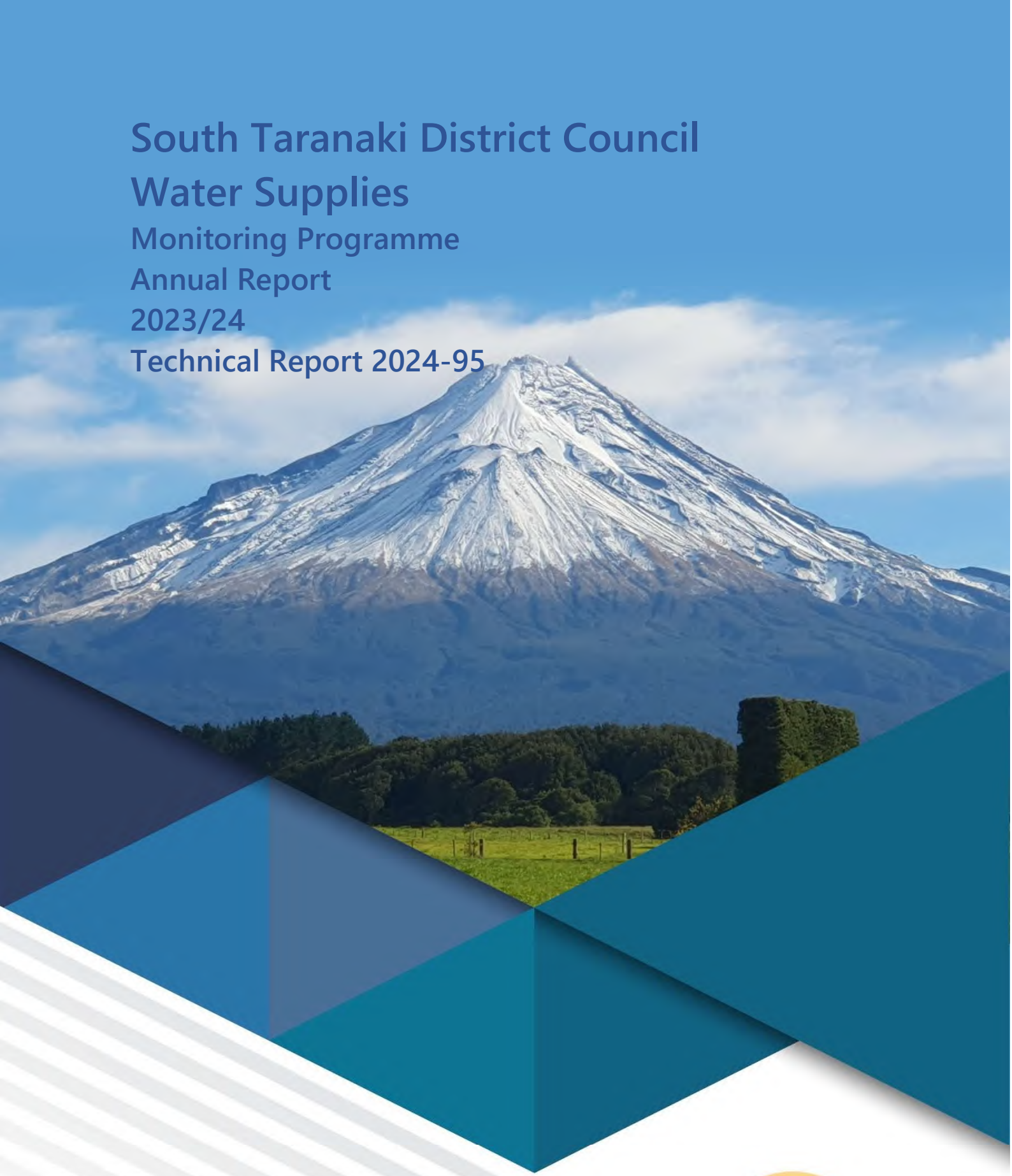
South Taranaki District Council Water Supplies

Monitoring Programme Annual Report 2023/24

Technical Report 2024-95



Taranaki Regional Council

South Taranaki District Council Water Supplies

Monitoring Programme
Annual Report
2023/24
Technical Report 2024-95

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Private Bag 713
Stratford

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Executive summary

The South Taranaki District Council (STDC) operates a total of ten water treatment plants (WTPs) which supply municipal water to the district's towns and water to the rural communities.

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess STDC's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of STDC's activities.

During the monitoring period, STDC demonstrated a good level of environmental performance and high level of administrative performance.

STDC holds 31 resource consents which include 285 conditions setting out the requirements that must be satisfied. STDC holds 15 consents to take water, eight consents to discharge to both land and water, and eight consents to construct and maintain in-stream structures.

The Council's monitoring programme for the year under review included ten inspections, the collection of six water samples for physicochemical analysis, three biomonitoring surveys of receiving waters, and three fish surveys. Abstraction, stream flow and discharge data provided by the consent holder was analysed and reviewed.

Discharge volume data showed that STDC were non-compliant for discharges at both the Ōpunake and Waimate West WTPs. However, there were mitigating factors beyond STDC's control as the higher than consented discharges for the Ōpunake WTP were in relation to taking water when the Waiaua River was in high flow conditions. Therefore, there was unlikely to be any noticeable change in the river in either volume or water quality, as the volume of water discharged was small compared to the flow in the river. Council are working with STDC to resolve these compliance issues. By comparison with previous years, the monitoring indicated that STDC had an improvement in their performance in terms of discharge volumes to water from both WTP's.

Based on the results of chemical sampling of discharges and receiving waters and macroinvertebrate surveys, the water supply schemes did not appear to be causing any adverse environmental effects. A number of recommendations have been made in relation to improving the fish passage for the Otakeho Stream (Waimate West WTP).

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance remains at a good level in the year under review.

This report includes recommendations for the 2024/25 year, including a recommendation relating to an optional review of Consents 3696-3 and 6038-2 in June 2025.

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1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2023 to June 2024 by the Council on the monitoring programme associated with resource consents for ten water treatment plants (WTP's) operated by the South Taranaki District Council (STDC).

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by STDC, that relate to abstractions and discharges of water, and in-stream structures. This is the 26th annual report to be prepared by the Council to cover STDC's water supply schemes.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by STDC in relation to the WTP's;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at each of STDC's WTP sites.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2024-2025 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
b. physical effects on the locality, including landscape, amenity and visual effects;
c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each

activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating as to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor. [1]

1.2 Resource consents and process description

STDC holds various resource consents including water abstraction permits, discharge permits and land use consents for various water supply plants and structures that they operate. These resource consents and their processes are listed in Table 1 and their locations are shown in Figure 1 and Figure 2. Copies of all resource consents held in relation to water supply plants and structures are available on request.

[1] The Council has used these compliance grading criteria for more than 20 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

Table 1 South Taranaki District Council water supplies resource consent and processes

Water Supply Scheme	Consent No	Description	Granted	Review	Expires	Process
Eltham WTP	0213-4	To take and use water from the Waingongoro River for municipal water supply purposes	12 April 2021	June 2027	1 June 2035	Raw water is abstracted via a screened intake gallery located on the bank of a pool in the river and piped to the water treatment plant. Polyaluminium chloride (PAC) is added and the water passes through a clarifier and sand filters. The water is pH buffered (sodium bicarbonate) and chlorinated. Backwash from the filters is discharged via one of two settling ponds to a drain which flows to an unnamed tributary of the Waingongoro River. This scheme services both domestic and industrial users in Eltham.
	0989-3	To discharge reservoir contents from the Eltham Water Supply Reservoir onto land adjacent to the Waingongoro River	5 November 2012	-	1 June 2029	
	1811-4	To discharge filter backwash from the Eltham WTP via a settling pond into an unnamed tributary of the Waingongoro River	28 June 2017	June 2029	1 June 2035	
Hāwera water supply (Kapuni WTP)	0146-2	To take and use water from the Kapuni Stream for municipal water supply purposes	7 June 2000	-	Expired-Section 124 protection	Raw water is abstracted from the Kapuni Stream via a screened intake structure and gravity fed to the WTP. It passes through grit tanks and flocculant is added before it goes into a flocculation tank. It then is pumped through strainers before going through the membrane filters. The water is pH adjusted using caustic soda, chlorinated, and fluoride is added before going to the site reservoirs. Membrane backwash water is discharged via two settling ponds to the Kapuni Stream. The discharge water is de-chlorinated and pH adjusted before it goes to the ponds. This scheme supplies water to Hāwera, as well as Normanby, and Ohawe. It also supplies water to rural users and to industry.
	7002-1	To take and use up to 4,320m^3/day of groundwater at a maximum rate of 50l/s as a combined total from up to three water bores in a bore field at the Kapuni reservoir site for municipal, rural, industrial, and recreational supply purposes	2 November 2006	-	Expired-Section 124 protection	
	7413-1	To erect, use and maintain a water intake structure on the bed of the Kapuni Stream, including temporary damming and diversion during construction	5 February 2009	-	Expired-Section 124 protection	
	7446-1	To discharge membrane backwash water and cleaning wastewater from the Kapuni WTP into the Kapuni Stream	13 March 2009	-	Expired-Section 124 protection	
	7447-1	To install, use and maintain an outfall structure on the bank of the Kapuni Stream for the Kapuni WTP	20 February 2009	-	Expired-Section 124 protection	
Inaha WTP	1185-3.1	To take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes	29 August 2006	-	Expired-Section 124 protection	Raw water is abstracted from two intake structures (weirs) on the Mangatoki Stream and a single intake on the Waingongoro River. Water is gravity fed and pumped to a settling pond and then to the treatment plant. PAC is added and the water is
	1186-3.0	To take water from the Waingongoro River for Inaha rural water supply purposes	29 August 2006	-	Expired-Section 124 protection	

Water Supply Scheme	Consent No	Description	Granted	Review	Expires	Process
	3927-3.0	To discharge backwash wastewater from the Inaha Rural WTP into an unnamed tributary of the Mangatoki Stream	15 August 2017	June 2029	1 June 2035	passed through two sand filters. The water is pH buffered (sodium bicarbonate) and chlorinated. Filter backwash is discharged to a small settling pond, then to an unnamed tributary of the Mangatoki Stream via a natural pond. This schemes supplies water to rural users from Kaponga across to Eltham and down to Matapu and Te Roti.
	3928-3.0	To discharge uncontaminated overflow water from the Inaha Rural Water Supply Treatment Plant via a settlement pond into an unnamed tributary of the Mangatoki Stream	15 August 2017	June 2029	1 June 2035	
	4102-2	To maintain an existing low-level weir and fish pass across the Mangatoki Stream in the Waingongoro catchment	15 June 2005	-	Expired-Section 124 protection	
	5365-2.0	To dam water and use a low level intake weir in the Mangatoki Stream for Inaha rural water supply scheme purposes	27 June 2017	June 2029	1 June 2035	
Ōpunake WTP	0232-4	To take and use water from the Waiaua River for Ōpunake town water supply purposes	30 July 2013	-	1 June 2030	Water is abstracted via a submerged screened intake structure and is pumped to the adjacent WTP where it is membrane filtered and chlorinated. This scheme supplies water to the Ōpunake township and approximately 22 rural users.
	5574-2	To discharge water treatment residuals, and pond drainage water from the Ōpunake WTP into the Waiaua River	30 July 2013	-	1 June 2030	
	9473-1	To construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes	21 February 2013	-	1 June 2030	
Pātea Water Supply	3388-3.2	To take and use groundwater from four bores (known as Bore 1, Bore 4, Bore 5 and 6) for Pātea Township water supply purposes	30 May 2012	-	1 June 2028	Groundwater is pumped from bores 1, 4, 5 and 6 and then sent to reticulation. There is an option to chlorinate the water if necessary. This schemes supplies water to the Pātea township.
Rahotu WTP	3696-3	To take and use water from the Pungaereere Stream for the Rahotu community water supply	15 August 2013	June 2025	1 June 2031	Raw water is abstracted through two pumps via a screened intake structure from a pool in the Pungaereere Stream to an adjacent settling tank, where PAC is added. Water is gravity fed from the settling tank to a pressure sand filter. Filtered water is then chlorinated Water is stored in two 100m^3 reservoirs to supply the Rahotu township, rural users and local industry.
	6038-2	To discharge filter backwash water and settling tank waste from the Rahotu WTP into the Pungaereere Stream	11 April 2019	June 2025	1 June 2037	
Waiinu Beach Supply	3770-3	To take and use groundwater for Waiinu Beach water supply purposes	7 May 2012	-	1 June 2028	Groundwater is pumped from a bore, chlorinated and UV treated, and then pumped to 6 reservoirs which have storage capacity of 125m^3. The scheme is used for low pressure domestic, limited watering and firefighting.

