to re-commence by the end of Feb 2021, and 2-3 months work of work remain. This work involves completing pond lining, creating pump station, pipeline and irrigation system.

RISKS

Some early risk identified within this project:

- Consenting of groundwater
- Working around in situ landfill operations
- Time delays, and budget implications



If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



**CENTRAL
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PROJECT: Kairakau Water Supply Upgrade

STATUS	INVESTIGATE		
TIMELINE	MAR 2020 START DATE	DEC 2021 END DATE	
PROGRESS	20%	<div><div></div></div>	
BUDGET	\$550k TOTAL PROJECT BUDGET	\$93k SPEND TO DATE	\$550k EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>		

SCOPE

Central Hawke's Bay District Council's 2018 Long Term Plan identified a project to upgrade and future proof Kairakau's water supply. This is needed so that council can comply with the Health Act and supply water that meets the drinking water standards or New Zealand (DWSNZ)



Figure 6-2: Indicative layout of new treatment building and relocated raw water tanks for Option 1a

ACHIEVEMENTS

Initial community consultation completed with letter drops, door knock and a community meeting held. Iwi engagement has also been progressed.

PLANNED

Preferred option to be confirmed by council prior to undertaking detailed design works/further community engagement.

RISKS

Risk identified within this project are:

- Community uncertainty
- Need for leases/change of land delegations
- Disturbance of Archaeological items
- Contractor management
- Location of plant and loss of Reserve amenity
- Regulatory changes expected in July 2021



Figure 6-3: Indicative layout of new treatment building and existing raw water tanks for Option 1b

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**CENTRAL
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DISTRICT COUNCIL


PROJECT: Waipawa Water Firefighting/Pressure Improvements (Stage 1)

STATUS	INVESTIGATE/ DESIGN		
TIMELINE	MAY 2020 START DATE	DEC 2021 END DATE	
PROGRESS	10%	<div><div></div></div>	
BUDGET	\$322k TOTAL PROJECT BUDGET	\$19k SPEND TO DATE	\$322k EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>		


SCOPE

Central Hawkes Bay District Council have committed to a work programme to improve the firefighting capacity, and the shortfalls in the Waipawa Water system. Budget has been set aside in the 2018-28 long term plan, the programme will;

- Improve firefighting capability and capacity.
- Improve shortfalls in network

ACHIEVEMENTS

Stantec designing a programme, including evaluation of existing information, growth assumptions, modelling, development of work programme and design drawings. Currently completing investigation work around fire-flow deficit areas under best/worse case scenarios and critical hydrants.

PLANNED

Initial design to be completed, stages 1 and 2 to be designed and procurement planning commenced, aiming for construction to commence May 2021.

RISKS

Risk identified within this project are;

- Affected stakeholders, businesses
- Water supply
- Existing infrastructure
- Contractor management

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**CENTRAL
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PROJECT: CHB Services Renewal – Reservoir/Nelson, Waipukurau

STATUS	INVESTIGATION		
TIMELINE	SEP 2020 START DATE	JUL 2021 END DATE	
PROGRESS	20%	<div><div></div></div>	
BUDGET	\$990k TOTAL PROJECT BUDGET	\$10k SPEND TO DATE	\$861k EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>		


SCOPE

To lay new 100mm ID water pipes of either uPVC or PE material on the same side as the existing Cast Iron water mains with a new 63mm PE Water Ridermain on the opposing side.

These services to run in the same alignment and profile as the existing pipe. The scope involves laying new pipe, replacing service laterals, installing new valves, fire hydrants, manholes and cross connecting the new network to the existing network in a number of positions.

This will involve approximately 950m of new water main, 645m of rider main and 66 new water connections.

ACHIEVEMENTS

The tender process has been completed with a preferred contractor selected. The procurement process has been validated by the Executive Leadership team and we are working towards officially awarding contract early in Feb.

PLANNED

Construction planned to start 22nd February. Information sheet for residents drafted and ready to be released upon official contract award.

RISKS

Risk identified within this project are;

- Disruptions to homeowners/public
- Contractor Management
- Reinstatement graffiti

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**PROJECT:** CHB Caravan Wastewater Dump Stations

STATUS	PROCUREMENT		
TIMELINE	NOV 2020 START DATE	MAY 2021 END DATE	
PROGRESS	20%	<div><div></div></div>	
BUDGET	\$165k TOTAL PROJECT BUDGET	\$5k SPEND TO DATE	\$165k EXPECTED SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>		



River Tee Site

SCOPE

To install caravan/motorhome dump stations within the Central Hawkes Bay area to service those travelling to/through the district and to provide a service that further enhances Central Hawkes Bay's reputation as a fantastic tourist destination

ACHIEVEMENTS

Location identified by Project Control Group in Waipukurau and potential locations in Te Paerahi. Detailed designs completed in-house. Request for Tender released and due to close 5th Feb (Te Paerahi location included as a provisional item to gain indication of cost).

