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TIMARU DISTRICT COUNCIL

2025

Geraldine Water Supply Strategy

Drainage and Water Unit
Timaru District Council

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Document Control

Version	Changes	Reviewed by	Authorised by	Date
1	Draft for review	Laura Rich	Andrew Lester	05/06/2025
1A	Endorsed	Laura Rich	Infrastructure Committee	17/06/2025

1 Purpose of the Strategy

The purpose of the Geraldine Water Headworks Resilience Strategy is to set the direction of management of the source, delivery and treatment of water for Geraldine for the next 50 years. This strategy aims to clearly set out:

- How the Strategy will help to achieve Council's Vision
- The outcomes needed to be achieved for the Water Supply
- The plan for achieving the required outcomes.

1.1 Stakeholder Liaison Group

In support of development of this strategy, a Stakeholders Liaison Group (SLG) was established. This ensured that all affected parties had some representation in developing a Strategy that can truly be considered fit for purpose for the Geraldine Community.

1.2 Vision

This Strategy is in line with the Vision of Timaru District Council. This Vision is elaborated upon in the Long Term Plan, shaped by the following values:

- Inclusive Leadership
- Cultural Caretakers
- Transitional Navigators

TDC is the custodian of this water supply and takes this responsibility seriously.

1.3 Strategy Outcomes

In general, Council aims to achieve the following Community Wellbeing Outcomes:

- Enhanced Lifestyle
- Resilient Infrastructure
- Diverse Economy
- Sustainable Environment
- Connected Citizens

This Strategy is aligned with these Community Wellbeing Outcomes. To this end, the Strategy is required to guide TDC towards ensuring that the Geraldine Water Supply Scheme is;

- Managed and operated in a sustainable manner.

- Remains resilient and adaptable in the face of climate change.
- Can be capably managed in the face of shifting legislative requirements without adverse effects on consumers.

This Strategy is intended to be a living document and read in conjunction with the Water Supply Asset Management Plan.

1.4 Stakeholder Priorities

As established by the SLG, the following issues are priorities to be addressed:

- Quality
- Resilience
- Biodiversity
- Partnership

These priorities have been used for criteria setting in Multi Criteria Analysis in support of optioneering for reservoir locations, as detailed further below, see Appendix 2.

2 Context

2.1 Timaru District

Timaru District covers 2,737 square kilometres of South Canterbury, in the South Island of New Zealand. The district is naturally defined by two rivers, the Rakitata to the north and the Pareora to the south. The district follows the gentle curve of the South Canterbury coastline to the east and stretches to the Albury Ranges, Geraldine Foothills and Mount Peel to the west.

The district enjoys a temperate climate, with Timaru recording annual averages of 1,826 sunshine hours and 573mm of rain. The landscape consists largely of foothills, rolling hills and plains.

The district population is estimated by Infometrics at 50,100 as of 30 June 2024. Most of this population is situated around the Timaru Urban Area and the smaller towns of Geraldine, Temuka and Pleasant Point. Growth is generally slow, with a tendency more towards demographic change with an aging population and an increase in smaller households.

The regional economy is largely based on primary industries. Agriculture is diverse with cropping, beef, sheep, and dairy. Many primary industries have plants in Timaru District including dairy and food processing, meat and byproducts processing among others. There is a successful mid-sized port that is well utilised in support of regional industry.

2.2 Geraldine Area

Geraldine is a township of approximately 3,120 people (as of 30 June 2024, Statistics NZ) situated 36km north of Timaru. Colonial development of the area commenced with the establishment of the Raukapuka sheep run in 1853. The following year the first permanent dwelling was built by surveyor Sam Hewlings. The surrounding Talbot Forest was heavily milled in the 1860s and 1870s with a small reserve remaining on the edge of town. Geraldine County Council was established in 1876, became a Town Board in 1884, and a Borough Council in 1904.

The composition of the Geraldine area has changed many times over the years. Mackenzie County broke away in 1882 and Levels County in 1894. Geraldine and Levels Counties merged to form Strathallan County Council in 1974. In 1989 under the local government reforms, Geraldine became part of Timaru District. During the process, many old records were lost with reluctance around the forced amalgamation.

Geraldine is a service centre for the surrounding farmland. There is a mix of crop, sheep and beef and dairy farming in the area. One of the biggest employers is Barker's, a long-standing food manufacturer who is expanding operations locally.

Historically Geraldine has been affected by many extreme weather events, namely flooding and snow. Such events are set to continue with increasing frequency and severity projected.

Geraldine is a key area for the New Zealand long-tailed bat (pekapeka tou-roa). The pekapeka tou-roa is listed as critically endangered. South Canterbury hosts the only known population for the east coast of the South Island. Talbot Forest is a key roosting area with satellite sites found across the district. The bats rotate roosts, not staying in any one spot for more than a day or two at a time. Geraldine is the best place to observe bat movements, with Talbot Forest being so accessible to the public.

2.3 Scheme History

A high-pressure municipal water supply scheme for the township was established in 1902 with water supplied from the Waihi River via open race into town. The scheme had been mooted for some years in response to fire risk and pleas from the local volunteer fire brigade. Establishment of a waterworks was found to be more practical than spending £600 on a replacement fire appliance. A reservoir was built in Talbot Forest with storage capacity for nine days. Water from the race was pumped to the reservoir above MacDonald Street by hydraulic rams sited at the bottom of Waihi Terrace at the intersection with MacDonald Street. The reticulation expanded quickly as the town grew. The increase in demand necessitated construction of a second reservoir, commissioned in 1907. A pump to work the hydraulic rams was installed 1908, which had the capability to be operated by traction engine as required. This pump station was converted to electricity in 1924.

Discussion around supplementing the town supply with excess water from the Downs scheme was held in 1927, however the County and Borough Councils never reached an agreement. By 1930 supply had shifted to a bore adjacent to the Waihi River, possibly around Todd Park with a pump in place to supply the reservoirs uphill. From 1931 there was extension of the reticulation to the south end of town, and to Raukapuka from the 1950s.

The source was moved to a shallow borefield next to the Orari River in 1978 with an asbestos concrete main run through farmland and across the SH72 bridge at the north end of town to supply the reservoir. The dual open reservoirs were replaced by a single fully contained concrete reservoir built in 1962 at the highest point of what became Talbot Forest Scenic Reserve.

Geraldine has had an intermittent history of chlorination throughout the 20th century until around the 1970s, with full chlorination of the supply resuming in 2022. Ultraviolet treatment commenced in 2011 and was upgraded in 2023. As a scheme registered with the Water Services Authority – Taumata Arowai, Geraldine is currently compliant with 3 log treatment. This means that the current treatment processes successfully remove 99.9% of microorganisms.

2.4 Cultural Significance

The Timaru District lies within the recognised traditional boundaries of Kai Tahu. The hapu holding mana whenua in the district are Kati Huirapa, who are represented by Te Runanga o Arowhenua. Across South Canterbury, people tended to occupy locations close to water while ranging further afield and inland to gather resources, including kai.

Prior to European settlement, the Geraldine area was largely native forest with some wetland areas. Raukapuka was a wetland area and was significant as a mahika kai site.

Kati Huirapa do have particular concerns around projects involving earthworks. TDC exercises an accidental discovery protocol around archaeological discoveries with all projects and completes reinstatement to a standard that leaves the affected site either as it was or improved.