Water Supply Scheme	Consent No	Description	Granted	Review	Expires	Process
Waimate West WTP	0129-3.2	To discharge treated washwater from the Waimate West water supply scheme into an unnamed tributary of Kelly's Creek	12 June 2006	-	Expired-Section 124 protection	Raw water is abstracted from the Otakeho Stream and piped directly to the Waimate West WTP. This take is the primary source of water for this scheme. Raw water is also diverted from the Mangawhero Stream into the Mangawhero-iti Stream. Water is then abstracted from the Mangawhero-iti Stream and gravity fed to the WTP. When sufficient water can be abstracted from the Otakeho and Mangawhero-iti streams in the scheme and still provide for sufficient flows downstream, water from the Mangawhero Stream is avoided due to its turbidity. PACL and flocculant are added and the water passes through a clarifier and sand filters. The water is pH buffered (soda ash) and chlorinated (chlorine gas). On average the clarifier is bled every six hours and each of the four filters are backwashed once per day. Clarifier bleed and filter backwash are discharged via one of two settling ponds to an unnamed tributary of the Mangawhero-iti Stream. A groundwater bore has been commissioned to top up supply during periods of peak demand and stream low flow restrictions. This scheme supplies water to the Kaponga and Manaia townships and approximately 815 rural users.
	0634-3	To take water from the Mangawhero-iti Stream for the Waimate West water supply	7 June 2011	-	Expired-Section 124 protection	
	0635-3	To take water from the Mangawhero Stream for the purpose of adding to the flow of the Mangawhero-iti Stream and providing water for the Waimate West water supply	7 June 2011	-	Expired-Section 124 protection	
	10370-1.0	To take and use groundwater for Waimate West water supply purposes	27 February 2017	-	1 June 2035	
	3911-3.0	To take and use water from the Otakeho Stream for the Pope and Waimate West water supply schemes	3 October 2018	-	Expired-Section 124 protection	
	4826-3.0	To dam water and use a weir and water intake structure on the bed of the Otakeho Stream	29 June 2017	June 2029	1 June 2035	
	5451-2.0	To dam water and use a water intake structure on the bed of the Mangawhero-iti Stream for water abstraction purposes	08 August 2017	June 2029	1 June 2035	
	5452-2.0	To dam water and use a weir, a water intake structure and a swing bridge on/over the bed of the Mangawhero Stream for water abstraction	08 August 2017	June 2029	1 June 2035	
Waverley Water Supply	3313-3	To take and use groundwater from the "Fookes Street" bore (GND0244), the "Chester Street" bore (GND0059) and the "Swinbourne Street" bore (GND2242) for municipal water supply purposes at Waverley	23 September 2010	-	Expired-Section 124 protection	Groundwater is pumped from the bores, which tap a confined aquifer in the Whenuakura formation. The water passes through a sand trap, and is then fluoridated, gas chlorinated and UV treated prior to entering the reservoirs for distribution. The water is then supplied via a gravity main to the distribution system and consumers in the town.
Waverley Beach	9563-1	To take and use groundwater for Waverley Beach water supply purposes	1 May 2013	-	1 June 2028	Groundwater is pumped from a bore to a reservoir for distribution. It is not chlorinated.

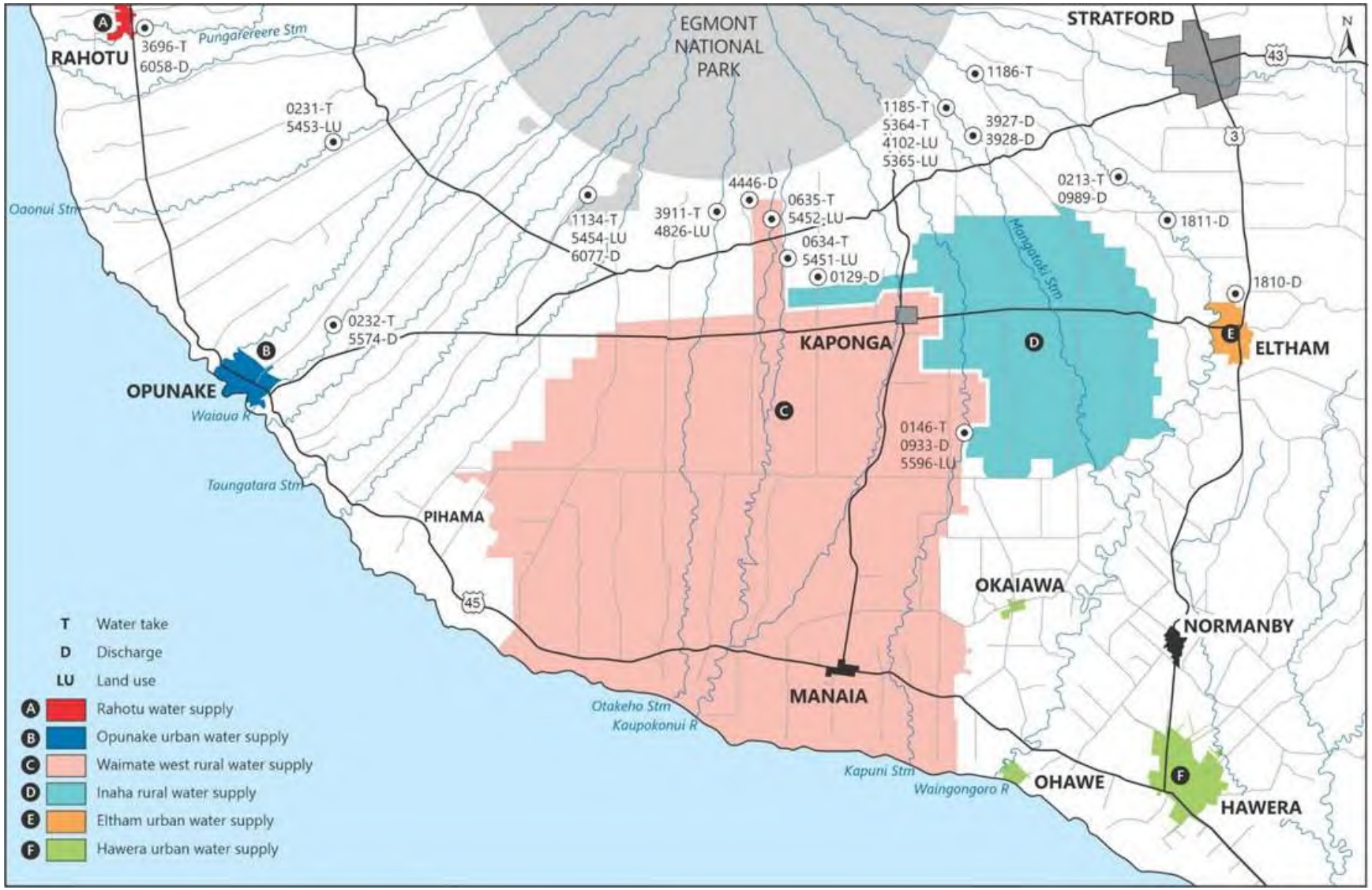

Figure 1 Location of STDC central and western resource consents

Figure 2 Location of STDC's southern consents

1.3 Monitoring programme

1.3.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the STDC water supply schemes consisted of six primary components.

1.3.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.3.3 Site inspections

A total of ten inspections were undertaken. The inspections focussed on intake structures, fish passage, water metering, abstraction rates and plant discharges.

1.3.4 Chemical sampling

The Council undertook receiving water samples and sampling of discharges, to audit check STDC's sampling from the Hāwera, Inaha, Waimate West, Eltham, Rahotu and Ōpunake WTPs. While STDC provided self-monitoring discharge sampling data to the Council that was collected throughout the monitoring year. This was reviewed by Council staff to ensure contaminant concentrations complied with consent conditions.

1.3.5 Biomonitoring and fish surveys

Macroinvertebrate surveys were undertaken in relation to the Hāwera, Waimate West and Inaha WTPs to determine effects upon the stream communities due to the discharge of filter backwash and/or abstractions. Two fish surveys were undertaken in the Mangatoki Stream (Inaha WTP) and Otakeho Stream (Waimate West WTP) to assess whether the water/weir intake structures restricted fish passage.

1.3.6 Review of abstraction and discharge data

STDC provided abstraction data to the Council throughout the monitoring year. This was reviewed by Council staff to ensure abstraction volumes and rates complied with consent conditions. Also provided were the discharge volumes for Eltham, Hāwera, Ōpunake and Waimate West WTP's.

1.3.7 Hydrological monitoring

Hydrological monitoring was undertaken in relation to the Eltham, Hāwera, Inaha, Rahotu and Waimate West WTP's to check flows and maintain ratings curves. Data review of the groundwater level data recorded by STDC was also undertaken.

1.3.8 Water conservation reports

Water conservation and leak detection reports are required by a number of the water take consents held by STDC. These are reviewed to ensure that STDC is using water efficiently, detecting and minimising leaks and enforcing conservation measures to minimise water use in times of high demand.

2. Results

2.1 Water

2.1.1 Site inspections

An annual inspection of Hāwera WTP was conducted on 29 February 2024. An inspection of the Waimate West and Inaha WTPs was conducted on 22 March 2024. An inspection of the Rahotu, Ōpunake and Eltham WTPs was conducted on 14 May 2024. An inspection of the Pātea, Waverley Beach, Waverley and Waiinu Beach WTPs was conducted on 17 May 2024.

29 February 2024

Hāwera WTP

The intake weir and fish pass was inspected, and looked in good condition, with the river flowing unimpeded. The river was very low, with a water level reading of 0.435m, and was clear and uncoloured. The river intake was pumping at 400m^3/hr. The bore was not operating at the time of the inspection.

The top pond was dry and vegetated, as it had recently been cleaned out. The bottom pond was discharging at approximately 2.5L/s. The colour of the pond was greenish brown. Samples were taken from above and below the receiving waters and included a backwash discharge sample. The river was clear and uncoloured below the mixing zone from the discharge. The free available chlorine was 0.04g/m^3, which is considered compliant.

22 March 2024

Waimate West WTP

The intake weir on the Mangawhero-iti Stream was open and clear of debris, with the fish pass unobscured. The river level was very low however, water was flowing freely over the weir. Abstraction was occurring at 399.6m^3/hr. The Mangawhero intake was not inspected.

The weir on the Otakeho Stream was in generally good condition with water flowing freely over it but was noted by STDC staff that the apron requires some attention, as boulders have damaged it. The stream flow was low, clear and uncoloured. Metal baffles were observed, which are used to force water through screens, which removes leaves. The fish pass was unobscured, and water was flowing freely over the weir. Abstraction was occurring at 285m^3/hr.

At the WTP, both settling ponds contained slightly turbid water, which was greenish brown in colour. The northern pond was sampled. A discharge sample was collected at the time.

Inaha WTP

The two intake weirs on the Mangatoki Stream were inspected, with water flowing freely over the weirs and fish passes. Water was clear and uncoloured. The reservoir for the two intakes was observed to be full and appeared to be in a reasonable condition. The Waingongoro intake was not inspected.

At the WTP, the eastern pond was dry, while the western pond contained slightly turbid water. A water sample was taken. No issues were noted around the plant.

14 May 2024

Rahotu WTP

The river was clear and uncoloured and the intake was clear. The abstraction at the time of the inspection was 4.1m³/hr. The settling pond was light brown and was discharging into the stream. There was no foam or sheen on the pond. A water sample was taken. Reservoir level was at 90%. The storage tanks were in good condition. Water quality was measured. Free available chlorine: 0.0g/m³, turbidity: 0.984NTU.

Ōpunake WTP

Steps to the intake were newly constructed. Concrete step to protect intake screen was in good condition and appeared to be protecting the screen well. Intake was clear of debris and did not obstruct fish pasage. The river flow was moderate and appeared slightly turbid. Raw water intake was occuring at 59.9m³/hr. Raw water tubidity: 1.10NTU and pH: 8.01.

The northern pond was discharging. A water sample was collected. The southern pond was being left to dry out, as it required cleaning. No issues were noted.

Eltham WTP

The intake from the river and the fish pass was clear of debris. The water was clear and uncoloured. The abstraction at the time of the inspection was 140.8m³/hr. Raw water pH: 7.45. Raw water turbidity: 0.46NTU

The eastern settling pond was dry and vegetated, while the western pond contained backwash water. The pond was clear and uncoloured. A water sample was collected. The site was in a tidy condition.

17 May 2024

Pātea WTP

The four Pātea bores currently used were inspected with no issues noted. Bore 4 was running at the time of the inspection, at a rate of 20.4m³/hr. Bore 1 Reservoir level: 106.4m. Bore 1, 5 and 6 were not operating however, Bore 6 does run daily, at a rate of 18.8m³/hr.

Waverley Beach WTP

An inspection of the WTP and the existing bore, which is exercised under the permitted take rule, were found to be ok. Abstraction at the time of the inspection was 0.97m³/hr. Water quality was measured. pH: 7.91, free available chlorine: 0.75 g/m³.

Waverley WTP

The Swinbourne Street bore was abstracting at the rate of 32m³/hr at the time of the inspection, which was in compliance with consent conditions. The Chester Street and Fookes Street bores were not operating and are generally only run to take water quality samples.

Waiinu Beach WTP

The bore and reservoir tanks were inspected, with no concerns noted. Water was not being abstracted at the time of the inspection.

2.1.2 Results of receiving environment monitoring

2.1.2.1 Results of discharge monitoring

2.1.2.1.1 Hāwera WTP

Receiving water and discharge samples were taken on one occasion at the Hāwera WTP (Figure 3) on the 29 February 2024. The results of the sample complied with the conditions of the Discharge Consent 7446-1 and are presented in Table 2.

Table 2 Hāwera WTP sample results on 29 February 2024

Parameter	Unit	Upstream (KPN000300)	Pond discharge (STW002080)	Downstream (KPN0000301)	*Consent limits for discharge*
Free available chlorine	g/m³	-	<0.04	-	*0.1*
Conductivity @ 25°C	mS/m	12.3	18.6	12.8	-
Sodium	g/m³	9.9 *(12.1)*	23 *(20.1)*	10.5 *(10.6)*	-
pH	pH	7.9	8.2	7.9	*6.5-8.5*
Suspended solids	g/m³	-	7	-	*20*
Temperature	°C	16.4	18.5	16.6	-
Turbidity	FNU	0.05	1.48	0.79	-

Values in brackets denote long term averages

Figure 3 Aerial photo showing sampling locations for the Hāwera WTP

While the consent does not limit sodium, it is of particular interest due to the use of chemicals such as sodium hypochlorite, sodium hydroxide and sodium bisulphate in the WTP process. Ballance Agri-Nutrients and Vector both have discharges that occur upstream of the WTP, which have limits placed on their consents for sodium. The sodium concentrations upstream and downstream of the discharge were below the long-term average however, the pond discharges sodium concentration was higher than the long term

average. The WTP discharge will continue to be regularly monitored for sodium to establish whether it is making a significant contribution to sodium loadings in the Kapuni Stream.