PLANNED

Tender evaluations and subsequent contract award, Physical works planned to be carried out between Early March and End of May at the Waipukurau location.

Further engagement with Te Paerahi community required after initial negative feedback, aim of this engagement is to provide more detailed information about the purpose of the project, what the outcome might look like and where the most suitable location might be (if any).

RISKS

Risks identified within this project;

- Contractor management
- Budget uncertainty
- Te Paerahi community engagement



Example Dump Station – Kenilworth St, Hastings

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



Summary of Projects Completed in 2020

PROJECT: Porangahau Water Treatment Upgrade

STATUS	COMPLETED	
TIMELINE	AUG 2018 START DATE	MAR 2020 END DATE
PROGRESS	100%	<div><div></div></div>
BUDGET	\$1.038m TOTAL PROJECT BUDGET	\$1.079m SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	



SCOPE

To improve the water supply system in Porangahau to remove iron and manganese, and hardness whilst ensuring we meet DWSNZ compliance. The project will also be looking to improve security of supply and storage whilst meeting the long-term needs and addressing the community concerns.

ACHIEVEMENTS

Work completed and commissioned in Feb 2020. An official opening held in March 2020. Successful operation since.

PROJECT: Te Paerahi Water Storage

STATUS	COMPLETED	
TIMELINE	SEP 2019 START DATE	MAR 2020 END DATE
PROGRESS	100%	<div><div></div></div>
BUDGET	\$263k TOTAL PROJECT BUDGET	\$302k SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	



SCOPE

Through a successful tourism infrastructure fund application – council is providing additional storage to Te-Paerahi through at least a 174cm3 reservoir.

ACHIEVEMENTS

Work completed and commissioned in Feb 2020.

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#the BIG. Waste Water Story

#the BIG. Water Story

PROJECT: Waipawa Trunk Sewer Main Renewal

STATUS	COMPLETED	
TIMELINE	AUG 2018 START DATE	NOV 2020 END DATE
PROGRESS	100%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
BUDGET	\$1.78m TOTAL PROJECT BUDGET	\$1.553m SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	

SCOPE

To renew approx. 2200m of 375mm glazed earthenware pipe that is known to have poor leaking joints and allows a great deal of infiltration into the pipework through tree root intrusion and cracks along the pipeline.

ACHIEVEMENTS

Works completed on the relining in January 2020. Power requirements for pump station setup completed.



PROJECT: Waipukurau Water Firefighting/ Pressure Improvements (Year 3)

STATUS	COMPLETED	
TIMELINE	AUG 2020 START DATE	OCT 2020 END DATE
PROGRESS	90%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
BUDGET	\$590k TOTAL PROJECT BUDGET	\$307k SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	

SCOPE

Central Hawke's Bay District Council created a 7 year works programme with the budget set aside in the 2018-28 long term plan, the programme will improve firefighting capability and capacity and improve shortfalls in network. Plan and deliver works for the Year 3 and review the improvements and effect on the network prior to commencing future years.

ACHIEVEMENTS

Year 3 works commenced in August 2020, all pipework installed along Northumberland street, Ruataniwha street and Peel street.



If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



**PROJECT:** Waipukurau Helicoil Replacement – Tutanekai Street

STATUS	COMPLETED	
TIMELINE	JUL 2020 START DATE	OCT 2020 END DATE
PROGRESS	100%	<div><div></div></div>
BUDGET	\$330k TOTAL PROJECT BUDGET	\$315k SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	

**SCOPE**

Lining an existing 1000mm Helicoil pipe along Tutanekai Street, and a section of 750mm located in the back of properties located off Tavistock Road. This is due to the aluminium helicoil stormwater line corroding and failing causing road repair and the formation of tomo's where debris enters the failed pipeline.

ACHIEVEMENTS

Contractors "Pipeworks" have installed a flexible resin liner to all planned areas, this work completed mid-October. Road rehabilitation and resealing completed

PROJECT: Wetlands Removal – Waipukurau, Waipawa, Otane

STATUS	COMPLETED	
TIMELINE	APR 2019 START DATE	DEC 2020 END DATE
PROGRESS	100%	<div><div></div></div>
BUDGET	\$200k TOTAL PROJECT	\$270k FINAL SPEND
RISK LEVEL	<div><div></div><div></div><div></div></div>	

SCOPE

Council has a strategy for #TheBigWastewaterStory for improvement of the management of wastewater from the district wastewater treatment plants (WWTPs) long term. In the short term, minor improvements are also being implemented, this removal of the wetlands forms one of these minor improvements.

The wetlands (which consist mainly of plants and mats) were originally installed to remove solids and nitrogen from the wastewater. However, they are no longer doing this well and actually had little beneficial effect on the on the treatment and quality of the wastewater, as they can cause solids build-up and low oxygen. The vegetation is being separated from the matting as green waste, which has diverted a major portion of the wetlands debris from landfill.

ACHIEVEMENTS

Our contractor HyrdaCare carried out the wetland removal project completed their final site works in the last week of December 2020.