2.5 Key Assumptions

Assumptions are made in the development of the LTP and key supporting documents. The key assumptions relate to:

- Population and Growth
- Council Operations
- External Factors
- Financial

Growth projections are not anticipated to change significantly over the term of the Strategy. Overall, Timaru District growth is generally slow and not likely to change.

There are some Future Development Areas earmarked for Geraldine in the proposed District Plan 2025.

There is no indication of any further changes to Water Supply legislation or regulation for Water Supplies in the short-term regarding monitoring and compliance. Should there be any significant changes, this Strategy will be thoroughly reviewed and updated.

At the time of writing, the assumption is that Timaru District Council will remain the owner and operator of the Geraldine Urban Water Supply Scheme. This assumption may change with the development of Timaru District's Water Services Delivery Plan due to be submitted to the Secretary for Local Government September 2025. Despite the legislative uncertainty, TDC has no intention of delaying essential works to await outcomes. Projects will proceed as planned until further notice.

3 Links to Legislation, Regulation, and other Documents

3.1 Water Services Act 2021

The purpose of this Act is to provide national level oversight on the regulation and management of drinking water supplies. Taumata Arowai was created by the Water Services Regulator Act 2020 and became the dedicated regulator of three waters on enactment of the Water Services Act 2021. This has brought about changes to drinking water standards, including issue of the Drinking Water Quality Assurance Rules 2022 and Aesthetic Values. The Act is a direct response to the Government Inquiry into Havelock North Drinking Water which was released in December 2017. This Act replaced references to drinking water in the Health Act 1956, including regulation around Water Safety Plans. Rules and regulations are set by Taumata Arowai in accordance with this legislation.

Under this Act, a water supplier must submit a Network Environmental Performance Report for the last financial year by 30 September of the following year. Due to this report being a relatively new measure, the amount of reporting and number of measures has been increasing year on year, with further parameters confirmed from 2025.

3.2 Water Services (Drinking Water Standards for New Zealand) Regulations 2022

These regulations replaced the Drinking Water Standards for New Zealand 2005 and subsequent revisions, coming into effect from 14 November 2022. This sets current maximum acceptable values (MAVs) for concentrations of determinands in drinking water. The standards are based in part on World Health Organisation guidelines.

3.2.1 Drinking Water Quality Assurance Rules 2022

These rules were made following public consultation by Taumata Arowai. They set out compliance rules for Drinking Water Suppliers and require annual reporting back to Taumata Arowai.

3.2.2 Aesthetic Values for Drinking Water Notice 2022

Aesthetic values were issued by Taumata Arowai following public consultation. They set appearance, taste, and odour thresholds for determinands, including set elements, pH, hardness, colour and more.

3.3 The Resource Management Act 1991

This Act promotes the sustainable management of natural and physical resources for the entire country. It describes the functions of Regional Councils and Territorial

Authorities under the Act, including establishing, reviewing, and implementing objectives, policies, and methods to achieve integrated management of resources. Local authorities must recognise national environmental standards, national policy statements and regional plans, and prepare, implement, and administer district plans.

The resource consent system is the mechanism for monitoring compliance.

The below sub-sections detail how the RMA is applied specifically in Canterbury.

3.3.1 Land and Water Regional Plan

The LWRP, which establishes rules for land and water management throughout Canterbury, has been fully operative from 1 February 2017.

The plan is in 16 sections. Those relevant to TDC are sections 1 and 2, introducing the plan and how it operates; Sections 3-5 the Objectives, Policies and Region-Wide rules; and Section 14 – the rules within the Orari-Temuka-Opihi-Pareora (OTOP) Zone. All TDC water supplies are within the OTOP Zone.

A major focus of the plan is to halt deterioration of the land and waterways, until the subsection Zone rules set out how each community wishes to best manage the resources within their zones.

LWRP not only affects TDC operations but also affects how landowners use their land.

3.3.2 Canterbury Water Management Strategy

The Canterbury Management Strategy commenced in 2010. It provides for a community-led collaborative approach to environmentally sustainable water management in the Canterbury region. It is implemented through water zone committees who work collaboratively to develop effective water management solutions that deliver economic, social, cultural, and environmental outcomes in consultation with the local community. TDC is a member of the Orari Temuka Opihi Pareora (OTOP) Zone Committee.

3.4 Local Government Act 2002

This Act defines the purpose of local government as including meeting current and future needs of communities for good quality local infrastructure that is most cost effective for households and businesses, where good quality infrastructure means efficient, effective, and appropriate to present and anticipated future circumstances.

3.5 Timaru District Consolidated Bylaw 2018

Section 146 of the Local Government Act 2002 provides that a Territorial Authority may make Bylaws in its district for purposes of regulating, managing, protecting or for preventing the use of the land, structures, or infrastructure associated with water supply services. Chapter 15 of the Timaru District Consolidated Bylaw 2018 applies to water supply and other water services provided by the Council.

4 Strategic Relationship with other Council Documents

4.1 Long Term Plan 2024 – 2034

TDC must prepare a Long Term Plan (LTP) shaping the direction of council operations and investment for the next ten years in accordance with the Local Government Act 2002. This Plan is reviewed and updated every three years and involves the review and update of a suite of supporting documents across all of Council.

The current LTP was adopted by Council 1 July 2024. The following items are part of the LTP process.

4.1.1 Water Supply Asset Management Plan 2024 – 2034

The Asset Management Plan (AMP) is prepared during the LTP process and informs the management of assets for delivering Water Supply Services for Timaru District. Part A covers overall asset management while Part B gives specific detail on each scheme. Section B2 covers Geraldine Water Supply.

The AMP is part of a suite of supporting documents informing the LTP.

4.1.2 Infrastructure Strategy 2024 – 2054

The Infrastructure Strategy is prepared as a supplementary document to the LTP. It outlines the plan for management of all Infrastructure Assets held by Council for the next thirty years. Despite the long timeframe for the strategy, it is reviewed every three years as part of the LTP process and is as such subject to the same variabilities.

4.1.3 Annual Plan

The Annual Plan is prepared for Council every year and serves as a mechanism for any necessary variation to the LTP.

4.1.4 Annual Report

The Annual Report is the mechanism for Council reporting on what was done over the previous year and how this measures up against the LTP and Annual Plan. It includes reporting on Levels of Service.