2.1.2.1.2 Inaha WTP

A sample of the Inaha WTP filter backwash discharge was collected on one occasion during the monitoring period. The results of the sample are presented in Table 3, with the location shown in Figure 4.

Table 3 Inaha WTP backwash discharge sample results (STW002070), 22 March 2024

Parameter	Unit	Pond discharge (STW002070)	*Consent limits for discharge*
pH	pH	7.3	*6.0-9.0*
Suspended solids	g/m³	***43***	*20*
Temperature	°C	10.3	-
Turbidity	FNU	5.1	-

This sample was taken from within the pond, as the pond was not discharging at the time of the inspection. The sample had a suspended solids concentration of 43g/m³ which was more than double the consented limit of 20g/m³ allowed by Consent 3927-2. However, as the pond was not discharging when this sample was collected from the pond, it is deemed compliant.

Figure 4 Aerial photo showing filter backwash sampling site for the Inaha WTP

2.1.2.1.3 Waimate West WTP

A sample of the Waimate West WTP filter backwash discharge was collected on one occasion during the monitoring period to check compliance with Consent 0129-3.2. The results of the sample complied with the conditions of the Discharge Consent 0129-3, as shown in, with the location shown in Figure 5.

Table 4 Waimate West WTP backwash discharge sample results (STW002069), 22 March 2024

Parameter	Unit	Pond discharge (STW002070)	*Consent limits for discharge*
Ammonia	g/m³	<0.01	*0.025*
Iron	g/m³	0.24	*2*
Manganese	g/m³	0.011	*1.3*
pH	pH	7.2	*6.5 – 8.5*
Suspended solids	g/m³	14	*20*
Temperature	°C	13.4	-
Turbidity	FNU	2.3	-

Figure 5 Aerial photo showing filter backwash sampling for the Waimate West WTP

2.1.2.1.4 Eltham WTP

A sample of the Eltham WTP filter backwash discharge was collected on one occasion during the monitoring period. The results of the sample complied with the conditions of the Discharge Consent 1811-4, as shown in Table 5, with the location shown in Figure 6.

Table 5 Eltham WTP backwash discharge sample results (STW002072), 14 May 2024

Parameter	Unit	Pond discharge (STW002072)	*Consent limits for discharge*
Free available chlorine	g/m³	0	*0.1*
pH	pH	7.6	*6.0 – 9.0*
Suspended solids	g/m³	<3	*20*
Temperature	°C	9.3	-
Turbidity	NTU	0.12	-

Figure 6 Aerial photo showing filter backwash sampling for the Eltham WTP

2.1.2.1.5 Rahotu WTP

A sample of the Rahotu WTP filter backwash discharge was collected on one occasion during the monitoring period. The results of the sample complied with the conditions of the Discharge Consent 6038-2, as shown in Table 6, with the location shown in Figure 7.

Table 6 Rahotu WTP backwash discharge sample results (STW001101), 14 May 2024

Parameter	Unit	Pond discharge (STW001101)	*Consent limits for discharge*
Free available chlorine	g/m³	0	*0.1*
pH	pH	7.8	*6.0 – 9.0*
Suspended solids	g/m³	<3	*20*
Temperature	°C	11.3	-
Turbidity	NTU	0.27	-

Figure 7 Aerial photo showing filter backwash sampling for the Rahotu WTP

2.1.2.1.6 Ōpunake WTP

A sample of the Ōpunake WTP filter backwash discharge was collected on one occasion during the monitoring period. The results of the sample complied with the conditions of the Discharge Consent 5574-2, as shown Table 7, with the location shown in Figure 8.

Table 7 Ōpunake WTP backwash discharge sample results (STW002073), 14 May 2024

Parameter	Unit	Pond discharge (STW002073)	*Consent limits for discharge*
Free available chlorine	g/m³	0	*0.1*
pH	pH	7.8	*6.5 – 8.5*
Suspended solids	g/m³	34	*50*
Temperature	°C	10.9	-
Turbidity	NTU	3.9	-

Figure 8 Aerial photo showing filter backwash sampling for the Opunake WTP

2.1.2.2 Water quality discharge review

STDC monitors the water quality of all their discharges in relation to WTPs on a regular basis, both visually for effects on the receiving environment, and by sample analysis for concentrations of contaminants in the discharge, as required by their consent conditions. This data was reviewed, and the results indicated that the samples were in compliance with consent conditions (Table 8).

Table 8 STDC's discharge self-monitoring water quality summary

Water Treatment Plant	Consent number	No. of samples taken	pH range	Suspended solids (g/m^3) range
Eltham	1811-4	7	7.1-7.7	4.0-7.0
Inaha	3927-3	6	7.2-7.7	5.0-6.1
Hāwera	7446-1	12	7.4-9.0	4.5-6.0
Opunake	5574-2	3	7.6-8.0	6.0-8.0
Rahotu	6038-2	6	7.0-8.0	4.5-5.0
Waimate West	0129-3	6	7.1-7.6	6.1-7.5
Consent limits		-	***6.0 – 9.0***	***20***

2.1.3 Results of receiving environment monitoring

2.1.3.1 Biomonitoring surveys

The Council's standard 'kick-sampling' technique was used at numerous established sites to collect streambed macroinvertebrates in order to assess the impacts from the Hāwera WTP (Kapuni Stream), the Inaha WTP (Mangatoki Stream) and the Waimate West WTP (Mangawhero-iti Stream). Samples were processed to provide number of taxa (richness), MCI and $SQMCI_S$ scores, and EPT taxa for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_S$ takes into account taxa abundance as well as sensitivity to pollution and may reveal more subtle changes in communities. It may be the more appropriate index if non-organic impacts are occurring.

Significant differences in either the MCI or the $SQMCI_S$ between sites indicate the degree of adverse effects (if any) of the discharges being monitored.

A summary of each report is given below and copies of biomonitoring reports for these sites are available from the Council upon request.

2.1.3.1.1 Kapuni Stream macroinvertebrate survey (Hāwera WTP)

23 February 2024

Two sites (KPN000300 and KPN000301) were visited to collect streambed macroinvertebrates from the Kapuni Stream to examine the effects of discharges to the stream from the Hāwera WTP (Figure 9). Taxa richness was moderate at both sites, with 21 taxa recorded at the upstream site and 24 taxa at the downstream site. Both were higher than the previous survey and the historic medians.

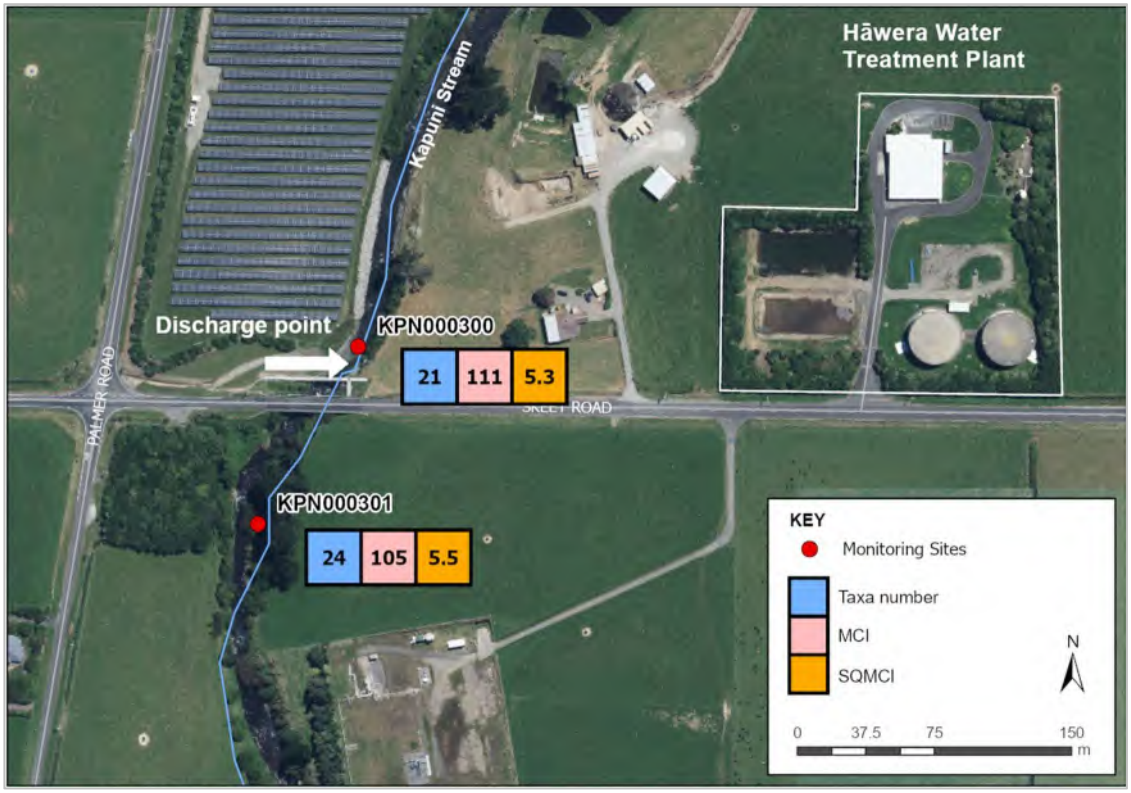

Figure 9 Location of the biomonitoring sites in the Kapuni Stream in relation to the Hāwera WTP scheme with taxa number, MCI scores and SQMCI scores for each site

MCI scores categorised both sites as having 'good' macroinvertebrate community health and were not significantly different from one another. The upstream site had an MCI score of 111, while the downstream had an MCI score of 105. These scores were both lower than the previous survey, which recorded 117 and 118 respectively. When compared to the historic medians, both sites recorded less than the respective medians however, not significantly.

SQMCI scores were 5.3 at the upstream site and 5.5 at the downstream site, which is categorised as 'good' macroinvertebrate community health. The downstream sites score was the lowest recorded score on record but was not surprising as the upstream site recorded a low score. Both sites recorded significantly lower SQMCI scores compared to the previous survey and the respective medians.

As the three metrics (taxa richness, MCI and SQMCI) recorded similar scores at both sites, there is no evidence of any significant adverse impacts caused by the backwash discharge from the Hāwera WTP.

2.1.3.1.2 Mangatoki Stream macroinvertebrate survey (Inaha WTP)

23 February 2024

Two sites (MTK000067 and MTK000070) were visited to collect streambed macroinvertebrates from the Mangatoki Stream to examine the effects of discharges to the stream from the Inaha WTP (Figure 10). Taxa richness was low at both sites, with 18 taxa recorded at the upstream site and 14 taxa at the downstream. This represents a decrease from the previous survey and was the lowest taxa richness to date for both sites.

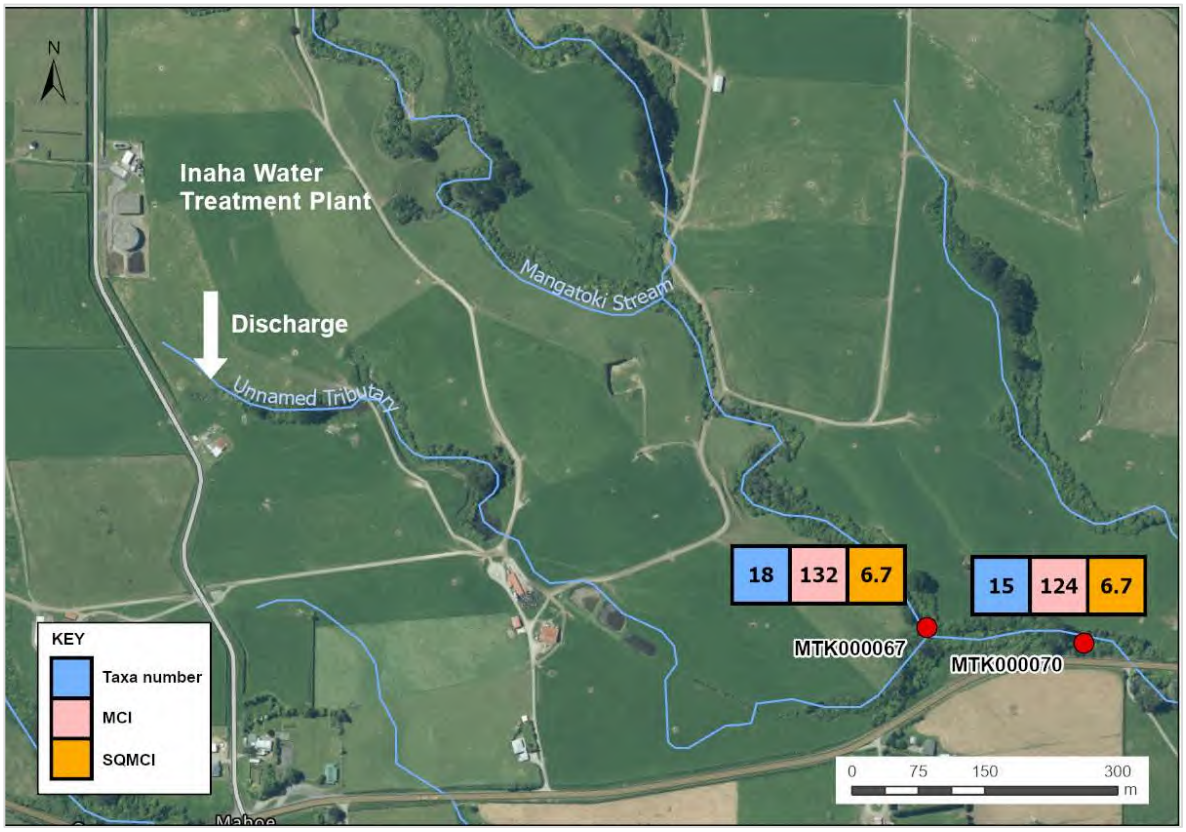

Figure 10 Location of the biomonitoring sites in the Mangatoki Stream in relation to the Inaha WTP scheme with taxa number, MCI scores and SQMCI scores for each site

MCI scores were 132 (upstream site) and 124 (downstream site) which categorised both sites as having 'very good' macroinvertebrate community health. Both sites scored slightly higher than the previous survey, and both sites had an MCI score of either more than, or the same as, their respective medians.