Hogfuel recently removed the Floating Wetlands Green Waste from the Waipawa WWTP site to their processing plant located in Hastings, which is the final stage in the Floating Wetlands Removal from Otane, Waipawa and Waipukurau WWTP sites.

If you are interested in learning more, please visit www.chbdc.govt.nz or contact Darren de Klerk – Councils 3 Waters Programme Manager by emailing thebigwaterstory@chbdc.govt.nz or by phoning Councils Offices on 06 857 8060



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6.8 KEY PROJECT STATUS REPORT - BIGWASTEWATERSTORY**File Number:** 003**Author:** Darren de Klerk, 3 Waters Programme Manager**Authoriser:** Monique Davidson, Chief Executive**Attachments:** 1. Key Project Status Report - BigWastewaterStory [↓](#)**RECOMMENDATION**

That, having considered all matters raised in the report, the report be noted.

PURPOSE

Following the conception of #thebigwaterstory, Council set about implementing the programme that makes up #thebigwaterstory. A programme manager was appointed and focus given to defining the projects that form the programme in greater detail.

The six wastewater plants form a significant programme of works themselves, and we have prudently decided to report on the progress of these six wastewater plants and their subsequent upgrades and re-consenting separately from #thebigwaterstory.

The purpose of this key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards against the larger programme objectives.

SIGNIFICANCE AND ENGAGEMENT

This report is provided for information purposes only and has been assessed as not significant.

BACKGROUND

Following charges in relation to the Waipawa wastewater treatment plant in 2016/ 2017, Council commissioned technical reviews into the Waipawa and Waipukurau wastewater plants, in summary the advice received from two independent experts, outlined the plants with their current treatment system and in their current state would never be able to meet consent compliance, in particular for ammonia. Council commenced work to respond to the court order and investigate a new treatment and discharge scheme in 2018.

The Otane wastewater plant had in 2017, received a new consent to upgrade the treatment system onsite and continue to discharge to the 'unnamed farm drain' and eventually to the Papanui stream. In mid-2018, just prior to awarding tenders for this upgrade, Council officers recommended to Council, that the Otane wastewater system be included in the Waipawa and Waipukurau review, and the onsite upgrade be placed on hold. In 2019, it was identified that the best practicable option for Otane was to convey to Waipawa for treatment and ultimately discharge. Otane is now firmly in the planning for the future of these plants.

The plants went through a robust community engagement process via a community reference group to identify preferred options to investigate and design for engagement in Long Term Plan 2021. These options will be presented at concept design level to the community as part of pre engagement in July 2020, and as formal engagement in early 2021. While some necessary works continue at all plants in conjunction with these major long term plans.

The Takapau wastewater plant received a 3 year consent extension through to October 2021, to allow Council to investigate different options for discharge.

The Porangahau and Te Paerahi wastewater plants both have their consents expiring in May 2021.

This programme of work across the six wastewater plants signals the need for specific reporting across this programme and its progress. In addition, the need to implement robust management controls through the formation of a project control group and project governance group.

DISCUSSION

The detail is outlined with the attached key project status report

IMPLICATIONS ASSESSMENT

This report confirms that the matter concerned has no particular implications and has been dealt with in accordance with the Local Government Act 2002. Specifically:

- Council staff have delegated authority for any decisions made;
- Council staff have identified and assessed all reasonably practicable options for addressing the matter and considered the views and preferences of any interested or affected persons (including Māori), in proportion to the significance of the matter;
- Any decisions made will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses;
- Unless stated above, any decisions made can be addressed through current funding under the Long-Term Plan and Annual Plan;
- Any decisions made are consistent with the Council's plans and policies; and
- No decisions have been made that would alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or would transfer the ownership or control of a strategic asset to or from the Council.

NEXT STEPS

To continue to progress the short term improvements, and the long term programme in conjunction, in preparation for community engagement as part of long term plan 2021.

To progress the work set out in the wastewater strategy and then as committed to in Council's funding and delivery plan in Tranche One of the 3 Waters reform programme.

To continue with prudent and robust programme management, the six wastewater projects now form their own programme, to provide appropriate oversight, it is planned that Council form a formal project control group, and a project governance group.

RECOMMENDATION

That, having considered all matters raised in the report, the report be noted.