4.1.5 Levels of Service

The Levels of Service for Water Supply Services are a combination of mandatory measures under the Local Government Act, Water Services Act, and some internal measures the Drainage and Water Unit choose to measure as best practice. Below are the current Levels of Service for all TDC water supplies as at the LTP 2024 - 2034:

Levels Of Service	Performance Measure	Community or Technical LOS (C/T)	Benchmarks (Targets)	Performance Target	Method of Measurement (where & how)
Provide safe drinking water	Compliance with Drinking Water Standards (Drinking Water Quality Assurance Rules) 2022 T3 Treatment Rules 4.10.1 T3 Bacterial Rules (Mandatory) Compliance with Drinking Water Standards (Drinking Water Quality Assurance Rules) 2022 T3 Treatment Rules 4.10.2 T3 Protozoal Rules (Mandatory)	T	100%	Bacterial and Protozoal compliance – all drinking water supply schemes	Taumata Arowai reporting
Maintain excellent customer service	Percentage of real water loss from TDC's networked reticulation systems (Mandatory)	T		% real water loss from network system reduces	
	Median attendance and resolution times for urgent and non-urgent callouts for water supply faults or unplanned interruptions in the network (Mandatory)	C		The median time to attend urgent: urban callouts – less than one hour rural callouts – less than four hours. The median time to resolve urgent: urban callouts – less than four hours rural callouts – less than eight hours. The median time to attend and resolve all non-urgent callouts will be reported.	Work Orders (Infor)
	Total complaints received about: • Drinking water clarity • Drinking water taste • Drinking water odour • Drinking water pressure or flow • Continuity of supply • TDC response to these issues (Mandatory)	C	0	26 or fewer complaints received per 1,000 connections	CRM
Maintain excellent customer service	Satisfaction with water supply services	C	100%	85% user satisfaction	Biennial residents survey
Provide demand management of water supply services	Average consumption of drinking water per day per resident within Timaru district (Mandatory)	C	300L/day	300L per day per resident	

Deliver water services according to required environmental standards	Compliance with Resource Consent conditions	T	100%	No abatement notices, infringement notices, enforcement orders, convictions	Compliance Reports

For the 2023/24 Annual Report, the Geraldine Water Supply Scheme met some Levels of Service. The LOS not met are as follows:

- There have been technical non-compliances with Drinking Water Standards for both Bacterial and Protozoal Compliance largely due to gaps in data linked to localised power outages.
- Percentage real water loss from networked reticulated systems increased on the previous year.
- The target for "Provide demand management of water supply services" was not met. This was due to higher average consumption on the rural schemes which includes stockwater, while the target is based on average urban residential consumption.

It is important to note that the latter two above may have been met for Geraldine specifically, however all urban and rural schemes are reported as one total activity for the purposes of the Annal Report.

Additional reporting requirements from Taumata Arowai that are under review for future inclusion in TDC's Levels of Service reported include:

- Reference level of pressure
- Number of properties below reference level pressure
- Water Restrictions (days under restriction, level, etc)

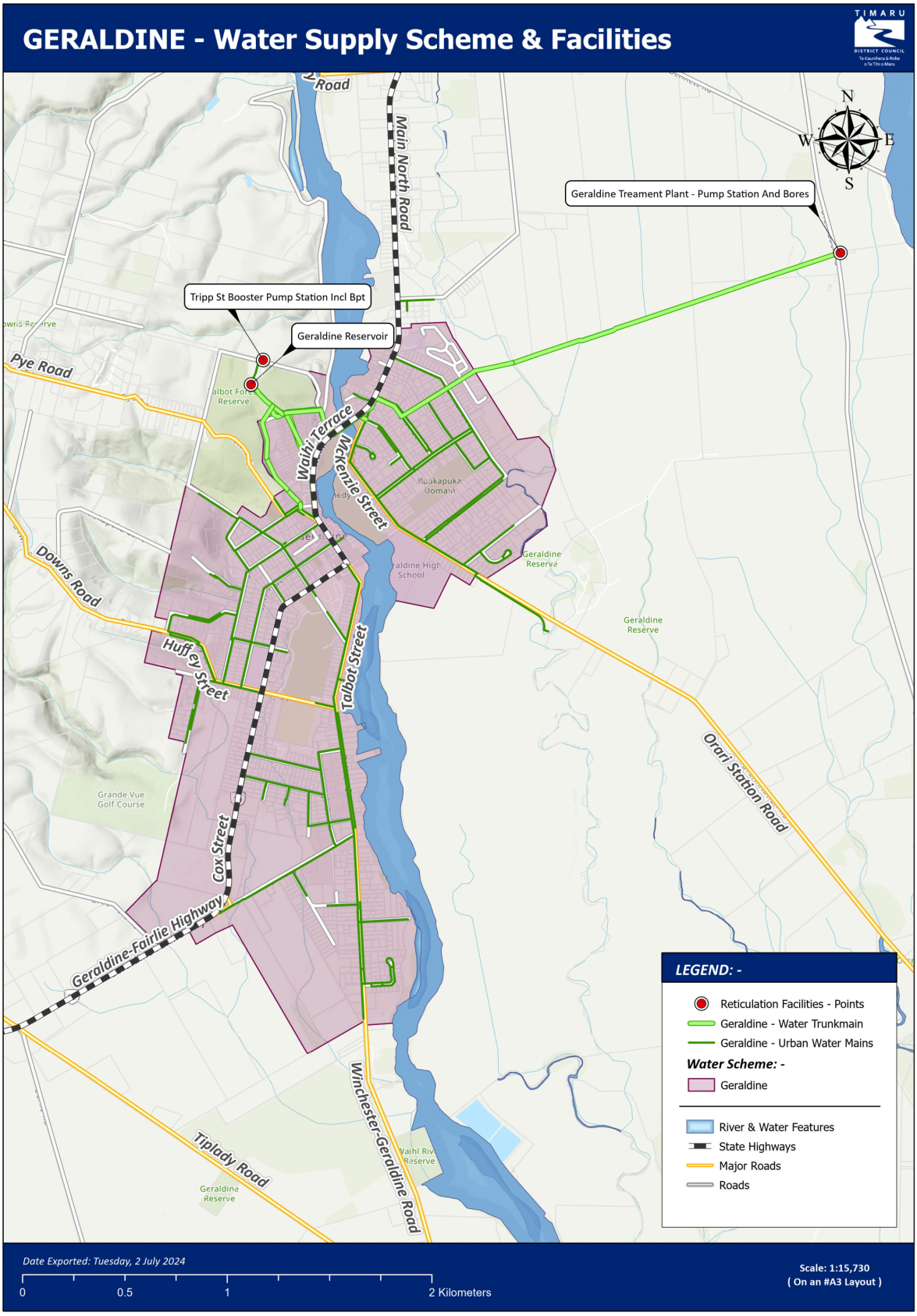
4.2 Geraldine Water Supply Water Safety Plan

Drinking Water Safety Plans (DWSPs) are required for all registered water supplies in accordance with the Water Services Act 2021 (formerly under the Health Act 1956). The objective of a DWSP is to ensure drinking water suppliers develop operational practices that will reduce the likelihood of contamination and respond to and minimise any contamination event that may happen. The Plan identifies risks to supply and outlines how to manage those risks.

DWSPs are submitted to Taumata Arowai as Drinking Water regulator. They are living documents and are reviewed on a regular basis. Any changes are re-submitted to Taumata Arowai. The most recent edition of the Geraldine Water Supply Water Safety Plan was finalised November 2022, refer CM9 document 1539729. This Plan will be updated with Taumata Arowai as each stage of this strategy is implemented.

Appendices to the DWSP include a Source Water Risk Management Plan, Critical Control Points and Risk Table.

5 Network Overview



5.1 Operations

The Geraldine Urban Water Supply scheme supplies domestic connections, drawing water from a borefield on Orari Back Road near the Orari River, east of the township. The supply is treated with chlorine and ultraviolet light at a treatment plant at the borefield. Ultraviolet light renders bacteria and protozoa unable to multiple, and therefore harmless to humans. Chlorine provides residual decontamination within the reticulation. The ultraviolet treatment plant is designed to meet the Drinking Water Standards for New Zealand.

From the treatment plant, treated water is pumped to a reservoir at the top of Tripp Street Reserve, elevated above Geraldine Township. This allows water to be gravity fed to households without requiring pump stations that consume electricity. Some water is supplied from the reservoir to supplement the Te Moana Rural Water Supply as required.