SQMCI scores were the same (6.7 units) at both sites, indicating 'very good' macroinvertebrate community health. Both sites scored slightly lower than the previous survey and were below their respective medians, but the difference was not significant.

In summary there is no evidence of any significant adverse impacts in the macroinvertebrate community caused by the filter backwash discharge from the Inaha WTP.

2.1.3.1.3 Mangawhero-iti Stream macroinvertebrate survey (Waimate West WTP)

19 March 2024

Four sites (MWI000170, MWI000174, MWI000330 and MWI000490) were visited to collect streambed macroinvertebrates from the Mangawhero-iti Stream to assess any potential impacts of the water abstraction on the stream for the Waimate West WTP (Figure 11). Taxa richness was moderate across the four sites and ranged between 19 and 23 taxa. When comparing the scores to historical medians the taxa richness was lower at all sites except for all MWI000490, which was equal to the historic median.

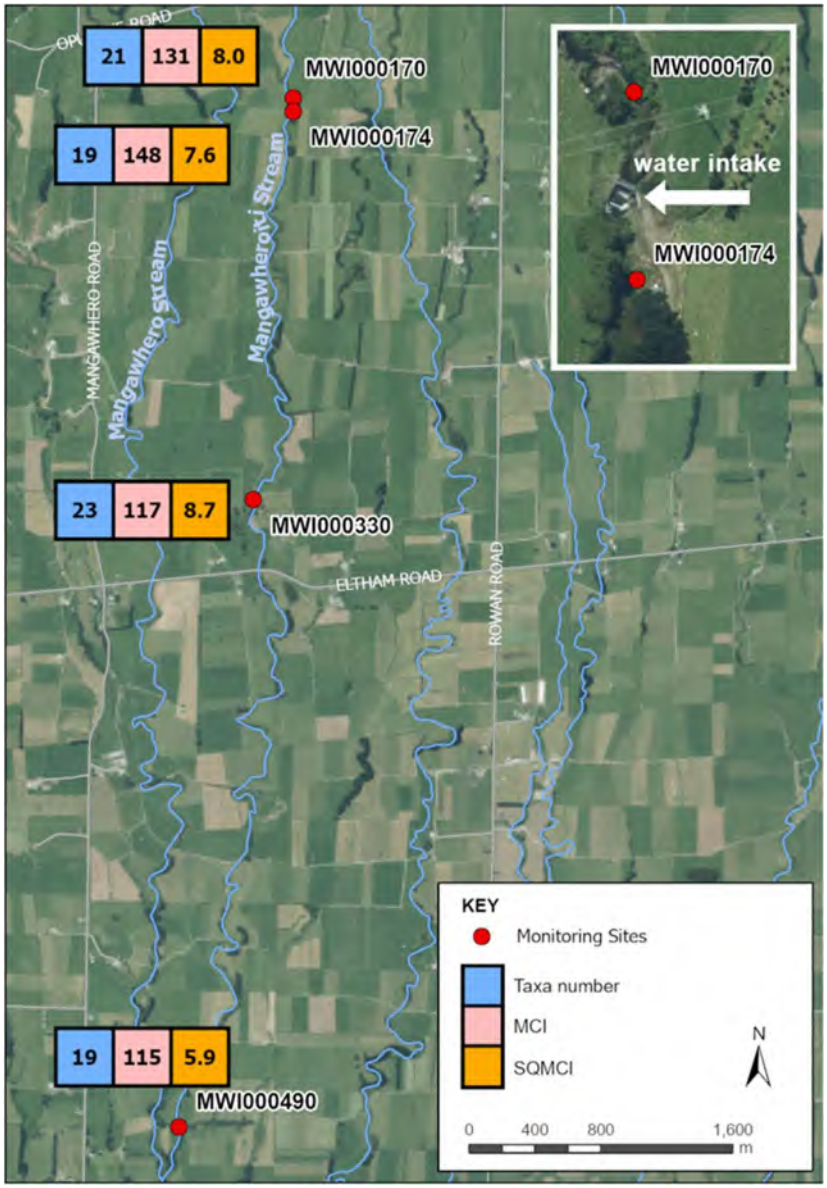

Figure 11 Location of the biomonitoring sites in the Mangawhero-iti Stream in relation to the Waimate West WTP scheme with taxa number, MCI scores and SQMCI scores for each site

MCI scores were 131, 148, 117 and 124 units at sites 1-4 respectively. These scores were reflective of 'very good' macroinvertebrate community health at site 1, 'excellent' health at site 2 and 'very good' health at sites 3 and 4. Site 2, which is located immediately downstream of the abstraction point recorded the highest MCI score of the survey and was the highest score for that site to date. When compared to the previous survey, site 2 recorded significantly higher, while the other three sites recorded similar. All sites recorded higher than the historical medians, with sites 2 and 4 recording significantly higher. There was a significant increase in MCI scores between sites 1 and 2 however, downstream sites 3 and 4 recorded significant decreases in MCI scores. The 'excellent' MCI score recorded at site 2 was reflective of healthy macroinvertebrate communities and provided evidence that the water abstraction by the Waimate West WTP had not had a detrimental effect on the macroinvertebrate communities at site 2. Any decreases in MCI scores were potentially due to cumulative effects due to site distance.

SQMCI scores were 8.0, 7.6, 8.7 and 5.9 units at sites 1-4 respectively. These scores were reflective of 'excellent' macroinvertebrate health at sites 1-3 and 'good' health at site 4. The scores at sites 1 and 3 were the highest scores recorded on record to date. All sites recorded scores greater than the respective historic median, with site 3 recording significantly more. Sites 1, 2 and 3 recorded higher than the previous survey, but site 4 recorded significantly less than the previous survey by 1.5 units. Site 4 also recorded significantly less than the three upstream sites. Despite this decrease in SQMCI scores, the 'excellent' scores and macroinvertebrate community abundances upstream suggest that the water abstraction is not negatively affecting the macroinvertebrate communities.

Overall, the results of the survey found no evidence that water abstraction from the Mangawhero-iti Stream by Waimate West WTP had had a significant effect on the freshwater macroinvertebrate communities downstream of the abstraction point.

2.1.3.2 Fish Surveys

During the period under review the Council undertook three fish surveys in the Otakeho Stream in relation to Waimate West WTP, in the Kapuni Stream for the Hāwera WTP and in the Mangatoki Stream for the Inaha WTP. A summary of the reports are given below, a copy of the full report can be obtained on request to the Council.

2.1.3.2.1 Mangatoki Stream – Inaha WTP

A three site survey was undertaken in the Mangatoki Stream on 7 and 8 December 2023, to assess compliance with Consent 4102-2 (Photo 1) and 5365-2 (Photo 2) and to assess the effectiveness of the fish passes. This survey employed the electric fishing technique.

From the results of this survey, only two fish species were recorded in the Mangatoki Stream, those being the longfin eel and the brown trout. These findings align with previous surveys. In previous surveys brown trout have been recorded at all three survey sites however, in this survey they were only found at sites two and three. The absence of trout above the upstream weir in this survey may suggest degradation of the fish pass since the previous survey, potentially making it unsuitable for the passage of trout and possibly exacerbated by flood events. Alternatively, trout may have not been present at the time of surveying. Additionally, the majority of trout observed were juveniles, perhaps inferring that adult trout may have migrated past the weir, from the lower Mangatoki Stream or Waingongoro River to spawn in the headwaters resulting in their absence. The presence of longfin eel above and below the weirs suggest that the structures and fish passes are navigable for climbing species.

The lack of native fish species is not unusual for sites at this altitude and distance inland with an abundant trout population, despite the fact that fish habitat was plentiful both upstream and downstream of the weirs, with good overhead cover, undercut banks and substrate. Previous surveys have also recorded few native

fish species at these sites. Their absence is likely related to the influence of barriers to fish passage located downstream (also likely exacerbated by the historically abstracted flow), and the presence of brown trout.

Photo 1 Upstream weir and fish pass in the Mangatoki Stream for the Inaha WTP

Photo 2 Downstream weir and fish pass in the Mangatoki Stream for the Inaha WTP

The Normanby weir is also located downstream and is considered to be the main barrier to fish passage in this catchment as there is currently little to no provision for fish passage.

Currently STDC is compliant with the consent conditions, meeting the fish passage requirements of Consents 4102-2 and 5365-2.0. Survey results have not deviated from previous surveys, with the exception of trout absence above the upstream weir. However, the triennial sampling restricts any meaningful interpretation in regard to their absence as it presents only a "snapshot". It is clear however, the structures pose no threat to the passage of strong climbing species such as longfin eel.

Recommendations from the survey included:

- Consider the use of eDNA as a tool for determining presence and absence of fish in the communities above and below the weirs. Comparison between fish survey results and eDNA results to determine any discrepancies or limitations with current survey methods.
- Inspect the upstream weir (site MTK000048) to ensure the integrity of the structure and to ensure it has not deviated from its intended function.

Figure 12 Location of sites surveyed in the Mangatoki Stream in relation to the Inaha WTP weir and fish pass

2.1.3.2.2 Otakeho Stream – Waimate West WTP

A two-site survey was undertaken in the Otakeho Stream on 9 and 10 January 2024, to assess compliance with Consent 4826-3 and to assess the effectiveness of the fish pass (Photo 3). This survey employed the electric fishing technique.

Photo 3 Downstream side of the STDC weir and fish pass in the Otakeho Stream for the Waimate West WTP

The two sites surveyed were one upstream of the weir and one downstream of the weir (Figure 13).

Three fish species were recorded at both sites in the Otakeho Stream, with those being the longfin eel, kōaro and brown trout, with the kōaro being the most abundant. The present survey results indicated that the weir presents no restriction to the passage of fish for upstream and downstream migration. The abundance of kōaro was notably higher at both sites compared to the 2021 survey. This conforms with the results found in previous surveys where abundances were higher upstream compared to downstream after the upgrades to the weir and fish pass, indicating that the historical upgrade to the fish pass has largely resolved the possible restriction of fish passage as suggested by pre-2012 surveys, particularly for that of kōaro.

Kōaro abundances at both sites were notably higher compared to the 2021 survey. In 2021, kōaro abundances were 10 downstream and 39 upstream of the weir. The present survey observed abundances of 40 downstream and 53 upstream. Longfin eel and brown trout were only found in small numbers with more brown trout found at the downstream site compared to the upstream site.

In 2021, a visual assessment of the weir found that the flow rate through the fish pass was sufficient however, it did identify a compromise in the integrity of the lowest section structure. The present survey found the flow rate at the toe of the fish pass had increased since the 2021 survey. In the near future, this could negatively affect upstream fish migration, necessitating maintenance through the replacement of rock substrate and/ or reassessment of the gradient of the fish pass.

Figure 13 Location of sites surveyed in the Otakeho Stream in relation to the Waimate West WTP weir and fish pass

Currently STDC is compliant with the consent conditions in meeting the fish passage requirements of Consent 4826-3. The present survey results, along with those from surveys conducted after this fish pass upgrade, indicate the fish pass is suitable for the species present around the weir, primarily kōaro. However, it is important that the consent holder continues to regularly inspect the weir, especially after large floods, to ensure optimum flows are maintained down the fish pass, and that maintenance of the fish pass occurs when required.

Recommendations from the survey included:

- Consider the use of eDNA monitoring on both the downstream and upstream sides of the weir for broader insight and more informed results.
- Undertake low flow and high flow inspections to establish the potential flow conditions at the weir that could positively or negatively affect fish passage.
- Fish passage improvement recommendations included:
  - Maintain and replace any rocks missing within the fish pass and add extra rock where there are clear velocity barriers or gaps in rest areas;
  - Regrade/reshape the toe of the ramp to ensure it maintains the designed gradient and functionality;
  - Install flow deflectors at/or near the toe to redirect and spread the flow;
  - Ensure the ramp is the main attractant flow and/or undertake rock works to deter fish from accessing or gathering at other parts of the structure where passage is less feasible;
  - Undertake rock works to prevent a scour pool from forming at the base of the weir. Scour pools are often high predation zones where larger fish sit and predate on fish that have failed to navigate fish passes in their initial attempts.

2.1.3.2.3 Kapuni Stream – Hāwera WTP

A two-site survey was undertaken in the Kapuni Stream on 1 December 2023, to assess compliance with Consent 7413-1 and to assess the effectiveness of the fish pass (Photo 4). This survey employed the electric fishing technique.

Photo 4 Aerial view of the STDC weir and fish pass in the Kapuni Stream for the Hāwera WTP

The two sites surveyed were one upstream of the weir and one downstream of the weir (Figure 14).

In total, four fish species were recorded upstream and downstream of the Kapuni Stream weir. These species were the longfin eel, redfin bully, kōaro and rainbow trout, with the rainbow trout being the most of abundant. The survey results indicate that the weir presents no restriction to the passage of fish for upstream and downstream migration.