Key Project Status Report #3



PROJECT NAME	#theBigWastewaterStory - Key Project Status Report		
Release Date	12/02/2021	Report #	3
Key Benefits	<p>#thebigwastewaterstory is the overarching programme of works required to upgrade and re-consent all six of our wastewater projects. These plants either have compliance problems, or have consents expiring in the near future.</p> <p>Consistent with #thebigwaterstory, the following key objectives identify the drivers for the projects.</p> <ul style="list-style-type: none"> • Upgrade infrastructure so that it will last longer and we can maintain and improve service levels • Meet changing legislative and compliance requirements relevant to 3 waters assets • Ensure we are providing for smart growth in the District including the rapidly growing number of new homes being built in our residential areas and forecast over the next 10 years • Deal with wastewater and stormwater to ensure minimal impact on our rivers • Ensure we do not burden future generations with aging infrastructure <p>The vision created by the wastewater reference group is to ensure: <i>"Our effluent is treated in a sustainable way that creates a resource, protects our environment and continues to do so for generations to come"</i></p>		
Project Delivery Objectives	<p>To deliver the capital projects in the allocated year/s that align with future resource consent together to budget and quality whilst ensuring maximum community benefit from these projects. Communicate and engage with the community on the programme and the progress of each project.</p> <p>Provide input through the design and improvement projects to future infrastructure works and asset management plans, to inform where future expenditure and improvements are targeted for the betterment of infrastructure in the district.</p>		



Key Project Status Report #3



Report/ Document History

Report No.	Report Date	Report Frequency	Project Sponsor	Project Manager
1	18/06/2020	Quarterly	Josh Lloyd	Darren de Klerk
2	08/10/2020	Quarterly	Josh Lloyd	Darren de Klerk
3	25/02/2021	Quarterly	Josh Lloyd	Darren de Klerk

Sponsor's Project Delivery Confidence Assessment



INTRODUCTION

This report will provide regular information on the fixed objectives and dynamic progress of the wastewater upgrade projects across the district.

The report provides an introduction as well as background and contextual information on the wastewater projects and then becomes more detailed discussing programme and project progress and risk.

BACKGROUND

As part of Project Thrive, the importance of water to our community was one of the loudest messages. This, combined with a vision for growth and prosperity, environmental responsibilities, as well as strong and durable infrastructure is how **#thebigwaterstory** began.

To deliver the improvements required, Council has developed a programme of upgrades and improvements to ensure that the drinking water, wastewater and stormwater infrastructure is able to meet the current and future needs of the community.

Following project THRIVE, creation of The Big Water Story brand, and adoption of the LTP in 2018, attention and focus have shifted from discussion and consultation to planning and delivery. Projects must be sequenced and prioritised based on several factors. This holistic approach to managing several interrelated projects to achieve a single promised outcome is referred to as Programme Management.

The wastewater projects due to their significance have now been removed from **#thebigwaterstory** report and will now be reported specifically through this report.

This report will cover the six wastewater plants and provide transparency on the process and developments for each.

OBJECTIVE

To deliver upgrades as outlined in design and consenting packages that are endorsed by community and regional council while remaining fit for purpose, affordable and able to be financed.

This key project status report serves as an opportunity to formally report to elected members on the progress of each of the projects and their expected delivery against time, scope, budget and quality standards.



Key Project Status Report #3



1. Overall Confidence Assessment

Key Questions Impacting on Project Objectives				
	No	Yes		
1	Are there Business Case Benefit attainment problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	As we create the design and consultation documentation for LTP 2021 – we undertake a business case like review for each project through a MCA options review process.
2	Are there Scope Control problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Options will be identified which when refined will allow us to refine the scope for each option
3	Will Target Dates be missed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Currently on track to deliver each package to agreed timeframes
4	Will Project Costs be overrun?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Currently project costs are being developed. General funding is a major risk.
5	Are there Quality problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None at present
6	Are there Resource problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Internal resourcing is tight and stretched to deliver the packages of upgrades – but we continue to make good progress
7	Are there Risk Management problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Risk workshops are held and registers developed for each project to highlight and allow mitigation
8	Are there Review and Approval problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The process for internal review and approval is working well.
9	Are there Teamwork problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None present
10	Are there Stakeholder problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Community meetings are progressing for each project at milestones and information progresses
11	Are there Iwi issues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Iwi engagement is ongoing, and we would benefit from additional assistance in this area
12	Are there Communication problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None present
13	Are there Change Management problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None present
14	Are there Health & Safety issues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None present

Project Manager's Progress Summary

Key Project Activities Status

This is the third key project status report on the programme, but the ninth update.

Project	Achievement	When
Waipawa Wastewater		
Basis of Design	Reviewed and finalised	COMPLETED
Concept Design	Draft reviewed – to be finalised	COMPLETED
Inlet Works	Pipeline redirected, flow meters installed	COMPLETED
Tertiary Improvements	New sludge pump installed, and analysers commissioned	COMPLETED