5.2 Assets

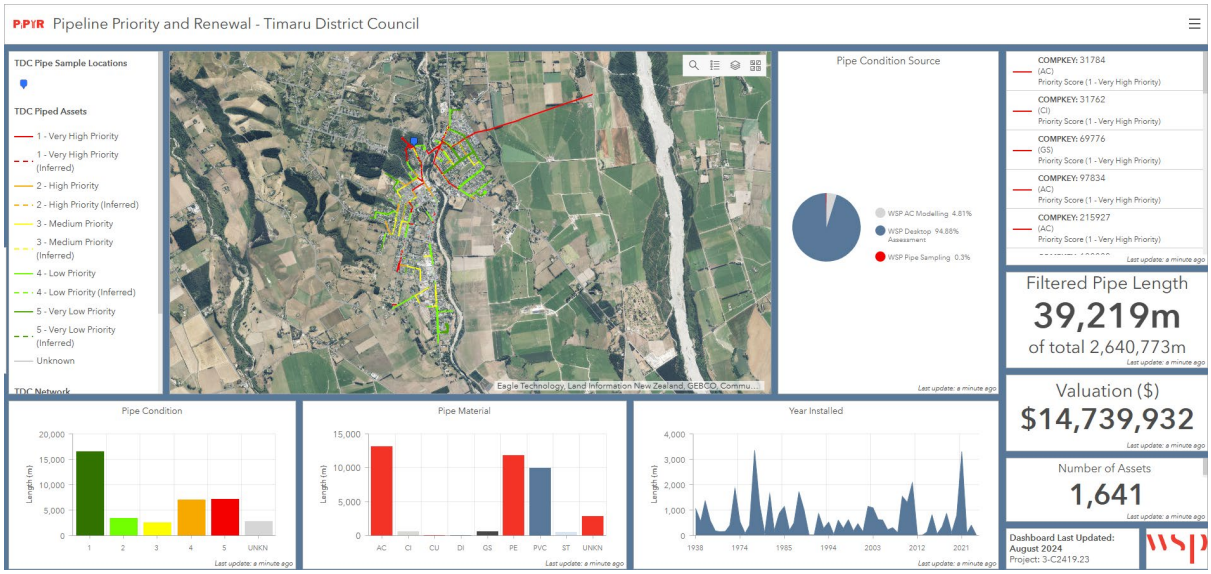
5.2.1 Plant

The plant facility at Orari Back Road consists of a field of four bores, a treatment plant and telemetry. Three of the bores were drilled in 1978 to a depth of 12m and are fitted with irrigation screens. A fourth bore was drilled in 2000 to a depth of 17m with screening in place at a depth of 11m to 16m.

The reservoir at Tripp Street Reserve holds 2,275m^3, approximately 12 hours storage at average peak demand. Pressure reduction occurs when the draw off from the reservoir is high and exceeds inflow. The reservoir underwent a structural assessment in 2017 which deemed it to have an effective remaining life of 10 years and vulnerable to seismic events within the vicinity.

5.2.2 Reticulation

There are approximately 25.5km of water mains within the reticulation. Approximately 40% of the mains consist of Asbestos Concrete (AC) pipe with some Cast Iron and Steel. The majority of this is at or near theoretical end of life.



5.2.3 Resource Consent

CRC064043 was an existing water take consent that was renewed in 2007 for a further 20 years. On renewal, the consented take was increased to allow for the Te Moana Rural Water Supply to be supplied from this source too if required. At present, annual take totals between 46% and 52% of consent. The consent is due to expire 30 October 2027, with this Strategy supporting upcoming application for renewal.

There is budget allocated for resource consent renewal under the LTP 2024 – 2034.

5.3 Model

Significant work was completed on the Geraldine Water Supply Model in conjunction with a Geraldine Area Wide Water Supply Strategy that was compiled in support of upgrades to the Te Moana Rural Water Supply. Models are regularly calibrated as part of general asset management processes.

6 Issues

6.1 Issues General to Water Supply and Timaru District

6.1.1 Resource Consents and Compliance

Geraldine's water take is a 20-year consent, also affecting supply to the Te Moana Rural Water Supply Scheme. TDC is a compliant consent holder. The water take consent is due for renewal 30 October 2027.

6.1.2 Demand and Availability

Geraldine Water Supply experiences steady demand with little growth in general. Increasing use is mainly down to increasing leaks, which is being managed through a progressive leak detection programme. This programme is undertaken throughout the wider district, with a different area of focus each year. This is often conducted in conjunction with CCTV inspection of sewer and stormwater networks. Geraldine is an area of regular focus due to the amount of aging AC mains.

6.1.3 Climate Change and Natural Events

Geraldine is vulnerable to extreme weather events. Historically there have been several floods and snow events with the district in general also vulnerable to high winds. Records show that water intakes were frequently destroyed by floods before the borefield was developed.

6.1.4 Financial Risks

Budgets are vulnerable to the cycles of the Annual Plan and LTP processes. While budgets appear locked in with final Plans, they can be changed in the next year as Council priorities change, which is a significant risk for multi-year projects.

6.2 Issues Specific to Geraldine

Levels of Service around pressure and continuity of supply, including for firefighting purposes, are affected for adjacent houses when the reservoir drops below 70% full.

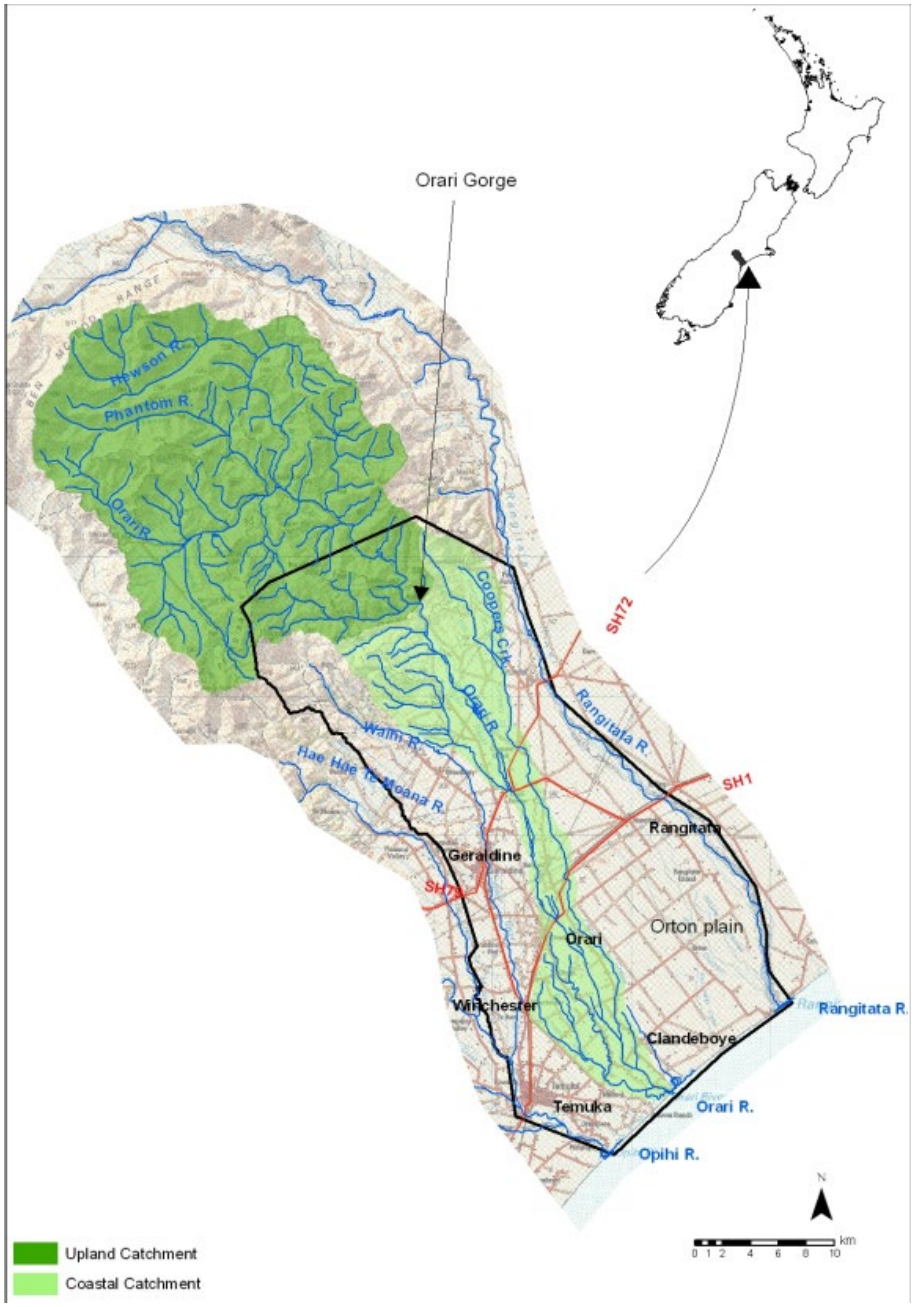
The trunkmain into Raukapuka is at capacity now and cannot support growth in the area. This trunkmain will require replacement should the nearby Future Development Area proceed.