Only one redfin bully was found upstream of the weir, though this seems typical as previous surveys also recorded a low number of individuals at both sites. However, redfin bully were not found downstream of the weir, which may be attributed to the lack of sampling habitat available during the survey. Kōaro were found both upstream and downstream of the weir, aligning with the trend as found in previous surveys indicating the fish pass presents no barrier to this species of fish. Interestingly, rainbow trout were found in the highest numbers recorded to date with 18 recorded upstream of the weir, and 29 recorded downstream.

Both climbing and swimming species were present above and below the weir, where numbers of fish were predominantly higher above the weir, indicating both types of fish are able to navigate up the pass facilitating fish recruitment.

Currently STDC is compliant with the consent conditions, meeting the fish passage requirements of Consent 7413-1. It is evident the weir presents no restriction to the passage of both climbing and swimming fish species and the fish passage is functioning as intended. However, it is important that the consent holder regularly inspect the fish pass to ensure the integrity is maintained and maintenance is undertaken when necessary. The current triennial survey frequency is considered adequate, and it is recommended that this level of monitoring continue.

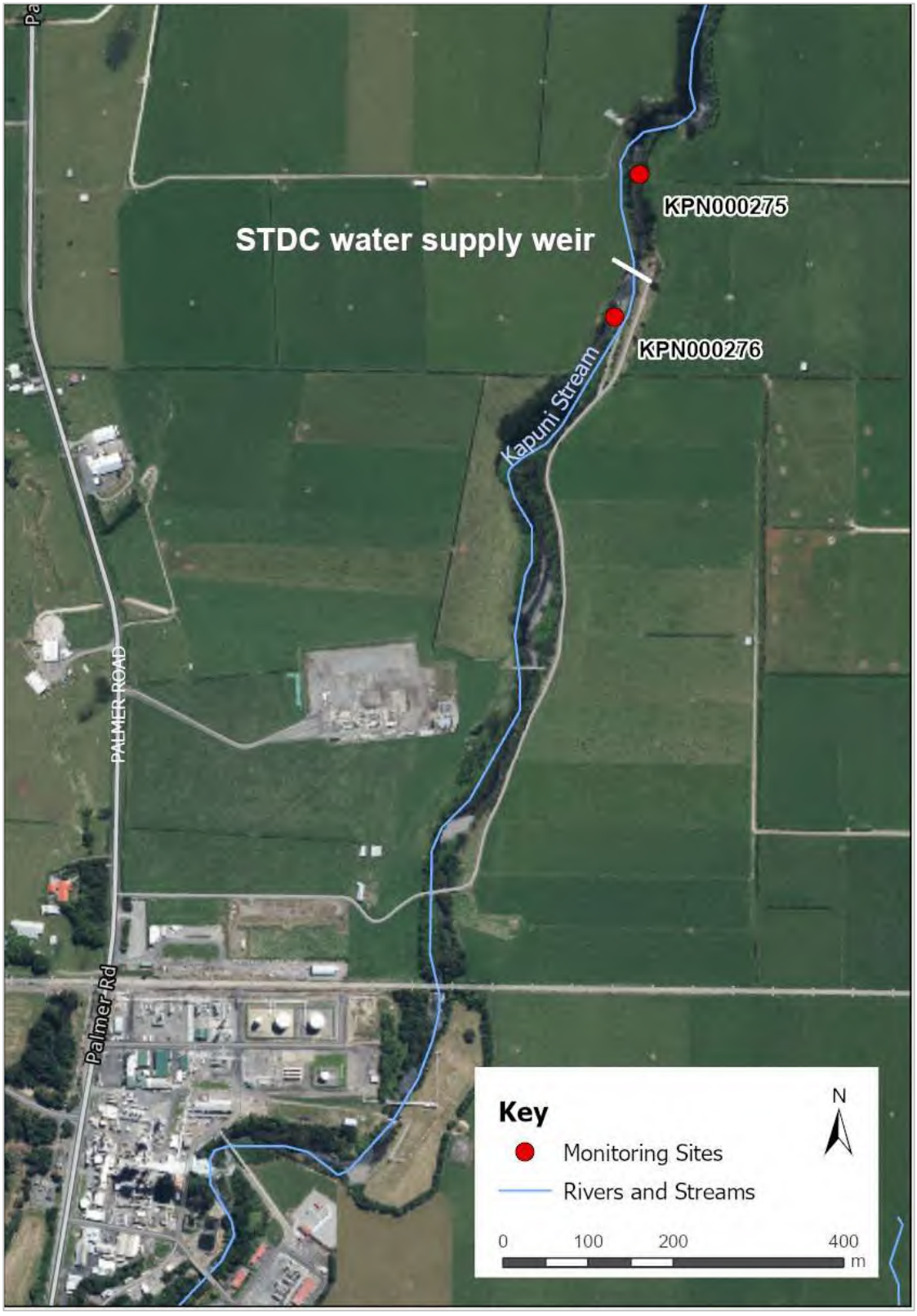

Figure 14 Location of sites surveyed in the Kapuni Stream in relation to Hāwera WTP weir and fish pass

Recommendations from the survey included:

- Consider the use of eDNA monitoring on both the downstream and upstream sides of the weir for broader insight and more informed results.

- Carry out regular inspections of the fish pass to ensure its integrity and ensuring it functions as intended.

2.1.4 Abstraction and discharge review

STDC's abstraction data is transmitted in 'real time' to the Council, where the data is processed and reviewed, to assess compliance with consented rates and volumes (Table 9) as per their consent conditions.

Table 9 Summary of abstraction data compliance

Water Treatment Plant	Source	Maximum volume (m^3/day)	Consented volume (m^3/day)	Compliance with volume (%)	Maximum rate (L/s)	Consented rate (L/s)	Compliance with rate (%)
Eltham	Waingongoro	4,620	5,200	100%	61.3	64	100%
Hāwera	Kapuni	10,061	12,100	100%	122	140	100%
	Kapuni bore	1,582	4,320	100%	35.6	50	100%
Inaha	Mangatoki	2,415	2,504	100%	34.8	29	99.9%
	Waingongoro	2,549	2,592	100%	32.0	30	99.9%
Ōpunake	Waiaua	1,527	2,200	100%	27.8	25.5	99.9%
Pātea	Bore 1	10.6	345.6	100%	3.5	4	100%
	Bore 4	747	786.2	100%	11.4	9.1	99.9%
	Bore 5	171.5	432	100%	5.1*	5	100%
	Bore 6	451.2	475.2	100%	6.1	5.5	99.9%
	Combined	1,128*	1,125	100%	N/A	N/A	N/A
Rahotu	Pungaereere	167	180	100%	2.1	3	100%
Waiinu	Waiinu bore	137	346	100%	1.6	4	100%
Waimate West	Mangawhero	0	N/A	N/A	0	70	100%
	Mangawhero-iti	10,255	10,454.4	100%	120.1	121	100%
	Otakeho	6,953	7,344	100%	81.7	85	100%
	Rowan Rd bore	384	432	100%	4.5	N/A	N/A
Waverley	Chester St bore	223.3	400	100%	3.8	7	100%
	Fookes St bore	318.3	500	100%	5.3	7.2	100%
	Swinbourne St bore	767.4	890	100%	9.7	10.3	100%
	Combined take	767	900	100%	11.8	14.2	100%
Waverley Beach	Permitted take bore	33.6	50	100%	0.5	1.5	100%
	Bore 2	N/E	80	-	N/E	1.5	-

N/E= consent not exercised N/A= no limit set in consent

*within +/- 5% error allowed with the meter.

The Council also assesses the discharge volumes from Eltham, Hāwera, Ōpunake and Waimate West WTPs to ensure compliance with consent conditions. In the period under review, the Eltham WTP did not exercise its consent to discharge up to 5,000m^3 per year of reservoir contents to land. The Hāwera WTP which discharges backwash water under Consent 7446-1 does not have a maximum discharge rate or volume but STDC still record and monitor the discharge volumes. The average daily discharge for 2023/24 was 363m^3/day, while the maximum daily volume discharged was 2,580m^3/day recorded in July 2023. Review of the monitoring data for the Ōpunake and Waimate West WTPs indicated non-compliances with the daily

discharge volumes on a number of occasions throughout the monitoring period (Table 10). The discharges that STDC supply, are not the actual recorded discharges, instead they are the difference between the meter that records the raw water abstracted from the stream and the meter recording the treated water that is used as the water supply. The difference between these two meters, the unused water, is the discharge. Some of these breaches are related to the cleaning of the settling ponds, which the consents allow for. However, the majority of the Ōpunake WTP non-compliances are due to the headwaters of the Waiaua River having suffered erosion that has caused the river to run with a high sand sediment load. This means that STDC abstract more water than normally required, with much of the water discharged back out during the treatment process, resulting in higher than consented discharges to the river. The effects of the discharge are unlikely to be any more than minor as the discharges occurred in relation to taking water when the Waiaua River was in high flow conditions. Therefore, it was unlikely that there would be any noticeable change in the river in either volume or water quality, as the volume of water discharged is small compared to the flow in the river. Following discussions held in late 2022, STDC expects resolution with these discharge variances via project works that are to be completed in 2026. Council has asked that STDC advise them of any non-compliances in a prompt manner.

Table 10 Summary of discharge data compliance

Water Treatment Plant	Consent number	Maximum volume (m^3/day)	Consented volume (m^3/day)	Number of days non-compliant (2022/23)	Compliance rate (%)
Eltham	1811-4	N/A	5,000m^3/year	-	-
Hāwera	7446-1	2,580	N/A	-	-
Ōpunake	5574-2	204.6	120	94 (139)	67%
Waimate West	0129-3	2,086	750	8 (23)	97%

It should be noted that there has been significant improvement in the number of non-compliances, with Ōpunake being compliant 67% of the time in 2023/24 versus 62% of the time in 2022/23 and 42% of the time in 2021/22. Waimate West improved to 97% in 2023/24 from 94% in 2022/23 and 90% in 2021/22.

In regard to the Waimate West discharge, STDC have made some changes to the way the plant is run, and this is expected to result in less discharge breaches. This consent is currently under renewal and appropriate consent limits will be set at that time, but in the meantime, STDC have been advised that they are required to be compliant with their consent conditions.

2.1.5 Hydrological monitoring

Stream flow gauging's were completed by Council on behalf of STDC as part of their compliance monitoring requirements. Table 11 shows the stream measurements that were completed and which scheme it relates to and whether the flow was above the consented limit of when STDC need to implement conservation measures.

Table 11 Summary of flow gaugings conducted

Date	Water Treatment Plant	Stream	Flow (L/s)	Compliant (Y/N)
11-Oct-2023	Inaha	Waingongoro	272	N/A
24-Oct-2023	Hāwera	Kapuni	936	N/A
27-Nov-2023	Eltham	Waingongoro	721	Yes
01-Dec-2023	Hāwera	Kapuni	904	N/A
13-Dec-2023	Inaha	Waingongoro	222	N/A
14-Dec-2023	Rahotu	Pungaereere	151	N/A
15-Dec-2023	Hāwera	Kapuni	646	N/A

Date	Water Treatment Plant	Stream	Flow (L/s)	Compliant (Y/N)
05-Jan-2024	Waimate West	Mangawhero-iti	190	Yes
10-Jan-2024	Inaha	Waingongoro	285	N/A
11-Jan-2024	Hāwera	Kapuni	542	N/A
01-Feb-2024	Waimate West	Otakeho	220	N/A
08-Feb-2024	Rahotu	Pungaereere	150	N/A
14-Feb-2024	Inaha	Waingongoro	133	N/A
15-Feb-2024	Eltham	Waingongoro	200	Yes – Conservation measures in place
15-Feb-2024	Rahotu	Pungaereere	80	N/A
19-Feb-2024	Waimate West	Otakeho	206	N/A
28-Feb-2024	Waimate West	Mangawhero-iti	142	Yes
29-Feb-2024	Hāwera	Kapuni	348	N/A
29-Feb-2024	Waimate West	Otakeho	194	N/A
13-Mar-2024	Inaha	Waingongoro	148	N/A
14-Mar-2024	Rahotu	Pungaereere	177	N/A
27-Mar-2024	Eltham	Waingongoro	151	Yes – conservation measures in place
10-Apr-2024	Inaha	Waingongoro	137	N/A
11-Apr-2024	Rahotu	Pungaereere	59	N/A
17-Apr-2024	Waimate West	Mangawhero-iti	241	Yes
01-May-2024	Hāwera	Kapuni	614	N/A
29-May-2024	Hāwera	Kapuni	1,437	N/A
14-Jun-2024	Hāwera	Kapuni	2,333	N/A

N/A – not applicable, as there is no minimum flow requirement in the consent

The 2023/24 summer was drier than normal, with flows in the Waingongoro River falling below 387L/s, meaning that water conservation measures were required to be put into place. This required STDC to advise the community that the odds and evens system for using hand-held hoses was in place and encouraging users to conserve water.

STDC are also required to record water level for a number of their schemes, so that when sufficient flow gauging's have been undertaken, a rating can be established to allow for real time flow monitoring. STDC also record groundwater level data as part of their consent conditions. Results of the current water level and flow monitoring are summarised in Table 12.