Key Project Status Report #3



Walker Road GW monitoring bores	Consent lodged and received for 6 bores Bores Installed	COMPLETED
Walker Road Land	FEMP lodged with HBRC	COMPLETED
Waipawa Trunk Sewer Main	Lining completed	COMPLETED
Waipukurau Wastewater		
Basis of Design	Reviewed and finalised	COMPLETED
Concept Design	Draft reviewed – to be finalised	COMPLETED
Sludge Survey	Survey of pond with boat completed	COMPLETED
Dry Weather Flow Gauging	Completed and incorporated into I&I studies	COMPLETED
Otane Wastewater		
Otane Infiltration and Inflow	Study completed and findings to be presented	COMPLETED
Sludge Survey	Survey of pond with boat completed	COMPLETED
Stage 1 – Otane to Waipawa Pipeline	Site established – pipe delivered	COMPLETED
Takapau Wastewater		
Basis of Design	Reviewed and finalised	COMPLETED
Flow Meter/ Screen Project	Awarded to Veolia	COMPLETED
Groundwater monitoring bores	Consent lodged	COMPLETED
Porangahau Wastewater		
Basis of Design	Reviewed and finalised	COMPLETED
Community meeting #2	Meeting held and minutes released	COMPLETED
Te Paerahi Wastewater		
Basis of Design	Reviewed and finalised	COMPLETED
Community meeting #2	Meeting held and minutes released	COMPLETED
Issues/ Risks that have arisen since the last status report		
This section will be expanded/ updated in subsequent quarterly Key Project Status Reports.		
Project	Risk	Proposed Control

#theBigWastewaterStory Key Project Status Report

Issue Date: 25 Feb 2021

Page | 4



Key Project Status Report #3



Funding	Unable to fund project	Funding applications, understanding
Operational Compliance	Compliance breaches during planning for long term upgrades	Heightened maintenance, improvements to plants
Timelines	Unable to deliver on milestones	Strict and robust project management
Community Engagement	Negative community perception, or lack of understanding	Planned engagement, and use of reference groups
Iwi Engagement	Negative perception, or lack of understanding, or ability to be involved	Targeted engagement

Key Activities to be started/completed or in progress over the next 2-3 months

Project/ Item	Action/ Activity	Forecast Completion
Waipawa Wastewater		
Wetlands	Removal of wetlands	Completed Jan 2021
Dry sludge	Consent for dry sludge removal to forest blocks and implementation along with prep for future desludging	Consent Lodged Sep 2020
De-sludging	Gain consent for future de-sludging and tender this work out	Ongoing
Comms package	Release stage 1 of comms package as part of LTP pre-engagement	Ongoing
Waipawa Pump Station	Complete power upgrade and commission upgrade McGreevy Street pump station	Sep – Oct 2020
Waipukurau Wastewater		
Wetlands	Removal of wetlands	Completed Jan 2021
Dry sludge	Consent for dry sludge removal to forest blocks and implementation along with prep for future desludging	Consent Lodged Sep 2020
De-sludging	Gain consent for future de-sludging and tender this work out	Ongoing
Compliance improvements	Process, programming and ongoing operational improvements	ongoing
Otane Wastewater		



Key Project Status Report #3



Wetlands	Removal of wetlands	Completed Jan 2021
Pump station design	Develop PS design	Sep – Nov 2020
Otane to Waipawa Pipeline (Stage 1)	Stage 1 at 90%, some detailed design to be completed as part of Stage 2.	Ongoing (90%)
Otane to Waipawa Pipeline (Stage)	Commence Stage 2	March 2021
Otane consent variation	Lodge consent variation	Oct 2020
Compliance improvements	Install new Aerator, investigate solution for TSS, CBOD5, and P reduction	Ongoing
Takapau Wastewater		
Flow Meter/ Screen	Delivery of new inlet flow meter	July 2020 – Mar 2021
GW monitoring bores	Installation of bores for monitoring water flow, pond leakage	Oct 2020
Concept Design	Release draft Concept Design incl. BPO	Sep 2020 COMPLETE
Makaretu River Model	Undertaken river model	COMPLETE
Community engagement	Present BPO and gain feedback. Wastewater Meeting Scheduled for Feb 16 th 2021.	Ongoing
Iwi Engagement	Work with Iwi to gain input into option, and commence a CIA. Wastewater Community Meeting Scheduled for Feb 16 th 2021.	Ongoing
Landowner engagement	Work with neighbouring landowners to develop an provide input into BPO. Wastewater Community Meeting Scheduled for Feb 16 th 2021.	Ongoing
Porangahau Wastewater		
Concept Design	Release draft Concept Design incl. BPO	COMPLETE
Porangahau River Model	Undertaken river model	COMPLETE
Community engagement	Present BPO and gain feedback. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
Iwi Engagement	Work with Iwi to gain input into option, and commence a CIA. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
Landowner engagement	Work with neighbouring landowners to develop an provide input into BPO. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
Compliance improvement	Investigate short term improvement for TSS over summer	Aug 2020 – Dec 2020

#theBigWastewaterStory Key Project Status Report

Issue Date: 25 Feb 2021

Page | 6



Key Project Status Report #3



Te Paerahi Wastewater		
Concept Design	Release draft Concept Design incl. BPO	COMPLETE
Community engagement	Present BPO and gain feedback. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
Iwi Engagement	Work with Iwi to gain input into option, and commence a CIA. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
Landowner engagement	Work with neighbouring landowners to develop an provide input into BPO. Wastewater Community Meeting Scheduled for Feb 15 th 2021.	Ongoing
General Comments		
<p>A lot of work is happening across the wastewater plants and we continue to apply focus on the delivery, communication, operational improvements as we deliver on short term improvements as we focus and create the longer term solution.</p> <p>Our current focus is on improvements to the plants in the short term while the long term improvements take place.</p> <p>The other focus areas are on engagement, landowner and funding to work towards the long term plan.</p>		