The town reservoir is supplied via a single Asbestos Concrete trunkmain from the treatment plant. This trunkmain crosses the Waihi River at the SH79 bridge. If this bridge were to be taken out by a flood event, Geraldine would be without water supply.

6.2.1 Orari Catchment

Geraldine's Water Supply source lies within the Orari Catchment. While the Orari Catchment has been studied, there are acknowledged gaps in understanding and further investigation may be required to better understand the sustainability of the current take at the headworks.

The upland catchment area consists of the Four Peaks, Ben McLeod and Tara Haoa Ranges. Draining from these ranges into the Orari River are the Phantom, Hewson and Mowbray Rivers. The Orari River emerges from the foothills to the plains at Orari Gorge and drains into the Pacific Ocean some 40km to the southeast. The coastal plan catchment area has been described as covering 230km².



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At present there is no concern of imminent supply pressures affecting the headworks, however as understanding of the wider catchment increases it will be easier to model potential impacts before they occur.

6.2.2 Talbot Forest

The reservoirs for Geraldine's water supply have been located within Talbot Forest since initial establishment of the scheme, with provision for land specifically for reservoir having been gazetted since the first reservoir was planned. This location is operationally optimal for a gravity-fed network, maintaining pressure for the end users without having to use pump stations which come with higher operational costs. In the event of a power outage, there is generally no interruption in supply as long as power is restored before the reservoir level gets too low. However, undertaking work to replace a reservoir within Talbot Forest comes with difficulties. The Forest is a key habitat for the critically endangered long-tailed bat (pekapeka tou-roa). Any work within the Forest needs to mitigate any potential harm or disruption to bat behaviours. Also, activities in support of the strategy mark an opportunity to promote bat awareness.

6.3 Resilience

With the emergence of Climate Change and related issues, Resilience is an increasing priority for TDC with Water Services. TDC is involved with the Canterbury Lifelines Group, which focus on essential services required in emergency events. Upgrade of network and facilities will improve ability to recover from adverse events and enable greater flexibility in event response.

At present, any maintenance work done at the headworks, delivery trunkmain and reservoir all require outages.

7 Strategy Development

7.1 Scope

During the process of developing the Water Supply component of LTP 2024 – 2034, a need to earmark funding for refurbishment or replacement of Geraldine's Reservoir and the delivery trunkmain from treatment plant to reservoir was identified. The issues had been on the radar of officers for some time and had been identified in information shared with the Department of Internal Affairs' National Transition Unit under the previous Water Reform.

Ashley Harper as 3Waters Transition Manager led a series of workshops with unit officers to collate thoughts and ideas around potential solutions. It was determined that it would be prudent to get key stakeholders involved early in the process to facilitate improved community engagement and support any future consultation and consenting processes. The officer workshops were valuable for preparing guidance for stakeholders questions and ideas.

Following the officer workshops, Ashley delivered a report to Infrastructure Committee on 11 June 2024. The report sought to brief the committee on scoping work conducted by officers so far, endorsement of strategy scope, for the strategy to cover 50 years and to establish a Stakeholder Liaison Group. The resolution was carried.

7.2 Stakeholder Liaison Group

The Stakeholder Liaison Group (SLG) was established with the following participants:

- Cllr Sally Parker as chair of the Infrastructure Committee
- Cllr Gavin Oliver as councillor for Geraldine Ward and deputy chair of the Infrastructure Committee
- Jan Finlayson as chairperson of the Geraldine Community Board
- A representative from Aoraki Environmental Consultancy Limited on behalf of iwi. Michael McMillan and John Henry have each attended on separate occasions
- Tony Preston and Chris Coulter for Department of Conservation
- Ines Stager and Judy Lyttle for Talbot Forest Working Group
- Mr A Hendriks representing affected landowners along the current trunkmain from the treatment plant to the reservoir. The remaining landowners are:
    - Mr W Scott
    - Mr D Leslie

- Stephen Crone representing the owners of the Geraldine Retirement Village.

The group was run by independent facilitator Gay Pavelka, to provide objective separation of interests and ensure impartial observation. Officers from TDC were involved and attended each meeting, available to present information, options and answer queries.

The purpose of the SLG is to steer the direction of Geraldine's future aspirations for the community's water supply. The elected members represent the end users, being the ratepayers with the other parties all relevant consultees in preparation for applications for resource consents. The adoption of the Strategy will conclude the group members formal involvement.

As the trunkmain and reservoir replacement has already been consulted on as part of the Long Term Plan that was adopted 1 July 2024, there is deemed to be public support for scheme upgrade in principle.

7.2.1 Stakeholder Liaison Group Meetings

Meetings of the SLG were held at the Geraldine Service Centre. They were generally around three hours long on a Wednesday afternoon.

Meeting One

This was an introductory session that took place 24 July. Everyone introduced themselves and shared their priorities.

Meeting Two

This session on 27 August involved everyone meeting at the Service Centre then going for a guided site tour to the treatment plant and to the reservoir to give the group context around their discussions beyond what maps and pictures can provide. Back at the Service Centre there was further discussion around priorities.

Meeting Three

This session took place 23 October and was to discuss size and location options for reservoirs. An optioneering exercise was undertaken with the results compiled to guide this Strategy. Document 1711072 was supporting material in this discussion and feedback was used to complete further work, see documents 1732152 and 1732146.