Table 12 Groundwater level and stream flow compliance summary

Water Treatment Plant	Source	Type of data	Residual flow/level limit on consent?	Compliant with limits (Y/N)
Eltham	Waingongoro River	Stream Flow	387L/s	Yes - conservation measures were put in place
Hāwera	Kapuni Stream	Stream Flow	No	N/A
Pātea	Bore 1 – GND0073	Groundwater level	No	N/A
	Bore 4 – GND2197	Groundwater level	No	N/A
	Bore 5 – GND2361	Groundwater level	No	N/A
	Bore 6 – GND3104	Groundwater level	No	N/A
Waimate West	Mangawhero-iti Stream	Stream Flow	32L/s	Yes

Water Treatment Plant	Source	Type of data	Residual flow/level limit on consent?	Compliant with limits (Y/N)
Waverley	Chester St bore	Groundwater level	No	N/A
	Fookes St bore	Groundwater level	No	N/A
	Swinbourne St bore	Groundwater level	No	N/A

A joint water level since between Council and STDC was installed in November 2023 in the Kapuni Stream, upstream of the intake for the Hāwera WTP. This will enable Council and STDC to better monitor the flow in the Kapuni Stream. Once there has been sufficient flow gauging's completed for the Ōpunake and Rahotu WTPs, a rating will be established, and flow monitoring will occur.

2.1.6 Leak detection and water conservation

Nine of the fifteen water take consents require STDC to complete a report detailing:

a. the work done to detect and minimise leaks;
b. water use efficiency and conservation measures undertaken and planned; and
c. water use benchmarking data for the region and how the area supplied by the consent compares.

This report is to be provided to Council on a yearly basis and is to cover the 1 July to 30 June period.

2.1.6.1 Leak detection and repairs

STDC complete leak detection works across all ten schemes that they operate. Table 13 is a summary of the reactive repairs for the ten schemes.

Table 13 Summary of leak detection and repairs

Water Treatment Plant	Source	Consent	Leak Repairs	
			Major *(previous year)*	Minor *(previous year)*
Eltham	Waingongoro River	0213-3	14 (17)	49 (34)
Inaha	Mangatoki Stream Waingongoro River	1185-3.1 1186-3	13 (9)	28 (13)
Hāwera	Kapuni Stream Groundwater Bore	0146-2 7002-1	52 (43)	191 (118)
Ōpunake	Waiaua Stream	0232-4	17 (7)	94 (55)
Pātea	4x Groundwater Bores	3388-3	3 (1)	14 (7)
Rāhotu	Pungaereere Stream	3696-3	2 (0)	8 (0)
Waiinu	Groundwater Bore	3770-3	0 (0)	0 (0)
Waimate West	Mangawhero-iti Stream Mangawhero Stream Otakeho Stream Groundwater Bore	0634-3 0635-3 3911-2 10370-1	23 (28)	118 (82)
Waverley	3x Groundwater Bores	3313-3	2 (0)	19 (0)
Waverley Beach	Groundwater Bore	9563-1	0 (1)	0 (0)

These repairs are reactive repairs that STDC are notified of by the public. STDC undertakes maintenance and long term project works for each of the schemes. These works include:

- repairs and/or replacements to water mains;
- installation of pressure reducing valves;
- installed backflow preventers on high hazard connections;
- pressure zoning programme completed, pressure control station installed and decommission of an old oversized main;
- renovation of reservoirs (Inaha);
- new reservoir completed (Waimate West);
- new filters' design underway for the water treatment plants;
- replacement of pipebridges

These projects and maintenance are all ways that STDC implement improvements in their water treatment process.

2.1.6.2 Water use efficiency and conservation measures

STDC have undertaken the following methods to address efficiency and conservation needs:

- water metering;
- network management;
- benchmark water loss surveys;
- water restrictions during low summer flows; and
- customer notices and advice.

Table 14 shows the water efficiency measures STDC undertook across their water take schemes during the period under review.

Table 14 Water efficiency measures

Water Treatment Plant	Water Efficiencies/Conservation Measures
Eltham	Valve replacement
Inaha Waimate West	Introduced Levno reporting equipment to replace current remote monitoring for property owners and Council
Hāwera	Ohawe beach main renewal and PRV completed Review of farm water high usage
Hāwera Rāhotu	Leakage step testing undertaken in an attempt to identify losses
Ōpunake	Acoustic and thermal leak detection carried out
Ōpunake Pātea	Installed backflow preventers on high hazard connections
Pātea	Pressure zoning programme completed and pressure control station installed
Rāhotu Waverley Beach	Meters on all connections to assist with private water loss identification

Network management included monitoring minimum night flows, reservoir levels and daily demand reports from their data capture network.

Bench loss is a recognised tool used nationally by which each district council must calculate and report on the efficiency of its water reticulation network. The standard measures the loss/wastage within the system

and is expressed as a percentage of water loss verses the water produced. Losses may include leaks and bursts on mains, service reservoirs and service connections as well as losses through metering inaccuracies or water theft. This method is a Department of Internal Affairs mandatory performance measure. Across the schemes there was less than 10% losses at the Pātea, and Waverley Beach schemes and less than 20% losses at Hāwera, Inaha, Ōpunake, Waiinu and Waimate West schemes. There was greater than 20% losses at the Eltham, Rahotu and Waverley schemes, with some of those losses related to the reactive leak repairs and leaks found during the leak detection programmes. Overall STDC achieved less than 20% losses, across the schemes, for the monitoring period.

District water restrictions, using the odds and evens system, were required due to the drier than normal summer. STDC encourages water conservation by advisory notices at the Hāwera Cinema, on radio, in newspapers and farming magazines and on their website. They also have it sign written on STDC vehicles.

2.2 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with STDC. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in resource consents or provisions in Regional Plans.

3. Discussion

3.1 Discussion of site performance

STDC has continued to be proactive by having all abstraction data for all consents telemetered to the Council's database regardless of whether consent conditions require it or not. During the monitoring period 99.9% compliance was attained in regard to abstraction.

STDC is required to provide council with self-monitoring discharge data. Self-monitoring data for the monthly discharge samples were compliant with consent conditions for levels of free available chlorine, pH, and suspended solids throughout the monitoring year.

Discharge rates at Ōpunake complied with consent conditions 67% of the time. This was due to high sediment loads in the Waiaua River that meant that more water was required than normal. As much of the water was discharged back out during the treatment process, this resulted in higher than consented discharges to the river. The effects of the discharge were unlikely to be any more than minor as the higher discharges occurred in relation to taking water when the Waiaua River was in high flow conditions. Therefore, it was unlikely that there was any noticeable change in the river in either volume or water quality, as the volume of water discharged is small compared to the flow in the river. Ongoing discussions are occurring between Council and STDC about how best to resolve this. STDC has been advised to apply for a consent to increase the discharge volume allowed for the Ōpunake WTP and also to advise the Council of any non-compliances in a prompt manner.

Discharge rates at Waimate West complied with the volume limit 97% of the time. Condition 4 of Consent 0129-3 allows for two instances annually where the discharge rate can be exceeded during clarifier drain down so compliance was approximately at 99% when this was considered. This consent expired in June 2023 and is currently awaiting renewal. It is likely that there will be changes to the conditions of this consent. STDC have been advised that they are required to be compliant with their consent conditions and ongoing discussions are occurring.

Reports required by consents 0146-2, 0213-4, 0232-4, 0634-3, 1185-3, 1186-3, 3388-3.2, 3696-3 and 3911-3 on efficient water use, leak detection and repair were submitted to the Council. A number of leaks were repaired at WTPs around the district during 2023/24. STDC also carried out several other projects and maintenance activities, along with the implementation of various measures to increase the efficient use of water at the WTP sites.

3.2 Environmental effects of exercise of consents

STDC undertakes filter backwash discharge sampling on a regular basis, the results of which all complied with consent limits. Council also undertook sampling at the Eltham, Hāwera, Inaha, Ōpunake, Rahotu and Waimate West WTPs. The results complied with consent conditions and the discharges were not likely to be causing any adverse environmental effects.

Macroinvertebrate surveys found no evidence of adverse effects in regard to abstraction from or discharges to the Kapuni (Hāwera WTP), Mangatoki (Inaha WTP), or Mangawhero-iti (Waimate West WTP) streams.

Fish surveys were undertaken in relation to the Inaha WTP (Mangatoki Stream), the Hāwera WTP (Kapuni Stream) and the Waimate West WTP (Mangawhero-iti Stream). All survey results indicated that STDC is compliant with their consent conditions in regard to fish passage.

It was recommended that the use of eDNA as a tool for determining presence and absence of fish in the communities above and below the weirs is considered. This will allow the comparison between fish survey results and eDNA results to determine any discrepancies or limitations with current survey methods.

Other recommendations included inspecting the upstream weir (site MTK000048) to ensure the integrity of the structure and to ensure it has not deviated from its intended function (Mangatoki Stream - Inaha WTP). Undertake low flow and high flow inspections to establish the potential flow conditions at the weir that could positively or negatively affect fish passage (Otakeho Stream – Waimate West WTP and Kapuni Stream – Hāwera WTP).

There were a number of additional recommendations for the Otakeho Stream (Waimate West WTP) fish pass, which were:

- Maintain and replace any rocks missing within the fish pass and add extra rock where there are clear velocity barriers or gaps in rest areas;
- Regrade/reshape the toe of the ramp to ensure it maintains the designed gradient and functionality;
- Install flow deflectors at/or near the toe to redirect and spread the flow;
- Ensure the ramp is the main attractant flow and/or undertake rock works to deter fish from accessing or gathering at other parts of the structure where passage is less feasible;
- Undertake rock works to prevent a scour pool from forming at the base of the weir. Scour pools are often high predation zones where larger fish sit and predate on fish that have failed to navigate fish passes in their initial attempts.

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 15-45.

3.3.1 Eltham WTP

Table 15 Summary of performance for Consent 0213-4

Purpose: To take and use water from the Waingongoro River for municipal water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limits on abstraction volume and rate	Review of data	100%
2. Water measuring equipment to be installed and maintained	Inspection	Yes
3. Water meter certification	Verification certificate	Verified August 2019
4. Advise Council of equipment failure	Liaison with consent holder	N/A
5. Water meter to be accessible to Council	Inspection	Yes
6. Water records to be in a suitable format and transmitted to Council	Records received	Yes
7. Rating curve to be established in Waingongoro River	Rating curve has been established	Yes
8. Water restrictions to be implemented when flow is less than MALF for seven or more consecutive days	Water restrictions introduced	Yes
9. Report to be provided every three years detailing the effectiveness of the water restrictions	Due September 2025	N/A
10. Adoption of best practicable option	Inspections, liaison with consent holder, data review	Yes
11. Provide annual leak report	Provided	Yes

Purpose: To take and use water from the Waingongoro River for municipal water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
12. Review of hydrological records to update estimate of MALF. Due by June 2024, and thee yearly thereafter	Completed by TRC staff	Yes
13. Seven annual payments of $7,000 for the purpose of environment enhancement	First payment received September 2021	Yes
14. Screening of intake to avoid fish entrapment	Installed March 2022	Yes
15. Optional review	Next optional review – June 2027	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 16 Summary of performance for Consent 0989-3

Purpose: To discharge reservoir contents from the Eltham Water Supply Reservoir onto land adjacent to the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	No discharge during period under review	N/A
2. Notification of discharge two days prior	No discharge during period under review	N/A
3. Volume of discharge not to exceed 5,000m^3 once per year	No discharge during period under review	N/A
4. Discharge only when flows in Waingongoro > 1,050L/s	No discharge during period under review	N/A
5. Discharge across land, no direct discharge to water	No discharge during period under review	N/A
6. Consent holder to reduce volume of sediment and silt in the discharge	No discharge during period under review	N/A
7. Suspended solids in discharge not to exceed 100g/m^3	No discharge during period under review	N/A
8. Discharge not to have effects on receiving water	No discharge during period under review	N/A
9. Optional review	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 17 Summary of performance for Consent 1811-4

Purpose: To discharge filter backwash from the Eltham WTP via a settling pond into an unnamed tributary of the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Limits on chlorine, pH and suspended solids in the discharge	Review of water sample results	Yes
3. Discharge not to cause certain effects in the receiving water below the established mixing zone	Inspection	Yes
4. Optional review	Next optional review – June 2029	N/A

Purpose: To discharge filter backwash from the Eltham WTP via a settling pond into an unnamed tributary of the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.2 Hāwera WTP

Table 18 Summary of performance for Consent 0146-2

Purpose: To take and use water from the Kapuni Stream for municipal water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limits on abstraction volume and rate	Review of data	100%
2. Water measuring equipment to be installed and maintained	Last verified May 2019	Yes
3. Consent to be exercised in accordance with application documentation. Report on efficiency measures every two years	Report received	Yes
4. Reporting of events when abstraction is greater than 124.5L/s	Review of data	N/A
5. Mitigation by riparian planting	Total amount has been paid	N/A
6. Preparation and maintenance of management plan for the Kapuni Stream in conjunction with other users (within 3 months of granting)	Liaison with consent holder – plan prepared in 2003. Updated in 2006, 2010 and 2013	Yes
7. Annual leak detection and repair report	Report received	Yes
8. Location of point of abstraction	Inspection	Yes
9. Optional review	Next optional review – June 2027	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 19 Summary of performance for Consent 7002-1

Purpose: To take and use groundwater from up to three water bores at the Kapuni reservoir site for municipal, rural, industrial and recreational supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and review of data	Yes
2. Notify Council in writing at least seven days prior to exercise of consent	Notification received	Yes
3. Provide Council with results of pump testing prior to exercise of consent	Received	Yes
4. Not to exceed set abstraction rate and volume limits	Review of data	100%
5. Abstraction not to cause more than 10% drop in static water level by interference	Not assessed	N/A
6. Maintain and record abstraction data	Review of data	Yes