Asset Type	Project Description	Status
Wastewater	Takapau Resource Consent Extension	Complete
Wastewater	Otane wastewater I&I Study	Complete
Wastewater	Otane wastewater Resource Consent Extension	Complete
Wastewater	Waipawa trunk sewer main renewal (stage 1 - reline)	Complete
Wastewater	Otane Land Development (Wastewater)	Complete
Wastewater	WPK WPA Wastewater Treatment Investigation	Planning/ Design
Wastewater	CHB District Wastewater Renewals	Planning/ Design
Wastewater	Porangahau/ Te Paerahi Wastewater Upgrade	Planning/ Design
Wastewater	Takapau Wastewater Upgrade	Planning/ Design
Wastewater	Otane wastewater treatment upgrade	Terminated
Wastewater	Otane to Waipawa Pipeline – Stage 1	Execution
Wastewater	Waipawa trunk sewer main renewal (stage 2 - pumps/power)	Execution



Key Project Status Report #3



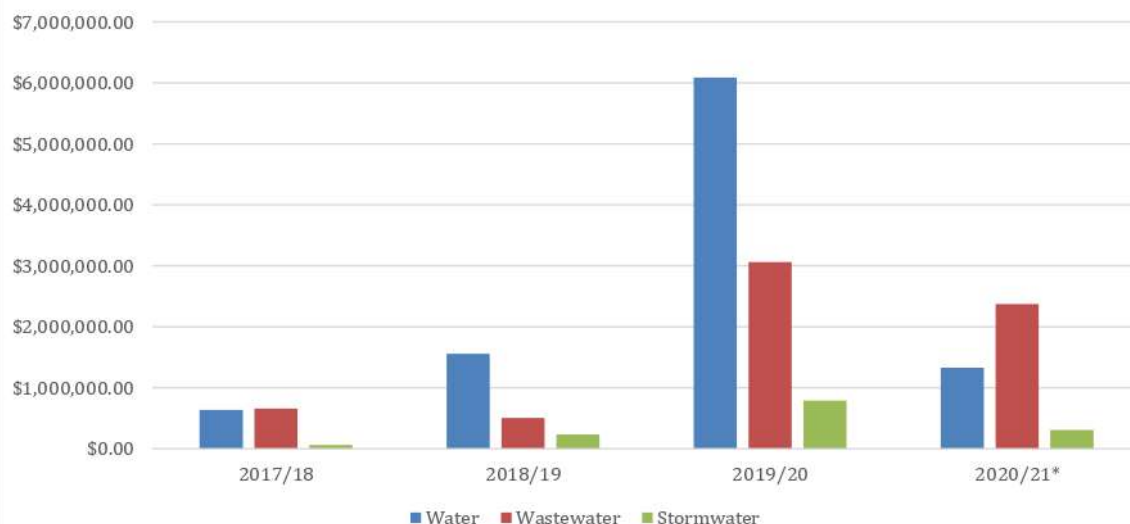
Programme Financial Update

Financial management of these projects requires creation internally of a project specific ID for each project. This allows for management of costs and understanding of progress against budget – further detail available on request

Project	Budget	YTD Actuals	Commitments	Total Project Costs (incl. Commitments)	Variance (incl. Commitments)	Variance (excl. Commitments)
Waste water	8,381,583	2,372,278	800,966	6,395,278	1,986,305	2,787,271
WW 19 Waipukurau Waipawa Treatment Investigation	2,121,265	580,495	500,543	2,250,014	-128,749	371,794
WW 20 Wetlands for WPA WPK & OTN from OPEX	200,000	258,305	36,035	306,340	-106,340	-70,305
WW 21 District Minor Renewals	258,877	244,024	0	244,024	14,853	14,853
WW 20 Porangahau Upgrade	1,849,485	109,953	91,527	312,388	1,537,097	1,628,624
WW 18 Takapau Resource Consent	105,165	19,240	37,720	135,820	-30,655	7,066
WW 19 Takapau treatment upgrade	831,188	252,959	127,311	422,444	408,744	536,055
WW 19 Waipawa Main Trunk Renewal	1,782,871	66,934	7,830	1,570,933	211,938	219,768
WW 19 Otane Resource Consent Extension	40,000	0	0	15,141	24,859	24,859
WW 20 Otane to Waipawa Pipeline	1,192,732	840,367	0	1,138,174	54,558	54,558

Three Waters Capital Expenditure

@ 31 January 2021





Key Project Status Report #3



**CENTRAL
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Project Delivery Confidence Assessment Key

Overall confidence remains high, with attention required constantly by the programme team to deliver on outcomes. There remains potential for issues/ risks to arise and some delays may be probable. Risks will be addressed through the project, and monitored through the project lifecycle. Funding and community engagement remain the highest risks currently.