Meeting Four

This session was originally meant to take place 18 December but was deferred to 29 January due to several participants being unable to attend. Consensus was reached around preferred reservoir locations for progression to detailed optioneering and finalised the Group's priorities, giving the mandate to take to Council.

7.2.2 Priorities and Outcomes

The desired outcomes for the Strategy developed by the Group are:

- Secure abstraction of quality raw water
- Resilient conveyance and storage from treatment to households
- Sustainable operation of water services that will cater for aspirational growth.

This will be achieved through the completion of replacements and enhancements to:

- Catchment - the raw water source and the area that contributes to the source.
- Treatment - the treatment plant and the processes within.
- Storage – sufficient treated water stored for the town to last a minimum of two days at peak demand levels.
- Delivery – the conveyance of treated water from source, via storage to people's homes.

To support optioneering for projects, the following priorities were developed by the Group, aligning with the outcomes:

- Resilience – maintaining a water supply scheme that is capable of delivering service to the community during severe weather or natural hazard events.
- Biodiversity – seeking to minimise impacts on the environment and enhance the area where possible, both during project delivery and ongoing operations and maintenance.
- Regulatory Compliance – ensuring the water supply scheme remains compliant with the regulations of the day.
- Economic Sustainability – ensuring projects required for strategy delivery are well designed, delivered efficiently and meet the needs of the community covering a reasonable period in the most economically viable manner.

The priorities and desired outcomes of the Group have helped inform development of a Multi Criteria Analysis framework that will be utilised in support of options recommended to Council and for consent and concession applications (refer Appendix 2).

8 Strategy Implementation

8.1 Project Staging

The following projects have been previously identified and have been earmarked for progression in the LTP.

Project	Scope	LTP Budget	Proposed Phasing
Tripp Street Reservoir Replacement	Current reservoir approaching end of life and needing more capacity.	W014	2025/26 depending on concession with DOC and consenting.
Duplication of Trunkmain WTP to Reservoir	Current trunkmain AC, need second for resilience and to enable maintenance and renewals with minimal disruption to service.	W015	2025/26 depending on Tripp Street Reservoir timing
Trunkmain second river crossing	Current pipe bridge crossing. With duplication of Trunkmain looking to have second crossing running below the Waihi River.	W015	2025/26 – in conjunction with Trunkmain duplication
Treatment Plant Reservoir	Second reservoir at the treatment plant. Resilience having more than one treated storage.	W014	2027/28 depending on Tripp Street phasing.
Membrane Filtration	Additional barrier of treatment to be added to meet compliance standards	W007 Line item extending into Infrastructure Strategy, staged installations for Geraldine, Temuka and Pleasant Point	2033/34 to 2035/36 May need to be rephased sooner if compliance standards dictate.

After completion of these stages, there will be a review and revision of the Strategy in line with any emerging compliance requirements and with lifecycle management of new assets in mind.

The below sections elaborate further on project areas.

8.1.1 Borefield

Purchase of additional land at the Treatment Plant on Orari Back Road is nearing finalisation as at the writing of this Strategy. Additional land will not only provide room for expansion of treatment facilities and additional storage but will enable the installation of additional bores should the need arise. This will meet the need for security of supply.

8.1.2 Reservoir

The SLG undertook preliminary optioneering for reservoir sizing, location and configuration. The group reached consensus on total storage capacity to be 4ML, and for capacity to be split across two sites in the interest of resilience. One site will remain at elevation as is currently the case, to maintain or enhance gravity-fed network pressures, while a second reservoir would be situated at the treatment plant.

Possible locations for the top reservoir have been narrowed down through the SLG process, though the final location is entirely dependent on the outcome of the concession application process with DOC. This matter is discussed further below.

8.1.3 Trunkmain

The current delivery trunkmain is Asbestos Concrete over 50 years old and starting to deteriorate. Based on previous experience with Temuka in 2016 and current condition assessment, the requirement for replacement is critical and needs to be completed within the next couple of years. For resilience of the network, to enable continuity of service to connections during maintenance and allowing options in an emergency event, a new trunkmain will be constructed to work in conjunction with the existing line. This will allow two options for delivery of treated water to the township. Once a new trunkmain is commissioned, then a decision can be made as to whether the existing trunkmain can be safely relined to prolong life or whether full replacement will be required. Constructing the new trunkmain first will minimise any potential disruption to service while the existing trunkmain is relined or replaced. The route of the new trunkmain will likely follow the current easement up to the township boundary, with the rest of the route dependent on the location of the new reservoir.

8.1.4 River Crossing

As part of the delivery trunkmain, there is a crossing over the Waihi River. The present crossing is a pipe attached to the SH79 bridge. For resilience, it is generally agreed that two river crossings are better than one, and that those two crossings should be different types. A road bridge crossing will be retained, but the new trunkmain is proposed to be run underneath the Waihi River. TDC's project managers and contractors have recent experience in river works with projects completed in the Opihi and Waihi Rivers satisfactorily and in compliance with resource consent conditions.

8.2 Consenting

8.2.1 Concession – Department of Conservation

Discussions with Department of Conservation staff both within the SLG meetings and outside have indicated what a concession application process will involve.

To construct and operate assets on Department of Conservation Land, a concession from the Department must be held. Application and ongoing annual fees need to be budgeted for.

Action points for DOC following the third SLG meeting 23 October were:

- to get a better understanding whether there were any statutory land management "showstoppers" or encumbrances that would make DOC authorisation of new reservoirs within Talbot Forest Scenic Reserve difficult to achieve.
- To obtain some preliminary DOC expert advice on whether there may be any impacts on Long-Tailed Bats from the options proposed that would make it difficult for DOC to authorise any new reservoirs within Talbot Forest Scenic Reserve.

Advice received from DOC has indicated what would best support the concession application

- Thorough options assessment demonstrating why the preferred option was selected.
- Demonstration that vegetation clearance if required is kept to a minimum.
- Independent ecological assessment of effects, including specialist bat expertise.

DOC have confirmed that due to the concession being for long term operations and therefore being a lease permission, the process must be publicly notified. However, there is currently consultation underway around changes to the conservation planning and permissions system, which adds a degree of uncertainty to the matter.

There is precedent for lease and easement on conservation land for the purposes of municipal water supply. Taupo District Council applied for a lease and easement for the construction, on-going maintenance and operation of a Water Treatment Plant for the Hatepe Water Supply on Hinemaiaia Scenic Reserve. Submissions closed 4 October 2024, with hearing and outcome yet to be published. The proposal includes a full treatment plant including building, multiple tanks for treated water, clarifier, backwash etc, hard surface, perimeter fencing and underground services which is far more than what TDC would be proposing for Talbot Forest Reserve with just a treated storage reservoir.

If the Department of Conservation do not grant a concession to occupy and operate within Talbot Forest Scenic Reserve, allocated budgets will need to be reviewed. TDC

would have to develop an alternative site which may involve land purchase and will increase the length of pipework required for the delivery trunkmain from the treatment plant.

8.2.2 Resource Consent – Environment Canterbury

Resource consents are anticipated to be required for river crossing, earthworks and construction related stormwater management. There will be ongoing engagement with the Rūnanga through the consenting process to ensure all their concerns are met appropriately. We do have good recent experience with river crossings in the district. On the Downlands Rural Water Scheme, we undertook a successful replacement of a trunkmain underneath the Opihi River in 2023. That project involved excavation and diversion activities in the riverbed with fish and bat management conducted successfully. For Geraldine, the sewer siphon under the Waihi River was replaced in 2024. That project involved excavations in the river and was timed to coincide with the Waihi River having no surface water flowing. With these recent experiences where all consented activities were completed successfully with full compliance, we are confident that the consenting process for installing a delivery trunkmain under the Waihi River should be relatively straightforward.