Purpose: To take and use groundwater from up to three water bores at the Kapuni reservoir site for municipal, rural, industrial and recreational supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
7. Installation of piezometers and monitoring groundwater levels	Review of data	Yes
8. Install and maintain measuring device	Inspection	Yes
9. Consent holder to meet monitoring costs	Liaison with consent holder	Yes
10. Lapse provision	Not applicable – consent exercised	N/A
11. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 20 Summary of performance for Consent 7413-1

Purpose: To erect, use and maintain a water intake structure on the bed of the Kapuni Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Disturbance of riverbed between 1 November and 30 April only	No maintenance during the monitoring period	N/A
3. Notification prior to works and maintenance	No maintenance during the monitoring period	N/A
4. Area and volume of disturbance minimised	No maintenance during the monitoring period	N/A
5. Minimise sediment entering stream	No maintenance during the monitoring period	N/A
6. Structure removed and area reinstated when no longer required	Structure in use	N/A
7. Consent holder to monitor and maintain fish pass	Visual assessment	Yes
8. Procedure if archaeological remains discovered during construction	None found	N/A
9. Lapse provision	Not applicable – consent exercised	N/A
10. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 21 Summary of performance for Consent 7446-1

Purpose: To discharge membrane backwash water and cleaning wastewater into the Kapuni Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. No adverse effects on receiving waters	Visual assessment, sampling, biomonitoring	Yes
3. Allowable increase in turbidity below mixing zone	Sampling	Yes
4. Limits on chlorine, pH and suspended solids in the discharge	Review of water sample results	Yes
5. Lapse provision	Not applicable – consent exercised	N/A

Purpose: To discharge membrane backwash water and cleaning wastewater into the Kapuni Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
6. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 22 Summary of performance for Consent 7447-1

Purpose: To install, use and maintain an outfall structure on the bank of the Kapuni Stream for the Kapuni Water Treatment Plant		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Disturbance of riverbed between 1 November and 30 April only	No maintenance during the monitoring period	N/A
3. Notification prior to works and maintenance	No maintenance during the monitoring period	N/A
4. Area and volume of disturbance minimised	No maintenance during the monitoring period	N/A
5. Minimise sediment entering stream	No maintenance during the monitoring period	N/A
6. Structure removed and area reinstated when no longer required	Structure in use	N/A
7. Procedure if archaeological remains discovered during construction	None found	N/A
8. Lapse provision	Not applicable – consent exercised	N/A
9. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.3 Inaha WTP

Table 23 Summary of performance for Consent 1185-3

Purpose: To take and use water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Combined take not to exceed 29L/s or 2,504m^3/day	Review of data	99.9%
3. Gravity take preferential	Inspection and liaison with consent holder	Yes
4. Install and maintain water meter and data logger	Inspection and liaison with consent holder	Yes
5. Water meter certification	Verification certificate	Verified September 2019
6. Notification of equipment failure	Liaison with consent holder	N/A
7. Intake structure maintained and removed if no longer required	Visual assessment	Yes
8. Water meter and data logger accessible to Council staff	Inspection	Yes
9. Data in a suitable format	Review of data	Yes

Purpose: To take and use water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
10. Water records to be transmitted in 'real time' to Council	Data received	Yes
11. Maintain intake structure and remove once no longer required	Visual assessment	Yes
12. Intake structure to be screened	Visual assessment	Yes
13. Intake structure maintained to allow for fish passage	Visual assessment and fish survey	Yes
14. Leak detection and repair programme with annual report	Report received	Yes
15. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**Good**

N/A = not applicable

Table 24 Summary of performance for Consent 1186-3

Purpose: To take and use water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Exercise of consent in accordance with application	Inspection and liaison with consent holder	Yes
3. Maximum abstraction 2,592m^3/day at 30L/s	Review of data	99.%
4. Measure and record abstraction rate and provide to Council	Data received	Yes
5. Maintain intake structure and remove once no longer required	Inspection and liaison with consent holder	Yes
6. Intake screened to avoid fish entrainment	Visual assessment	Yes
7. Intake structure maintained to allow for fish passage	Visual assessment	Yes
8. Leak detection and repair programme with annual report	Report received	Yes
9. Lapse provision	Not applicable – consent exercised	N/A
10. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 25 Summary of performance for Consent 3927-3

Purpose: To discharge backwash wastewater from the Inaha Rural Water Supply Treatment Plant into an unnamed tributary of the Mangatoki Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Limits on chlorine, pH and suspended solids in the discharge	Review of water sample results	Yes

Purpose: To discharge backwash wastewater from the Inaha Rural Water Supply Treatment Plant into an unnamed tributary of the Mangatoki Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Discharge not to cause certain effects in the receiving water	Inspection	Yes
4. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 26 Summary of performance for Consent 3928-3

Purpose: To discharge uncontaminated overflow water from the Inaha Rural Water Supply Treatment Plant via a settlement pond into an unnamed tributary of the Mangatoki Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Discharge not to cause certain effects in the receiving water	Inspection	Yes
3. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 27 Summary of performance for Consent 4102-2

Purpose: To maintain an existing low-level weir and fish pass across the Mangatoki Stream in the Waingongoro catchment		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection	Yes
2. Exercise of consent in accordance with application	Inspection	Yes
3. Notification to Council prior to exercise of consent	No maintenance during period under review	N/A
4. Notification to Council prior to major maintenance works	No maintenance during period under review	N/A
5. Adoption of best practicable option during maintenance works	No maintenance during period under review	N/A
6. Riverbed disturbance to be minimised during maintenance	No maintenance during period under review	N/A
7. No maintenance works between 1 May to 31 October	No maintenance during period under review	N/A
8. Structure to be maintained as per consent conditions	Inspection	Yes
9. Structure maintained to allow for fish passage	Inspection and fish survey	Yes
10. Structure to be removed and area reinstated when no longer required	Structure in use	N/A
11. Lapse provision	Not applicable – consent exercised	N/A
12. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 28 Summary of performance for Consent 5365-2

Purpose: To dam water and use a low level intake weir in the Mangatoki Stream for Inaha rural water supply scheme purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Structure remains sound and fit for purpose	Inspection	Yes
2. Repair and control of erosion of riverbed or banks caused by weir	Inspection	Yes
3. Structure maintained to allow for fish passage	Inspection	Yes
4. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.4 Ōpunake WTP

Table 29 Summary of performance for Consent 0232-4

Purpose: To take and use water from the Waiaua River for Ōpunake town water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Rate of take not to exceed 2,200m^3/day or 25.5L/s	Review of data	99.9%
2. Take water through 'new' intake except during maintenance works	Inspection and liaison with consent holder	Yes
3. Rate of take through 'old' intake up to 3,650m^3/day or 42.2L/s	Not exercised. Old intake sealed	N/A
4. Notify Council if take occurs through old intake	Not exercised. Old intake sealed	N/A
5. Installation and maintenance of water meter and data logger	Inspection	Yes
6. Water meter certification	Verification certificate	Verified July 2019
7. Notify Council of equipment failure	Liaison with consent holder	N/A
8. Water meter and data logger accessible to Council staff	Inspection	Yes
9. Suitable format of records	Review of data	Yes
10. Data to be transmitted to Council in real time from 1 December 2013	Data received	Yes
11. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
12. Annual report on leak detection and water use efficiency	Report received	Yes
13. Lapse provision	Not applicable – consent exercised	N/A
14. Optional review	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 30 Summary of performance for Consent 5574-2

Purpose: To discharge water treatment residual and pond drainage water from the Ōpunake WTP into the Waiaua River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Discharge not to exceed 120m³/day	Review of data	67% -compliance throughout the monitoring period
3. Not to give rise to effects in receiving waters	Inspection	Yes
4. Limits on chlorine, pH and suspended solids in the discharge	Review of water sample results	Yes
5. Lapse provision	Not applicable – consent exercised	N/A
6. Optional review	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Improvement required**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 31 Summary of performance for Consent 9473-1

Purpose: To construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Intake structure specifications	Inspection during construction	Yes
2. Notification prior to works	No maintenance during period under review	N/A
3. Minimise riverbed disturbance	No maintenance during period under review	N/A
4. Minimise sediment discharge to river	No maintenance during period under review	N/A
5. Ensure screen does not entrap fauna	Inspection	Yes
6. Structure maintained to allow for fish passage	Inspection	Yes
7. Financial payment	Payments received previously	Yes
8. Procedures for archaeological finds	None found	N/A
9. Remove structure when no longer required	Structure used	N/A
10. Lapse provision	Not applicable – consent exercised	N/A
11. Optional review	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.5 Pātea WTP

Table 32 Summary of performance for Consent 3388-3.2

Purpose: To take and use groundwater from four bores (known at Bore 1, Bore 4 , Bore 5 and 6) for Pātea Township water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Total daily volume not to exceed 1,125m³	Review of data	100%
2. Each bore (1,4,5 and 6) to not exceed certain abstraction rates	Review of data	99.9%

Purpose: To take and use groundwater from four bores (known at Bore 1, Bore 4 , Bore 5 and 6) for Pātea Township water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Rate of take for bores 4 and 6 may be higher than 'routine' abstraction between December and March, for no more than 7 days, under certain circumstances	Review of data	Yes
4. Water quality sample to be collected in February each year	Review of water sample results	N/A
5. Bore 1, 5 and 6 not to operate simultaneously	Review of data	Yes
6. Water meter and datalogger installed	Inspection	Yes
7. Water meter certification	Verification certificate	Verified May 2019 (bore 1 and 5), January 2020 (bore 4) and October 2023 (bore 6)
8. Inform Council of any equipment malfunction	Liaison with consent holder	N/A
9. Water meter and datalogger accessible to Council staff	Inspection	Yes
10. Installation of water level equipment	Inspection	Yes
11. Recording of groundwater level	Review of data	Yes
12. Water meters and groundwater level loggers assessable to Council staff	Inspection	Yes
13. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
14. Annual report on leak detection and water use efficiency	Report received	Yes
15. Not to cause saltwater intrusion	Review of water sample results	Yes
16. Review provision	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.6 Rahotu WTP

Table 33 Summary of performance for Consent 3696-3

Purpose: To take and use water from the Pungaereere Stream for the Rahotu community water supply scheme		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limit on abstraction volume and rate	Review of data	100%
2. Installation and maintenance of water meter and datalogger	Inspection	Yes
3. Water meter certification	Verification certificate	Verified August 2019
4. Notify Council of equipment failure	Liaison with consent holder	N/A
5. Water meter and datalogger accessible to Council staff	Inspection	Yes
6. Suitable format of records	Review of data	Yes
7. Data to be transmitted to Council in real time from 1 February 2014	Data received	Yes
8. Adoption of best practicable option	Inspection and liaison with consent holder	Yes

Purpose: To take and use water from the Pungaereere Stream for the Rahotu community water supply scheme		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
9. Annual report on leak detection and water use efficiency	Report received	Yes
10. Lapse provision	Not applicable – consent exercised	N/A
11. Optional review	Next optional review – June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 34 Summary of performance for Consent 6038-2

Purpose: To discharge water treatment residual and pond drainage water from the Ōpunake WTP into the Waiaua River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Limits on chlorine, pH and suspended solids in the discharge	Review of water sample results	Yes
3. Not to give rise to effects in receiving waters	Inspection	Yes
4. Results of discharge self-monitoring to be provided on request	Results received	Yes
5. Optional review	Next optional review – June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.7 Waiinu Beach water supply

Table 35 Summary of performance for Consent 3770-3

Purpose: To take and use groundwater for Waiinu Beach water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limit on abstraction volume and rate	Review of data	100%
2. Installation and maintenance of water meter and datalogger	Inspection	Yes
3. Water meter certification	Verification certificate	Verified June 2019
4. Notify Council of equipment failure	Liaison with consent holder	N/A
5. Water meter and datalogger accessible to Council staff	Inspection	Yes
6. Water records to be provided by 31 July each year	Data received	Yes
7. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
8. Lapse provision	Not applicable – consent exercised	N/A
9. Optional review	No further option to review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.8 Waimate West WTP

Table 36 Summary of performance for Consent 0129-3

Purpose: To discharge treated washwater from the Waimate water supply scheme into an unnamed tributary of Kelly's Creek		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Period of 40 days allowed in 2015 to discharge water and contaminants from testing bores	N/A	N/A
3. Exercise of consent in accordance with application	Inspection and liaison with consent holder	Yes
4. Maximum discharge rate 750m³/day	Review of data	99%
5. Installation and maintenance of erosion protection structure during commissioning of plant	N/A – commissioning discharges did not occur	N/A
6. Limits on chlorine, pH, iron, manganese, ammonia and suspended solids in the discharge	Review of water sample results	Yes
7. Efficient operation of settling ponds	Inspection and review of data	Yes
8. No effect on receiving water	Inspection and review of self-monitoring data	Yes
9. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 37 Summary of performance for Consent 0634-3

Purpose: To take water from the Mangawhero-iti Stream for the Waimate West water supply		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Maximum rate of abstraction 121L/s	Review of data	100%
2. Limit on abstraction unless water taken from Otakeho Stream is unable to achieve 85L/s	Review of data	Yes
3. Installation of water meter and datalogger and provide records of volumes abstracted	Inspections and review of data	Yes
4. Notification of installation of water meter and datalogger and certification	Verification certificate	Verified September 2019
5. Notification of equipment failure	Liaison with consent holder	N/A
6. Water meter and datalogger accessible to Council staff	Inspection	Yes
7. Records of water taken in a suitable format	Review of data	Yes
8. Flow in Mangawhero-iti Stream downstream of intake to be maintained above 32L/s	Review of flow data	Yes
9. Flow of the Mangawhero-iti Stream to be recorded when flows below 500L/s	Review of flow data	Yes
10. Measurements to be transmitted to Council in 'real-time'	Data received	Yes
11. Staff gauge to be installed	Installed by Council	Yes