Significant work has been done as part of the pre-engagement works.

An engagement site has been setup on social pinpoint: <https://chbdc.mysocialpinpoint.com.au/chbdc-ltp-engagement/ltp-wastewater-home/> Our website holds a large amount of the detail on this pre-engagement: <https://www.chbdc.govt.nz/our-district/projects/the-big-wastewater-story/>

Key	Attention Required	Issues/Risks	Delivery
	Minimal	None	On Time
	Constant	Potential	Delays Probable
	Manage	Exist but resolvable	Delays Likely
	Urgent	Major	Delays
	Critical	Critical	Major delays. Re-scope/Re-assess

Project Photos

Below are photos of the projects in action.

Photo can also found on the council website: <https://www.chbdc.govt.nz/our-district/projects/>



Key Project Status Report #3



**CENTRAL
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Concept – Waipawa Land Based Discharge

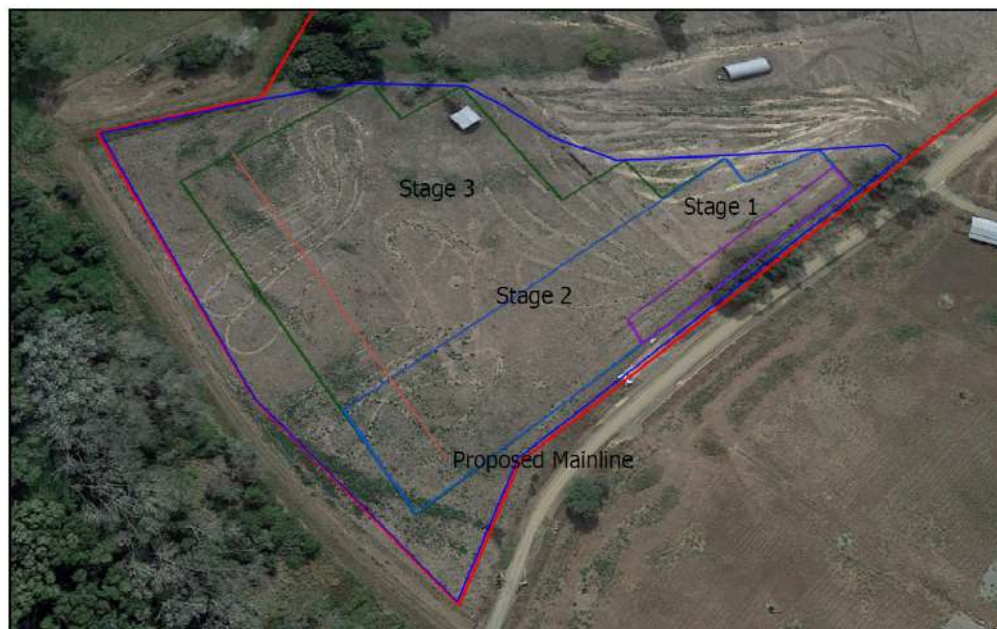
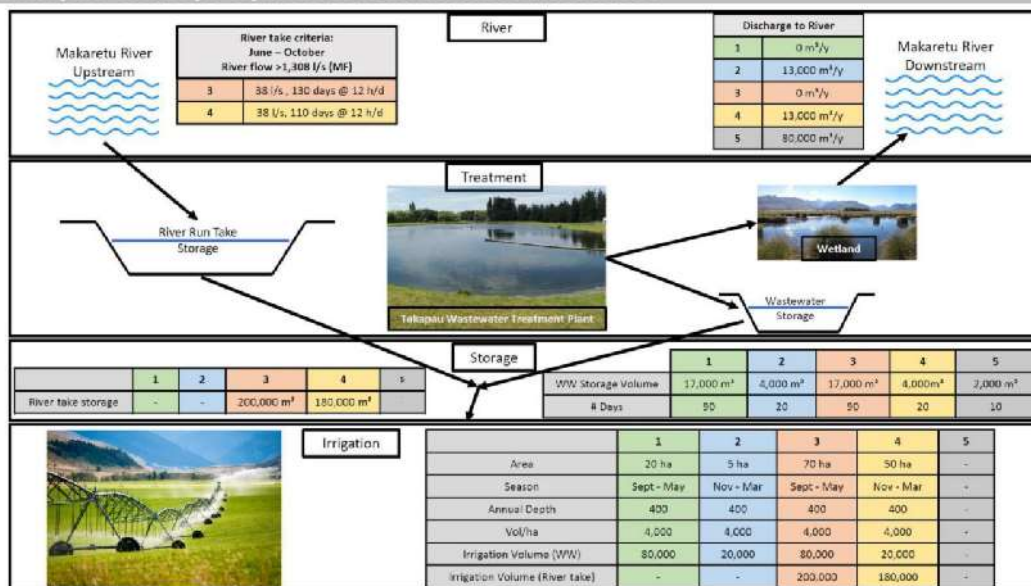