9 Risk Management

All strategic planning should incorporate risk management. TDC undertakes this in line with the Risk Management Policy, with the most recent iteration adopted by Council 15 February 2024. Drainage and Water carries out ongoing review to ensure the unit continues to operate consistently with the policy.

Risks and risk treatments are identified in the Water Supply Asset Management Plan. Network assets are assigned a criticality rating based on importance in relation to potential loss of service. Geraldine's source, treatment, delivery and reservoir are all assessed at Criticality A, which reflects the importance and potential vulnerability of all those assets.

Risk assessments are carried out for all projects as standard. The full process will be followed for all projects resulting from this Strategy.

10 Reporting

There are mechanisms for reporting by:

- Reports to Infrastructure Committee, Council
- Annual Report
- Drainage and Water Yearly Report

It is anticipated that there will be further reporting requirement in future to Taumata Arowai, Commerce Commission and DIA around Capital Programme delivery among other matters.

Appendix 1

List of Supporting Documents

1654261 – Project 2659 – 3C1298.00 Task 1 Geraldine Reservoir Investigation FINAL REPORT – Opus International Consultants Ltd – 14 October 2016

1065052 – REPORT – Geraldine Reservoir – Structural Condition Inspection Report 2017 – Opus International Consultants Ltd – 21 April 2017

1073137 – Geraldine Water Treatment Plant Operational Manual – Timaru District Council – May 2017

1539729 – Geraldine Water Supply Water Safety Plan Nov 2022

1539730 – Geraldine Water Supply Source Water Risk Management Plan Water Safety Plan Appendix 1 Nov 2022

1680481 – Geraldine Water Headworks Project Plan – 25 June 2024

1689723 – Geraldine Strategy Stakeholder Liaison Group Membership

1689726 – Minutes Geraldine SLG Meeting 24 July 2024

1706018 – Minutes Geraldine SLG Meeting Two 28 August 2024

1711072 - Geraldine Reservoir Upgrade Location Options Plan – Davis Ogilvie Ltd – 3 October 2024

1732135 – Minutes Geraldine SLG Meeting Three 23 October 2024

1732152 – Geraldine Reservoir High Level Cost Assessment Options Report + Appendices – Davis Ogilvie Ltd – 11 December 2024

1738390 – Minutes Geraldine SLG Meeting Four 29 January 2025

Appendix 2

Criteria framework for Multi Criteria Analysis – to be used for optioneering and business cases.

Benefits/Consequences	-2	-1	0	1	2
Resilience	*Disbenefit/major negative impact* Leaves the scheme in a worse resilience state than before. E.g. any maintenance or unplanned outage results in loss of service to entire scheme for over 12 hours.	*No benefit/negative impact* Scheme is somewhat less resilient than before the project started.	*No discernible impacts or effects* No change to current resilience of scheme.	*Some benefit/positive impact* Improvement to network resilience in some aspect.	*Significant benefit/major positive impact* Improvement to network resilience in all aspects.
Compliance	*Disbenefit/major negative impact* Renders the scheme non-compliant	*No benefit/negative impact* Some element of the scheme is non-compliant	*No discernible impacts or effects* No change to current compliance status.	*Some benefit/positive impact* Improved compliance	*Significant benefit/major positive impact* Compliance secured anticipating future regulatory change.
Cultural Considerations	*Disbenefit/major negative impact* Deterioration to levels of engagement with Rūnanga, significant impacts on areas of significance, e.g. mahinga kai areas	*No benefit/negative impact* Disruption to levels of engagement with Rūnanga, impacts on areas of significance, e.g. mahinga kai areas	*No discernible impacts or effects* No change to current levels of engagement with Rūnanga, no impact on areas of significance, e.g. mahinga kai areas	*Some benefit/positive impact* Improved levels of engagement with Rūnanga, improvement to areas of significance, e.g. mahinga kai areas	*Significant benefit/major positive impact* Significant improvement to levels of engagement with Rūnanga, enhancement to areas of significance, e.g. mahinga kai areas
Value for Money (Capex)	*Disbenefit/major negative impact* Significant ongoing impacts regarding loan repayment, significant cost overruns during the project.	*No benefit/negative impact* Risk some minor cost overruns during project, some ongoing financing costs.	*No discernible impacts or effects* Standard cost and finance.	*Some benefit/positive impact* Good price for project, good financing deal.	*Significant benefit/major positive impact* Best possible price for project, best possible financing arrangement. Partially subsidised.
Deliver economic water services (Opex)	*Disbenefit/major negative impact* Significant increase in operational expenses, e.g. greater electricity usage, greater operating and maintenance costs	*No benefit/negative impact* Some increase in operational expenses.	*No discernible impacts or effects* No change to operational expenses from current BAU.	*Some benefit/positive impact* Some improvement to the utilisation of resources.	*Significant benefit/major positive impact* Greater efficiencies in operations and use of resources.
Biodiversity	*Disbenefit/major negative impact* Local extinction of species	*No benefit/negative impact* Reduction in populations	*No discernible impacts or effects* No change to the current biodiversity of the area.	*Some benefit/positive impact* Improvements to habitat, increased population of current species.	*Significant benefit/major positive impact* Significant improvement in species populations, new desirable species becoming established in the area.
Amenity	*Disbenefit/major negative impact* Complete loss of access for the community, major negative visual impact.	*No benefit/negative impact* Some loss of enjoyment, access or visual appeal.	*No discernible impacts or effects.* Leaves the area no better or worse.	*Some benefit/positive impact* Enhances the area.	*Significant benefit/major positive impact* Greatly enhances the area.
Climate change adaptation	*Disbenefit/major negative impact* Escalates the effects of climate change, necessitating greater, more costly adaptations.	*No benefit/negative impact* Hinders climate change adaptation	*No discernible impacts or effects* Status quo	*Some benefit/positive impact* Some climate change adaptation incorporated into the project.	*Significant benefit/major positive impact* Climate change adaptations are fully incorporated in the project, and capacity for further adaptations as required are included.

Appendix 3

Excerpt from Geraldine Reservoir High Level Cost Assessment 11 December 2024 showing potential reservoir locations.