Purpose: To take water from the Mangawhero-iti Stream for the Waimate West water supply		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
12. Sufficient stream flow measurements undertaken to maintain a 'rating curve'	Gaugings undertaken by Council	Yes
13. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
14. Annual report on leak detection due 1 September each year	Report received	Yes
15. Five annual payments of $30,600 due 2011 to 2015	All payments have been received	N/A
16. Review provision	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 38 Summary of performance for Consent 0635-3

Purpose: To take water from the Mangawhero Stream for the purpose of adding to the flow of the Mangawhero-iti Stream and providing water for the Waimate West water supply		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Maximum rate of take 70L/s	Review of data	100% - no taking occurred
2. Scope of use	Review of data	Yes
3. Installation of water meter and datalogger and provide records of volumes abstracted	Inspections and review of data	Yes
4. Notification of installation of water meter and datalogger and certification	Verification certificate	Verified September 2019
5. Notification of equipment failure	Liaison with consent holder	N/A
6. Water meter and datalogger accessible to Council staff	Inspection	Yes
7. Records of water taken in suitable format	Review of data	Yes
8. Measurements to be transmitted to Council in 'real-time'	Data received	Yes
9. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
10. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 39 Summary of performance for Consent 3911-3

Purpose: To take and use water from the Otakeho Stream for the Pope and Waimate West water supply schemes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Maximum rate of take 85L/s	Review of data	100%
2. Installation of water meter and datalogger and provide records of volumes abstracted	Inspections and review of data	Yes
3. Notification of installation of water meter and datalogger and certification	Verification certificate	Overdue – booked in with verifier

Purpose: To take and use water from the Otakeho Stream for the Pope and Waimate West water supply schemes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
4. Notification of equipment failure	Liaison with consent holder	N/A
5. Water meter and datalogger accessible to Council staff	Inspection	Yes
6. Records of water taken in suitable format	Review of data	Yes
7. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
8. Annual report on leak detection and water use efficiency	Report received	Yes
9. Annual payments (until 2022) for wetland enhancements and riparian planting	All payments have been received	Yes
10. Optional review	Consent expired – s124 protected	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 40 Summary of performance for Consent 4826-2

Purpose: To dam water and use a weir and water intake structure on the bed of the Otakeho Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Consent holder to maintain the weir in sound condition	Inspection	Yes
2. Repair and prevent erosion or scour of riverbed or banks	Inspection	Yes
3. Structure maintained to allow for fish passage	Inspection and triennial fish surveys	Yes
4. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 41 Summary of performance for Consent 5451-2

Purpose: To dam water and use a weir and water intake structure on the bed of the Mangawhero-iti Stream for water abstraction purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Consent holder to maintain the weir so it is fit for purpose	Inspection	Yes
2. Consent holder to repair any erosion or scour caused by weir	Inspection	Yes
3. Structure maintained to allow for fish passage	Inspection and triennial fish surveys	Yes
4. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 42 Summary of performance for Consent 5452-2

Purpose: To dam water and use a weir, a water intake structure and a swing bridge on/over the bed of the Mangawhero Stream for water abstraction		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Consent holder to maintain the weir so it is fit for purpose	Inspection	Yes
2. Consent holder to repair any erosion or scour caused by weir	Inspection	Yes
3. Structure maintained to allow for fish passage	Inspection and triennial fish surveys	Yes
4. Optional review	Next optional review – June 2029	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.9 Waverley water supply

Table 43 Summary of performance for Consent 3313-3

Purpose: To take and use groundwater from the Fookes, Chester and Swinbourne bores for Waverley municipal supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Combined take not to exceed 14.2L/s or 900m^3/day	Review of data	100&
2. Daily maximum volume and abstraction limits for each bore	Review of data	100%
3. Bores to have permanent labelling	Inspections	Yes
4. Water meter and datalogger installed and maintained on each bore	Inspections	Yes
5. Install and maintain level recording equipment on each bore	Inspections	Yes
6. Recording of abstraction and level data	Review of data	Yes
7. Notification of installation of water meter and datalogger and certification	Verification certificate	Verified June 2019
8. Notification of equipment failure	Liaison with consent holder	Yes
9. Adoption of best practicable option	Inspections and review of data	Yes
10. No intrusion of salt water	Water quality sampling	Yes
11. Access to well provided for water measurement purposes	Inspections	Yes
12. Review of consent	Consent expired	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

3.3.10 Waverley Beach water supply

Table 44 Summary of performance for Consent 9563-1

Purpose: To take and use groundwater for Waverley Beach water supply purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limit on abstraction rate	Consent not exercised, using another bore under permitted rule	N/A
2. No intrusion of salt water	Consent not exercised, using another bore under permitted rule	N/A
3. Bores to have permanent labelling	Inspection	Yes
4. Installation and maintenance of water meter and data logger	Inspection and data received	Yes
5. Notification of installation of water meter and datalogger and certification	Verification certificate	Verified May 2019
6. Installation of water level monitoring devices	Consent not exercised, using another bore under permitted rule	N/A
7. Water level certification	Consent not exercised, using another bore under permitted rule	N/A
8. Water meter and data logger accessible to Council staff	Inspection	Yes
9. Notify Council of equipment failure	Liaison with consent holder	Yes
10. Water records to be provided by 31 July each year	Records received	Yes
11. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
12. Lapse provision	Not applicable – consent exercised	N/A
13. Review of consent	No further option to review prior to expiry June 2028	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 45 Evaluation of environmental performance over time

Year	Consent numbers	High	Good	Improvement req	Poor
2019-2020	0213-4, 0989-3, 1811-4, 0146-2, 0933-3, 7002-1, 7413-1, 7446-1, 7447-1, 1185-3.1, 1186-3, 3927-3, 3928-3, 4102-2, 5365-2, 0232-4, 5574-2, 9473-1, 3388-3.1, 3696-3, 6038-2, 3770-3, 0129-3.2, 0634-3, 0635-3, 10370-1, 3911-3, 4446-2, 4826-3, 5421-2, 5452-2, 3313-3, 9563-1	x	x	x	x
2020-2021		x	x	x	x
2021-2022			x		
2022-2023			x		
2023-2024		x	x	x	x

During the monitoring period, STDC demonstrated an overall good level of environmental performance and a high level of administrative performance. Ratings are as defined in Appendix II.

3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities in relation to the STDC water supplies in the 2023/24 year continue at the same level as in 2022/23.
2. THAT eDNA analysis be undertaken as recommended in the attached Fish Survey Report during any future fish surveys.

3. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
4. THAT the option for a review of resource consents 0213-4, 0232-4, 5574-2, and 9473-1, not be exercised, on the grounds that the current conditions are adequate.

3.5 Alterations to monitoring programmes for 2024/25

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

No significant changes are planned for 2024/25 monitoring programme. In addition to the current fish survey monitoring schedule, it has been recommended that eDNA analysis be undertaken where available during any future fish surveys.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site(s) in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2024/25.

3.6 Exercise of optional review of consent

Resource Consents 3696-3 and 6038-2 provide for an optional review of the consent in June 2025. Conditions of the consents allow the Council to review the consent for the purpose of ensuring the conditions are adequate to deal with any adverse effects on the environment.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued or grounds to exercise the review option.

4. Recommendations

1. THAT in the first instance, monitoring of consented activities in relation to the STDC water supplies in the 2024/25 year continue at the same level as in 2023/24.
2. THAT eDNA analysis be undertaken as recommended in the attached Fish Survey Report during any future fish surveys.
3. THAT should there be issues with environmental or administrative performance in 2024/25, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
4. THAT the option for a review of Resource Consents 3696-3 and 6038-2, not be exercised, on the grounds that the current conditions are adequate.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Biomonitoring	Assessing the health of the environment using aquatic organisms.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in µS/cm.
Cumec	A volumetric measure of flow- 1 cubic metre per second (1 m^3s^{-1}).
E. coli	Escherichia coli, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
g/m^3	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident register	The incident register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
m^2	Square Metres.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
µS/cm	Microsiemens per centimetre.
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	*Resource Management Act 1991* and including all subsequent amendments.
SS	Suspended solids.

SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU or FNU.

For further information on analytical methods, please contact a manager within the Environment Quality Department.

Bibliography and references

Ministry for the Environment (2018): *Best Practice Guidelines for Compliance, Monitoring and Enforcement under the Resource Management Act 1991. Wellington: Ministry for the Environment.*

Taranaki Regional Council (2024): *Biomonitoring of the Kapuni Stream in relation to the Hāwera Water Treatment Plant, March 2023* Internal memorandum AN003.

Taranaki Regional Council (2024): *Biomonitoring of the Mangatoki Stream in relation to the STDC Inaha water supply scheme, February 2024.* Internal memorandum FK038.

Taranaki Regional Council (2024): *Biomonitoring of the Mangawhero-iti Stream in relation to the STDC Waimate West water supply scheme, April 2023* Internal memorandum AN002.

Taranaki Regional Council (2024): *Fish survey in the Mangatoki Stream, in relation to the STDC water intake weir, December 2023.* Internal memorandum TK002.

Taranaki Regional Council (2024): *Fish survey in the Otakeho Stream, in relation to the STDC water intake weir, January 2024.* Internal memorandum TK001.

Taranaki Regional Council (2024): *Fish survey in the Kapuni Stream, in relation to the STDC water intake weir, December 2023.* Internal memorandum TK003.

Taranaki Regional Council (2024): *South Taranaki Water Supplies Monitoring Programme Annual Report 2022-2023.* Technical Report 2023-26.

Taranaki Regional Council (2022): *South Taranaki Water Supplies Monitoring Programme Annual Report 2021-2022.* Technical Report 2022-34.

Taranaki Regional Council (2022): *South Taranaki Water Supplies Monitoring Programme Annual Report 2020-2021.* Technical Report 2021-12.

Taranaki Regional Council (2021): *South Taranaki Water Supplies Monitoring Programme Annual Report 2019-2020.* Technical Report 2020-101.

Taranaki Regional Council (2020): *South Taranaki Water Supplies Monitoring Programme Annual Report 2018-2019.* Technical Report 2019-72.

Taranaki Regional Council (2018): *South Taranaki Water Supplies Monitoring Programme Annual Report 2017-2018.* Technical Report 2018-52.

Taranaki Regional Council (2017): *South Taranaki Water Supplies Monitoring Programme Annual Report 2016-2017.* Technical Report 2017-16.

Taranaki Regional Council (2016): *South Taranaki Water Supplies Monitoring Programme Annual Report 2015-2016.* Technical Report 2016-103.

Taranaki Regional Council (2015): *South Taranaki Water Supplies Monitoring Programme Annual Report 2014-2015.* Technical Report 2015-69.

Taranaki Regional Council (2014): *South Taranaki Water Supplies Monitoring Programme Annual Report 2013-2014.* Technical Report 2014-121.

Taranaki Regional Council (2013): *South Taranaki Water Supplies Monitoring Programme Annual Report 2012-2013.* Technical Report 2013-65.

Taranaki Regional Council (2012): *South Taranaki Water Supplies Monitoring Programme Annual Report 2011-2012.* Technical Report 2012-78.

Taranaki Regional Council (2011): *South Taranaki Water Supplies Monitoring Programme Annual Report 2010-2011*. Technical Report 2011-42.

Taranaki Regional Council (2010): *South Taranaki Water Supplies Monitoring Programme Annual Report 2009-2010*. Technical Report 2010-53.

Taranaki Regional Council (2010): *South Taranaki Water Supplies Monitoring Programme Annual Report 2008-2009*. Technical Report 2009-84.

Taranaki Regional Council (2008): *South Taranaki District Water Supply Plants Monitoring Programme Biennial Report 2006-2008*. Technical Report 2008-85.

Taranaki Regional Council (2006): *South Taranaki District Water Supply Plants and Structures Monitoring Programme Annual Report 2005-2006*. Technical Report 2006-22.

Taranaki Regional Council (2005): *South Taranaki District Water Supply Plants and Structures Monitoring Programme Annual Report 2004-2005*. Technical Report 2005-54.

Taranaki Regional Council (2004): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 2003-2004*. Technical Report 2004-09.

Taranaki Regional Council (2003): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 2002-2003*. Technical Report 2003-69.

Taranaki Regional Council (2002): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 2001-2002*. Technical Report 2002-64.

Taranaki Regional Council (2001): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 2000-2001*. Technical Report 2001-65.

Taranaki Regional Council (2000): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 1999-2000*. Technical Report 2000-80.

Taranaki Regional Council (1999): *South Taranaki District Council Water Supply Plants and Structures Monitoring Programme Annual Report 1998-99*.Technical Report 99-51.

Taranaki Regional Council (1997): *Hāwera Water Treatment Plant Annual Report 1996-97*. Technical Report 97-43.

Taranaki Regional Council (1996): *Hāwera Water Treatment Plant Annual Report 1995-96*. Technical Report 96-40.

Taranaki Regional Council (1995): *Hāwera Water Treatment Plant Annual Report 1994-95*. Technical Report 95-24.

Taranaki Regional Council (1994): *Hāwera Water Treatment Plant Annual Report 1993-94*. Technical Report 94-47.

Taranaki Regional Council (1993): *Hāwera Water Treatment Plant Annual Report 1992-93*. Technical Report 93-19.

Taranaki Regional Council (1992): *Hāwera Water Treatment Plant Annual Report 1991-92*. Technical Report 92-24.

Appendix I

Resource consents held by South Taranaki District Council

(For a copy of the signed resource consent
please contact the TRC Consents department)

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Appendix II

Categories used to evaluate environmental and administrative performance

Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects however, abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples however, the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

Improvement required: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

Poor: Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

High: The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time however, this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

Improvement required: Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.