Figure 1: Potential Stage development of Rapid Infiltration Basin

Takapau Concept Option for Landowner discussion





Key Project Status Report #3



**CENTRAL
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Porangahau / Te Paerahi Concept



**#the BIG-
Waste Water Story**

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**CENTRAL
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Takapau Inlet Works



#theBigWastewaterStory Key Project Status Report

Issue Date: 25 Feb 2021

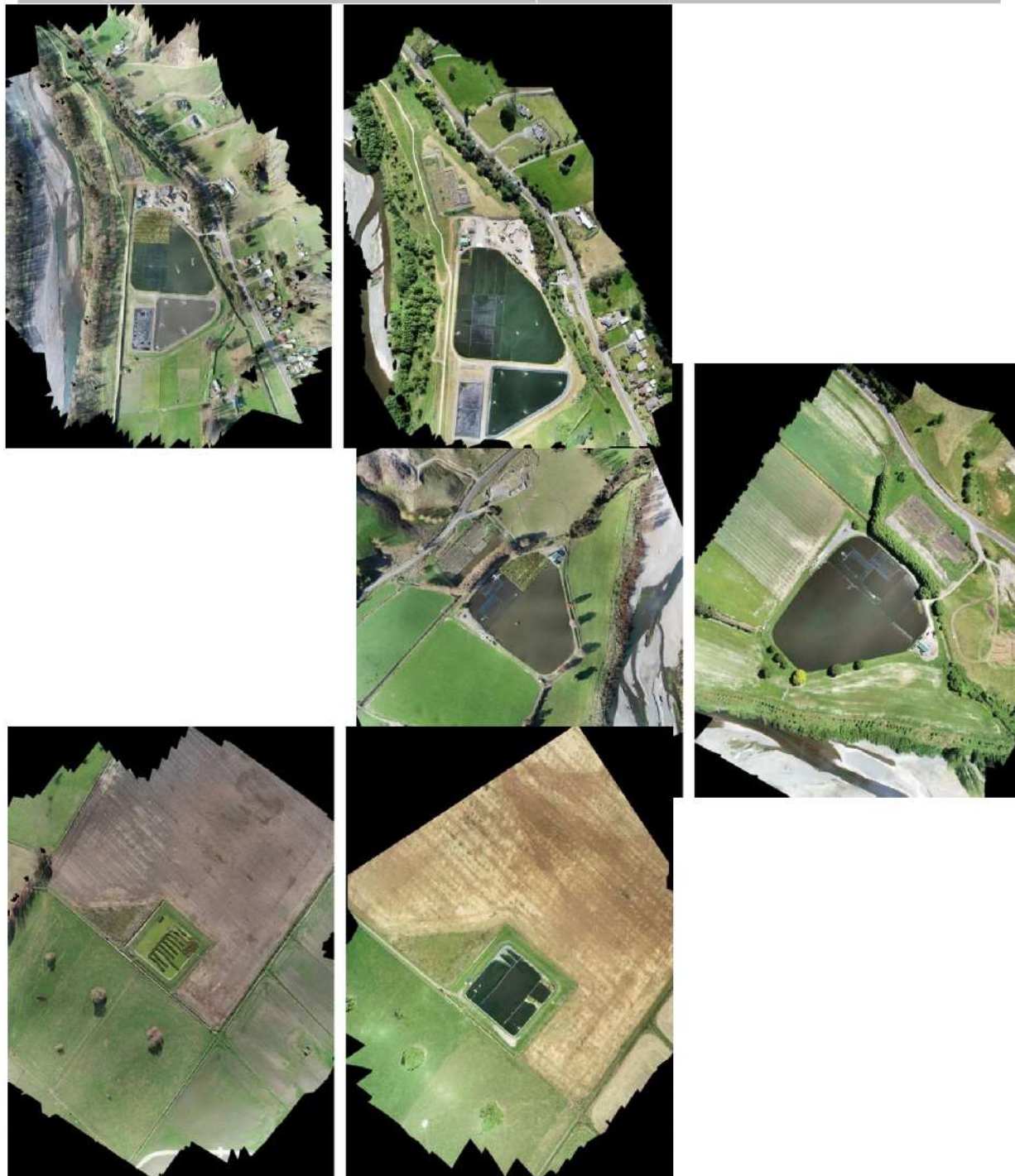
Page | 12

#the BIG
Waste Water Story

Key Project Status Report #3



Floating Wetlands Removal



#theBigWastewaterStory Key Project Status Report

Issue Date: 25 Feb 2021

Page | 13

7 DATE OF NEXT MEETING**RECOMMENDATION**

THAT the next meeting of the Central Hawke's Bay District Council be held on 22 April 2021.

8 TIME OF CLOSURE