Contractor to locate all existing services & verify all dimensions before commencing work

Issue	Date	Reason	Approved
A	10-24	FOR REVIEW	SC
B	12-24	ADDITIONAL OPTIONS	SC
C	12-24	DISCARDED OPTIONS	SC

Timaru District Council

Geraldine Water Supply Reservoir Upgrade Options

DRAWING INDEX

		ISSUE DETAILS			
DRAWING NO.	DRAWING TITLE	10-24	12-24	12-24	
CS01	COVER SHEET / LOCATION PLAN	A	B	C	
PL01	OPTION 1	A	-	B	
PL02	OPTION 2	A	-	B	
PL03	OPTION 3	A	-	B	
PL04	OPTION 4 (DISCARDED)	A	-	B	
PL05	SPLIT RESERVOIR LOCATION	A	-	B	
PL06	OPTION 6	-	A	B	
PL07	OPTION 7	-	A	B	
PL08	OPTION 8	-	A	B	
HP01	HEIGHT PROFILE	A	-	B	

Notes:

Circuit: NZTM2000
Height Datum: NZVD2016

Notes:

- All dimensions in metres unless shown otherwise;
- Aerial photography: Sourced from LINZ Data Service;
- Boundary information sourced from LINZ boundaries;
- LiDAR: Sourced from LINZ Data Service, Canterbury - Timaru Rivers LiDAR 1m DEM (2014), https://data.linz.govt.nz/layer/53554-canterbury-timaru-rivers-lidar-1m-dem-2014/;
- Proposed fill contour interval is 1m;
- Fill batter is 1:4;
- Do not scale off this drawing;

CAD ref: C:\12dSData\DO-TIMARU\30833 TM - 59 Tripp Street, RD 21, Geraldine 129\006 CADD\Dwg\30833-Location Plan.dwg

DAVIS OGILVIE
Davis Ogilvie (Aoraki) & Partners Ltd
Engineers - Surveyors - Planners
12 The Terrace, Timaru 7940
P.O. Box 359 Timaru, NZ
Ph. 03 688 8350 / 0800 888 350
Also - Nelson, Christchurch, Greymouth

TIMARU DISTRICT COUNCIL
GERALDINE WATER SUPPLY RESERVOIR UPGRADE - LOCATION OPTIONS

COVER SHEET & LOCATION PLAN

Design	Drawn	QA Check	DWG	Issue
TH	TH	SC	CS01	C
Scale @ A3	Date	File		
1:10000	12-24	30833		

Other Resources

Environment Canterbury Technical Report – Integrated Study of surface water and shallow groundwater resources of the Orari Catchment – Report No. R10/36 – ISBN 978-1-877574-06-1

Summary of Selected Sections

This summary covers only sections 1, 1.1, 2.5, 4.2, 5, 5.1, 5.2, 5.2.2, 5.2.3, 6, 8.1, 8.1.1, 8.1.2, 8.1.3, and 8.1.4 of the Geraldine Water Headworks Resilience Strategy.

1. Purpose of the Strategy

The strategy sets the direction for managing Geraldine's water source, treatment, and delivery over the next 50 years. It explains how the strategy supports Council's vision, identifies the outcomes needed for the water supply, and outlines how those outcomes will be achieved.

1.1 Stakeholder Liaison Group

A Stakeholder Liaison Group was established to help shape the strategy and ensure affected parties were represented. Its role was to support development of a strategy that reflects the needs and interests of the Geraldine community.

2.5 Key Assumptions

The strategy is based on Long Term Plan assumptions relating to growth, council operations, external influences, and finance. Population growth is expected to remain slow, although future development areas are identified for Geraldine. No major short-term changes to water supply regulation are expected, but the strategy will be reviewed if this changes. It also assumes Timaru District Council will remain the owner and operator of the scheme, while noting this could change through the Water Services Delivery Plan process.

4.2 Geraldine Water Supply Water Safety Plan

The Water Safety Plan is required under the Water Services Act 2021 and is used to identify risks to the drinking water supply and set out how those risks will be managed. It is a living document submitted to Taumata Arowai and updated as needed. The current plan was finalised in November 2022 and will be updated as projects in this strategy are implemented.

5. Network Overview

The Geraldine urban water supply draws from a borefield near the Orari River, treats the water at the treatment plant, and pumps it to the Tripp Street reservoir before it is gravity-fed through the town network. The system includes

bores, treatment infrastructure, storage, and reticulation, with several key assets now aging and creating resilience risks.

5.1 Operations

The scheme supplies domestic connections using water drawn from the Orari Back Road borefield. Water is treated with chlorine and ultraviolet light, then pumped to the elevated Tripp Street reservoir so it can be distributed by gravity. The reservoir also provides supplementary supply to the Te Moana Rural Water Supply when required.

5.2 Assets

The scheme's main assets include the Orari Back Road bores, treatment plant, telemetry, Tripp Street reservoir, reticulation network, and water take consent. Key infrastructure is aging, particularly the reservoir and sections of the reticulation network, which increases the need for staged renewal and resilience improvements.

5.2.2 Reticulation

The reticulation network contains about 25.5km of water mains. Around 40 percent of the network is asbestos cement pipe, along with some cast iron and steel, and much of this pipework is at or near the end of its expected life.

5.2.3 Resource Consent

The current water take consent was renewed in 2007 for 20 years and allows supply to support both Geraldine and, when needed, the Te Moana Rural Water Supply. Current annual water take is well within the consented limit. The consent expires in October 2027, and this strategy supports preparation for renewal.

6. Issues

The strategy identifies both district-wide and local issues affecting Geraldine's water supply. These include consent renewal, increasing leakage from aging pipes, climate and natural hazard risks, uncertainty in long-term funding, reduced pressure and continuity when reservoir levels fall, limited growth capacity in the Raukapuka trunkmain, and the vulnerability created by relying on a single trunkmain crossing at the Waihi River. The strategy also notes the need to better understand the Orari catchment and to manage infrastructure works carefully within Talbot Forest because of its ecological significance, including habitat for the critically endangered long-tailed bat.

8.1 Project Staging

The strategy proposes a staged programme of upgrades already identified in the Long Term Plan. These projects focus on replacing or strengthening key infrastructure to improve resilience, storage, treatment, and network reliability.

The table below summarises the proposed staging without the budget code column.

Project	Scope	Proposed Phasing
Tripp Street Reservoir Replacement	Replace the aging reservoir and increase storage capacity.	2025/26, subject to DOC concession and consenting.
Duplication of Trunkmain WTP to Reservoir	Add a second trunkmain to improve resilience and enable maintenance with less disruption.	2025/26, depending on reservoir timing.
Trunkmain second river crossing	Provide a second Waihi River crossing, likely beneath the river, alongside trunkmain duplication.	2025/26, alongside trunkmain duplication.
Treatment Plant Reservoir	Add a second treated-water reservoir at the treatment plant to improve resilience.	2027/28, depending on Tripp Street phasing.
Membrane Filtration	Add another treatment barrier to meet compliance requirements.	2033/34 to 2035/36, or earlier if compliance requirements change.

8.1.1 Borefield

Additional land is being purchased at the treatment plant to allow room for future expansion, including more treatment infrastructure, additional storage, and extra bores if needed. This is intended to strengthen long-term security of supply.

8.1.2 Reservoir

The Stakeholder Liaison Group agreed that total storage should increase to 4ML and be split across two sites for greater resilience. One reservoir would remain at elevation to preserve gravity-fed pressure, while a second would be located at the treatment plant. The final location of the upper reservoir depends on the outcome of the Department of Conservation concession process.

8.1.3 Trunkmain

The current delivery trunkmain is more than 50 years old, made of asbestos cement, and is deteriorating. A new trunkmain is proposed to operate alongside the existing one, improving resilience, reducing service disruption during maintenance, and providing flexibility for emergencies. Once the new line is in place, a decision can be made on whether the existing trunkmain should be relined or fully replaced.

8.1.4 River Crossing

The current trunkmain crosses the Waihi River on the SH79 bridge, which creates a single point of failure. The proposed approach is to retain the bridge

crossing and add a second crossing beneath the river so the two crossings are of different types, improving resilience. Recent council experience with similar river works supports confidence in delivering this project.